

State of the System: Arterials, Highways, and Freeways

Existing Conditions Report
October 2009

INTRODUCTION

The Solano Transportation Authority (STA), as the Congestion Management Agency (CMA) for Solano County, works with the County of Solano and the seven cities, the California Department of Transportation (Caltrans), the Metropolitan Transportation Commission (MTC), Federal Highway Administration (FHWA) and other agencies to coordinate planning, funding and construction of improvements to Solano County's major roadway systems.

In September 2007, the STA Board has initiated an update of the Solano Comprehensive Transportation Plan (CTP). The CTP is the STA's primary long-range planning document and consists of three main elements: Alternative Modes Element; Arterials, Highways and Freeways Element; and Transit Element.

On January 14, 2009, the STA Board approved a list of highway, freeway and roadway segments throughout the county that collectively formed a network of priority roadways called the Solano County Routes of Regional Significance. The Routes of Regional Significance are routes deemed critical for maintaining existing mobility between the County and through the cities. The STA's countywide transportation planning and funding activities are prioritized for roadway segments included in the Solano County Routes of Regional Significance. A map of the Solano County Routes of Regional Significance is included as Figure 1 on page 2. A complete list of roadway segments included in the Routes of Regional Significance is included as Appendix A of this report. In addition, Appendix A includes the criteria used by the STA to identify the roadway segments for inclusion in the Routes of Regional Significance.

The purpose of this report is to provide general information on the state of Solano County's roadway system included in the STA's Routes of Regional Significance. The report is divided into three sections: 1) Corridors, 2) State Routes and 3) Local Connector Routes, Streets and Roads. Each section provides general information from related studies and plans; however, some corridors, state routes, and local roads are incomplete and will need further analysis.

Existing Conditions by Corridor

Solano County has four Interstate corridors, seven state-highway routes, and numerous arterials providing intra- and inter-county connections. Interstate corridors are a network of freeways of national defense importance. These freeway routes were created by Congress and constructed with Federal-aid Interstate System Funds. In Solano County, these include Interstate 80, 505, 680, and 780.



Solano County Routes of Regional Significance (2009)

Legend

Roads

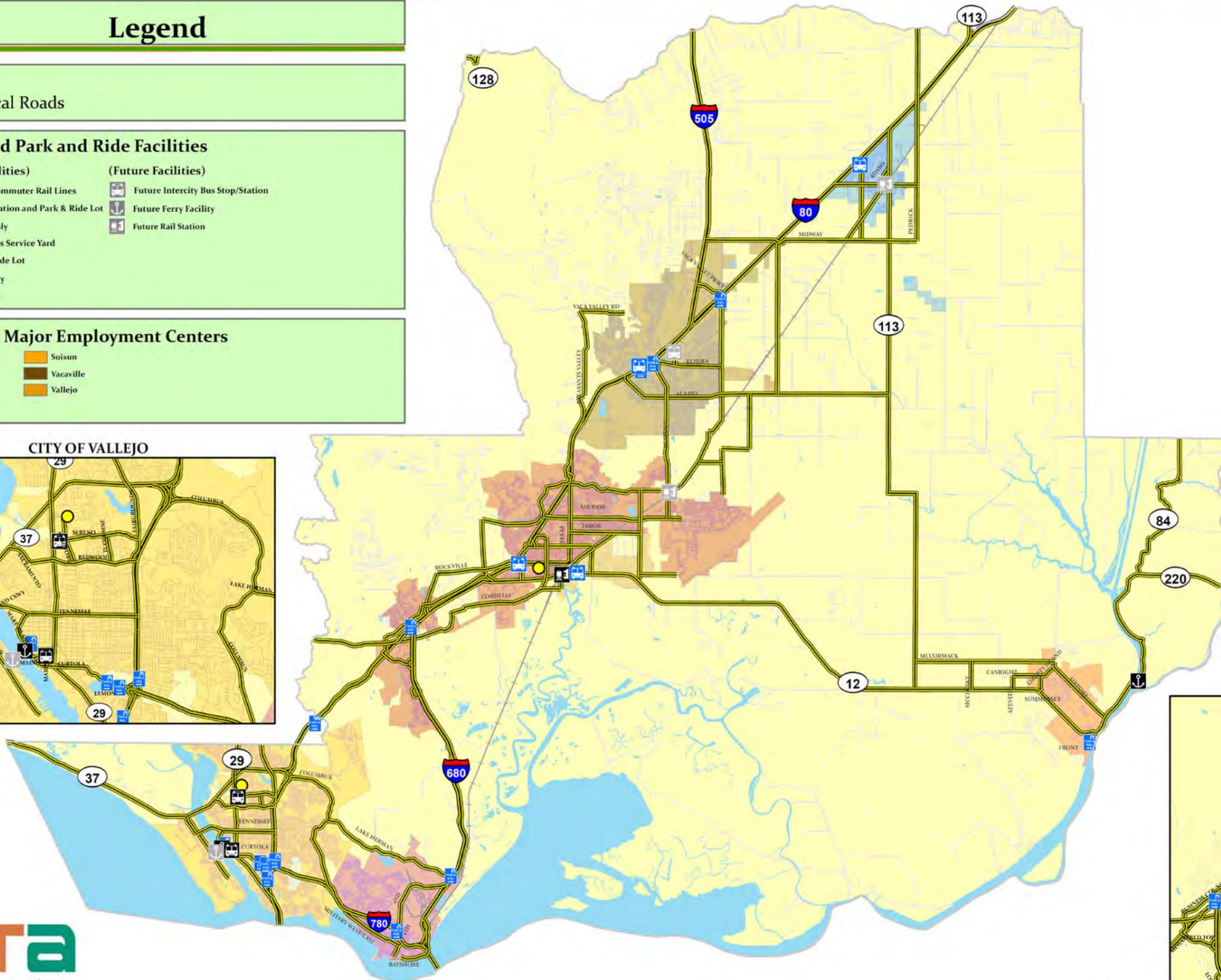
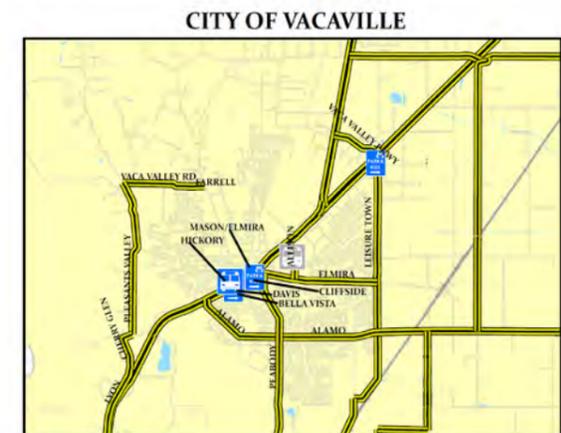
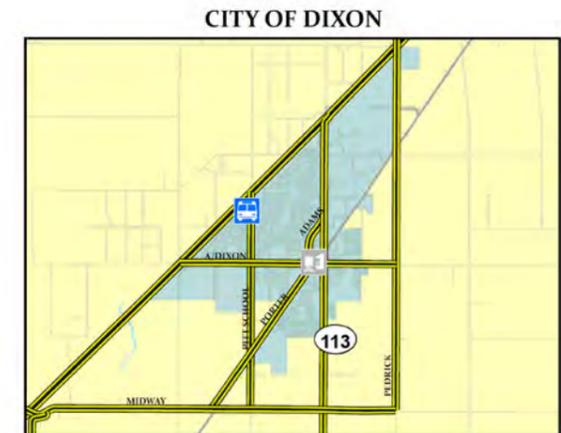
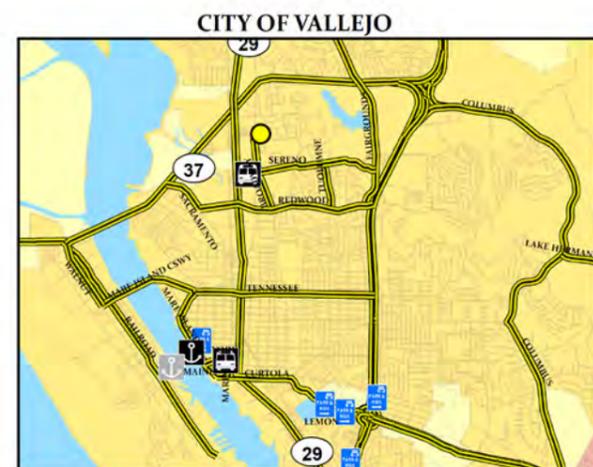
- Local Roads

Transit and Park and Ride Facilities

(Existing Facilities)	(Future Facilities)
Regional Commuter Rail Lines	Future Intercity Bus Stop/Station
Bus Stop/Station and Park & Ride Lot	Future Ferry Facility
Bus Stop Only	Future Rail Station
Intercity Bus Service Yard	
Park and Ride Lot	
Ferry Facility	
Rail Station	

Cities and Major Employment Centers

Benicia	Suisun
Dixon	Vacaville
Fairfield	Vallejo
Rio Vista	



Map Prepared by STA staff, Sara Woo, (707) 399-3214, swoo@sta-snci.com
06/08/09

Figure 1. Solano County Routes of Regional Significance

State highway routes are state highways that serve intrastate and interstate travel. State Route (SR) 12, SR 29, SR 37, SR 84, SR 113, SR 220 and a brief segment of SR 128 run through Solano County.

Table 1 summarizes the Average Annual Daily Traffic (AADT) for trips coming in and out of Solano County. Caltrans AADT Data is generally developed by electronic counting instruments moved from location throughout the State in a program of continuous traffic count sampling. The AADT is the total volume for the year divided by 365 days. The traffic count year is from October 1st through September 30th. Very few locations in California are actually counted continuously. The resulting counts are adjusted to an estimate of annual average daily traffic by compensating for seasonal influence, weekly variation and other variables which may be present.

Table 1. 2008 AADT for trips coming in and out of the county Summary

	County Line	Total
I-80	CARQUINEZ BRIDGE	234,000
	JCT. RTE. 113 NORTH	230,000
I-680	CONTRA COSTA/SOLANO COUNTY LINE (MARTINEZ-BENICIA BRIDGE)	200,000
I-505	SOLANO/YOLO COUNTY LINE	45,000
SR 12	SOLANO/NAPA COUNTY LINE	62,000
	SOLANO/SACRAMENTO COUNTY LINE	42,000
SR 37	SONOMA/SOLANO COUNTY LINE	65,000
SR 29	SOLANO/NAPA COUNTY LINE	63,000
SR 84	SOLANO/YOLO COUNTY LINE	700
SR 220	SOLANO-SACRAMENTO COUNTY LINE	540
SR 128	NAPA COUNTY-SOLANO COUNTY	5,200
	SOLANO -YOLO COUNTY LINE	5,200

Over the last six years, Solano County has had major transportation improvements constructed on its highways and freeway network:

1. I-80 AlZampa Bridge Project (Carquinez Bridge). The new bridge span was constructed with three westbound lanes, a High Occupancy Vehicle (HOV) lane and a Class I pedestrian/bicycle facility. The project was completed on time and within budget. It was funded entirely with local Regional Measure 1 funds passed by Bay Area voters in 1988. Completed in 2003.
2. I-80/I-680 Interchange Auxiliary Lane Project. The I-80/I-680 Auxiliary Lane project added a fifth through-lane in each direction on I-80 between I-680 and State Route 12 (east), as well as expanded the existing connector ramp to lanes between I-80 and I-680 from one to two lanes in both directions. Completed in 2004.
3. SR 37/29 Interchange Project. State Route 37 was improved from a two-lane freeway to a four-lanes in each direction from the Napa River Bridge to Diablo Street in Vallejo. A

cloverleaf interchange was also constructed at the SR 37/29 Interchange. Completed in 2005.

4. I-680 George Miller Bridge Project (Benicia Martinez Bridge). The bridge improvement project was constructed to include five northbound lanes, convert existing bridge to four southbound lanes, a Class I bicycle pedestrian facility, and capacity to add future light rail service. Project was funded by voter approved Regional Measures 1 and 2. New bridge span completed in 2007. Conversion of original bridge under construction.
5. SR 12 Safety Improvements. Caltrans completed several safety projects on SR 12 in 2007 and 2009. These included an installation of a temporary median concrete barrier east of Walters Road in Suisun City to Shiloh Rd, rumble strips and centerline channelizers, safety changeable signs, shoulder widening and speed radars on the both the east and west sections of SR 12.

The STA in coordination with the County of Solano, seven cities, member agencies, Caltrans and MTC anticipates 13 additional major construction improvements over the next four years. A total of \$633 million in construction funds have been secured for safety projects on SR 12 West and East, I-80 pavement rehabilitation projects and HOV lanes, Cordelia Eastbound Truck Scale relocation, road improvements along the Jepson Parkway, and access improvements to Travis Air Force Base.

