



## STATE ROUTE-52 TRANSPORTATION CONCEPT SUMMARY

This Transportation Concept Summary (TCS) for State Route 52 in 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](mailto:Kim.Sturmer@dot.ca.gov) or at 619-688-6967.*



CALIFORNIA DEPARTMENT OF TRANSPORTATION  
**PLANNING DIVISION**  
*Planning Leads To Superior Solutions*

**Caltrans**  
DISTRICT 11

# SR 52 Transportation Concept Summary February 2009

## **CORRIDOR PURPOSE**

State Route 52 (SR-52) is a four to six lane east/west freeway for almost the entire route (PM SD 0.3-14.8). The portion from SR-125 to SR-67 (SD PM 14.8-17.8) is currently unconstructed but will be completed in the future. The western terminus is at the junction of Interstate 5 (I-5) (PM SD 0.3) and the current eastern terminus is at SR-125. The route continues east within the City of San Diego through the communities of Clairemont, University City, Kearny Mesa, Tierrasanta, and East Elliott and proceeds east through Mission Trails Regional Park into the City of Santee.

The primary purpose of SR-52 is to provide east/west mobility for the rapidly developing east county areas. SR-52 assists in providing some congestion relief to the already heavily traveled Interstate 8 (I-8). Sections of I-8 are presently carrying over 300,000 vehicles per day. SR-52 also serves as a major commuter route, by directly connecting east San Diego County communities with employment centers located in Kearny Mesa, Mira Mesa, La Jolla and Sorrento Valley. This purpose will be enhanced with the route's completion to SR-67. The secondary purpose of SR-52 is to provide for the efficient movement of interregional traffic.

Five freeways traverse SR-52 within District 11, San Diego County. These freeways are I-5, SR-125, I-805, SR-163, and I-15. SR-52 is a part of the "inner loop" system development strategy.

## **CORRIDOR NEEDS**

Portions of SR-52 currently experience significant levels of congestion. Increases in interregional and commuter traffic, as well as increases in traffic generated by proposed developments adjacent to the SR-52 corridor, are expected to worsen congestion in the future. Transportation improvements such as additional general purpose lanes, High Occupancy Vehicle (HOV) lanes, and Managed Lanes (ML) will be needed and are expected to reduce congestion in the corridor.

## **CORRIDOR ANALYSIS**

SR-52 provides a vital east/west connection between I-5 and SR-125. SR-52 carries significant commute traffic, particularly between the residential developments of eastern San Diego County and the employment centers at Kearny Mesa, Mira Mesa, La Jolla and Sorrento Valley.

Construction was completed in July 2007 on an extension of the existing SR-52 westbound number three lane from the summit of SR-52 to Santo Road. A larger follow-up project to further extend this westbound number three lane from Santo Road to I-15

## DRAFT

and also to extend the eastbound number three lane from the summit of SR-52 to Mast Boulevard has also been proposed.

Additional proposed improvements in the SR-52 corridor include the addition of two HOV lanes between I-805 and I-15. From I-15 to SR-125, improvements include the addition of two general purpose lanes and two reversible managed lanes. For the unconstructed portion of SR-52 from SR-125 to SR-67, construction of a four lane freeway and an interchange at the junction of SR-52 and SR-67 is expected to be completed by 2010 or 2011.

## **CORRIDOR TRAFFIC**

SR-52 will be experiencing an increase in traffic in the future. In some segments, traffic is expected to double between 2007 and 2030. The following table shows existing and future traffic conditions for SR-52.

### **Existing and Future Average Weekday Traffic**

<b>LOCATION</b>	<b>2007 AWDT<sup>1</sup></b>	<b>2007 LOS<sup>2</sup></b>	<b>2030 AWDT<sup>3</sup></b>
I-5 to Regents Rd	95,100	F	130,800
Regents Rd to Genesee Ave	90,800	E	131,400
Genesee Ave to I-805	99,400	F	146,000
I-805 to Convoy St	114,400	D	191,500 <sup>4</sup>
Convoy St to SR-163	119,900	D	202,700 <sup>4</sup>
SR-163 to Kearny Villa Rd	88,000	D	176,800 <sup>4</sup>
Kearny Villa Rd to I-15	72,600	D	149,600 <sup>4</sup>
I-15 to Santo Rd	93,100	D	194,200 <sup>4</sup>
Santo Rd to Mast Blvd	85,000	D	176,500 <sup>4</sup>
Mast Blvd to SR-125	68,100	D	172,000 <sup>4</sup>

<sup>1</sup> 2007 Average Weekday Traffic (AWDT's) derived from Caltrans District 11 Traffic Census Branch AADT's.

<sup>2</sup> 2007 Level of Service (LOS) is based on sketch level planning analysis and is not to be used for design purposes.

<sup>3</sup> 2030 AWDTs are from the SANDAG 2007 RTP Regional Transportation Model (Reasonably Expected scenario), November 2007. Future modeling runs will be needed to determine 2030 LOS for proposed general purpose/HOV/Managed Lane improvements.

<sup>4</sup> Includes proposed HOV lane volumes.

## **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

## DRAFT

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 SR-52 corridor.

