

INTERSTATE-8 SAN DIEGO COUNTY TRANSPORTATION CONCEPT SUMMARY

This Transportation Concept Summary (TCS) for Interstate 8 in the San Diego County portion of District 11 serves as an analysis tool and conceptual long-range guide for future investment decisions in the transportation corridor.

DISCLAIMER

The information and data contained in this document are for planning purposes only and should not be relied upon for final design of any project. Any information in this TCS is subject to modification as conditions change and new information is obtained. Although planning information is dynamic and ever-changing, the District 11 Planning Division makes every effort to ensure the accuracy and timeliness of the information contained in the TCS. The information in the TCS does not constitute a standard, specification, or regulation, nor is it intended to address design policies and procedures. If you encounter information that you deem to be inaccurate or unreliable, please contact Kim.Sturmer@dot.ca.gov or at 619-688-6967.



CALIFORNIA DEPARTMENT OF TRANSPORTATION
PLANNING DIVISION
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Caltrans
DISTRICT 11

I-8 San Diego County Transportation Concept Summary June 2012

CORRIDOR PURPOSE

This document discusses transportation issues related to the San Diego County portion of Interstate 8 (I-8). A separate document on Imperial County portion of I-8 has been developed. To provide continuity, some transportation aspects of the entire corridor are included in this document.

The primary purpose of I-8 in the San Diego area is to provide for east-west movement of commuter, regional, and interregional traffic. The western, more urbanized portion of I-8 is a major commuter route serving Ocean Beach, Mission Valley, San Diego State University, La Mesa, El Cajon, the County of San Diego and Alpine. The eastern portion of I-8 beyond the urban area is primarily an interregional route used for goods movement, and for access to mountain and desert recreational areas. However, there is a small, but increasing amount of commuter traffic between San Diego and the rapidly growing Imperial County. I-8 is the primary route used by Imperial County agricultural producers to ship products into the San Diego area. This has been particularly true since the parallel SD&AE railway which ran from San Diego to Plaster City/El Centro was disrupted in 1983. In turn, I-8 provides access to suppliers of the agricultural support industries.

CORRIDOR NEEDS

Most of the I-8 corridor between I-5 and the Lake Jennings area east of El Cajon currently experiences congestion and operates at unacceptable levels of service during the morning and afternoon peak periods. I-8 has experienced a relatively slow rate of traffic growth since 2000, generally between 1% and 5% annually. This growth trend is expected to continue until 2030. Since most of the corridor between I-5 and SR-125 has limited available right of way due to abutting parallel roadways, future lane additions are problematic in this portion of I-8. East of SR-125, right of way is not as limiting and potential capacity improvements may be easier to implement.

Mission Valley

Because of the limited right of way on I-8, especially in the Mission Valley area, other types of transportation improvements instead of capacity improvements will be needed. Both Transportation System Management (TSM) and Transportation Demand Management (TDM) strategies should be developed in an effort to reduce travel demand and improve the efficiency of moving transportation in the I-8 corridor.

Transportation System Management is the consideration of projects, actions, or strategies that result in increasing the efficient movement of people, goods, and services on the existing transportation system without major system expansion by capacity improvements. Typical TSM strategies that either have been developed or could be

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utilized in this portion of the I-8 corridor include improved and/or additional ramp metering, High Occupancy Vehicle (HOV) Bypass lanes, local interchange and freeway interchange improvements, auxiliary lanes, and the construction of park and ride lots. In addition, expansion of Intelligent Transportation System (ITS) type improvements such as Changeable Message Signs (CMS), Closed Circuit Television (CCTV), Highway Advisory Radio (HAR), Traffic Monitoring Stations (TMS), and other traffic operational strategies should also be implemented.

Transportation Demand Management is the implementation of measures that focuses on reducing or changing travel demand rather than increasing transportation supply. TDM strategies are intended to modify travel behavior, using measures which either eliminate trip making, change the time of day trips are made, or accommodate person-trips in fewer vehicles. Typical TDM strategies that can affect travel demand in the I-8 corridor include telecommuting, work rescheduling, alternative work locations; teleconferences; increase ridesharing; increase transit use; walking, bicycling, user charges for congestion and peak period use to shift peak demands; tolls; limit amount and increase cost of parking; fuel taxes and emission fees; and alternative peak-hour routes .

The existing, adopted 1984 Mission Valley Community Plan is expected to be updated by the City of San Diego in the future depending on the City budgetary situation. Once the Plan update is approved to move forward, it is anticipated that the updated Plan will take two years to complete. One of the major goals of the Plan is the provision of a surface street system, carefully coordinated with the regional freeway system, which is adequate to meet the total future needs of Mission Valley. A major problem facing the existing Mission Valley city street system is its lack of any uniformity. Many streets are under-designed and transport an excessive number of cars on streets that were never intended for such volumes. In addition, there is an inordinate amount of out of direction travel. The streets in Mission Valley vary in width, sometimes from block to block. The chief reason for this varying design in street standards is due to the manner in which Mission Valley developed rather than any oversight by responsible parties. In the past there has been no overall development plan for the public and private sectors to follow in Mission Valley. Several of the largest parcels are currently in uses such as sand and gravel extraction. These parcels and other major parcels in areas near the San Diego River are expected to be redeveloped in the future. These redevelopments will generate substantial traffic that will impact both the existing city street system and the I-8 corridor through Mission Valley.

The present transportation system in Mission Valley has inadequate capacity. As currently developed, it will be unable to handle future local circulation and regional transportation needs. A significantly upgraded surface street system in Mission Valley is needed to reduce the reliance on I-8 for travel within Mission Valley. Further coordinated studies between Caltrans and the City of San Diego, such as an I-8 Mission Valley Corridor Study, are needed to remedy deficiencies in both the I-8 corridor in Mission Valley and the local Mission Valley street system. Potential improvements that should be studied include constructing new interchanges and/or redesigning existing interchanges, instituting appropriate operational improvements on I-8 such as the provision of auxiliary lanes and ramp meters, completing gaps in the Mission Valley city street

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system, reducing the effects of flooding on the transportation network; and mitigating congestion by providing incentives for the use of modes of transportation other than the automobile, especially the San Diego Trolley system. In addition, any and all TSM and TDM improvements to I-8 in Mission Valley must be coordinated with the City of San Diego to achieve a balanced, integrated transportation system.

Proposed I-8 Corridor Study

Caltrans District 11 has applied for a State Planning and Research (SPR) Special Study Proposal to develop an I-8 Corridor Study. This study is needed to comprehensively address service and safety issues on this regionally and interregionally significant corridor. The study will focus on the portion of I-8 from the beginning of the route near the Ocean Beach community to State Route 125 (SR-125) east of the College Area. There are numerous deficiencies in the I-8 corridor that will be addressed including inadequate and nonstandard freeway access ramps, insufficient interchange capacity, and lack of operational features in several areas such as auxiliary lanes and ramp metering. Other issues that need to be studied and developed are planned High Occupancy Vehicle (HOV) lanes and connectors, Bus Rapid Transit (BRT) access, Intelligent Transportation System (ITS) infrastructure including loops, cameras, changeable message sign locations, ramp metering, and local street network improvements. The I-8 Corridor Study will be coordinated closely with the San Diego Association of Governments (SANDAG), the City of San Diego, and local developers primarily because of ongoing development, transit service, and the surface street system adjacent to the I-8 Corridor, particularly in the areas where bottlenecks occur. There are numerous proposed large scale developments adjacent to the I-8 Corridor. These developments will generate large volumes of traffic to an already congested corridor. Through working with local developers and institutions, the I-8 Corridor Study will develop a holistic view of the transportation issues in the corridor by coordinating future improvements, developments and mitigations into one document.