The STA, Caltrans, MTC and other partnering agencies have completed several corridor studies and transportation plans for Solano County's major freeway corridors. Existing conditions for I-80, I-680, I-780, SR 113, SR 12, and SR 29 provided in this Report was provided directly from the following studies and plans:

a. MTC's Freeway Performance Initiative (2008)

The Solano County I-80 and Draft I-680 North Freeway Performance Initiative (FPI) studies served as the primary sources for the existing conditions related to both corridors in this report. The FPI program was funded by 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.

b. SR 12 Major Investment Study (2001 and 2006)

The State Route (SR) 12 Major Investment Study assessed the physical improvements and management practices necessary to appropriately serve future travel demand on SR 12 between Interstate 80 and the Rio Vista Bridge. The initial SR 12 Major Investment Study (MIS) was completed in 2001 followed by a technical update completed in 2006. There are currently several Caltrans safety improvement projects underway along the corridor between east of Shiloh Road and the City of Rio Vista. The SR 12 MIS was an instrumental planning study that provided technical data for prioritizing safety projects along the SR 12 corridor. The SR 12 MIS remains the most comprehensive document for SR 12 east; however, an update of the traffic data, travel forecast, and project prioritization is planned through a joint partnership with Caltrans, MTC, San Joaquin Council of Governments (SJCOG) and the STA in 2010.

c. SR 113 Major Investment and Corridor Study (2009)

The purpose of the SR 113 MIS is to identify the current and future traffic and transportation needs in the corridor and to develop an implementation plan that identifies the operational and safety improvement needs. The report reviewed traffic operations, safety, goods movement, financing, railroad crossings, traffic signals, and other transportation planning issues in this corridor, which is located in eastern Solano County. The study is focused on the portion of SR 113 between SR 12 and the Solano/Yolo County line in Davis.

d. I-80/I-680/I-780 Major Investment and Corridor Study (2004)

The I-80/I-680/I-780 Major Investment and Corridor Study was the first major comprehensive study developed by the STA for the three major freeway corridors in Solano County. The purpose of the document is to evaluate the existing and future transportation networks within the study corridors, and to develop a long range prioritization list of multi-modal improvements necessary to serve existing and future transportation needs.

e. Draft I-80/I-680/I-780 Corridors Highway Operations and Implementation Study (2009)

The Draft I-80/I-680/I-780 Corridors Highway Operations and Implementation Study is phase two of the original Major Investment Study for the three corridors. The focus of this study was to develop operational improvements and recommendations for a long range Intelligent Transportation System (ITS) including ramp metering, closed circuit television cameras (CCTV), vehicle detection, and highway advisory radios.

f. MTC's 2008 State of the System Report (2008)

Since 2001, MTC and Caltrans have annually gathered data and statistics summarizing the performance of the Bay Area transportation system. The report summarizes key facts and performance indicators for freeways, local roadways, transit, goods movement, and bicycle and pedestrian travel in the region on an annual basis.

g. Napa County Transportation and Planning Agency's South County SR 29 Corridor Study Report (2005)

The South County SR 29 Corridor Study represents the initial analysis effort by the Napa County Transportation Planning Agency to address long-range transportation planning in the area. This study is intended to be a planning-level analysis that examines roadway volume demand and capacity levels at a broad link-based approach.

h. Solano Travel Safety Plan (2005)

The purpose of the Solano Travel Safety Plan is to identify travel safety deficiencies in Solano County and recommend a program of cost-effective travel safety programs and projects. The Safety Plan includes a funding strategy for each proposed program or project that addresses the criteria for the applicable funding sources.

i. Solano Congestion Management Program (CMP) (2007)

The Solano CMP is a mobility monitoring and planning tool for California counties that contain an urbanized area with a population of 200,000 or more. As the Congestion Management Agency for Solano County, the STA has revised the Solano County CMP once every two years since 1991. Major components of the CMP included the CMP Network, LOS standards for Solano County and city's roadway and transit system, and a discussion on traffic model forecasts.

The remaining highway and freeway segment information was developed from data provided by Caltrans traffic counts, California Highway Patrol's Statewide Integrated Traffic Reporting System (SWITRS) and the Solano Napa Travel Demand Model where available.

Interstate Corridors

I-80, I-680, I-780, I-505

I-80 Corridor

Responsible Agency:	Caltrans
Length of facility:	44 miles
Number of lanes :	3-4 lanes each direction
Median Barrier:	Yes
HOV Lane:	No (under construction)
No. of Interchanges:	38



I-80 extends 44 miles in Solano County from Carquinez Bridge to the Solano/Yolo County line. According to MTC's I-80 Corridor Freeway Performance Initiative 2008 report, the I-80 Corridor supports several travel markets including freight and goods movements, recreational trips, interstate trips, intrastate/regional trips, and intercity/local travel. It is the major freeway facility serving a significant amount of locally-generated traffic in cities located along the corridor such as Vallejo, Fairfield, Vacaville, Dixon, Davis and Sacramento. The I-80 Corridor connects the Bay Area and the Sacramento Valley to the northern United States as it extends eastward from San Francisco to New Jersey. In addition to serving the needs of local travel, I-80 is an important route for intrastate and interstate commerce. It is also serves as a route to major recreational destinations such as Six Flags Discovery Kingdom in Vallejo, the Sacramento Delta, Lake Tahoe and Napa Valley.

I-80 Traffic Conditions

MTC's I-80 Corridor Freeway Performance Initiative reported the average daily traffic volumes (two-way) along the I-80 Corridor range from 78,000 to 240,000 vehicles per day.

A trip from the Al Zampa/Carquinez Bridge to I-5 in Sacramento takes 55 minutes during off-peak times when traffic is free flowing. On weekdays during the PM peak, this same trip could take nearly twice the time, or 1 hour and 40 minutes when congestion delay and buffer time are added to the journey time to ensure on time arrival. On Friday afternoon this same trip takes as much as 2 hours and 11 minutes due to these same factors. Based on the recurrent congestion locations, total annual delay on the I-80 Corridor is approximately 6.1 million vehicle hours.

The I-80 Corridor Freeway Performance Initiative defined traffic congestion as segments 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 and shown in Exhibit 1.

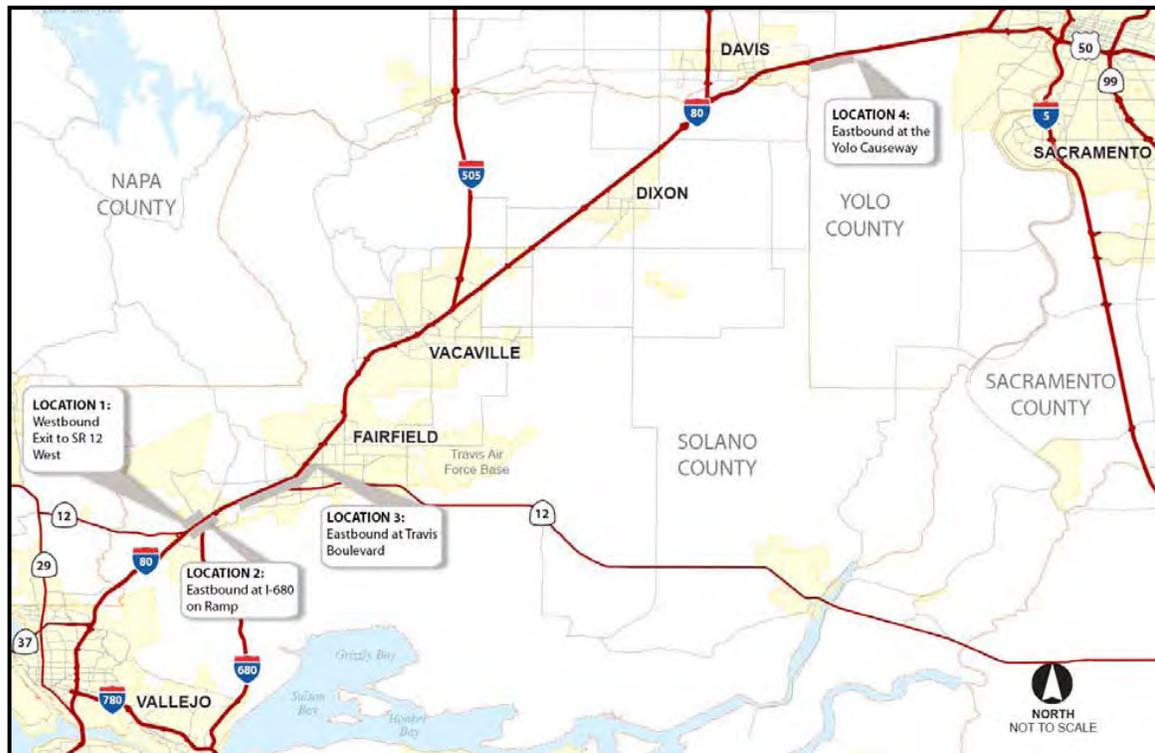


Exhibit 1. High Congestion Locations (Source: 2008 MTC I-80 Freeway Performance Report)

AM Peak:

- Location 1: Westbound from SR 12 West exit ramp to west of the westbound I-80/southbound I-680 connector

PM Peak:

- Location 2: Eastbound from I-680 on ramp to just west of the SR 12 West on ramp
- Location 3: Eastbound between the Travis Boulevard on ramp and the Airbase Parkway off ramp to near the Cordelia Truck Scale
- Location 4: Eastbound from the Yolo Causeway and County Road 32-A/32-B interchange to just west of the Mace interchange in Yolo County

The FPI reports that during the AM peak, congestion occurs westbound 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 FPI report used traffic count data that was prior to the SR 12 truck climbing lane project.

In the PM peak, congestion eastbound 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 1.6 miles to just west of the SRR 12 West on weekdays, but on Friday afternoons the queue extends 2.6 miles to west of Red Top Road Interchange.

A bottleneck also occurs eastbound 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 4.6 miles from the Yolo Causeway and County Road 32-AA/32-B interchange to just west of the Mace interchange as well in Yolo County. The congestion occurs when high traffic demand approaching the causeway is combined with traffic entering I-80 from the CR 32-AA/32-B interchanges and to a lesser extent at the Mace interchange.

Of the studies and plans surveyed, an origin and destination analysis for vehicles travelling on the I-80 corridor is lacking. However, STA staff is currently utilizing the Solano Napa Travel Demand Model would be able to provide this information in a follow up report.

I-80 Truck Traffic

According to MTC's I-80 FPI Report, I-80 is the second longest interstate route in the U.S. extending nearly 3,000 miles from San Francisco to Teaneck, New Jersey. As such it is a major route for interstate commerce originating from and destined to the Bay Area. Along this section of the I-80 Corridor there is a truck weigh station and inspection facility at Cordelia (just south of Fairfield) which serves both directions of travel. Truck and heavy vehicle traffic is around 9% of daily vehicle trips from Sacramento County to Solano County and the San Francisco Bay Area.

I-80 Safety Information

Accident data from September 1, 2003 to August 31, 2006 were collected for the MTC's I-80 FPI Report at six different segments of the I-80 Corridor in each direction and are summarized in Exhibit 2. During this three year period there was a total of 4,941 accidents reported along the I-80 Corridor. During this time, 3,626 were reported as multi-vehicle accidents, 1,321 were reported as injury accidents and 36 were reported as fatalities. Based on this data, there is an average of 4.5 accidents per day along the I-80 Corridor. Of all the segments analyzed, only the 7.8 mile westbound segment between Air Base Parkway and Red Top Road had an overall accident rate that is greater than the statewide average for similar facilities.

Exhibit 2: Accident Summary – September 2003 through August 2006

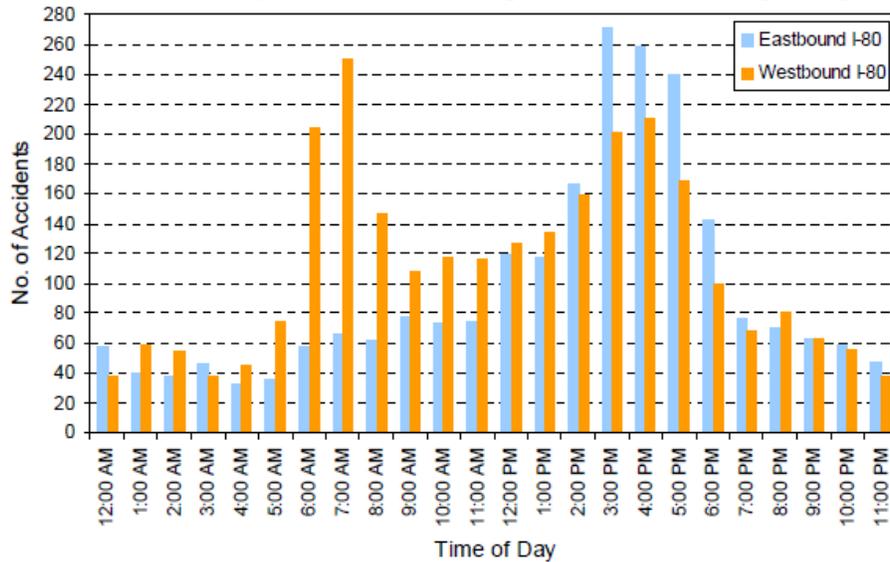
I-80 Segment in Solano County				Dir	Segment Length (Miles)	No. of Accidents					Total Persons		
						Total	Fat	Inj	Mult. Veh.	Wet	Dark	Killed	Injured
Bridge Toll Plaza	to	RT 37/1-80 Interchange		EB	5.04	347	1	110	283	69	98	1	182
RT 37/1-80 Interchange	to	American Canyon		EB	2.42	74	1	22	47	21	28	1	34
American Canyon	to	Air Base Parkway		EB	11.07	899	4	225	719	112	210	5	336
Air Base Parkway	to	Leisure Town		EB	10.68	457	4	134	278	77	170	5	193
Leisure Town	to	Kidwell Rd		EB	11.40	385	6	99	237	51	133	9	148
Kidwell Rd	to	Richards Blvd		EB	3.46	125	1	38	75	19	35	1	63
Richards Blvd	to	Kidwell Rd		WB	3.46	89	2	29	52	11	44	2	50
Kidwell Rd	to	Leisure Town		WB	11.40	325	3	84	203	31	124	6	132
Leisure Town	to	Air Base Parkway		WB	10.68	657	5	177	468	121	198	5	278
Air Base Parkway	to	Red Top Road		WB	7.78	1017	4	251	851	165	224	7	432
Red Top Road	to	Columbus Parkway		WB	10.83	202	4	59	115	52	73	4	106
Columbus Parkway	to	Carquinez Bridge		WB	5.68	364	1	93	298	69	114	1	156
Estimated Total on I-80 Corridor						4941	36	1321	3626	798	1451	47	2110

Source: MTC I-80 Freeway Performance Initiative

Accidents on I-80 in Solano County by time of day and direction of travel are shown in Exhibit 3. 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 the I-80 in Solano County over the last 3 years have 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 is contributing factors.