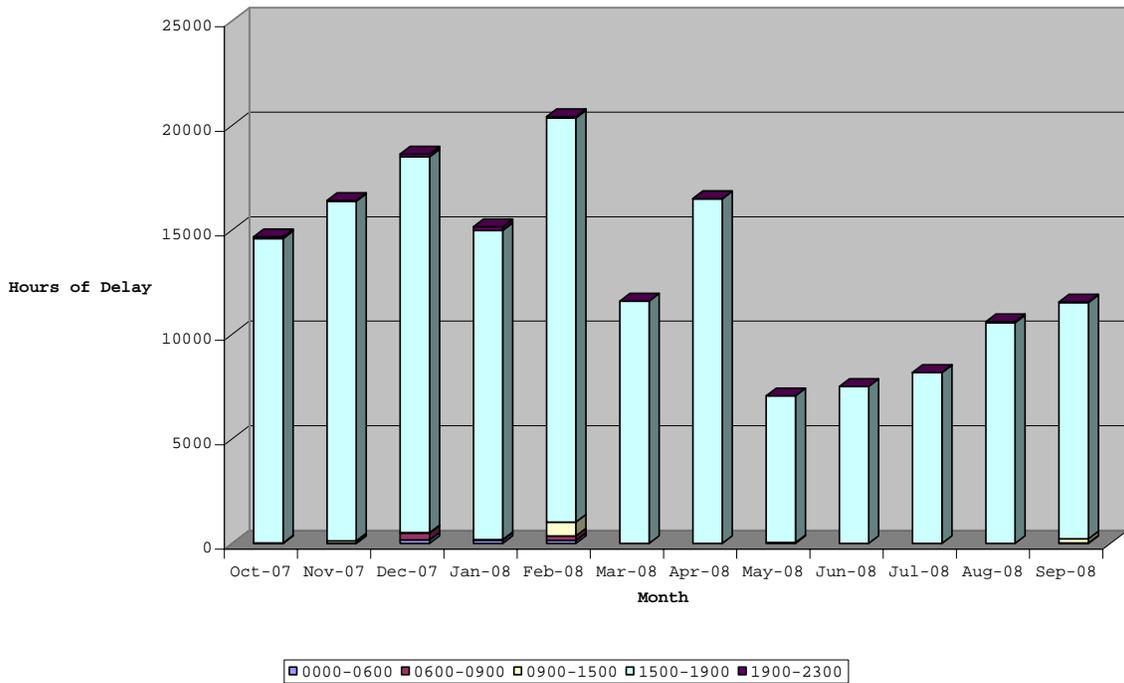
### **DELAY**

Delay is defined as the additional time spent by all vehicles over and above the time it takes to traverse a specific distance at a threshold speed. PeMS analysis includes both 35 mph and 60 mph threshold speeds.

The chart below depicts the vehicle hours of delay using the 35 mph threshold for SR-52 in the eastbound direction between I-5 and SR-125. The selected time frame is from October 1, 2007 to September 30, 2008. As is evident by the chart, the majority of the delay occurs during the afternoon peak period from 3 PM-7 PM. The noticeable decrease in hours of delay beginning in March 2008 is partially attributable to the average increase in gas prices above \$3.00/gallon that occurred after February 2008. The eastbound portion of SR-52 from Santo Road to the Oak Canyon Bridge is the second most congested freeway segment in San Diego in 2008 based on average daily vehicle hours of delay.

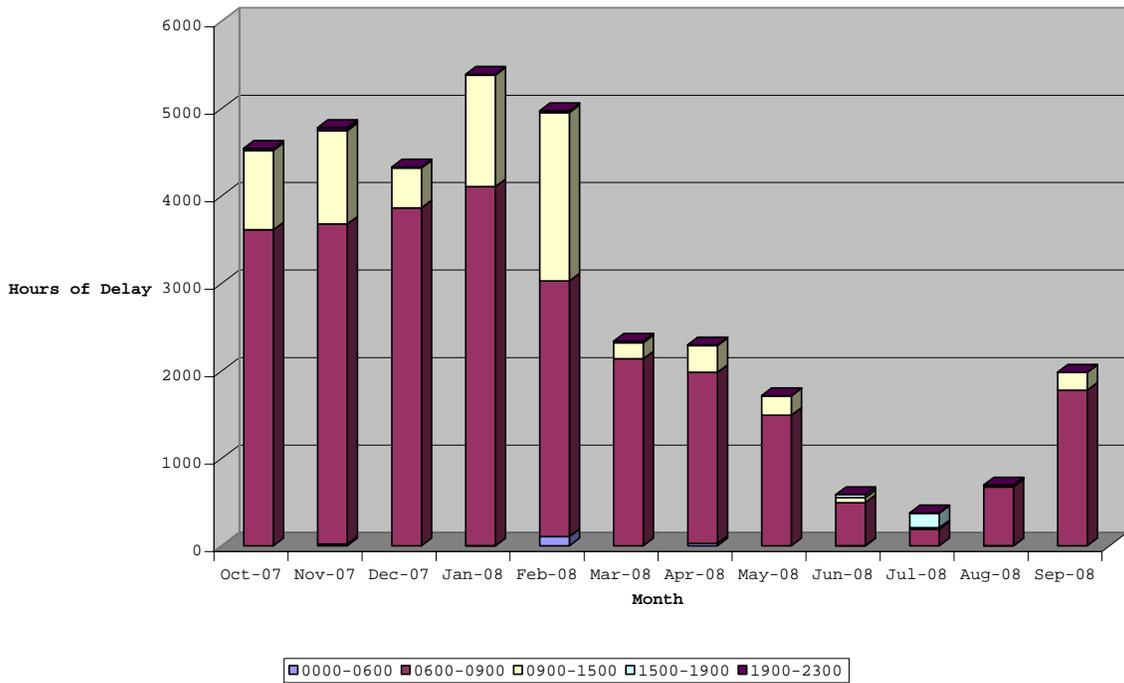
# DRAFT

**SR-52 EB Delay <35 (I-5 to SR-125)**



The chart below shows vehicle hours of delay using the 35 mph threshold for the westbound direction.