East of Mission Valley

East of Mission Valley, a combination of TSM, TDM and some capacity improvements will be needed to maintain good peak period level of service in the San Diego County I-8 corridor.

CORRIDOR ANALYSIS

A variety of transportation improvements are needed in the I-8 corridor to improve the mobility of people and freight and to improve accessibility to major employment and other regional activity centers. The aforementioned I-8 Corridor Study proposal will identify improvements in the Mission Valley area. Additional proposed operational improvements for all of I-8 in San Diego are included in the "Recommended Corridor Improvements" section of this report.

CORRIDOR TRAFFIC

The following table shows existing and future traffic conditions for I-8.

LOCATION	2011 AWDT ¹	2011 LOS ²	2030 AWDT ³
Sunset Cliffs Blvd to Midway Dr	47,200	C	80,900
Midway Dr to I-5	103,500	F	141,700
I-5 to Morena Blvd	194,700	F	251,000
Morena Blvd to Taylor St	194,700	F	250,200
Taylor St to Hotel Circle South	198,400	F	250,200
Hotel Circle South to SR-163	208,200	F	271,300
SR-163 to Mission Center Rd	214,400	F	273,100
Mission Center Rd to Texas St.	230,000	F	285,100
Texas St to I-805	203,700	F	260,700
I-805 to I-15	252,800	F	299,500
I-15 to Fairmont Ave	298,400 ⁴	F	340,000 ⁴
Fairmont Ave to Waring Rd	246,700	F	290,600
Waring Rd to College Ave	238,000	F	271,000
College Ave to Lake Murray Blvd	206,100	F	234,900
Lake Murray Blvd to Fletcher Pkwy	198,600	F	232,400
Fletcher Pkwy to Spring St	181,600	F	208,600
Spring St to El Cajon Blvd	200,800	D	222,000
El Cajon Blvd to Jackson Dr	200,800	D	222,000
Jackson Dr to La Mesa Blvd	191,200	D	210,600
La Mesa Blvd to SR-125	191,200	D	210,600
SR-125 to Severin/Fuerte Dr	236,200	F	268,100 ⁵
Severin/Fuerte Dr to El Cajon Blvd	242,700	F	278,600 ⁵
El Cajon Blvd to Main St	187,300	F	226,700 ⁵
Main St to Johnson Ave	181,900	E	220,600 ⁵
Johnson Avenue to SR-67	161,700	D	200,700 ⁵
SR-67 to Mollison Ave	126,700	D	161,400 ⁵
Mollison Ave to 2nd St	117,200	D	154,600 ⁵
2nd St to East Main St	69,000	C	123,400
East Main St to Greenfield Dr	76,100	C	131,000
Greenfield Dr to Los Coches Rd	77,700	D	117,300
Los Coches to Lake Jennings Park	66,300	C	98,400
Lake Jennings Park to Alpine Blvd	55,700	C	92,200
Alpine Blvd to Tavern Rd	48,900	B	84,800
Tavern Rd to West Willows Rd	33,800	A	59,700
West Willows Rd to East Willows Rd	25,200	A	38,000
East Willows Rd to SR-79	24,500	A	44,400
SR-79 to Pine Valley Rd	18,700	A	34,400
Pine Valley Rd to Sunrise Hwy	17,100	A	31,800
Sunrise Hwy to Buckman Springs	15,900	A	30,800
Buckman Springs to Cameron Rd	14,500	A	28,500
Cameron Rd to SR-94	14,000	A	27,400
SR-94 to Carrizo Gorge Rd	13,000	A	28,900
Carrizo Gorge Rd to Inkopah Rd	12,600	A	17,400

¹ 2011 AWDTs derived from Caltrans District 11 Traffic Census Branch AADT's

² 2011 Level of Service (LOS) is based on sketch level planning analysis and is not to be used for design purposes

³ 2030 AWDTs are from the most recent SANDAG Regional Transportation Model. 2030 LOS not shown - future modeling runs will be needed to determine 2030 LOS for proposed general purpose/HOV lane improvements. The impacts of TDM and TSM improvements are difficult to quantify, therefore, accurate determination of 2030 LOS is problematic.

⁴ Estimated volumes include adjacent collector lane volumes

⁵ 2030 AWDTs in these segments include both General purpose lane and HOV lane volumes. HOV volumes are approximately 10%-16% of total traffic volume depending on segment location.

FREEWAY CORRIDOR PERFORMANCE MEASURES

The Freeway Performance Measurement Project (PeMS) is used to measure performance in the I-805 corridor. It is a joint effort by Caltrans, the University of California, Berkeley, and PATH, the Partnership for Advanced Technology on the Highways. The software that has been developed in conjunction with this project, the Performance Measurement System, PeMS, is a traffic data collection, processing and analysis tool to assist traffic engineers in assessing the performance of the freeway system. PeMS extracts information from real-time and historical data and presents this information in various forms to assist managers, traffic engineers, planners, freeway users, researchers, and traveler information service providers (value added resellers or VARs).

With PeMS, Caltrans managers can instantaneously obtain a uniform and comprehensive assessment of the performance of their freeways. Traffic engineers can base their operational decisions on knowledge of the current state of the freeway network. Planners can determine whether congestion bottlenecks can be alleviated by improving operations or by minor capital improvements. Traffic control equipment (ramp-metering and changeable message signs) can be optimally placed and evaluated. In short, PeMS can serve to guide and assess the deployment of intelligent transportation systems (ITS).

PeMS obtains 30-second loop detector data in real-time from each Caltrans District Transportation Management Center (TMC). The data are transferred through the Caltrans wide area network (WAN) to which all districts are connected. Users can access PeMS over the Internet through a Web browser. The PeMS software architecture is modular and open. It uses commercial off-the-shelf products for communication and computation. The 30-second data received by PeMS consist of counts (number of vehicles crossing the loop), and occupancy (the average fraction of time a vehicle is present over the loop). The software processes the data in real-time and performs a number of steps, including the computation of performance measures.