Exhibit 3. 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 Exhibit 4 and 5. At several of the segments along the corridor rear-end collisions are the predominate type of accident. 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. Each of these locations with high occurrences of rear-end collisions is discussed briefly as follows:

Exhibit 4. Eastbound Accidents by Type- September 2003 through August 2006

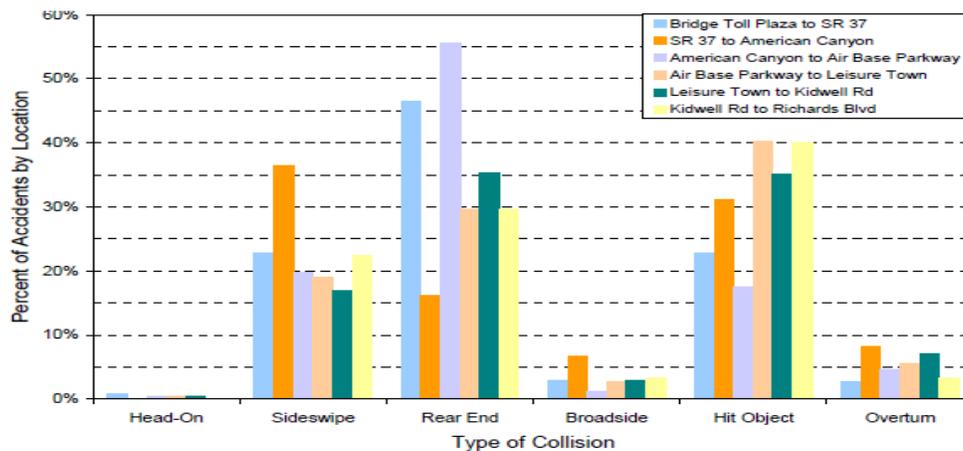
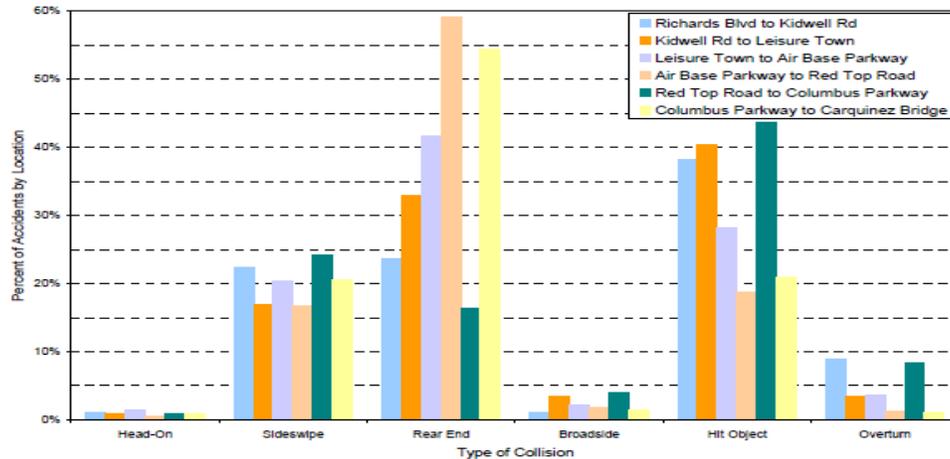


Exhibit 5. Westbound Accidents by Type – September 2003 through August 2006



Current Projects on I-80: I-80 Roadway Rehabilitation and HOV Lane Projects

This project is to resurface, restore and rehabilitate the highway along Interstate 80 in Solano County in Fairfield from 0.4 mile west of Route 12 overcrossing to 0.8 mile east of Air Base Parkway overcrossing. The project will incorporate roadway rehabilitation with completion of final paving for the HOV lanes project along I-80, from Route 12 East to Putah Creek in Solano County. It is the first American Reinvestment and Recovery Act (Recovery Act)-funded highway project in California. The project is expected to be completed by December 2009.

I-680 Corridor

Responsible Agency:	Caltrans
Length of facility:	11.5 miles
Number of lanes :	2 lanes each direction (not including Benicia Martinez Bridge Plaza)
Median Barrier:	Yes
HOV Lane:	None in Solano County. Contra Costa County has HOV Lane up to the Benicia Martinez Bridge
No. of Interchanges:	7



The I-680 corridor in Solano County connects the City of Fairfield to the City of Benicia and extends 11.5 miles from I-80 to the Benicia-Martinez Bridge at the Solano/Contra Costa County Line. According to MTC's I-680 FPI Report, a major feature of I-680 is the Benicia-Martinez Bridge that links Solano and Contra Costa Counties and is located just south of the I-780 interchange. The Benicia-Martinez Bridge is a toll facility that includes a toll plaza for northbound traffic. Until August 2007, the bridge was three lanes in each direction, with nine lanes at the toll plaza, including two "wavethrough" toll booths/lanes for 3+ HOVs. The new Benicia-Martinez Bridge Project features the construction of a new five-lane bridge east of the existing bridge. The new span accommodates northbound traffic with four mixed-flow lanes and one slow-vehicle lane. With completion of this span in August 2007, the toll plaza is located at the south end of the bridge with 9 booths, one carpool bypass lane and two open road tolling lanes. The existing bridge is being modified to accommodate four mixed-flow lanes of southbound traffic and a two-way Class I bicycle/pedestrian facility.

I-680 Traffic Conditions

As part of the I-80, I-680, I-780 Operational Improvement Plan, DKS consultants summarized the existing traffic congestion based on MTC's Draft I-680 FPI Report as follows.

The existing conditions assessment conducted as part of the Draft I-680 North FPI study was performed prior to the opening of the new northbound span and toll plaza at the Benicia-Martinez Bridge. Since the opening, congestion has decreased in the area around the bridge and toll plaza. As such, follow-up observations in this area were performed for this report and used to update the existing conditions assessment presented below.

Within Solano County, one segment of I-680 currently experiences congestion during the AM peak period while two were identified during the PM peak period as listed below.

AM Peak:

- Location 5: Southbound I-680/Eastbound I-780 Interchange approaching the north end of the Benicia-Martinez Bridge

PM Peak:

- Location 6: Northbound from the I-80 interchange to south of the Cordelia Road off-ramp
- Location 7: Southbound approaching the north end of the Benicia-Martinez Bridge

During the AM peak, southbound traffic approaching the north end of the Benicia-Martinez Bridge slows to below 40 miles per hour. This is due to the bridge approach geometry including the horizontal curve on the mainline and the limited sight distance for the merge with I-780. It should be noted that this approach will be improved as part of the Benicia-Martinez Bridge project.

Prior to the opening of the new northbound span and toll plaza, congestion also occurred in the northbound direction extending from the toll plaza south due to the toll plaza operations. Since the opening of the new bridge, the level of congestion associated with the toll plaza has decreased significantly. Also, because the new toll plaza is located at the south end of the bridge, any queuing occurs within Contra Costa County only.

During the PM peak period, congestion occurs in the northbound direction between south of the I-80 interchange and south of the Cordelia Road off ramp is due to the capacity constraints at the merge onto I-80. In the southbound direction, traffic approaching the north end of the Benicia-Martinez Bridge slows to below 40 miles per hour due to the bridge approach geometry including the horizontal curve on the mainline and the limited sight distance for the merge with I-780.

MTC’s Draft I-680 FPI Report provided a traffic origin and destination analysis based on a select link analysis using the Contra Costa Countywide Travel Demand Model. The select link analysis provides a snapshot of where the traffic from a specific roadway segment (or link) is coming from and going to. The analysis was conducted using 2000 AM peak hour model data for eight locations on I-680 that stretched from Solano County to Alameda County. Exhibit 5 displays the results of this analysis.

Exhibit 5. I-680 Origin and Destination Summary

Origin	Destination							
	N/O Benicia Bridge	SR 4 E/O SR 242	SR 4 W/O I-680	Central County ¹	West on SR 24	South County	S/O Alameda (AC County)	Other
I-680 N/O I-780 Interchange		4%	0%	41%	3%	6%	22%	24%
I-680 at Benicia Bridge		6%	0%	61%	3%	7%	23%	0%
Westbound SR 4 (E/O SR 242)	7%		9%	39%	25%	8%	12%	0%
Eastbound SR 4 (W/O I-680)	1%	18%		72%	0%	5%	4%	0%
Central County (Martinez to Walnut Creek)	7%	6%	5%		27%	30%	26%	0%
Eastbound on SR 24 (W/O Pleasant Hill)	9%	6%	0%	50%		22%	12%	0%
South County (Alamo to San Ramon)	2%	2%	0%	44%	16%		36%	0%
Northbound I-680 (S/O Alameda)	11%	6%	0%	46%	2%	35%		0%

Notes:
¹ Central County includes the cities of Martinez, Concord, Pleasant Hill, Walnut Creek, and Clayton and surrounding communities

I-680 Truck Traffic

MTC's I-680 FPI Report provided a brief analysis of truck traffic on I-680. The report obtained data from Caltrans 2005 Truck Traffic report; however, data sampled for this report was mostly derived from locations in 2000. The Draft I-680 FPI Report indicated that the segment of I-680 south of Lake Herman Road truck traffic constituted 5.3% of the total AADT count for that segment. This percentage of truck traffic was fairly consistent throughout the corridor locations surveyed in Contra Costa and Alameda County.

I-680 Safety Information

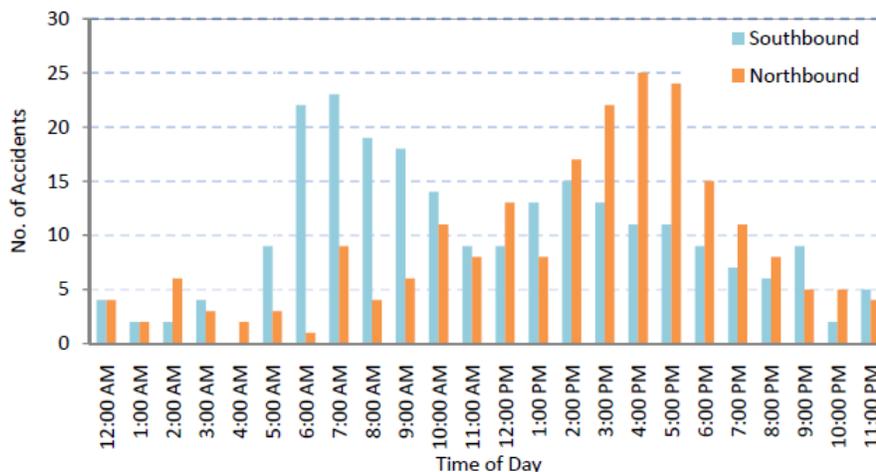
The I-80/I-680/I-780 Operations Improvement Plan summarized accident data for the segment between the Benicia-Martinez Bridge toll plaza and the interchange with I-80. Data was collected in each direction from September 1, 2003 to August 31, 2006. As shown in Exhibit 6, during this three year period there was a total of 453 accidents reported along the I-680 corridor in Solano County for an average of 1.2 accidents per day. Of these, 127 were reported as injury accidents and 3 were reported as fatalities. Shown in Exhibit 6, accident rates for both directions of I-680 in Solano County are below the statewide average accident rates for similar facilities and area types. This may be due to the relatively low level of congestion, on the whole, along I-680 through the county.