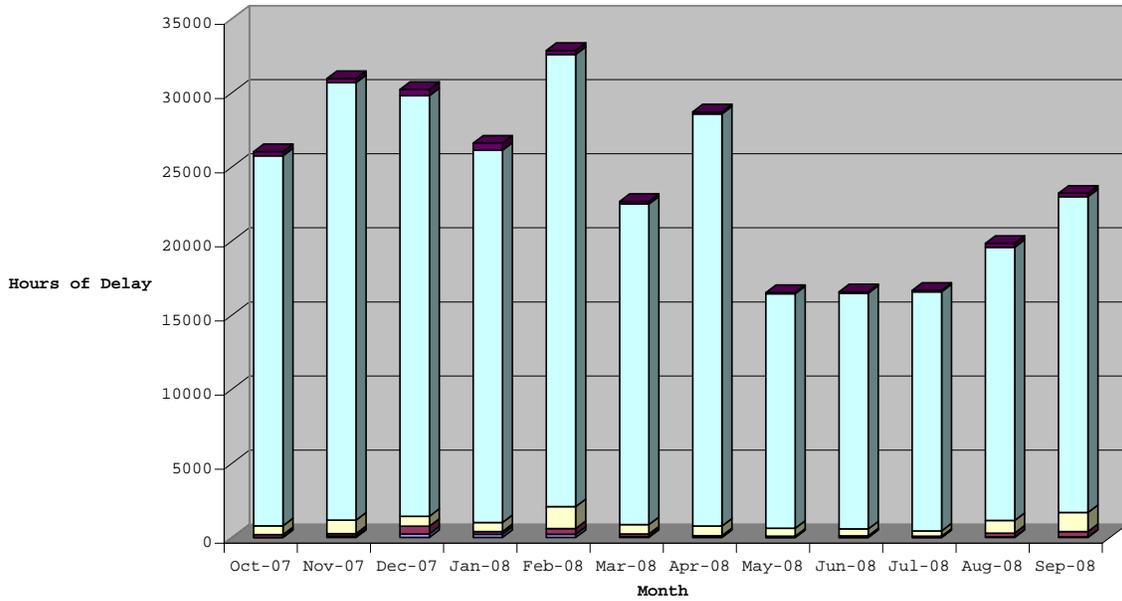
**SR-52 WB Delay <35 (I-5 to SR-125)**



## DRAFT

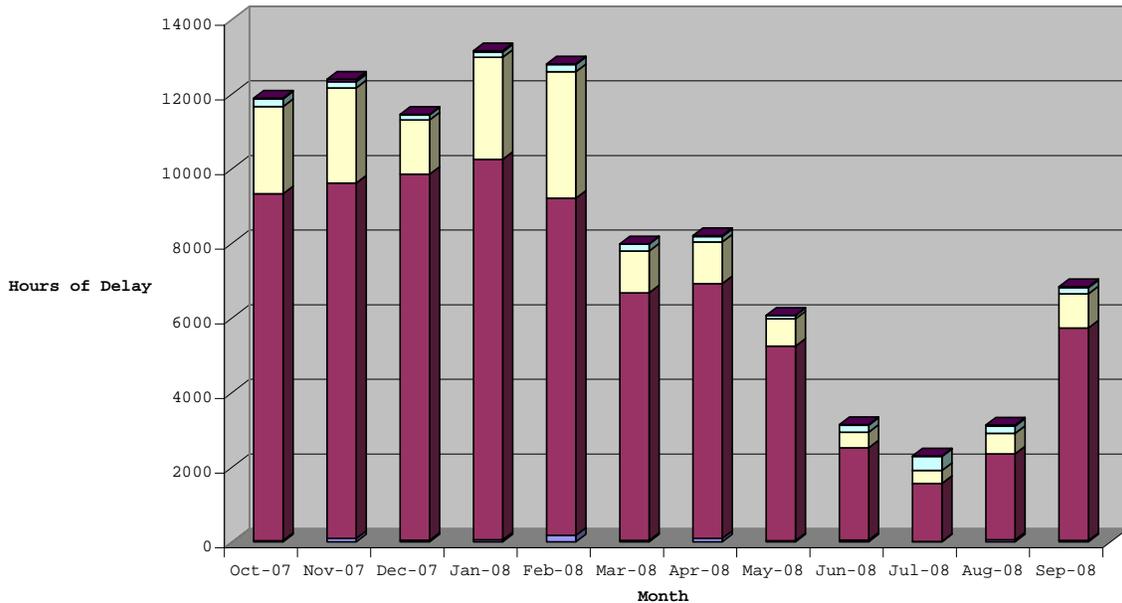
The two charts below depicts the vehicle hours of delay using the 60 mph threshold for SR-52 in the eastbound and westbound direction between I-5 and SR-125. As expected, the vehicle hours of delay is higher than the previous charts because of the higher threshold speed.

SR-52 EB Delay <60 (I-5 to SR-125)



0000-0600 0600-0900 0900-1500 1500-1900 1900-2300

SR-52 WB Delay <60 (I-5 to SR-125)