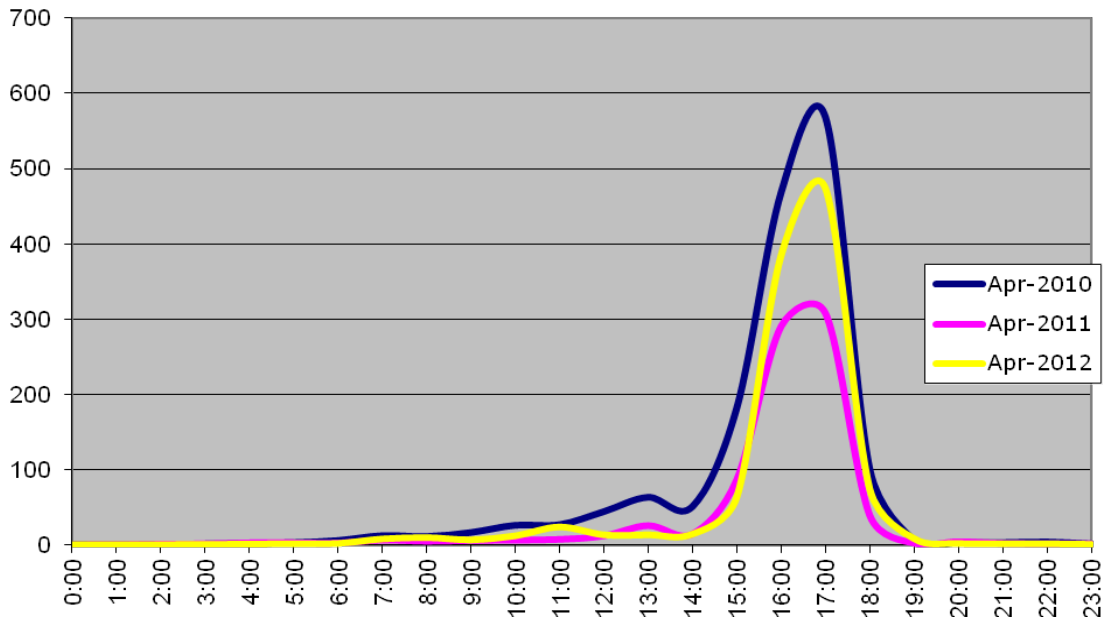
Useful performance measures include delay, travel time, and speed. The following charts show these performance measures for the I-8 corridor between I-5 and 2nd Street in El Cajon.

AVERAGE WEEKDAY HOURLY DELAY

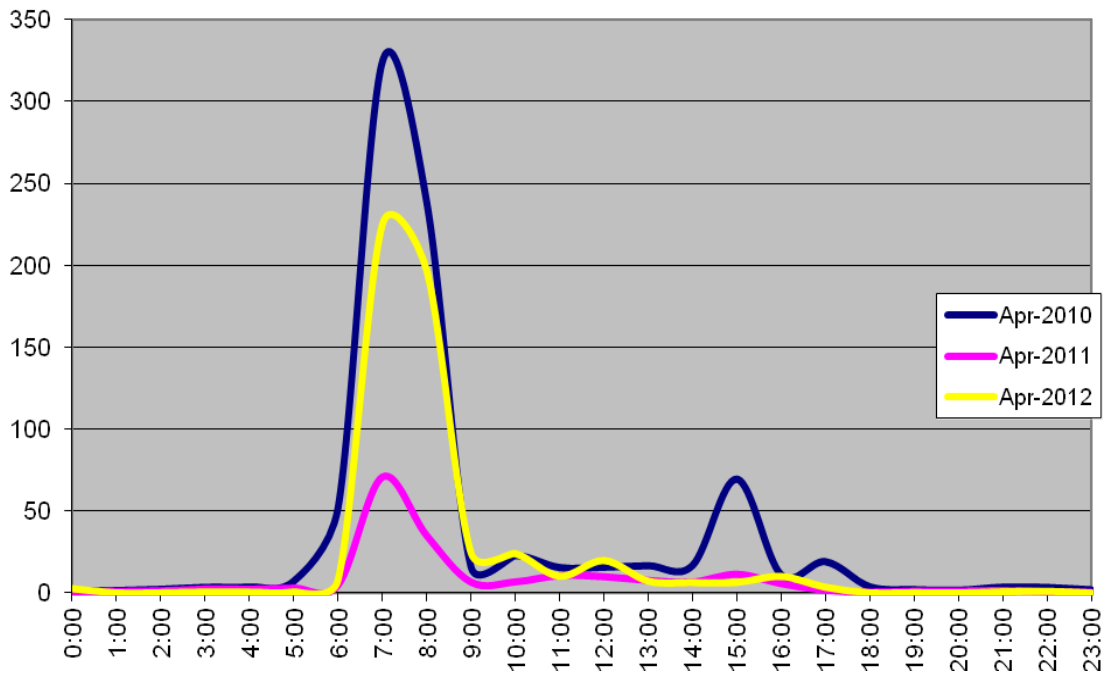
An easy way to understand the characteristics of congestion and related delays is to show average weekday hourly delay. The following two charts shows historical average weekday hourly delay in the eastbound and westbound directions on I-8 between I-5 and 2nd Street. The vertical axis displays Average Vehicle Hours of Delay (based on 60 mph), and the horizontal axis displays the time of day. Data is from the representative month of April for calendar years 2010, 2011, and 2012.

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I-8 Average Eastbound Weekday Hourly Delay (I-5 to 2nd Street)



I-8 Average Westbound Weekday Hourly Delay (I-5 to 2nd Street)



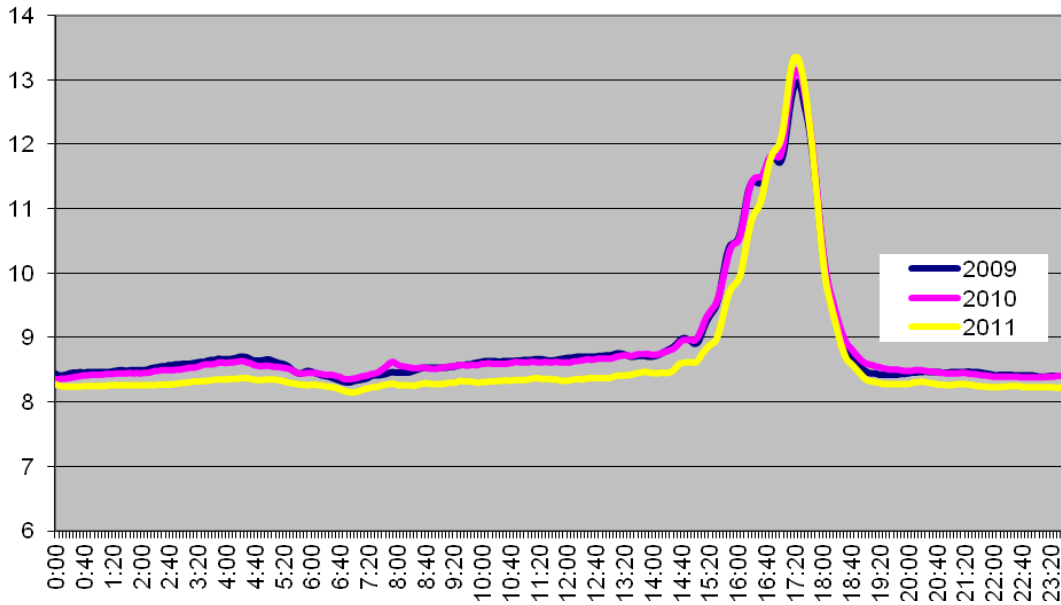
TRAVEL TIME

Travel time is another useful performance measure. PeMS defines travel time as the amount of time it takes for a vehicle to cross a freeway link. PeMS computes the travel time by first calculating the speed for a particular link and then dividing the speed into the length of the link.