Exhibit 6: I-680 Accident Summary – September 2003 through August 2006

Direction				Segment Length (Miles)	No. of Accidents			Accident Rates (No. of Accidents per Million Vehicle Miles)					
					Segment Quantity			Segment Rates			Statewide Rates		
					Total	Fat	Inj	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
Bridge Toll Plaza	to	I-680/I-80 Interchange	NB	13.12	216	1	69	0.002	0.16	0.51	0.014	0.32	0.83
I-680/I-80 Interchange	to	Bridge Toll Plaza	SB	13.12	237	2	58	0.004	0.12	0.49	0.014	0.32	0.84
Total					453	3	127						

Accidents on I-680 in Solano County by time of day and direction off travel are shown in Exhibit 7 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 41% of the accidents on I-680 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.

Exhibit 7: I-680 Accident Summary – September 2003 through August 2006



Northbound and Southbound accidents by type and by direction for I-680 in Solano County are shown in Exhibit 8 and Exhibit 9. Along the corridor, hit-object collisions are the predominate type of accident that occurs. Accidents of this type are typically associated with poor sight line conditions or high vehicle speeds.

Exhibit 8: I-680 Northbound Accidents by Type – September 2003 through August 2006

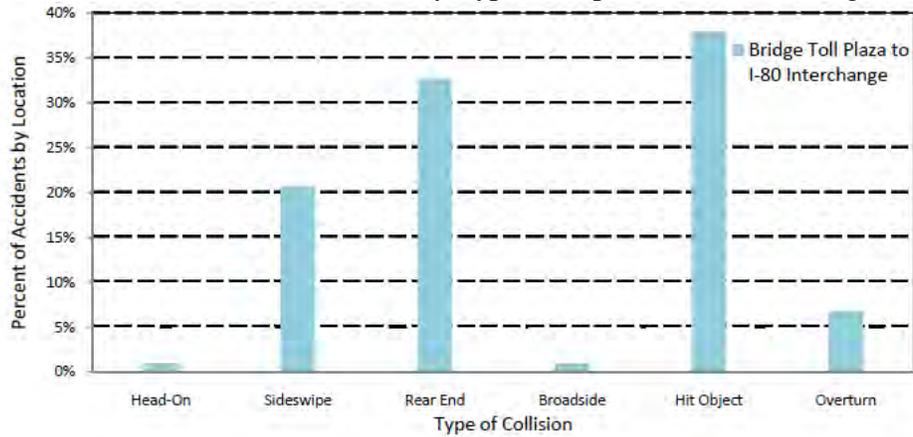
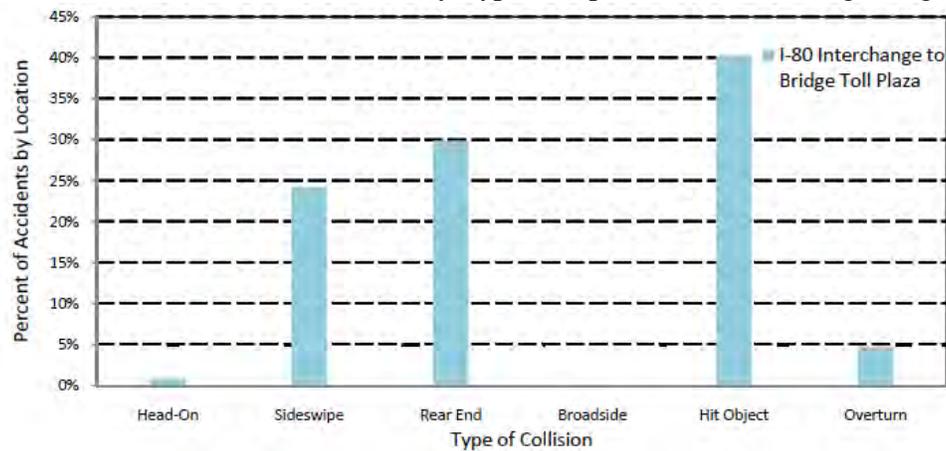


Exhibit 9: I-680 Southbound Accidents by Type – September 2003 through August 2006



I-780 Corridor

Responsible Agency:	Caltrans
Length of facility:	6.5 miles
Number of lanes :	2 lanes each direction
Median Barrier:	Yes
HOV Lane:	No
No. of Interchanges:	8

The I-780 Corridor in Solano County extends 6.5 miles from I-680 at the Benicia/Martinez Bridge to I-80. The corridor provides a direct freeway connection to the cities of Vallejo and Benicia. I-780 transitions into Curtola Parkway at the City of Vallejo.



I-780 Traffic Conditions

The surveyed plans and studies provided limited data for the existing conditions on I-780. For the STA's 2009 I-80/I-680/I-780 Operational Improvement Plan, DKS developed a model simulation for existing conditions along I-780 using 2005 or 2006 traffic volumes from Caltrans. In a few cases, the most recent traffic volumes were from 2002 or 2003. Field observations along I-780 were also performed during the fall of 2008.

The model analysis indicated that there would be no mainline bottlenecks on I-780 queues in either direction for either the AM or PM peak periods. Field observations along I-780 confirmed the model results. However, these observations also revealed slowing at both ends of I-780 as traffic transitions from I-780 to I-80 at the west end and to I-680 at the eastern end. In the westbound direction, high exiting volumes to I-80 combined with high traffic on I-80 result in slowing on the off-ramps that extends back to the right lane on the I-780 mainline. During the AM peak, this occurs primarily at the loop off-ramp to westbound I-80, while during the PM peak the diagonal off-ramp to eastbound I-80 is most affected. At the eastern end of I-780, eastbound traffic heading to southbound I-680 slows due to the bridge approach geometry including the horizontal curve on the mainline and the limited sight distance for the merge with I-680. It should be noted that this approach will be improved as part of the Benicia-Martinez Bridge project. It should also be noted that Columbus Parkway in the cities of Vallejo and Benicia will serve as a bypass in the event of an emergency closure of I-780.

I-780 Truck Traffic

Based on data provided by Caltrans in 2002, the I-80/I-680/I-780 MIS reported that the I-780 corridor has an Average Annual Daily Truck Traffic of 4.6%. This percentage is slightly lower than I-80 and I-680.

I-780 Safety Information

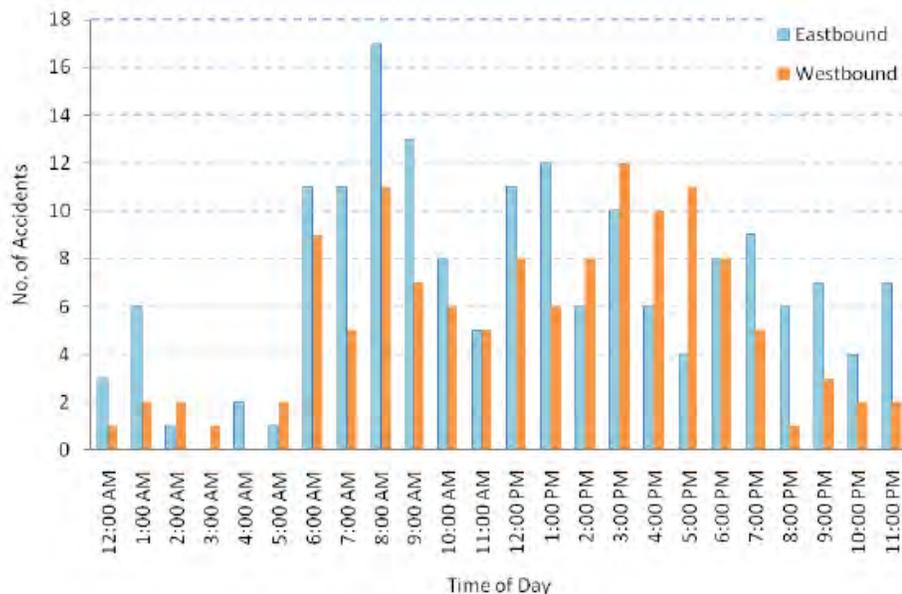
For I-780, accident data for the segment between the Benicia-Martinez Bridge toll plaza and the interchange with I-80 were collected in each direction from April 11, 2005 to March 31, 2008. As shown in Exhibit 10, during this three year period there was a total of 296 accidents reported along the I-780 corridor in Solano County for an average of 0.8 accidents per day. Of these, 109 were reported as injury accidents and 3 were reported as fatalities. As shown in Exhibit 10, accident rates for both directions of I-780 in Solano County are below the statewide average accident rates for similar facilities and area types. This may be due to the relatively low level of congestion the short length of I-780.

Exhibit 10: I-780 Accident Summary – April 2005 through March 2008

Direction				Segment Length (Miles)	No. of Accidents			Accident Rates (No. of Accidents per Million Vehicle Miles)					
					Segment Quantity			Segment Rates			Statewide Rates		
					Total	Fat	Inj	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
I-780/I-80 Interchange	to	Bridge Toll Plaza	EB	6.51	169	1	60	0.005	0.30	0.83	0.011	0.36	0.98
Bridge Toll Plaza	to	I-780/I-80 Interchange	WB	6.51	127	2	49	0.010	0.25	0.62	0.011	0.36	0.98
Total					296	3	109						

Accidents on I-780 by time of day and direction of travel are shown in Exhibit 11 where it can be seen that the pattern of accidents closely correlates to the pattern of hourly traffic volumes along the corridor. 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 40% of the accidents on I-780 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.

Exhibit 11: I-780 Accidents by Time of Day – April 2005 through March 2008



Eastbound and Westbound accidents by type and by direction for I-780 are shown in Exhibits 12 and 13. Along the corridor, hit-object collisions are the predominate type of accident that occurs. Accidents off this type are typically associated with poor sight line conditions or high vehicle speeds.

Exhibit 12. I-780 Eastbound Accidents by Type- April 2005 through March 2008

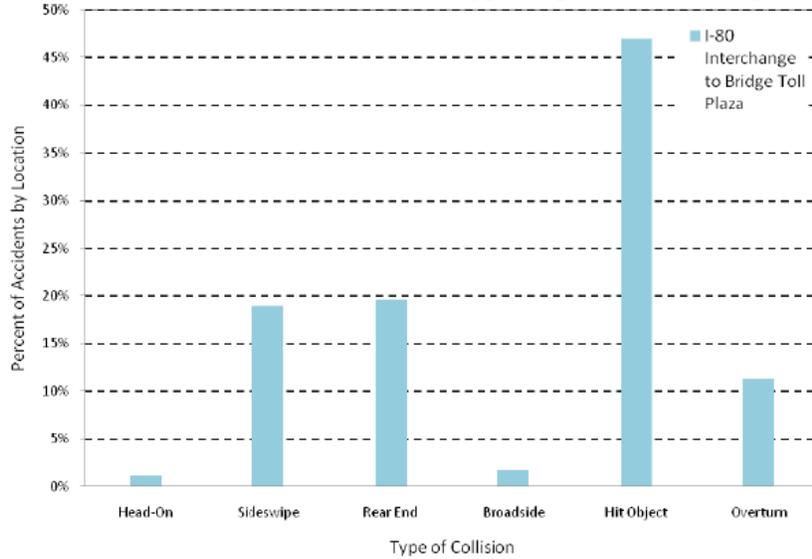
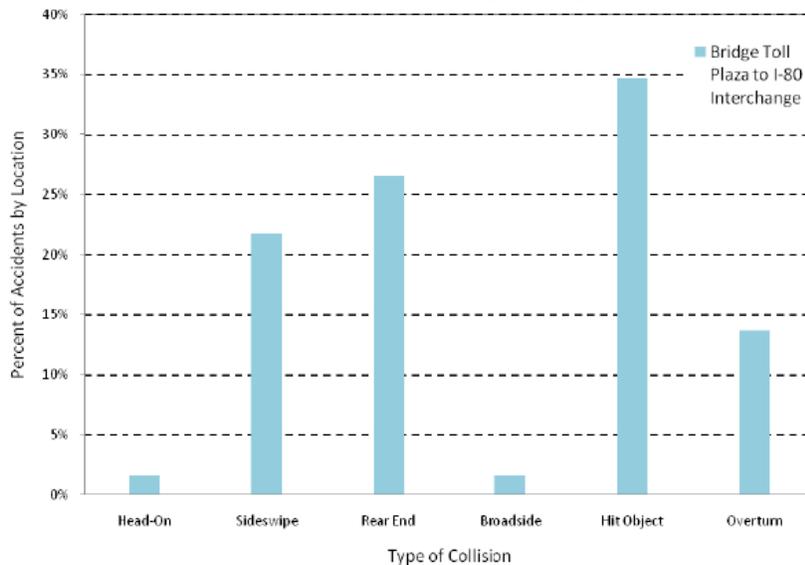


Exhibit 13: I-780 Westbound Accidents by Type - April 2005 through March 2008



I-505 Corridor

Responsible Agency:	Caltrans
Length of facility:	10 miles
Number of lanes :	2 lanes each direction
Median Barrier:	Yes
HOV Lane:	No
No. of Interchanges:	2

The I-505 Corridor in Solano County begins and ends at I-80 in Vacaville and the Yolo Solano County Line near the City of Winters. I-505 is a 10 mile freeway facility in Solano County. The Corridor is primarily rural and serves as a bypass corridor to Sacramento for those travelling to and from I-5 and I-80.