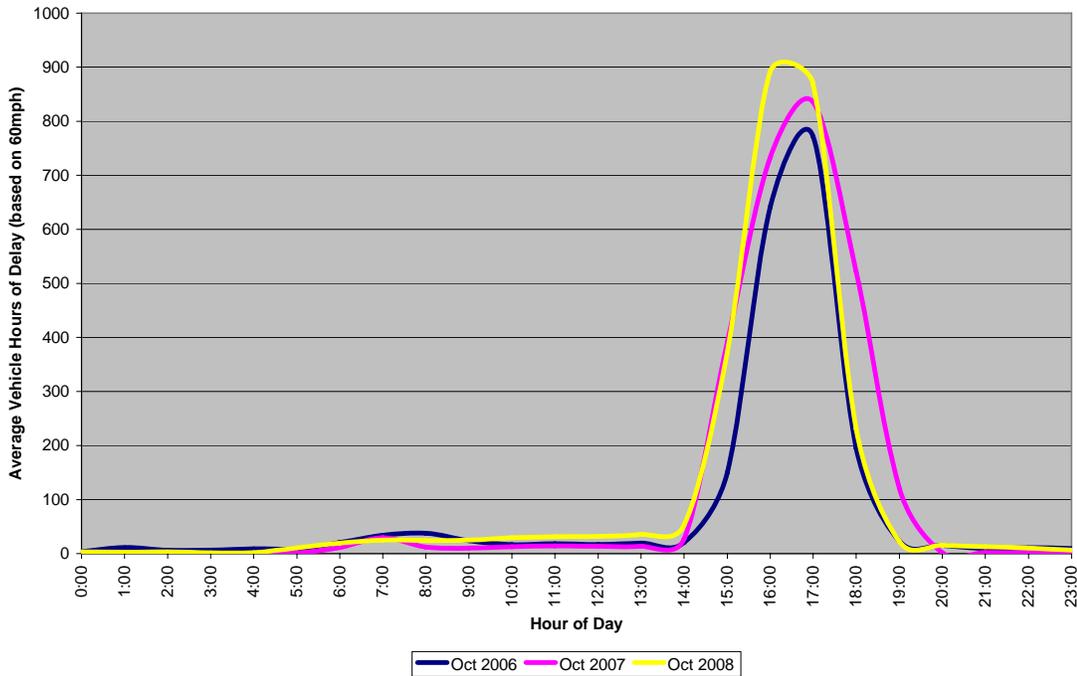


0000-0600 0600-0900 0900-1500 1500-1900 1900-2300

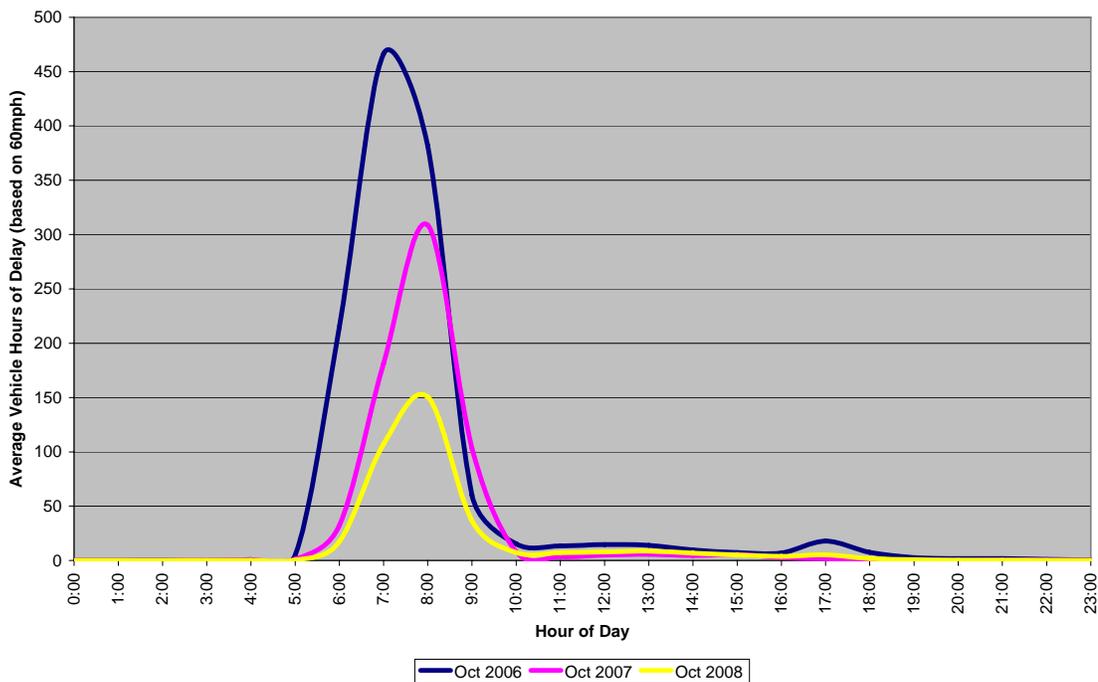
# DRAFT

Another 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 SR-52 between I-5 and SR-125 for the representative month of October for calendar years 2006, 2007, and 2008.

**SR-52 Average Eastbound Weekday Hourly Delay (I-5 to SR-125)**



**SR-52 Average Westbound Weekday Hourly Delay (I-5 to SR-125)**



## DRAFT

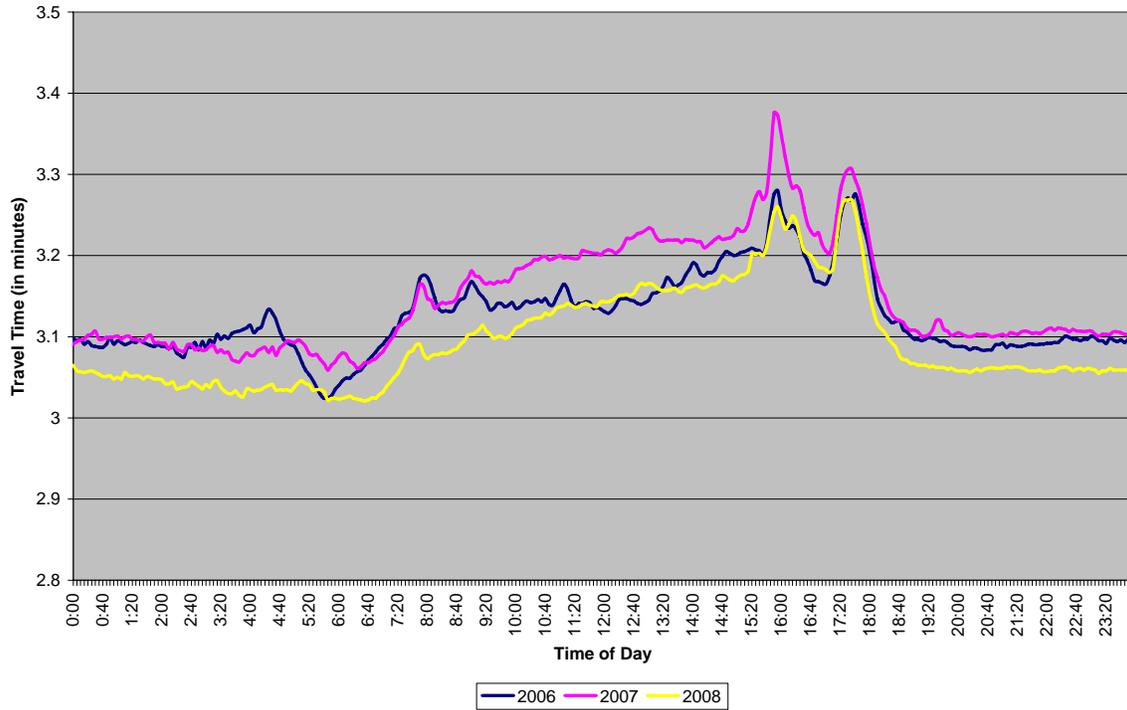
Shorter specific segments of SR-78 between I-5 and I-15 experience even longer delays than shown in the previous charts. For example, based on February and March 2007 PeMS analyses, SR-78 eastbound between Ranch Santa Fe Road and Barham Drive has an average daily vehicle hours of delay of 1,525 hours during the afternoon peak period. This segment is number three of the PM peak top ten most congested segments in San Diego County.

### **TRAVEL TIME**

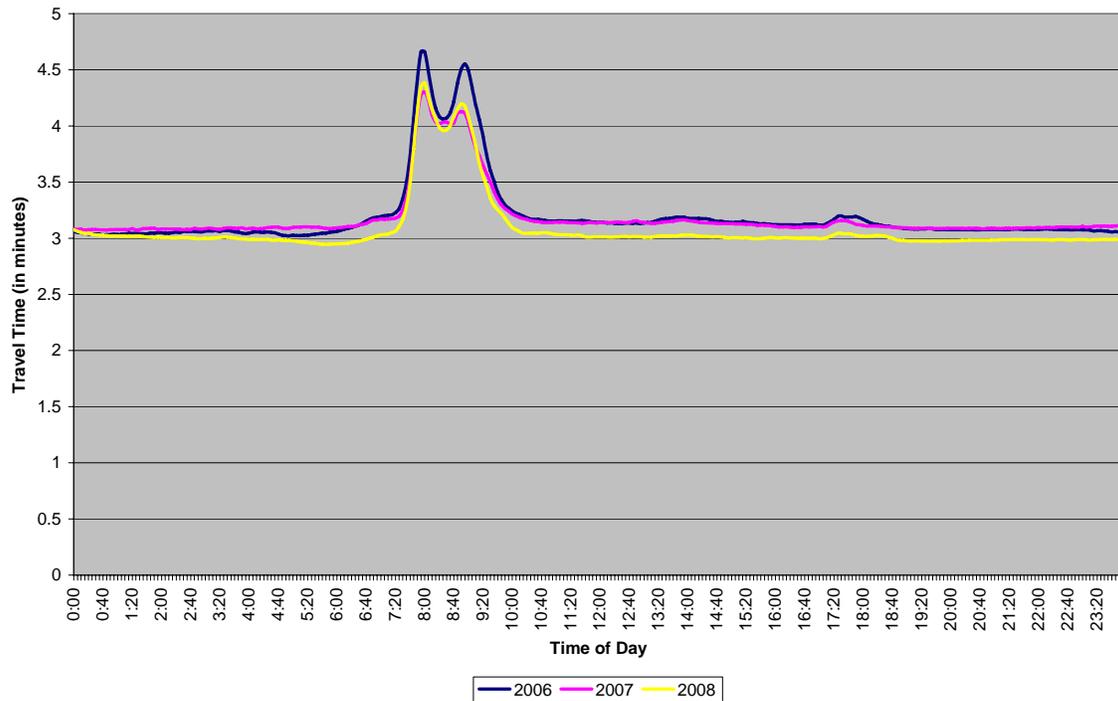
Travel time is another useful performance measure. PeMS defines travel time as the amount of time it takes for a vehicle to cross a freeway link. PeMS computes the travel time by first calculating the speed for a particular link and then dividing the speed into the length of the link. This assumes that 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 for the three main "segments" of SR-52 for calendar years 2006, 2007, and 2008. The three segments shown are: 1)SR-52 "West" (I-5 to I-805) 2) SR-52 "Middle" (I-805 to I-15) and 3) SR-52 "East" (I-15 to SR-125).