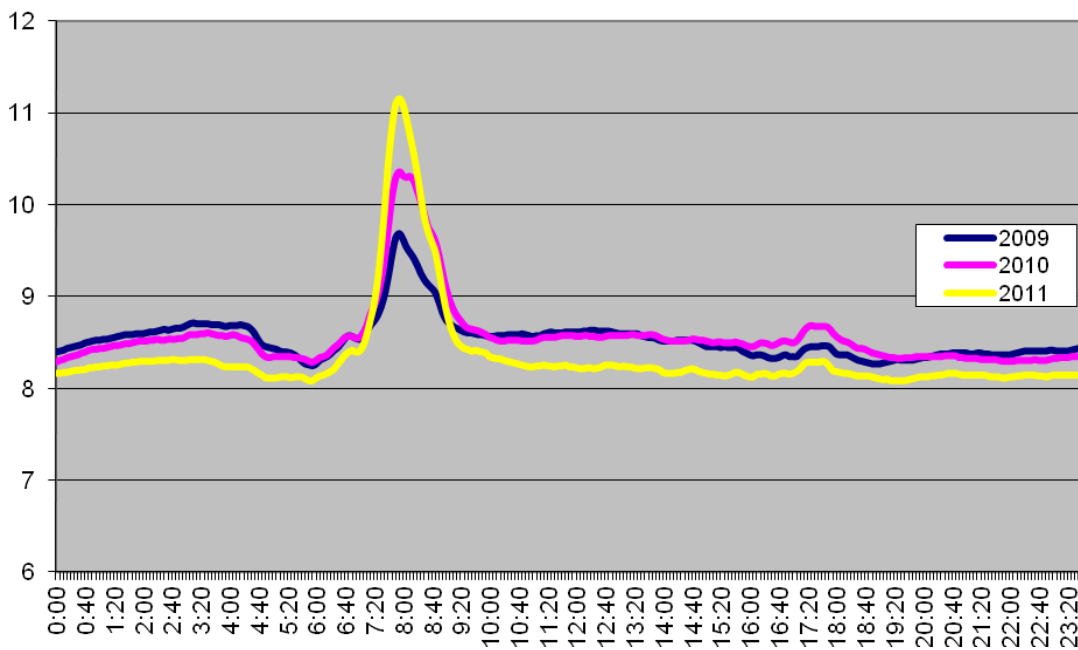
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This assumes that the speed of the vehicle is constant over the entire length of the link, which is almost always not true. The following charts shows historical average eastbound and westbound travel times between I-5 and Lake Murray Boulevard for calendar years 2009, 2010, and 2011. The vertical axis displays the average travel time in minutes, and the horizontal axis displays the time of day.

I-8 Eastbound Travel Times (I-5 to Lake Murray Boulevard)



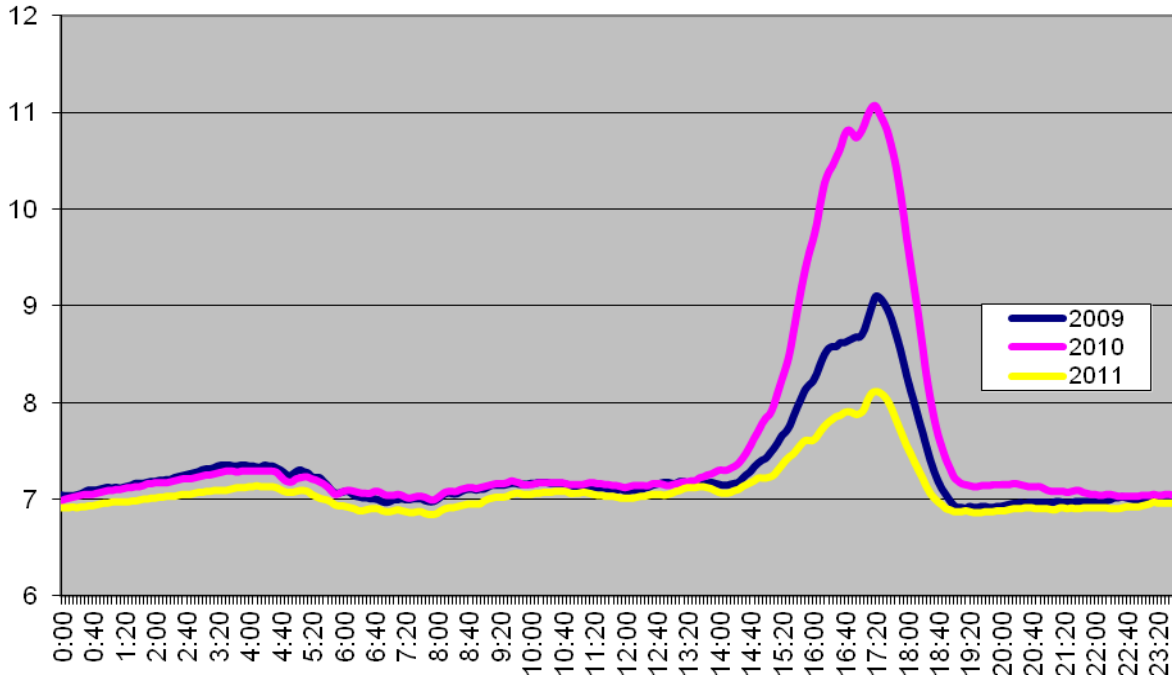
I-8 Westbound Travel Times (I-5 to Lake Murray Boulevard)



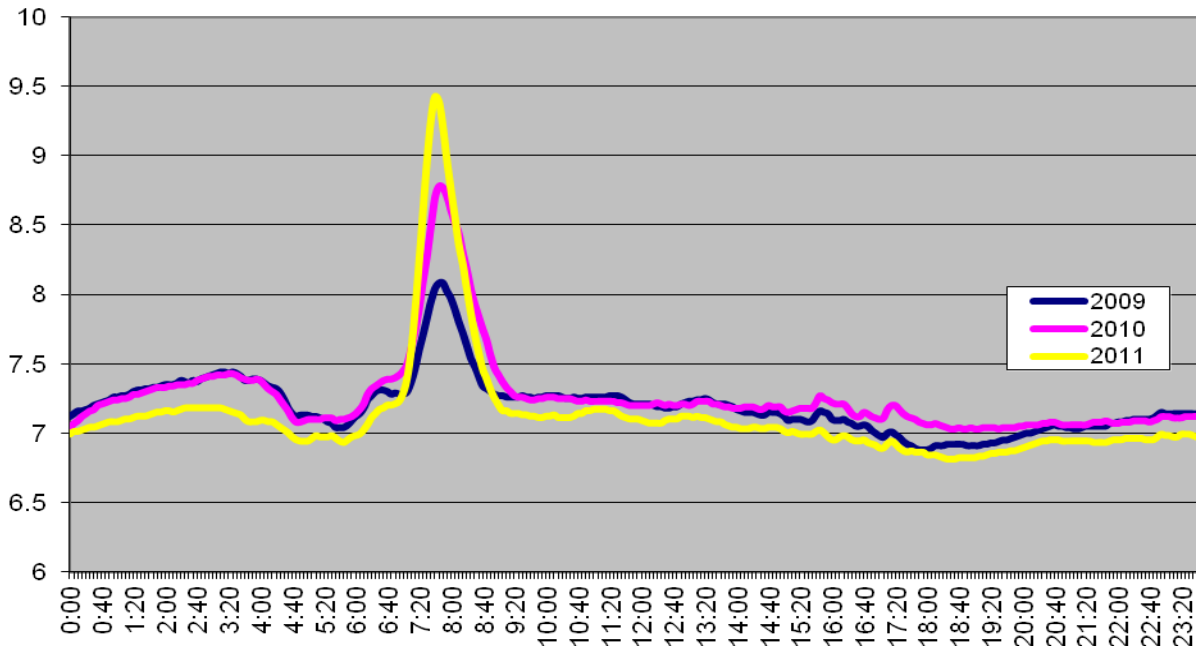
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The following charts shows historical average eastbound and westbound travel times between Lake Murray Boulevard and 2nd Street in El Cajon for calendar years 2009, 2010, and 2011. The vertical axis displays the average travel time in minutes, and the horizontal axis displays the time of day.