Unlike the prior three Interstate corridors (I-80, I-780, and I-680), STA has not conducted a detailed study on I-505. To assess a snap shot of the current level of congestion, traffic counts were obtained from Caltrans Traffic Data Branch. The peak hour counts were compared to the I-505 freeway capacity to determine the current level of service. Lastly, the California Highway Patrol's Statewide Integrated Traffic Records System (SWITRS) data provided collision data for accidents that occurred between 2006 to 2009.

I-505 Traffic Conditions

Exhibit 14 displays the Average Annual Daily Traffic (AADT) Northbound Peak Hour Counts for the years between 2006 and 2008 over four segments. Exhibit 15 displays the AADT Southbound Peak Hour Counts for the same years and segments, with exception to the southbound Vacaville I-80 segment. The southbound Vacaville I-80 segment was a break point in the traffic data. It had a large number of traffic counts, a difference of around 5,000 counts presumably from I-80 traffic mingled in.

The Northbound and Southbound peak hour counts for 2006 to 2008 do not show a dramatic difference in AADT. The highest counts occur around the I-505/I-80 Interchange and the Vaca Valley Parkway. The other segments with the lower traffic counts are located in the rural and agriculture areas that continue into the northern segment of the corridor.

Exhibit 14. I-505 Northbound Peak Hour AADT

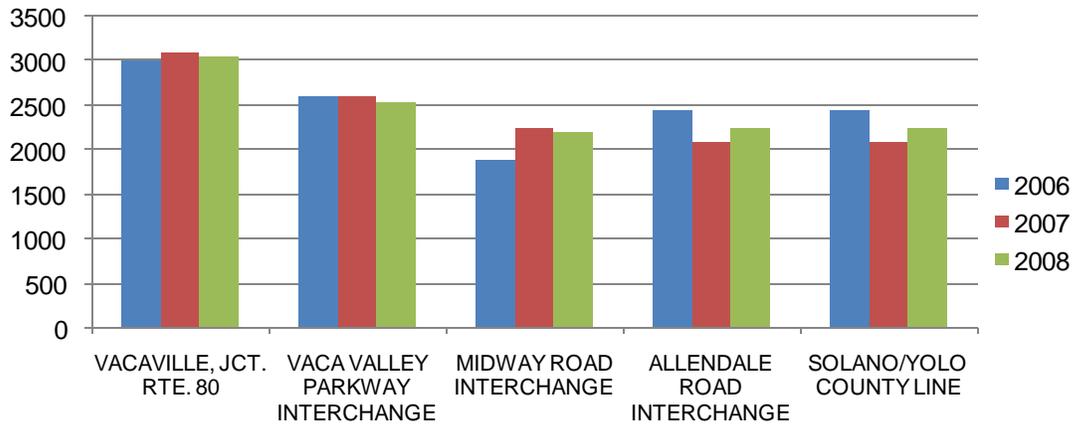
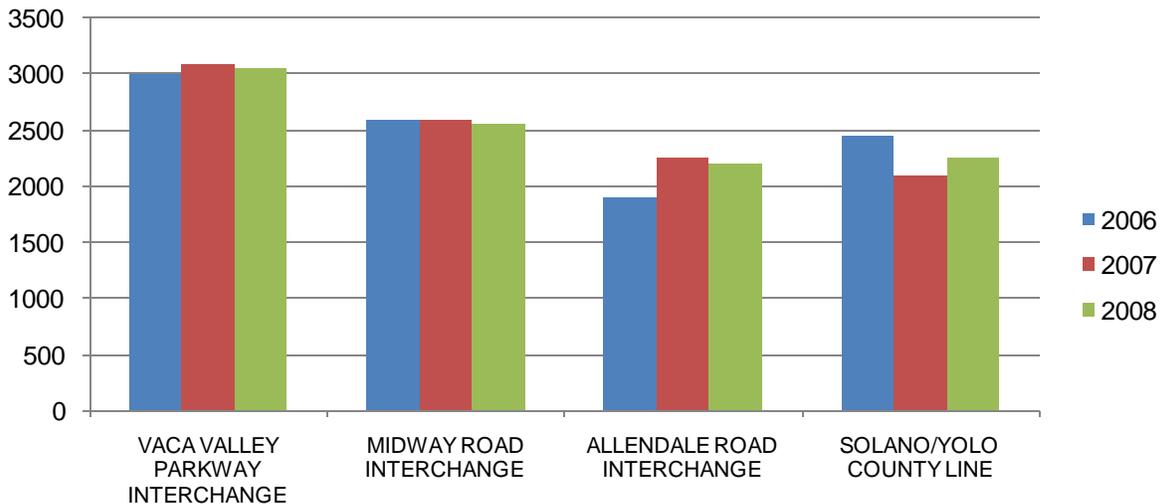


Exhibit 15. I-505 Southbound Peak Hour AADT



The 2008 Level of Service (LOS) for the I-505 corridor was based on the capacity of the freeway facility and the 2008 Peak Hour Count provided by Caltrans Traffic Data Branch. The I-505 lane capacity is consistent with the current Napa Solano Travel Demand Model. The LOS result provides a quantitative measure of transportation system operations with LOS A representing free-flow conditions and LOS F representing gridlock conditions. Table 2 provides the LOS for the five segments along the I-505 corridor. Overall, the I-505 corridor has a free flow of traffic with minimal delays and moderate volumes at the I-80/I-505 interchange.

Table 2. I-505 Northbound 2008 Level of Service (LOS) Summary

Segment	No. of Lanes	Capacity	Peak Hour Count	LOS
VACAVILLE, JCT. RTE. 80	2	4000	3050	C
VACA VALLEY PARKWAY INTERCHANGE	2	4000	2550	B
MIDWAY ROAD INTERCHANGE	2	4000	2200	A
ALLENDALE ROAD INTERCHANGE	2	4000	2250	A
SOLANO/YOLO COUNTY LINE	2	4000	2250	A

I-505 Safety Information

The CHP's State Wide Integrated Records System (SWITRS) collision data for I-505 indicated a total of 97 reported accidents with a collisions resulting in fatalities. Table 3 provides a summary of I-505 Collisions between 2003 to 2007. Reports collected from SWITRS included data with information limited to number of collisions, collision location, date of collision and number of injuries or fatalities.

Table 3. I-505 Collision Summary 2003 to 2007

Segment	Segment Length	Collisions	Fatalities
Wolfskill Road to Solano Yolo CL	2.1 miles	14	2
Allendale Rd to Wolfskill Rd	2.9 miles	29	2
Vacavalley to Allendale Road	4.1 miles	25	2
I-80 to Vacavalley Pkwy	1.5 miles	29	3

I-505 Truck Traffic

Average Annual Daily Truck (AADT) Traffic Data between the years 2007 and 2002 was provided by Caltrans Traffic Data Branch. Truck traffic was counted or estimated for I-505 at I-80 and at the Solano Yolo County Line. Overall, during this five year time period truck traffic was estimated to be an average of 10.7% northbound and 11.4% southbound of the total AADT counts.

State Route Corridors

SR 12, SR 113, SR 29, SR 37, SR 84, SR 128 and
SR 220

SR 12 Corridor

Responsible Agency:	Caltrans
Length of facility:	26.4 miles
Number of lanes :	Primarily 2 lanes. 4 lanes each direction from I-80 to Walters Road.
Median Barrier:	Channelizers and temporary median barrier under construction
HOV Lane:	No



State Route (SR) 12 is an important east-west route connecting Sonoma, Napa, Solano, Sacramento, San Joaquin and Calaveras Counties. SR 12 is a two to four-lane roadway east of I-80 through Fairfield, Suisun City, County of Solano and Rio Vista. West of I-80, SR 12 is a two-lane facility directly connecting Solano County to Napa County and beyond. The facility serves many different users, including:

- Regional through trips and goods movement;
- Intercity travel;
- Commute traffic;
- Agricultural truck trips; and
- Recreational traffic, both local and regional in nature.

SR 12 has at grade crossings and minor collector intersections for property owners and other travelers on the east and west end of I-80. This presents challenges for through traffic and traffic entering or exiting from SR 12.

SR 12 East Traffic Conditions

The STA, in partnership with Caltrans completed a MIS for SR 12 in October 2001. An update to the SR 12 MIS was completed in January 2006. The update focused on a review of priorities for facility improvement projects along SR 12. The 2006 report was called SR 12 East Prioritization and Implementation Strategy. Both documents studied SR 12 from I-80 in Fairfield to the Solano County/Sacramento County Line east of Rio Vista. Existing conditions presented in this section largely reflects data obtained through these two documents. According to the SR 12 East Prioritization and Implementation Strategy, the westbound traffic flow is higher during the AM peak hour and PM traffic higher in the eastbound traffic flow. This reflects prevailing commute patterns.

The SR 12 East Prioritization and Implementation Strategy Traffic conditions reported a Level of Service (LOS) C or lower for the majority of the corridor during the PM Peak Hour traffic heading eastbound. The SR 12 segment through Rio Vista was the only exception with a LOS E between Church Road and SR 84. The report also highlights the majority of the corridor operates at LOS C for the westbound AM Peak Hour traffic. The only exception again is a small

segment through Rio Vista between Hillside Terrace to SR 84. These LOS conditions and other traffic measurements are planned to be re-evaluated as part of a comprehensive corridor MIS scheduled to begin Fall 2009. The upcoming MIS will evaluate the entire SR 12 corridor between I-80 in Solano County and I-5 in San Joaquin County. The study will be coordinated in partnership with Caltrans District 4, 10, and 3 as well as other stakeholders including STA, MTC, San Joaquin Council of Governments (SJCOG), Sacramento Area Council of Governments (SACOG), and Napa County Transportation and Planning Agency (NCTPA).

SR 12 West/ Jameson Canyon Traffic Conditions

Existing conditions for the Corridor were detailed in the SR 12 Jameson Canyon Road Widening and SRs 29/12 Interchange Project Initial Study. The Initial Study was published with a Proposed Mitigated Negative Declaration (CEQA) and Environmental Assessment (NEPA) August 2007.

The Study indicates that on an average annual daily basis (counted at Kelly Road in 2003), SR 12 Jameson Canyon carries between 24,700 and 32,500 motorists, in either direction, between the southern Napa Valley and the Fairfield/Suisun Valley areas. Many of the motorists using this portion of SR 12 live in Solano County and work in Napa County. As more jobs have been established in Napa County and more residences built in Solano County, traffic volumes, congestion, and travel times have increased on this portion of SR 12. This portion of SR 12 is mostly a two-lane conventional highway set in a rural landscape with flat to rolling terrain.

According to MTC's Regional Transportation Plan, "T-2030," daily person trips from year 2000 to year 2030 between Napa and Solano Counties on SRs 12 and 29 are projected to increase 68%, which is exceeded in the Bay Area only by trips between San Benito/ Monterey/ Merced-Santa Clara at 120%, Lake/Colusa-Napa at 102%, and Mendocino/Sonoma at 83%.

SR 12 Safety Information

Safety on SR 12 has been a priority for the STA Board for a number of years, but recent accidents and fatalities have increased the urgency to take immediate action. The STA, working closely with law enforcement agencies and Caltrans, has developed a multi-faceted strategy for improving safety and mobility on this important interregional highway route from Rio Vista to Suisun City and Fairfield. The four key elements of the program are enforcement, legislation, public education and signage, and engineering.

There were 6 fatalities on SR 12 in March 2007 alone. As of October 1, 2007, there have been a total of 9 fatalities on SR 12 between I-80 in Solano County and I-5 in San Joaquin County that year. The rate of fatalities and injury crashes is more than one and a half times the state average. The STA-sponsored Assembly Bill 112 (Wolk) creating a Safety Enhancement Double Fine Zone (DFZ) on this same stretch of SR 12 was approved by the legislature and signed into law on October 1, 2007. In addition to creating a DFZ on SR 12 beginning January 1, 2008, the law defines criteria for similar roadways throughout the state to qualify for designation as a Double Fine Zone.

The accident rates (from January 1, 2003 to December 31, 2005) for SR 12 through Jameson Canyon are comparable to the statewide average for similar facilities. The accident rates for SRs 29 and 12 at the SRs 29/12 intersection in Napa are two to four times the statewide average for similar facilities and intersections. The higher than average rate of accidents at the intersection indicates a potential need to separate vehicle movements between the two routes.

SR 12 Truck Traffic

Average Annual Daily Truck Traffic Data between the years 2007 and 2005 was provided by Caltrans Traffic Data Branch. Truck traffic on the SR 12 corridor between Napa and San Joaquin Counties is estimated at 9.8% of the total traffic. The higher volumes of trucks were concentrated on SR 12 east between SR 113 westbound through Scally Road at 11% and 17% truck volume on average respectively. The truck volume tapers off at 7.2% truck volume average at I-80. Truck traffic volumes were also significant at SR 12 eastbound at 10% through Rio Vista.

SR 113 Corridor

Responsible Agency:	Caltrans
Length of facility:	22.4 miles
Number of lanes :	2 lanes
Median Barrier:	No
HOV Lane:	No



SR 113 corridor is an important transportation facility for the movement of people and goods in eastern Solano County. This mainly rural highway serves a mixture of local, interregional, and tourist traffic. With few north-south highways in the area, SR 113 serves as a critical connector between communities of metropolitan Sacramento, the eastern Bay Area, and the Central Valley.