**SR-52 "West"**

**SR-52 Eastbound Travel Times (I-5 to I-805)**

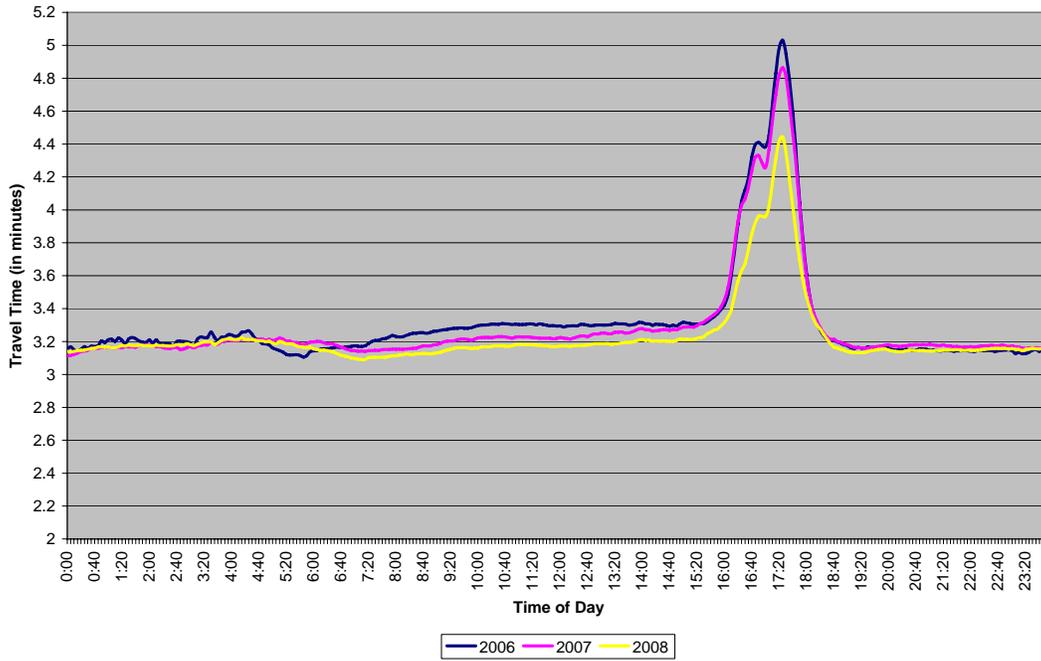


**SR-52 Westbound Travel Times (I-5 to I-805)**

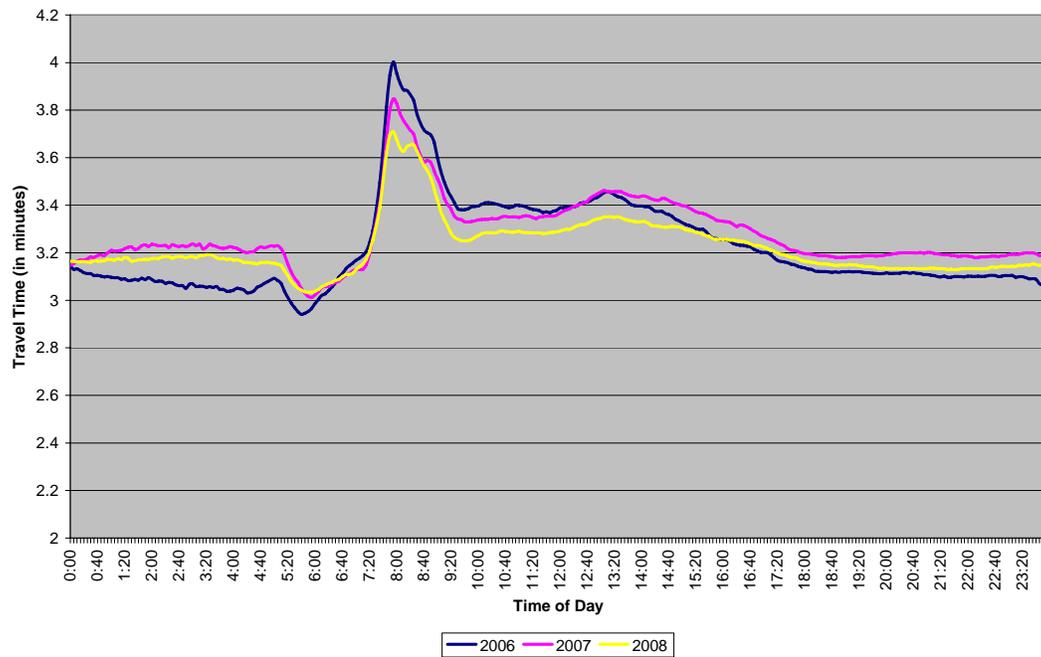


**SR-52 "Middle"**

SR-52 Eastbound Travel Times (I-805 to I-15)