I-8 Eastbound Travel Times (Lake Murray Boulevard to 2nd Street)



I-8 Westbound Travel Times (Lake Murray Boulevard to 2nd Street)



PROJECT INITIATION DOCUMENT INFORMATION - CORRIDOR AND SYSTEM COORDINATION

The information in this section pertains to I-8 in both San Diego County and Imperial County.

Interstate 8 (I-8) is an east-west interstate highway facility serving San Diego and Imperial Counties. I-8 begins in San Diego at its junction with Sunset Cliffs Boulevard, Post Mile (P.M.) SD L0.0. The portion of this route that is within District 11 extends 276.8 kilometers (km) (172.0 miles) to its eastern terminus at the California-Arizona State Line (P.M. IMP R97.0) near Yuma, Arizona. I-8 continues into Arizona until it intersects with I-10 near Casa Grande.

In the San Diego area, I-8 interconnects all the major north-south metropolitan freeways including I-5, State Route (SR) 163, I-805, and I-15, SR-125, SR-67 and SR-54. As it continues east, it accesses the southern terminus of SR-79 (P.M. SD R37.8) and the eastern terminus of SR-94 (P.M. SD R65.9). I-8 crosses into Imperial County, connecting with the western terminus of SR-98 (P.M. IMP 10.1), a parallel facility. Within Imperial County, I-8 intersects with SR-86, SR-111 (access to the international Port of Entry (POE) at Calexico) and SR-115. I-8 then reconnects with SR-98 at its eastern terminus. Finally, it accesses the SR-186 connection to the international border station of Andrade, and terminates at the Arizona state border.

I-8 is the primary route used by Imperial County agricultural producers to ship products into the San Diego area. This has been particularly true since the parallel railway was disrupted in 1976 and again in 1983. In turn, I-8 provides access to suppliers of the agricultural support industries. I-8 also connects distribution centers and consumers between the San Diego region and the Calexico/Mexicali region and beyond.

I-8 was added to the State Highway System in three sections:

- Former Route 12 from San Diego (I-5) to El Centro in 1909.
- Former Route 27 from El Centro to the Arizona State Line in 1915.
- Former Route 109 from Sunset Cliffs Boulevard to I-5 in 1915.

I-8 was added to the Freeway and Expressway System in 1959.

The functional classification of I-8 from I-5 to the Arizona State Line is Interstate. From the Urban/Rural Limit (SD P.M. R31.3) to the Arizona State Line (IMP P.M. R97.0), I-8 is included as a part of the Interregional Road System (IRRS).

I-8 in its entirety from Sunset Cliffs Boulevard to the Arizona State Line is a National Highway System (NHS) route. I-8 has been designated by Caltrans District 11 as a State Highway Impacted by NAFTA. The portion of I-8 from I-5 to the Arizona border is a designated route in the National Network for Surface Transportation Assistance Act (STAA) for trucks; I-8 west of I-5 is a terminal access route to the national network. I-8

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from Lake Jennings Park Road to the Imperial County Line is part of the San Diego Region Oversize Load Highway System.

The length of I-8 from I-15 in San Diego County to the future junction with SR-7 east of El Centro is included in the Statewide List of Lifeline Routes. A lifeline route is a route that is deemed so critical to emergency response/life saving activities of a region or the State that it must remain open immediately following a major earthquake, or for which preplanning for detour and/or expeditious repair and reopening can guarantee through movement of emergency response activities.

I-8 from Sunset Cliffs (SD P.M. L0.0) to Highway 98 (IMP P.M. R10.3) is on the Master Plan of State Highways Eligible for Official Scenic Highway Designation.

There is a truck escape ramp on eastbound I-8 near the Meyer Creek Bridge (P.M. IMP R3.7). There is a truck brake inspection area on eastbound I-8 in Inkopah (P.M. SD R76.8). A truck scale facility is located on I-8 near Winterhaven.

An agricultural pest inspection station is located on I-8 west of Winterhaven. An immigration checkpoint has been implemented on westbound I-8 approximately one mile east of Sunrise Highway (San Diego County S-1).

The San Diego Association of Government's (SANDAG) 2050 Regional Transportation Plan (October 2011) includes the following corridor improvements under the Revenue Constrained Plan and the Unconstrained Needs Network:

LOCATION	REVENUE CONSTRAINED	UNCONSTRAINED
I-5 to I-15	8F+ Operational Improvements	8F+ Operational Improvements
I-15 to SR-125	8F/10F+ Operational Improvements	8F/10F+ Operational Improvements
SR-125 to 2 nd Street	6F/8F+ Operational Improvements	6F/8F+ Operational Improvements
2 nd Street to Los Coches Rd	6F	6F
Los Coches Rd to Dunbar Rd	4F/6F	6F
Dunbar Rd to Imperial County	4F	4F

F = Freeway Lanes

HOV = High Occupancy Vehicle Lanes

Freeway Connectors

LOCATION	REVENUE CONSTRAINED	UNCONSTRAINED
I-8/I-5, East to North and South to West	No	Yes

RECOMMENDED CORRIDOR IMPROVEMENTS

Freeway Corridor Improvements

The following table shows recommended major freeway improvements for I-8.

POST MILE	LOCATION	IMPROVEMENT DESCRIPTION
17.4 - R20.0	2nd St to Los Coches Rd	Add 2 General Purpose Lanes ¹

¹ Improvement included in SANDAG October 2011 RTP and the TransNet reauthorization.

The following table shows additional 2010 STIP, 2010 SHOPP, Project Information Reporting System (PIRS), District 11 Developer/Local Projects Funded by Others (FY2011/12/Quarter 3), the SANDAG October 2011 RTP, and the District 11 Planning Division Potential Operational Improvements list. This table does not include projects that are in the Construction phase or the Close-Out phase.