The STA, in partnership with Caltrans, the City of Dixon, the County of Solano and other agencies developed and adopted a Major Investment and Corridor Study for SR 113 in 2009. The existing conditions reported in the following sections are taken directly from the SR 113 MIS.

SR 113 Traffic Conditions

Daily AM and PM peak hour counts were assembled for SR 113 at the following locations between 2001 through 2004 and adjusted to represent 2008 conditions:

- North of SR 12 Junction
- North of the Fry Road Junction
- North of Cherry Street Junction in downtown Dixon
- North of A Street in downtown Dixon
- North of Adams Street in downtown Dixon
- South of the I-80 junction in Dixon
- Solano/Yolo county line in Davis

Traffic adjustment factors were developed using growth estimates from the Caltrans Traffic and Vehicle Data Systems Unit over a 10-year period (1996 to 2006). A consistent growth factor was not used for the entire corridor as different segments have experienced varying degrees of growth over the period. Once the counts were factored to represent 2008 conditions, the traffic counts were balanced to ensure traffic movement continuity in the corridor. The results of this balancing process are shown in Figures 2, 3, and 4, which display Daily AM and PM peak hour bi-directional traffic flows on SR 113.

Figure 2. SR 113 Bi-Directional Daily Traffic Volumes

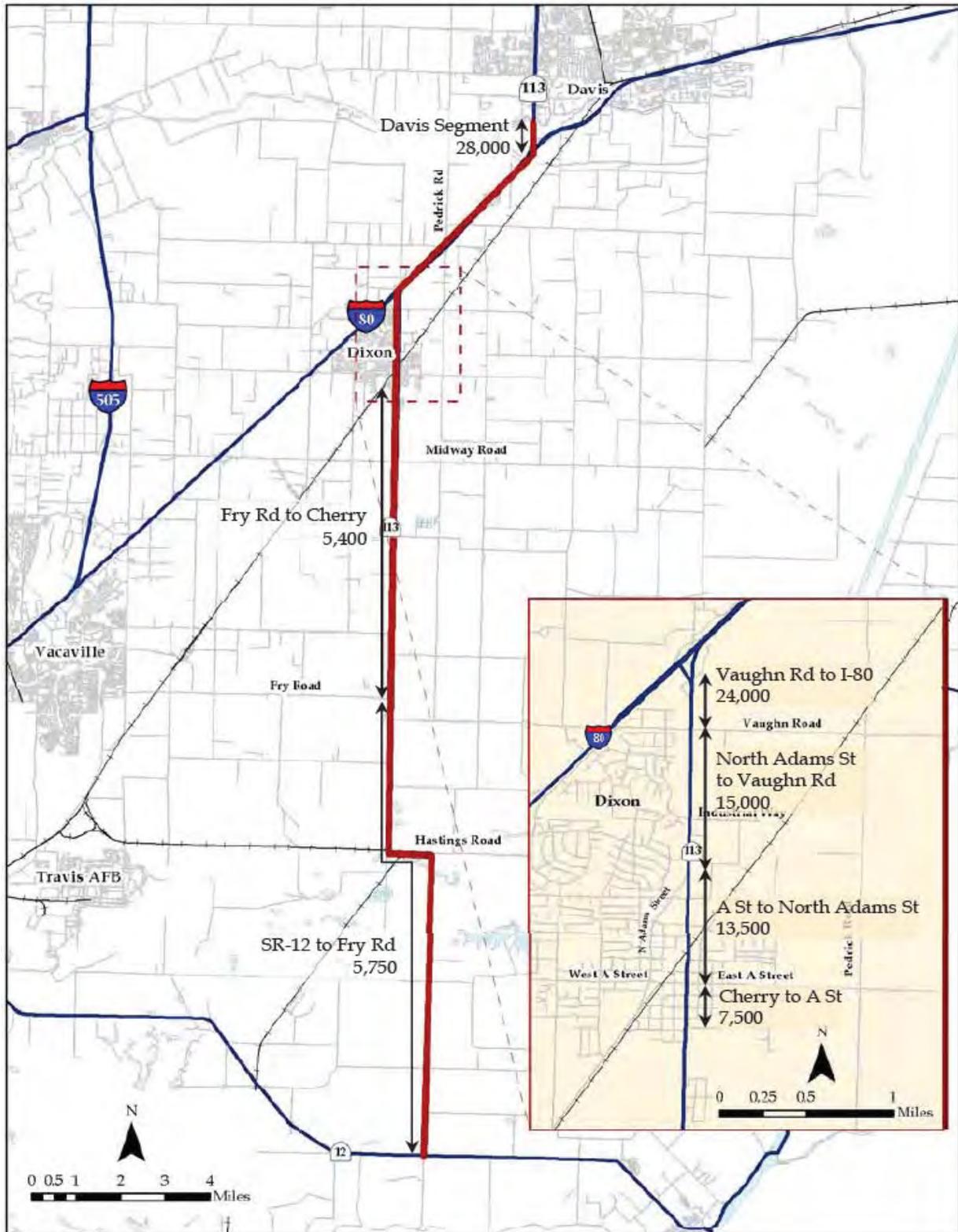


Figure 3. SR113 Bi-Directional AM Peak Hour Traffic Volumes

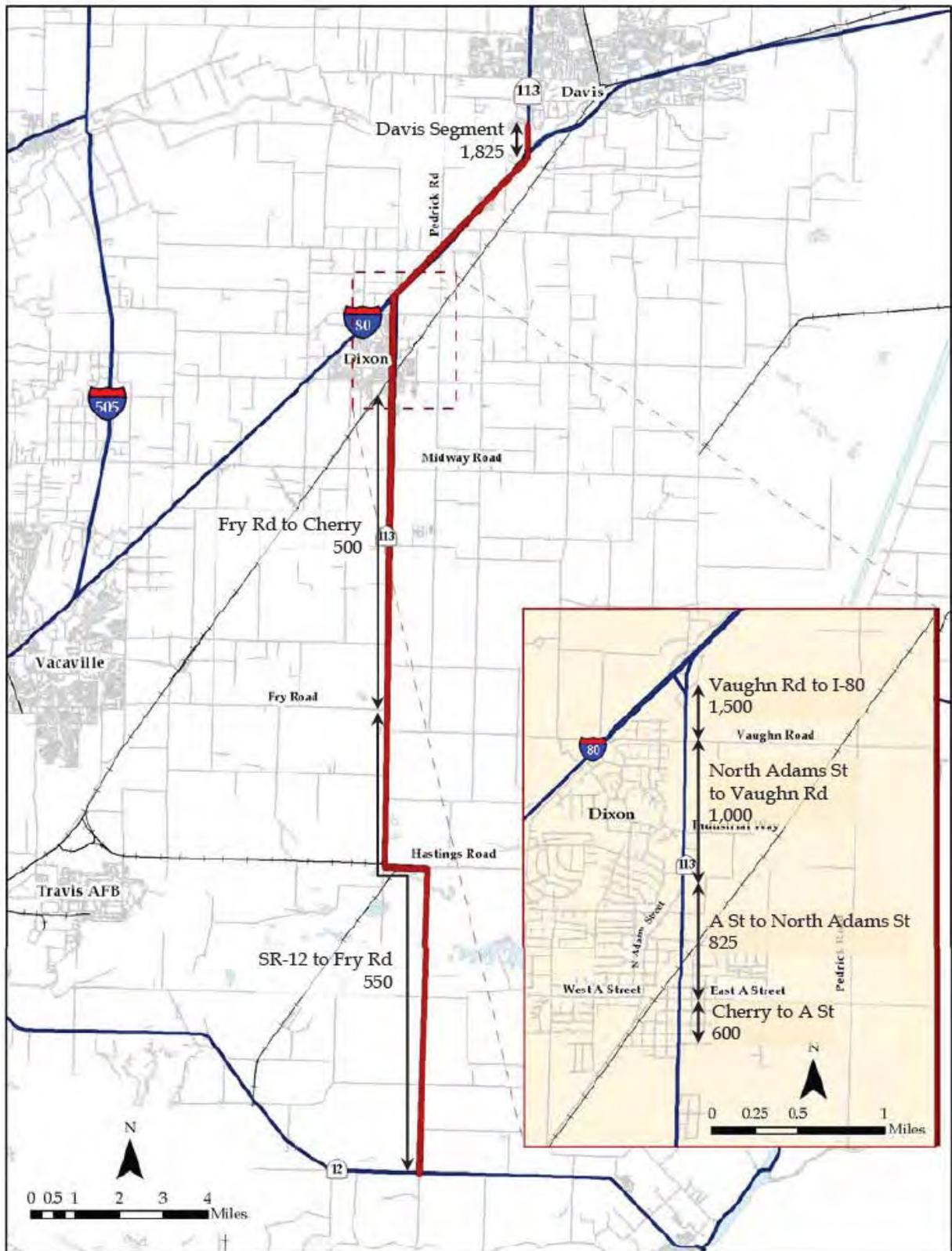
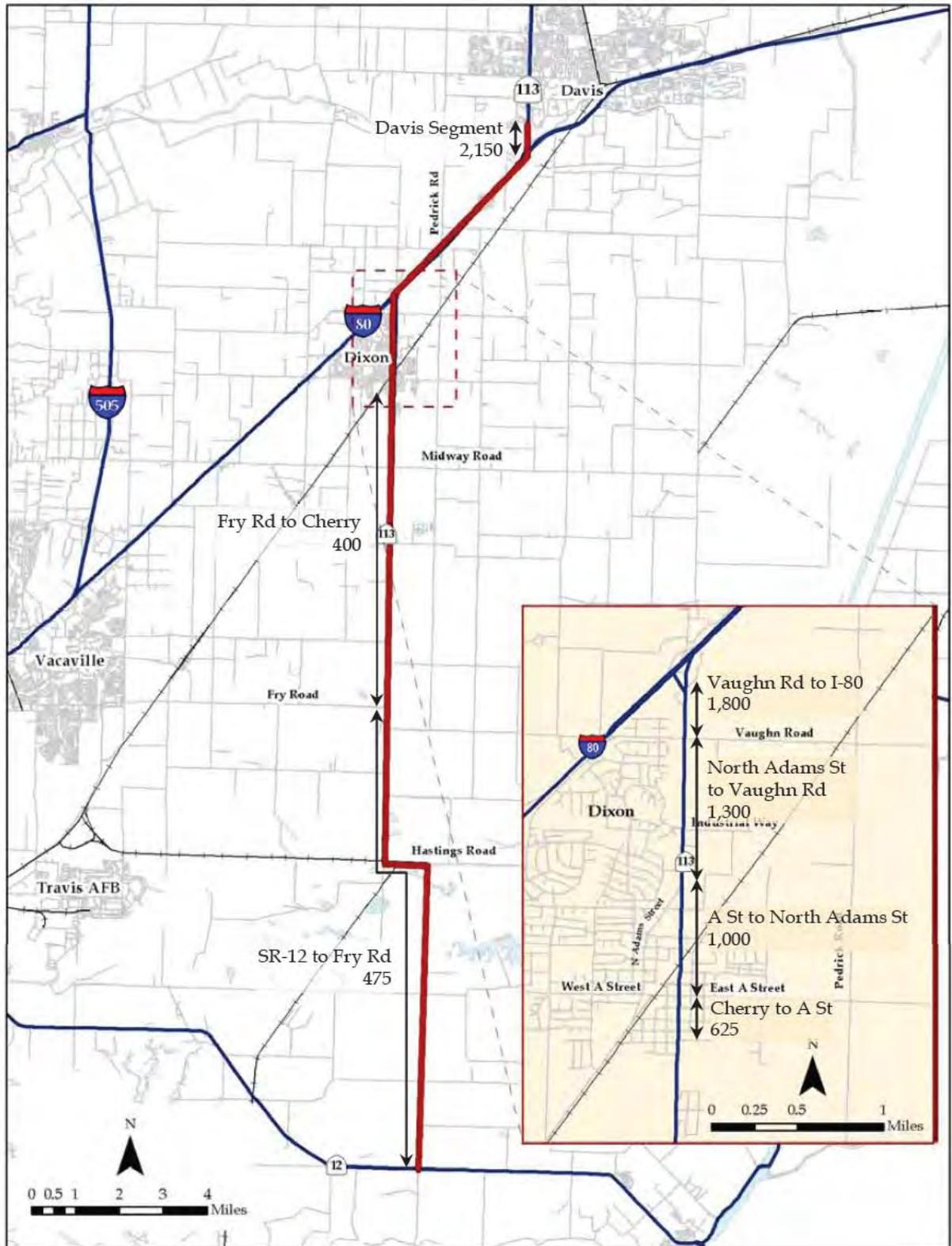


Figure 4. SR 113 Bi-Directional PM Peak Hour Traffic Volumes



On a daily basis, the highest volumes in the SR 113 corridor are located north of I-80, where SR 113 operates as a divided freeway. This portion of the corridor bisects the University of California, Davis campus. The segments with the next highest traffic volumes are located within the urban area of the City of Dixon. SR 113 within this area is an urban arterial that serves as a major thoroughfare for local traffic. In the rural areas south of Dixon, traffic volumes are significantly lower, mostly comprised of regional travel, with a mix of through regional and interregional traffic. SR 113 serves as a detour from I-80 during cases of incident response. Based on the Caltrans traffic data and the Dixon Downs Draft Environmental Impact Report (EIR), truck percentages along SR 113 ranges between five and eight percent.