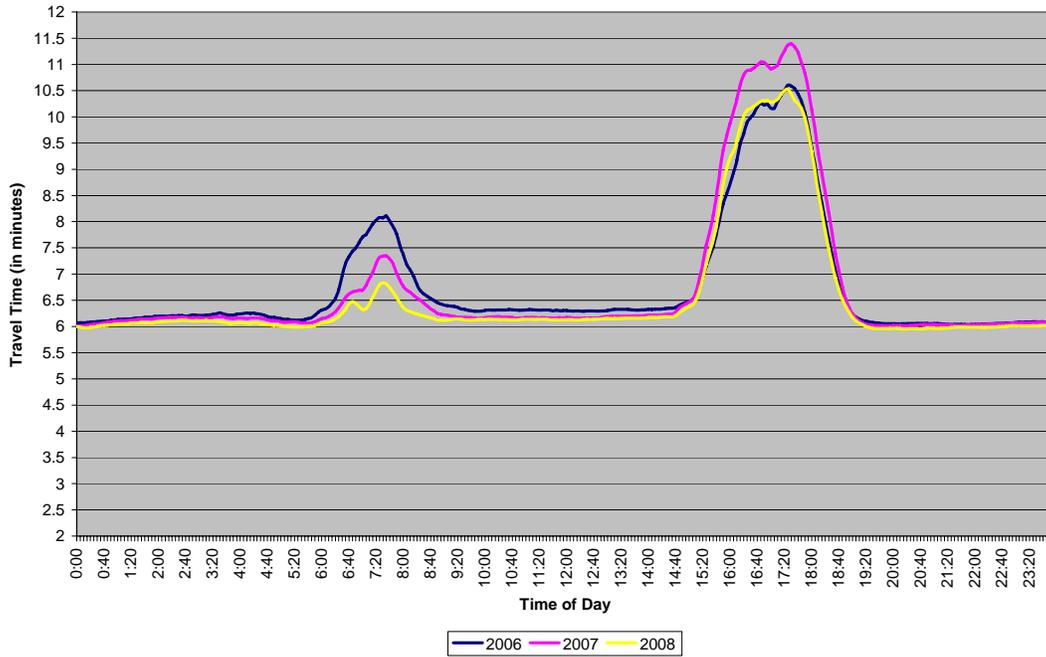


SR-52 Westbound Travel Times (I-805 to I-15)