POST MILE	LOCATION	IMPROVEMENT DESCRIPTION	SOURCE/ PHASE
T0.4 – 0.9	0.1 mile west of Nimitz Boulevard to 0.1 mile west of Presidio Park Overcrossing	Pavement Rehabilitation	PIRS/PA&ED
L1.1 – L1.5	0.1 mile west of Midway Drive Undercrossing to 0.3 mile east of Midway Drive Undercrossing	Widen Exit Ramp	PIRS/PA&ED ¹
R0.4	Morena Boulevard	Remove Eastbound on-ramp; Reconfigure Westbound off-ramp	2050 RTP Revenue Constrained Transportation Modeling project
1.2	.25 mile east of Taylor Street	Construct Auxiliary lanes for new Via Las Cumbres Interchange (specific location to be determined). Remove existing Taylor Street Interchange, but keep bridge overcrossing for local circulation.	2050 RTP Revenue Constrained Operational Improvement project
2.0	Hotel Circle	Remove Interchange but keep bridge undercrossing for local circulation	2050 RTP Revenue Constrained Transportation Modeling project

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POST MILE	LOCATION	IMPROVEMENT DESCRIPTION	SOURCE/ PHASE
2.2	Hotel Circle/Bachman	New Interchange at Fashion Valley Road with arterial realignment. Construct Westbound onramp and Westbound off-ramp only	2050 RTP Revenue Constrained Transportation Modeling project
3.0	Mission Center Road	Bridge Widening and Ramp Improvements	District 11 Developer/Local Projects Funded by Others (FY2011/12/Quarter 3)
3.1 – 3.6	Mission Center Road to Texas Street	Construct Eastbound Auxiliary Lane	2050 RTP Revenue Constrained Operational Improvement project
3.3 -3.7	Texas St to Mission Center Rd	Construct Westbound Auxiliary Lane	2050 RTP Revenue Constrained Operational Improvement project
4.1	Qualcomm Way	Westbound off-ramp improvements	District 11 Developer/Local Projects Funded by Others (FY2011/12/Quarter 3)
6.3	Alvarado Road/Fairmount Avenue	Realign Alvarado Road connection to Fairmount Avenue	District 11 Developer/Local Projects Funded by Others (FY2011/12/Quarter 3)
6.3 – 9.0	Fairmount Ave to 0.3 mile west of Lake Murray Boulevard	Slab Replacement, AC Shoulder, and Auxiliary Lane AC	PIRS/PSE
6.9 - 8.2	0.1 mile west of Waring Road Undercrossing to 0.1 mile west of College Avenue Overcrossing	Upgrade Existing Median Metal Beam Guard Rail to Concrete Barrier	PIRS/PSR
8.3	College Avenue	Replace and Widen college Avenue Overcrossing. Construct additional through lane on Westbound approach to Alvarado Road/I-8 Eastbound ramps. Install signal at I-8 Westbound ramps/Parkway Drive.	District 11 Developer/Local Projects Funded by Others (FY2011/12/Quarter 3)
8.3 – R22.0	College Avenue Overcrossing to 1.6 miles west of Flinn Springs Undercrossing	Mill and Place 0.15 of Rubberized Asphalt Concrete - Open Graded	PIRS/PSE
9.0 – 15.3	0.6 mile west of Lake Murray Boulevard Overcrossing to Johnson Avenue Undercrossing	Pavement Rehabilitation	PIRS/PA&ED
9.7 – 10.5	70 th St Fletcher Parkway	Construct Westbound Auxiliary Lane	2050 RTP Revenue Constrained Operational Improvement project
10.5 -12.6	Fletcher Parkway Overcrossing to Severin Drive Overcrossing	Upgrade End Treatments, Add Metal Beam Guard Rail and Concrete Barrier	PIRS/PSE
13.7	Chase Avenue	Widen Chase Avenue off-ramp to two lanes	2050 RTP Revenue Constrained Transportation Modeling project
16.6 – 17.2	Mollison Avenue to 2 nd St	Construct Eastbound Auxiliary Lane	2050 RTP Revenue Constrained Operational Improvement project
16.8 – R37.8	1st Street Undercrossing to Japatul Valley Road Undercrossing (various locations)	Clean and Treat Bridge Decks with Methacrylate, Replace Joint Seals, and Repair Spalls	PIRS/PSE

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POST MILE	LOCATION	IMPROVEMENT DESCRIPTION	SOURCE/ PHASE
R18.7 –R19.9	Greenfield Drive to Los Coches Road	Construct Eastbound Auxiliary Lane	2050 RTP Revenue Constrained Operational Improvement project
R25.9 – R32.0	0.2 miles east of Harbison Canyon Undercrossing to 0.2 miles east of Viejas Creek Bridge	Pavement Rehabilitation	PIRS/PA&ED
R37.8 -R39.4	SR-79 to 1.6 miles east of SR-79	Construct drainage improvements	PIRS/PA&ED
R49.0	Buckman Springs Rest Area	Rehabilitate Sewer/Water Systems	PIRS/PA&ED
R61.2 – R77.8	0.1 mile east of Crestwood Road Undercrossing to Imperial County Line	Pavement Rehabilitation	PIRS/PA&ED

¹ City of San Diego Locally Funded project
 PSR = Project Study Report
 PSE = Plans, Specifications and Estimates
 PA &ED = Project Approval and Environmental Document

The following table shows 10–Year SHOPP Needs Plan Projects for I-8 in San Diego County. The fiscal years for each project are subject to change.

POST MILE	LOCATION	IMPROVEMENT DESCRIPTION	CATEGORY/FISCAL YEAR
L0.0- R55.0	Sunset Cliffs to near La Posta Creek Bridge	Provide Rumble Strips on Inside/Outside Shoulders-various locations	Collision Reduction 2014/15
R0.4 – 2.0	Morena Boulevard to Hotel Circle	Install Eastbound Ramp Meters at three locations	Mobility 2012/13-2017/18
.77-2.8	I-5/I-8 Separation to Mission Center Road	Rehabilitate Roadway	Roadway Preservation 2013/14
0.8 – 8.3	Taylor St to College Ave	Construct Curb Ramps	Emergency and Mandated 2012/13
9.1 -15.1	Lake Murray Boulevard to Main Street	Install Fiber Optics, CCTV, and Detection stations	Mobility 2012/13
9.5	Lake Murray Boulevard	Bridge Raise/Replacement (Permit)	Bridge Preservation 2020/21
9.6 – 18.7	Lake Murray Blvd to Greenfield Dr	Construct Curb Ramps	Emergency and Mandated 2012/13
66.9-77.8	SR-94/Ribbonwood to Imperial County Line	Rehabilitate Roadway	Roadway Preservation 2016/17
Various	San Diego County - Various locations	Repair/replace culverts	Roadway Preservation 2010-2015
Various	Various	Replace Planting/Upgrade Irrigation	Roadside Preservation 2009-2018

Transit Improvements

Existing Transit Service

The San Diego Trolley provides Light Rail Transit (LRT) that essentially parallels the I-8 corridor from I-5 to I-8/Marshall Avenue in El Cajon. The Mission Valley West LRT line between I-5 and the Mission San Diego station just east of I-15 was completed in November, 1997. The Mission Valley East extension completed the 5.9 mile gap between the Mission San Diego Station and Grossmont Center, where it joins with the East Line which provides service to the Santee Town Center.