Table 4 shows the LOS values for SR 113 for both the a.m. and p.m. peak hours. It should be noted that the segment of SR 113 between North Adams and A Street is approaching unacceptable LOS levels as a result of the high volume of traffic on this two-lane segment.

Table 4. Peak-Hour Level of Service for SR 113 Highway Segments

SR 113 Segment	Functional Class	Bi-Direction Traffic Volume					
		AM Peak		PM Peak		Daily	
		Volume	LOS	Volume	LOS	Volume	LOS
Solano/Yolo Line – I-80	Freeway	1,825	B	2,150	B	28,000	N/A
I-80 – Vaughn	4-lane Arterial	1,500	C	1,800	C	24,000	D
Vaughn – North Adams	4-lane Arterial	1,000	C	1,300	C	15,000	C
North Adams – A	2-lane Arterial	825	C	1,000	D	13,500	E
A – Cherry	2-lane Arterial	600	C	625	C	7,500	C
Cherry – Fry	Rural Minor Arterial	500	B	400	B	5,400	N/A
Fry – SR 12	Rural Minor Arterial	525	B	475	B	5,700	N/A

Source: Cambridge Systematics, Inc., 2008.

SR 113 Safety Information

The 2009 SR 113 MIS cites several key safety findings:

- The entire corridor south of I-80 exhibits overall crash rates that are higher than the statewide average for similar facilities.
- Combined fatal and injury rates are slightly higher than the state average in the rural segment and is below the state average for the other two segments.
- Speeding is the predominant issue cited as the “primary collision factor” in the SR 113 corridor. High speeds are particularly problematic along the corridor since:
 - Posted speed limits within the urban segment are lower than in adjacent segments;
 - The relatively narrow road width along the rural segment combined with a high-speed limit leaves little room for error while driving;
 - Agricultural vehicles increase the need for passing and increases accident potential; and
 - Truck collision rates are high when compared to the composition of trucks in the overall traffic stream.

- Clearance gap time is a problem at the intersection of SR 113/SR 12/Birds Landing Road as indicated by the number of broadside collisions and the number of collisions during morning and afternoon peak periods.
- Speeding is a major collision factor at the s-curves at Hastings Road and Cook Lane.
- It should be noted that approximately ten percent of collisions in the corridor occur during periods of rain or fog; all other collisions occur during clear or cloudy conditions.

SR 113 Truck Traffic

The truck classification counts, performed as part of the Dixon Downs Draft EIR, indicate that truck traffic along SR 113 in the vicinity of I-80 in Dixon represents approximately 5 to 8% of total traffic in the p.m. peak hour. As a comparison, trucks represent three to six percent of total traffic on I-80 in the Dixon area. Data from the Caltrans Traffic and Vehicle Data Systems Unit for 2007 indicate that trucks represent approximately 6 to 7% of traffic on the rural segments of SR 113 south of Dixon. This proportion is lower than that of SR 12, which 11% of its traffic is classified as trucks.

SR 37 Corridor

Responsible Agency:	Caltrans
Length of facility:	11 miles
Number of lanes :	2 to 4 lanes
Median Barrier:	Yes
HOV Lane:	No



SR 37 is a 2 lane highway with a concrete divider that heads west from I-80 in Vallejo to Napa County at the northern edge of San Pablo Bay. SR 37 becomes a 4 lane freeway on Mare Island, approaching northern Vallejo. After it crosses over the Napa River Bridge, it continues as a freeway, overlapping the old highway alignment and passing north of the old road known as Marine World Parkway (due to its proximity to the Six Flags Discovery Kingdom, previously known as Marine World). SR 37 travels in a northeasterly direction along the White Slough before turning east as it cross over State Route 29 and heads to its eastern terminus at I-80. In the early 1990s, the stretch between Fairgrounds Drive, which serves as the entrance to Discovery Kingdom, and Mini Drive was upgraded to a freeway. In 2004 and 2005, following over fifty years of complications, the remaining non-freeway section in Vallejo was upgraded as well.

SR 29 Corridor

Responsible Agency:	Caltrans
Length of facility:	7 miles
Number of lanes :	2 lanes
Median Barrier:	No
HOV Lane:	No



SR 29 traverses Solano, Napa, and Lake Counties. It directly connects the City of Vallejo and I-80 in Southern Solano County to the major cities of Napa County. SR 29 is a four-lane conventional highway as it intersects with SR 37 near the Solano County from Napa County Line north of Vallejo. SR 29 becomes a major arterial through Vallejo before it intersects with I-80 near the Al Zampa Bridge. Traffic controlled devices are prevalent on SR 29 in Vallejo for cross street traffic and non-motorists to enter or cross the State Route.

The STA and the City of Vallejo has not conducted a recent study of this corridor in Solano County; however, Napa County Transportation and Planning Agency, in coordination with

Caltrans, Vallejo and other agencies completed a corridor study focusing on SR 29 in Napa County between the City of Napa and American Canyon. The information provided in the following paragraph was taken directly from the NCTPA study. The report did not go into details regarding current level of service or other existing conditions that assess the performance of the corridor. The STA is planning to undertake a Major Investment Study (MIS) in Fiscal Year 2009-10 for the SR 29 Corridor within Solano County.

NCTPA's SR 29 Corridor Study reported that in 2003, at the Napa/Solano County line, SR 29 carried 1,405 northbound vehicles and 1,195 southbound vehicles in the AM peak hour. This same location carried 1,295 northbound and 1,615 southbound vehicles in the PM peak hour. North of SR 12/Jameson Canyon Road, SR 29 carried 1,885 southbound and 1,490 northbound vehicles in the AM peak hour in 2003. During the PM peak hour, the southbound traffic is 1,730 vehicles and the northbound traffic was 1,870 vehicles. The report Truck traffic on SR 29 constitutes a fairly large portion of the traffic volumes. Within the study area truck traffic constitutes approximately 7% of the overall traffic volume.

SR 84, SR 128 and SR 220 Corridors



SR 84



SR 128



SR 220

State Routes 84, 128 and 220 are the Solano County's smaller, less traveled State Routes. These corridors run briefly through rural areas of the County as two lane highways. Caltrans is responsible for all three state routes. In fact, Caltrans operates a unique ferry service in Solano County on SR 84, just north of Rio Vista, for travelers crossing the Cache Slough near the Sacramento River. There has not been a recent study or data gathering effort on all three corridors.

Local Connector Routes, Streets and Roads

Community and Intercity Connector Routes

The STA partnered with cities and the County to plan and upgrade intercity connector routes. These routes provide options for local traffic to travel instead of utilizing the Interstate or highway system. These connector routes encourage a cohesive link between land use and transportation and include aspects such as transit facilities, and bicycle and pedestrian options with land use policies to support these improvements. The benefits to the reliever routes are that they decrease traffic on the mainline freeway/highway corridors and provide focused transit and traffic safety improvements to major arterials connecting communities and cities in Solano County. Solano County's current connector routes being developed are the Jepson Parkway and the North Connector Projects.

The Jepson Parkway

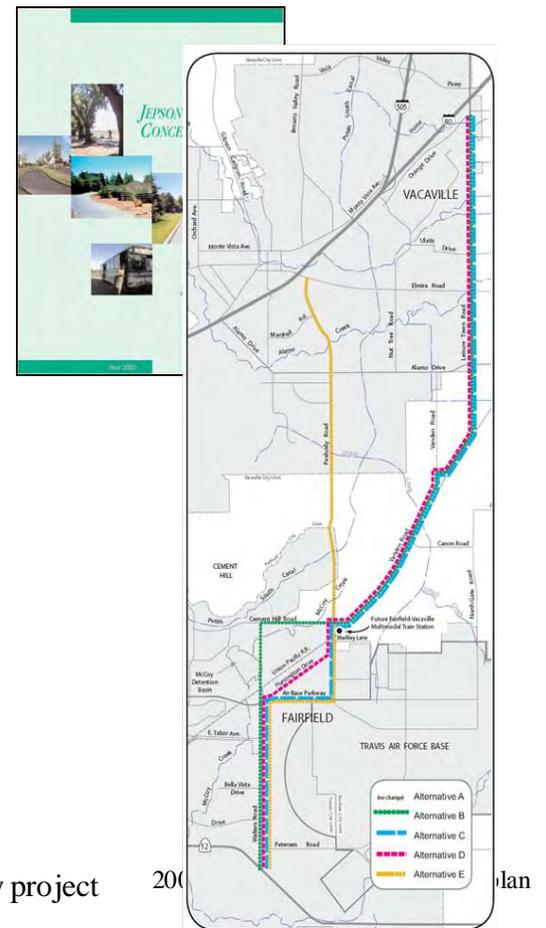
The Jepson Parkway Concept Plan was completed in 2000 by the Solano Transportation Authority (STA) in partnership with the City of Fairfield, the City of Suisun City, the City of Vacaville and Solano County. The 12-mile Jepson Parkway project will improve intra-county mobility for Solano County residents and provide traffic relief for I-80.

As envisioned by the Concept Plan, the Jepson Parkway would improve safety at various locations and along various road segments; offer relief from existing and anticipated traffic congestion on north-south routes in Solano County; provide improved and new transit, bicycle, and pedestrian facilities; and include a crossing of the Union Pacific Railroad (UPRR) tracks at Peabody Road.

The Jepson Parkway project is divided into 10 segments for design and construction purposes. Roadways proposed for improvements are Leisure Town Road, Vanden Road, Cement Hill Road, and Walters Road.

Five (5) construction projects within the Jepson Parkway project have been completed:

- a. The extension of Leisure Town Road from Alamo to Vanden-Vacaville/County;
- b. The relocation of the Vanden/Peabody intersection- Fairfield;
- c. Improvements to Leisure Town Road bridges- Vacaville;
- d. The Walters Road Widening- Suisun City; and
- e. and the I-80/Leisure Town Road Interchange- Vacaville.



North Connector

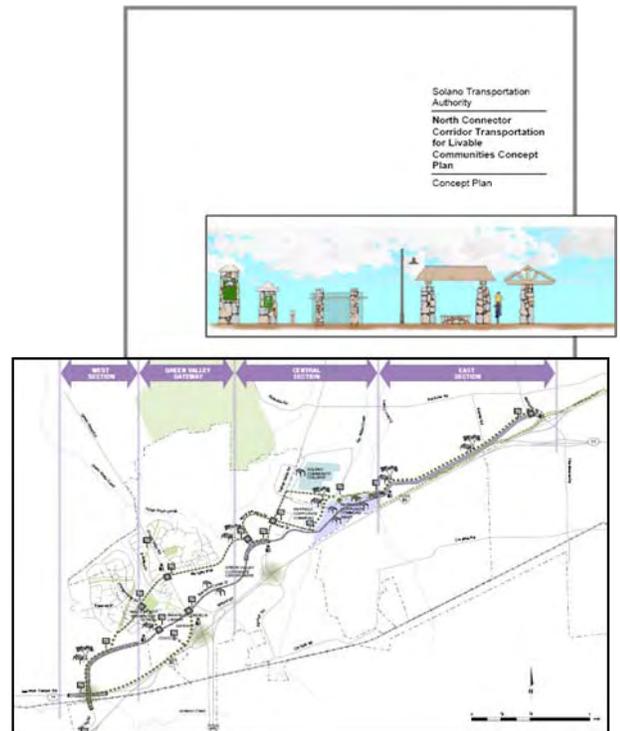
Similar to the Jepson Parkway, The North Connector is envisioned to have design improvements with Transportation for Livable Communities (TLC) concepts, which include alternative modes connections, such as bicycle and pedestrian, to residential, employment, civic and retail land uses throughout the corridor. The North Connector project area is between Abernathy Road and SR 12/Jameson Canyon in Suisun Valley and Green Valley located in south western edge of the City of Fairfield. The North Connector corridor travels through two separate jurisdictions: the County of Solano and the City of Fairfield. The STA partnered with both agencies to develop two separate, but related efforts for the North Connector Corridor:

- North Connector Transportation for Livable Communities (TLC) Corridor Concept Plan
- North Connector Project

The North Connector TLC Corridor Concept Plan recognized alternative modes concepts and land use linkages for the entire corridor. These concepts identified bicycle, pedestrian and transit facility networks that could be constructed as part of future road improvements, new development, or as funding becomes available.