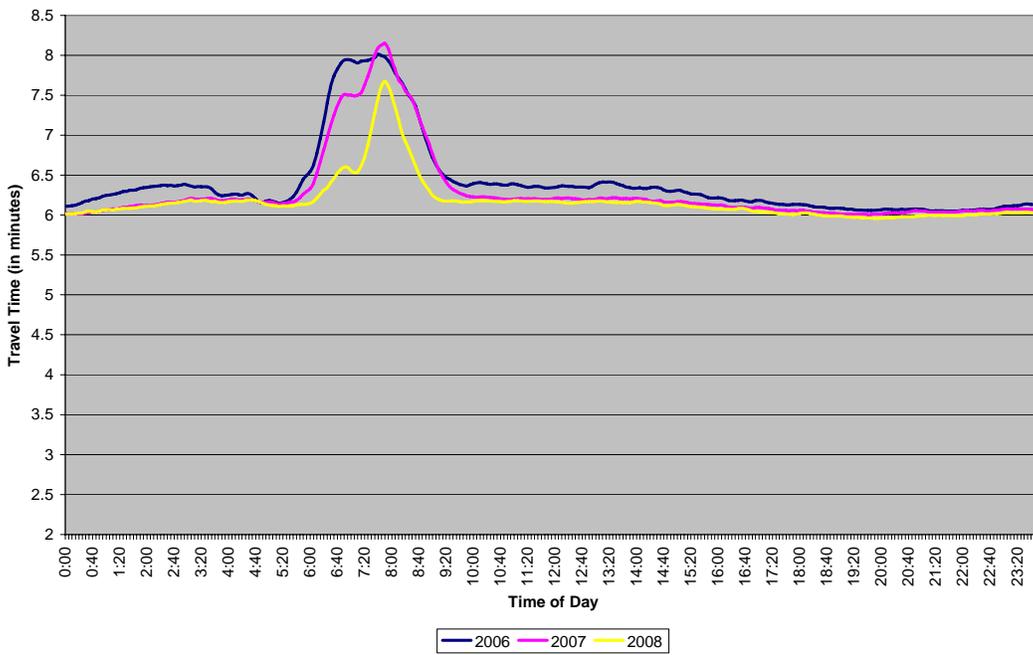


**SR-52 "East"**

**SR-52 Eastbound Travel Times (I-15 to SR-125)**



**SR-52 Westbound Travel Times (I-15 to SR-125)**

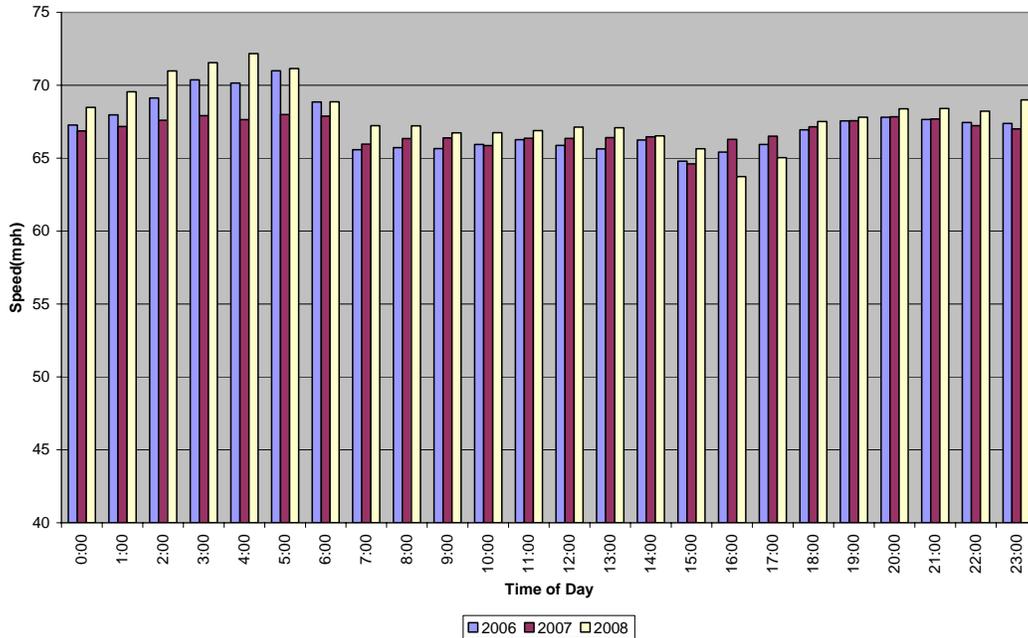


**SPEED**

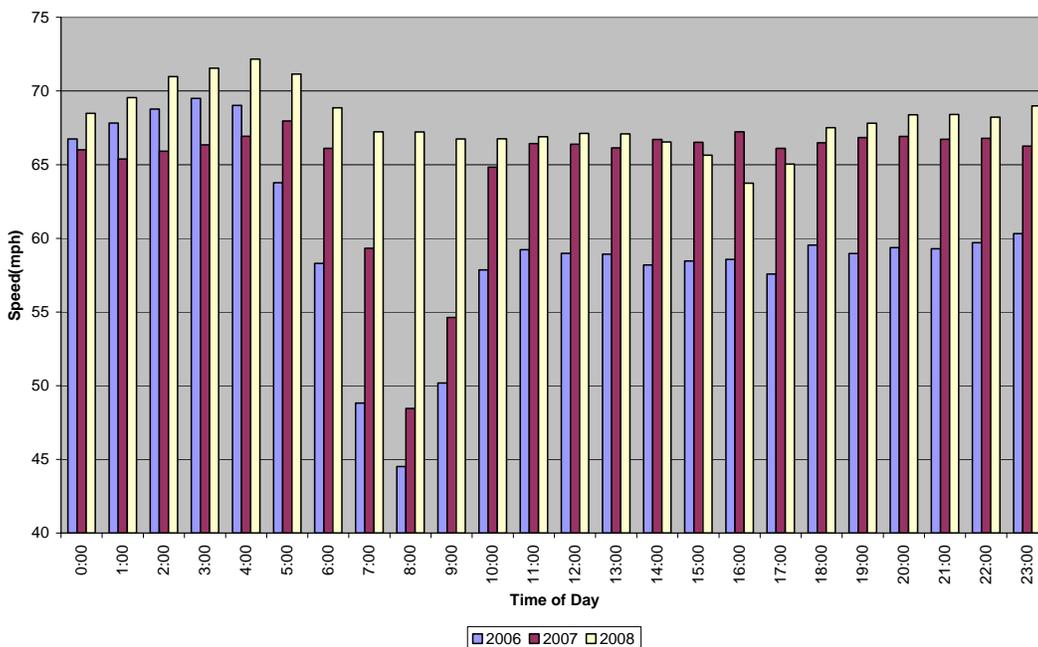
In PeMS, speed is either measured directly using radar detectors or by using flow and occupancy data. For the aggregate speed that spans all of the loops, the speed is the flow-weighted mean across the lanes. The following charts shows historical eastbound and westbound average speeds for the three previously mentioned main “segments” of SR-52 for the representative month of October for or calendar years 2006, 2007, and 2008. These average speeds are generally derived from sensors located in the middle of the particular segment.

**SR-52 “West”**

SR-52 Eastbound Average Speeds (I-5 to I-805)

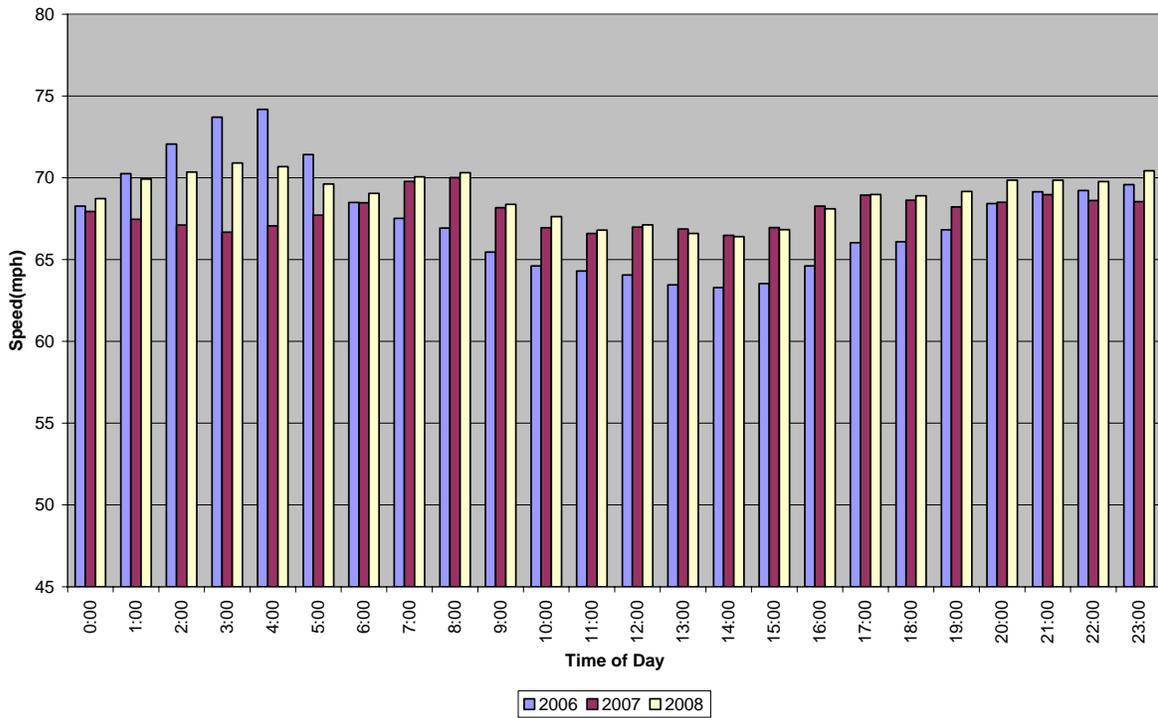


SR-52 Westbound Average Speeds (I-5 to I-805)