Three main Transit Centers are close to the I-8 corridor: The Fashion Valley Transit Center, The San Diego State University Transit Center, and the El Cajon Transit Center. Although no specific transit service utilizes I-8 between I-5 and SR-67, the areas adjacent to I-8, especially the Mission Valley area, are well served by Metropolitan Transit System (MTS) bus service. Further east, MTS Rural Bus Route 888 provides twice a day service between Jacumba and the El Cajon Transit Center. Route 888 travels on I-8 between Buckman Springs and East Main Street in El Cajon.

Future Transit Service

Given increasingly important factors, including the region's long-term growth projections, new statewide legislative requirements to reduce GHG emissions contained in SB 375, the projected aging of our population, an increasing pattern of infill and redevelopment in the western third of the region, and the growing emphasis on active transportation and public health, the need to focus the region's attention on transit has increased.

The San Diego Association of Governments (SANDAG) adopted the new 2050 Regional Transportation Plan (RTP) in October 2011. The RTP includes an "Urban Area Transit Strategy" (UATS, Technical Appendix 7) which serves as the basis of the regional transit network in the metropolitan San Diego region.

The transit themes in the UATS include:

- **Transit Propensity:** Builds on the San Diego region's backbone trolley system and expands transit in the central core and in the region's most urbanized areas, many of which are characterized by pre-World War II street grid patterns. This theme provides very frequent transit services, alleviating riders from having to consult schedules and facilitating easy transfer connections. Major investments include streetcars, grade separations, priority treatments, transit nodes, expanded light rail, and enhanced bike and walk access and improvements to the public realm.
- **Commuter Point-to-Point:** Transit to work is an easy option which leverages new dedicated transit facilities and flexible use of Managed Lanes to serve work trips. A system of few transfers provides high speed, reliable commute options during peak periods with a variety of "last-mile" treatments. Major investments

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include Managed Lanes with in-line stations, park and ride lots, new fixed guideways, and some rail expansion.

- **Many Centers:** Supports the San Diego region's local commitments to smart growth and consists of a multi-radial transit system serving many of the region's smart growth areas and major activity centers. Transit services are oriented toward the centers, and supported with frequent connections between the centers. Major investments include a variety of transit priority treatments between centers, expanded light rail, enhanced transit centers, shuttles and streetcars connecting to the transit centers, enhanced bike and walk access, and improvements to the urban realm.

Implementation of the transit projects in the Final 2050 RTP will be critical. Five and ten-year action plans will be developed based on the transit project development process and will provide initial project development timeline assumptions, identification of projects for federal funding, and ultimately a framework to guide planning, environmental, design, and construction efforts.

Nonmotorized Transportation

Bicycle riders and pedestrians have a legal right to access most public roads in California. While pedestrians are prohibited from virtually all freeways, bicycles are permitted on the outside shoulders of nearly 25 percent of all freeways located within the state. The legal authority to prohibit bicycle and pedestrian use from freeways and expressways is specified in the California Vehicle Code section 21960.

The regionally classified San Diego River Bikeway is parallel to I-8 on the south side of the river between Sunset Cliffs Boulevard and Hotel Circle Place. The River bikeway also extends from Fashion Valley Road to Qualcomm Way and is planned to eventually extend to the City of Santee. The regionally classified I-8 Corridor is an on-street facility that begins in Santee and follows Old Highway 80 for much of the route's length to the bikeway's terminus at the San Diego County Line, at In-Ko-Pah Road. As part of the I-8 Corridor, bicycles are permitted on the outside shoulders of I-8 between East Willows Road and Japatul Valley Road, and also between In-Ko-Pah Road and the San Diego/Imperial County Line. In addition, there are numerous bicycle lanes and bicycle routes on surface streets adjacent to or parallel with I-8.

COMPLETE STREETS

In 2008, updated the 2001 policy entitled "Caltrans Deputy Directive 64-R1; Complete Streets, Integrating the Transportation System". A Complete Street can be defined as a facility that matches the needs of travelers to the uses surrounding a street. It provides for safe travel for people using any legal mode of travel, including bicycling, walking, riding transit, and driving. The complete streets policy leads to a seamless, interconnected transportation system. Continuity in each mode and attention to places where modes connect allows people to take 'complete' trips, such as driving from home to a park-and-ride lot or transit station, catching an express bus or train to downtown, and then walking to work. The system meets the varied modal needs of a traveler.

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Complete Street considerations include safety, accessibility, mobility, land use, and community needs.

To implement DD-64-R1, appropriate Caltrans personnel participated in contributing ideas and projects that became the 73 action items in the Complete Streets Implementation Action Plan, completed in 2010. The Action Plan contains 7 categories of actions:

1. Highest Focus Areas
2. Guidance, Manuals, and Handbooks
3. Policy and Plans
4. Funding and Project Selection
5. Raise Awareness
6. Training
7. Research

Caltrans will be evaluating its progress on implementing the 2010 Action Plan and updating the Action plan in 2012. This will include identifying successes and barriers, and where Caltrans needs to go next to further Complete Streets. Future focus will include training and raising awareness of complete streets, continuing to revise Department manuals to be consistent with and supportive of complete streets, and supporting District complete streets plans and needs.

More information on complete Streets can be found at the following link:

http://www.dot.ca.gov/hq/tpp/offices/ocp/complete_streets.html

RAMP METERING

Ramp metering is a traffic management strategy that uses a system of traffic signals at freeway entrances and connector ramps to regulate the volume of traffic and spacing of vehicles entering a freeway corridor in order to maximize the efficiency of the freeway, and thereby minimize the total delay in the transportation corridor. Ramp metering attempts to ensure the total traffic volume entering a freeway segment, plus the entering ramp traffic, remains below the capacity of that freeway segment. Ramp metering has the potential to prevent freeway congestion, or delay its onset and reduce its severity, by controlling the rate of vehicle entry onto a freeway, especially by eliminating the entry of large groups of vehicles, known as "platoons", which arrive at the ramp. The result is increased freeway throughput, increased freeway operating speeds, and improved overall freeway operation. Ramp metering also initiates smoother and safer merging operations which improve safety by reducing rear-end and sideswipe collisions.

According to Caltrans Deputy Directive No. 35 R-1, each Caltrans District that currently operates, or expects to operate ramp meters within the next ten years shall prepare a district Ramp Metering Development Plan (RMDP). Each district works in partnership with its Metropolitan Planning Organizations (MPO's) and Regional Transportation Planning

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Agencies (RTPA's) to program ramp metering projects and implement the district RMDP. This statewide RMDP contains a list of each ramp metering location currently in operation or planned for operation within the next ten years throughout California. Both the statewide and district RMDP shall be updated every two years.

The December 2011 statewide RMDP was prepared by the Division of Traffic Operations in conjunction with the Division of Transportation Planning and Caltrans district staff. The statewide RMDP will be used as a tool in our partnership efforts with regional and local agencies to ensure that ramp metering projects are included in planning and programming documents, and ultimately projects.

District 11 currently has 290 existing ramp meters and 144 planned ramp meters for a total of 434 projected ramp meters for the ten-year period covered by the RMDP. Several San Diego metropolitan area freeways experience consistent and recurrent congestion during the AM and PM peak-period travel times.