The separate North Connector Project focused primarily on road improvements for local circulation near the I-80/I-680/SR 12 Interchange. The North Connector Project was originally identified in the I-80/I-680/I-780 Major Investment Study (MIS) as one of the alternatives to address the congestion on I-80/I-680/SR 12 Interchange. The North Connector project involves constructing two segments of a two to four-lane arterial connection in the City of Fairfield and Solano County, north of I-80 between Abernathy Road on the east and State Route 12/Red Top Road on the west. The first phase of the project is under construction and involves construction of the east end from Abernathy Road to west of Suisun Creek. The purpose of the project is to address existing and future traffic congestion on local streets and I-80 in Solano County and the City of Fairfield, and to provide a better local circulation network for transit users, bicyclists, and pedestrians.

Collectively, both documents provide the North Connector Corridor with a comprehensive coordinated strategy developed in partnership with Solano County and the City of Fairfield. As a result, the North Connector Corridor will be a multi-modal corridor that links land use and transportation to support the use of alternative travel modes, and protect existing and future residential neighborhoods.



North Connector TLC Concept Plan

Future Connector Route- Columbus Parkway

Another opportunity for a connector route is Columbus Parkway between the cities of Vallejo and Benicia. Columbus Parkway directly links both cities and is an alternative route to I-780 for local traffic. This connector has the potential for focused multi-modal improvements, including bicycle, pedestrian, and transit facilities.

Local Streets and Roads

MTC reported in the 2008 State of the System Report that as of 2007 Solano County and the seven cities maintain a total of 3,563 lane miles of local streets and roads. The County of Solano maintains the most lane miles with a total of 1,168 miles of unincorporated streets and roads. The City of Vallejo has the second most lane miles of local roadways to maintain with 657 miles. Table 5 provides a list of the total lane miles as of 2007 maintained by each STA member agency as listed in MTC's 2008 State of the System Report.

Table 5. Total Lane Miles by Agency.

Agency	Total Lane Miles
Benicia	190
Dixon	129
Fairfield	702
Rio Vista	45
Solano County	1168
Suisun City	145
Vacaville	527
Vallejo	657
Total	3563

MTC's Street Saver Program (formally known as the Pavement Management System) tracks the conditions of the streets and roads for the Bay Area by surveying the Pavement Condition Index (PCI) throughout the Bay Area. The PCI is based on a point system that ranges from 0 to 100 that measures the type and severity of the pavement distress through road survey samples. PCI scores are rated as follows:

<u>Pavement Condition</u>	<u>PCI Score</u>
Poor	25-49
At-Risk	50-59
Fair	60-69
Good	70-79
Very Good	80-89

Pavement with a PCI score below 25 is in severe distress; in contrast, pavement with a PCI score above 89 is in optimal condition. For illustrative purposes, the Figure 5 on page 40 provides photo examples of pavement conditions.

The cities and the County of Solano annually report the condition of their roadways electronically through MTC’s Street Saver Program. In some cases, MTC estimates the PCI score based on prior year PCI reports if an agency does not report their pavement conditions. In addition to measuring the pavement quality for streets and roads, the PCI is a factor in determining federal funding levels for local agencies streets and roads maintenance. Other factors include population and lane miles.

MTC’s 2008 State of the System Report shows Solano County and the seven cities collectively have an average unweighted score of 65 with a Fair rating. Table 6 below summarizes MTC’s report for Solano County and the seven cities.

Table 6. 3-Year PCI Agency Ratings for Solano County

Agency	Total Lane Miles	PCI Survey Year				Rating
		2004	2005	2006	2007	
Benicia	190	72	70	70	68	Fair
Dixon	129	76	79	81	77	Good
Fairfield	702	80	78	77	75	Good
Rio Vista	45	58	55	51	48*	Poor
Solano County	1168	61	59	58	61	Fair
Suisun City	145	60	56	53	50	At-Risk
Vacaville	527	76	76	78	79*	Good
Vallejo	657	55	54	54	54	At-Risk
	Average PCI	66.0	66.1	65.8	65.2	Fair

* Three-year moving average score is an estimate based on inspections done in 2006.

Figure 5. Example of PCI Pavement Conditions

<p>Very Good</p>	<p>Pavement Structure is stable, with no cracking, no patching, and no deformation evident. Roadways in this category are usually fairly new. Riding qualities are excellent. Nothing would improve the roadway at this time.</p>		
			
<p>Good</p>	<p>Stable, minor cracking, generally hairline and hard to detect. Minor patching and possibly some minor deformation evident. Dry or light colored appearance. Very good riding qualities. Rutting less than 1/2".</p>		
			
<p>Fair</p>	<p>Pavement structure is generally stable with minor areas of structural weakness evident. Cracking is easier to detect. The pavement may be patched but not excessively. Although riding qualities are good, deformation is more pronounced and easily noticed. Rutting less than 3/4".</p>		
			
<p>At Risk</p>	<p>Areas of instability, marked evidence of structural deficiency, large crack patterns (alligatoring), heavy and numerous patches, deformation very noticeable. Riding qualities range from acceptable to poor. Rutting greater than 3/4".</p>		
			
<p>Poor</p>	<p>Pavement is in extremely deteriorated condition. Numerous areas of instability. Majority of section is showing structural deficiency. Riding quality is unacceptable (probably should slow down).</p>		
			

Photos courtesy of the Oregon Department of Transportation

Local Streets and Roads included in Routes of Regional Significance

In January 2009, the STA surveyed the seven cities and County of Solano as well as Caltrans for information related to their roadway segments included in the Routes of Regional Significance.

Solano County has the most roadway segments included in the Routes of Regional Significance roadway network with a total of 156 total lane miles of Routes of Regional Significance roadways to maintain. Solano County's roadway segments include several intercity connections and frequently intermix with other member agency street segments included in the Routes of Regional Significance. All of the survey respondents indicated they primarily use state and federal gas tax funds to maintain their Routes of Regional Significance Roadways. The city of Rio Vista and the County of Solano also use funding from Transportation Development Act (TDA) in addition to gas tax funds to maintain their roads.

The County of Solano and the City of Vallejo currently have the most active maintenance/improvement projects for their Routes of Regional Significance roadway segments. The County of Solano reported several chip seal and overlay projects on their roads in addition to planned widening for Pitt School Road and the construction of the new North Connector project. The City of Vallejo also has several overlay projects as well as improvements related to development projects underway near the waterfront and Touru University.

Almost all of Suisun City's Routes of Regional Significance road segments have a maintenance or improvement project underway or planned as part of future development. The City of Suisun City's primary improvement project is currently underway on Sunset Drive in the vicinity of Railroad Ave and Suisun City Limits.

The City of Benicia reported that their most recent project on their Routes of Regional Significance road segments was the widening of Columbus Parkway in 2008 between I-780 and Benicia/Vallejo City Limits. The City of Rio Vista indicated that the only project they recently completed on their Routes of Regional Significance segments was a slurry seal project in 2008 Front Street from Main Street to SR 84. Rio Vista's Front Street and Suisun City's Sunset Drive are included on the Routes of Regional Significance roadway network.

The City of Vallejo and the City of Benicia reported that a few of their Routes of Regional Significance segments have signal pre-emption devices primarily used for faster response times for emergency vehicles. The technology can also be used for prioritizing transit vehicles that are running late on their route.

Local Streets and Roads Funding

Over the last two years (not including Federal Stimulus), Solano County received a little over \$3.462 million in Federal Surface Transportation Project (STP) funding for the County unincorporated area and cities' local street and roads maintenance. On October 12, 2005, the STA Board approved streets and roads funds in the amounts listed on Table 7 for FY 2007-08 and FY 2008-09.

Table 7. Streets and Roads Allocations for Solano County

Agency	3 rd Cycle Local (FY 2007-08 and FY 2008-09) Streets and Roads Allocation
Solano County	\$ 1,055,954*
Benicia	\$ 202,371
Dixon	\$ 131,089
Fairfield	\$ 544,822
Rio Vista	\$ 77,332
Suisun City	\$ 206,088
Vacaville	\$ 531,837
Vallejo	\$712,678
Total	\$ 3,462,171

* Includes Federal Aid Secondary set-aside requirement for County streets and roads funding

Solano Routes of Regional Significance Criteria

**(Approved by Arterials, Highways, and Freeways Committee
on September 10, 2008)**

The STA selected roadway segments that will be included in the Solano Routes of Regional Significance based on the following criteria:

1. Solano County Congestion Management Program (CMP) Network

The Solano County CMP includes a defined roadway system used for monitoring mobility in the county. The system consists of all State highways and principal arterials, which provide connections from communities to the State highway system and between the communities within Solano County. The STA monitors Level of Service (LOS) impacts to the CMP system from proposed development projects considered by each of the seven cities and the County of Solano. The STA has the authority to withhold gas tax subvention funds for the agency responsible for LOS impacts if the impacts are not addressed in a CMP deficiency plan.

Roadway segments included in the Solano CMP Network are Routes of Regional Significance.

2. Access to Existing and Planned Transit Centers Serving Intercity Trips

Intercity transit services enhance travel mobility to/from and within Solano County as well as providing increased transportation capacity. The Association of Bay Area Governments (ABAG) anticipates a significant increase in population and employment within Solano County and throughout the Bay Area over the next 25 years. The expected increase in Solano County commuters will add pressure on already congested roads. Without added investment in intercity transit services, regional roadways will become increasingly congested thereby adversely impacting the quality of life in Solano County and also its economic vitality.

Prioritizing transportation funding for roadway segments that provide access to existing and planned intercity transit services is an important option to address congestion. Therefore, roadway segments that provide access to intercity transit services can be considered Routes of Regional Significance. Examples of existing/planned transit centers serving intercity trips include:

- Fairfield Transportation Center
- Vacaville Transportation Center
- Existing Amtrak/Capitol Corridor Station in Suisun City and planned stations for Dixon and Fairfield/Vacaville
- Vallejo Ferry Terminal

3. Access to a Major Employment Center with Higher Traffic Volumes

According to the 2005 Bay Area Commuter Profile, Solano County commuters have the longest average commute trip compared to any other Bay Area County. Approximately 40% of Solano County residents commute outside the county for employment purposes. Efforts to attract and maintain major employers for economic and employment opportunities for Solano County residents are ongoing. Providing sufficient roadway facilities will support major employment centers to be located in Solano County. Major employment centers located in Solano County will take advantage of employees currently commuting long distances and will add to the economic vitality of the County.

Roadway segments that provide access to major Solano County based employment centers with existing or projected traffic volumes on arterials that justify a separated 2-lane roadway can qualify as a Route of Regional Significance. Employment centers should take into account the total amount of traffic generated by employee trips or patron trips utilizing services within the employment center. Examples of existing major employment centers in Solano County are:

- Kaiser Permanente- Vallejo and Vacaville
- Six Flags Discovery Kingdom- Vallejo
- Genetech (Vacaville and Dixon Facilities)
- Westfield Shoppingtown- Fairfield
- Travis Air Force Base
- Benicia Industrial Park

4. Intercity and Freeway/Highway Connection

Improving intercity mobility is one of the overall goals of the Solano Comprehensive Transportation Plans. Roadways that accommodate intercity trips, freeway to freeway trips, and freeway to highways connections can qualify as a Route of Regional Significance. These include roadway facilities with existing or projected traffic volumes arterials that justify a separated 2-lane roadway. Examples of roadways that provide intercity and freeway/highway connections are:

- Jepson Parkway
- North Connector
- Columbus Parkway

5. Improves Countywide Emergency Response

In case of emergency, emergency vehicles need to have adequate alternative access to respond to incidents. Solano County has experienced major incidences of grass fires, flooding, and traffic accidents that were extreme enough to close a freeway or highway corridor for hours. It is important to maintain frontage roads and parallel routes that are alternative options if freeway or highway corridor remains closed for long periods of time. Examples of roads that fit this description are:

- Lyon Road (Solano County near I-80)
- Lopes Road (Solano County near I-680)
- McCormick Road (Solano County near SR 12)
- McGary Road (Fairfield and Solano County near I-80)
- Future North Connector (near I-80 and SR12)

Comprehensive Transportation Plan (CTP) Overall Goals Related to Routes of Regional Significance

On February 13, 2008, the STA Board adopted an overall purpose statement with several corresponding goals as part of the new CTP update.

CTP Goal #5: The Solano CTP will seek to maintain regional mobility while improving local mobility.

CTP Goal #7: Encourage Projects and programs that maintain and use existing systems more efficiently before expanding infrastructure.

CTP Goal #8: The Solano CTP will include priority lists and funding strategies for projects and programs.

Arterials, Highways and Freeways (AHF) Goals Related to Routes of Regional Significance

AHF Goal #1: Invest available funds in maintaining a minimum Pavement Conditions Index (PCI) of 63 on the STA's Routes of Regional Significance.

AHF Goal #4: Support funding improvements identified in the STA's Routes of Regional Significance to accommodate transit routes and bicycle and pedestrian facilities included in the Solano Countywide Bicycle and Pedestrian Plans that is consistent with MTC's Routine Accommodations for Non-Motorized Vehicles.

AHF Goal #5: Develop and maintain an arterials, highways and freeways system that facilitate and encourage carpool, vanpools and multi-modal transportation through the use of seamless High Occupancy Vehicle (HOV) lane network, connections to regionally significant transit facilities, and park and ride lots.

AHF Goal #6: Update Solano County's Routes of Regional Significance to implement the STA's 50/50 policy.