For specific locations of operational and planned ramp meters on I-8, please see the District 11 section of the December 2011 RMDP at the link below:

http://www.dot.ca.gov/hq/traffops/systemops/ramp_meter/RMDP.pdf

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

The transportation community has been developing and operating computer-based transportation management systems since the early 1970s. At that time, many of the core building blocks of today's systems were introduced including closed circuit television (CCTV) cameras for traffic surveillance; changeable message signs (CMS), traffic adaptive signal operation, transit priority treatment, highway advisory radio (HAR) and ramp metering (RM). Since these systems were typically not interconnected or coordinated and were operated with individual computer systems, separate operational guidelines were established, one for each system. While computer technology rapidly changed during the 1980s and more sophisticated control and monitoring capabilities were devised, the systems and technologies remained separated. It wasn't until the 1990s that the transportation community embarked on a journey to integrate systems and to incorporate evolving technologies like the Internet and personal communications devices to leverage the effectiveness of their tools.

Rapid transition toward an ITS architecture occurred during the 1990's with the advances in the field of information technology. More importantly, Caltrans laid the foundation with Director's Policy DP-08 (1992) in which the concept of freeway system management was further encouraged. This concept underlies the policy of managing the freeway as a system to achieve capacity usage. Instead of building more freeways, the goal was to maximize un-used capacity. In quick succession, Deputy Directive DD-70 (1992, revised in 2002) was issued to implement what became known as a Transportation Management System (TMS), which is the document that contains all the definitional concepts of operations and delegation of authority to carry out freeway system management. Typical TMS Field Elements include:

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- Ramp Meters (RM):
- Vehicle Detection Stations (VDS)
- Changeable Message Signs (CMS)
- Closed Circuit Television (CCTV)
- Fiber Optic Network (FO)
- Traffic Signals
- Extinguishable Message Signs (EMS)
- Highway Advisory Radio (HAR)
- Speed Feedback Signs (SFS)
- Reversible Lanes and Express Lanes
- Transportation Management Center (TMC)
- Advanced Transportation Management Systems (ATMS)
- Traffic Census Stations
- Other Regional Systems

District 11 began work on the San Diego's first ITS Strategic Plan in cooperation with SANDAG in early 1995 and completed the plan in 1996. This ITS Strategic Plan was the San Diego region's assessment of its capabilities and the expansion of such capabilities once a freeway management system was developed. In addition, a new Transportation Management Center opened in 1996 in Kearny Mesa, which was constructed to replace an older TMC at the District Office.

Today Caltrans faces a new set of standards contained in the National ITS Architecture, which is a controlling factor for all federal funding. There are new standards for each of the following: ITS strategic planning, logical architecture, physical architecture, theory of operations, and implementation strategy.

Given the changing technological environment, SANDAG and Caltrans District 11 decided to re-evaluate the 1996 ITS strategic plan. So in July 2011, a new District 11 ITS Master Plan was developed. The plan analyzes and provides an assessment of the existing ITS architecture, and provides a cost assessment for maintaining and operating the existing/future ITS architecture in District 11. The plan also provides a vision for the expansion and improvements to the existing District 11 ITS infrastructure including field elements and their corresponding communication and back-office systems.

COMMUNITY PLANNING

The California Government Code gives local governments the authority to create land use policies within their jurisdictional boundaries and the ability to create a citywide land use and policy document called the General Plan. Many cities in California are small enough that their General Plans are single volumes. Larger cities, such as San Diego, often subdivide the city into a number of Community Plans, or "mini" land use policy plans for more specific geographic areas.

In the City of San Diego, there are more than 40 community plans. Within some community plan areas other, more detailed, plans have also been developed. These are called precise plans or specific plans. The community plans, all combined together,

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constitute the Land Use Element of the General Plan. The community plans must work as part of the General Plan and must not contain policies or recommendations that are contradictory to any element of the General Plan or to other community plans.

Community plans are not created by City of San Diego staff alone. Since the 1960s, when the first community plans in San Diego were established, Community Planning Groups have participated in the development of those plans. Most individuals become involved with land use planning when their attention is drawn to one particular issue, such as traffic congestion, or development on a vacant lot in their community. However, community members have a critical role in developing a long term vision for their community through participating on Community Planning Groups.

There are six Community Planning Groups that include portions of the I-8 corridor within their boundaries. From west to east, these include:

- Ocean Beach
- Midway/Pacific Highway
- Old Town San Diego
- Mission Valley
- Navajo
- College Avenue

All of the community plans/precise plans for these planning groups contain a transportation element section. In most cases, there is a discussion of the I-8 corridor within this element. Several of these plans are older and will be updated in the future. Detailed information on community planning is beyond the scope of this report, but for additional information, please follow the link below:

<http://www.sandiego.gov/planning/community/>

DEVELOPMENT REVIEW

Caltrans District 11 Development Review staff in the Planning Division review federal, state, and local planning or proposed development activity that has the potential to impact state transportation facilities or other resources under Caltrans' jurisdiction, and to recommend conditions of project approval that eliminate those impacts or reduce them to a level of insignificance. Typically, this involves the review of development proposals in which Caltrans is either a responsible (permitting) or commenting (reviewing) agency, but has no discretionary approval power over the project other than permit authority. Development Review staff work cooperatively with local lead agencies and developers in determining the type and level of mitigation needed to offset project impacts. They are also responsible for identifying other functional areas within District 11 that are affected by the proposal, and coordinating the circulation of appropriate documents with other functional areas for review and comment.

Based on the Caltrans Traffic Impact Study (TIS) guidelines, a 1,000 Average Daily Traffic (ADT) threshold size triggers the need for developers to prepare a traffic study for

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their project. The following information generally includes projects for which an Environmental Document, a Specific Plan or a Master Plan has been or will be prepared. There are 14 potential major development projects within and adjacent to the I-8 corridor that will each generate more than the 1,000 ADT threshold. Total cumulative projected ADT from these developments is expected to be approximately 61,000. There may be an additional number of smaller development projects that may have additional cumulative impacts on traffic in the corridor. Because of uncertainties associated with future demographic, socioeconomic, and political climates, the scale of development may be subject to change. The development application and approval process is also subject to change. Changes in land use prompting rapid housing and commercial development growth will need to be monitored closely by all impacted jurisdictions and agencies. Appropriate traffic studies for proposed developments will need to be conducted and reviewed carefully by Caltrans staff. Land development and local capital improvement projects should also be coordinated with Caltrans projects. Further information regarding specific development projects in the I-8 corridor can be obtained from the Caltrans District 11 Development Review Branch.

The following table shows proposed projects in the San Diego County portion of the I-8 corridor currently in the development review process. Construction of some of these developments may either be underway or complete:

POST MILE	PROJECT NAME	PROJECT DESCRIPTION	ADT	LEAD AGENCY
2.23	Mission Valley Springhill Suite	Hotel	1,690	City of San Diego
6.27	CenterPointe at Grantville	Mixed Use Project	3,190	City of San Diego
8.20	San Diego State University(SDSU) Campus Master Plan	Community Development	2,531	California State University (CSU)
8.34	Plaza Linda Vista (SDSU)	Revision of SDSU Master Plan	5,000	California State University (CSU)
14.59	El Cajon Downtown Specific Plan	Redevelopment Project	23,000	City of El Cajon