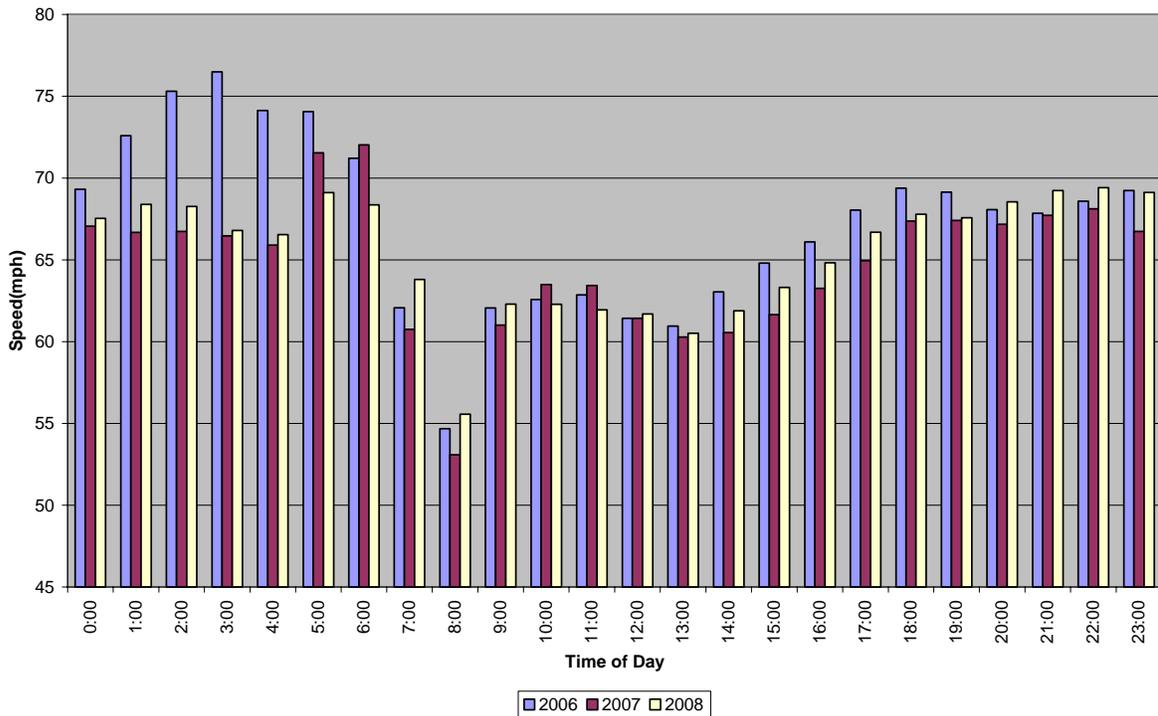


**SR-52 "Middle"**

**SR-52 Eastbound Average Speeds (I-805 to I-15)**

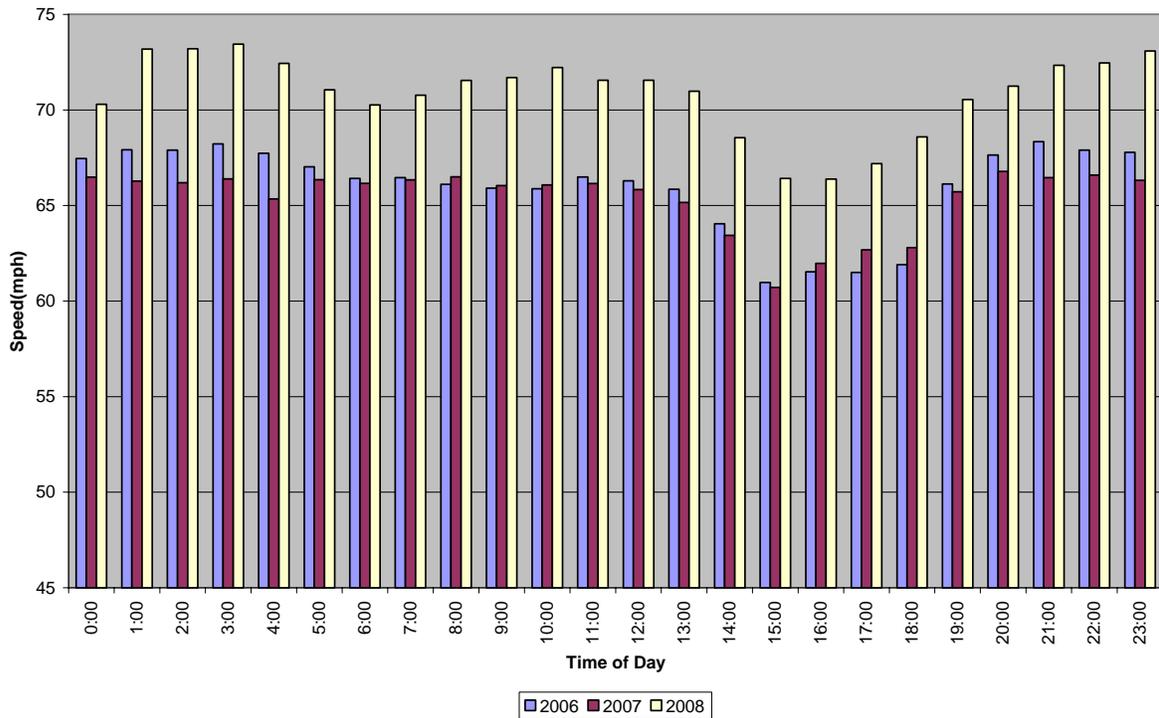


**SR-52 Westbound Average Speeds (I-805 to I-15)**

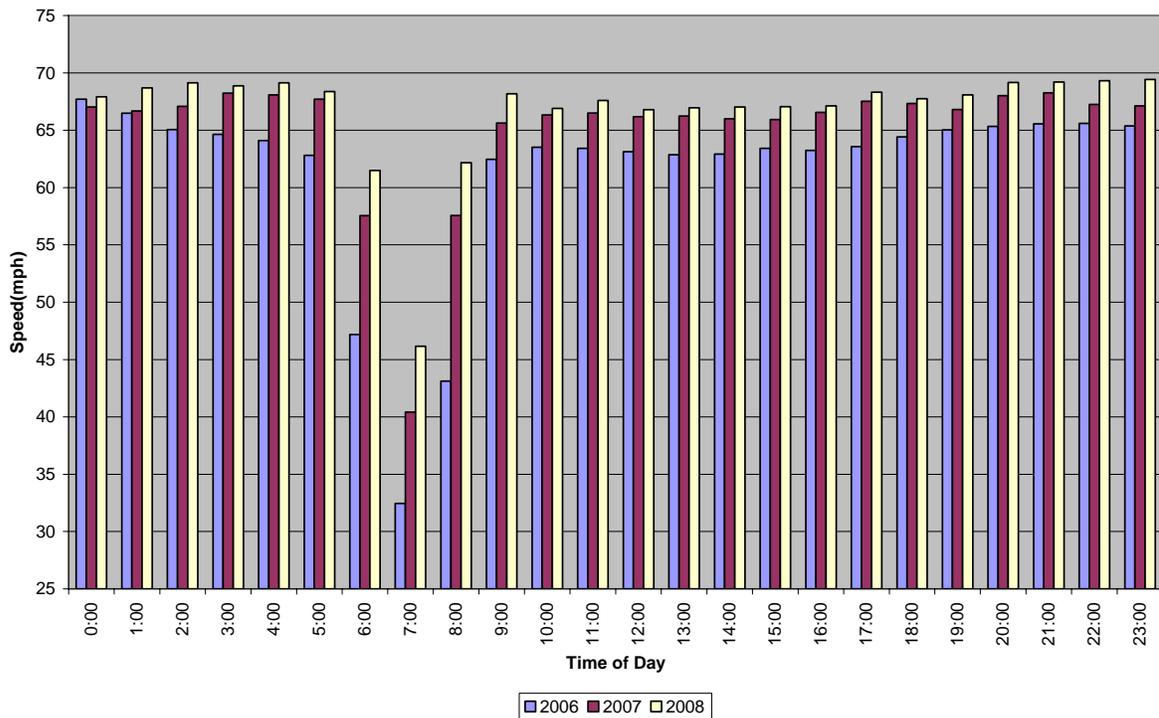


**SR-52 "East"**

SR-52 Eastbound Average Speeds (I-15 to SR-125)



SR-52 Westbound Average Speeds (I-15 to SR-125)



## PROJECT INITIATION DOCUMENT INFORMATION - CORRIDOR AND SYSTEM COORDINATION

SR-52 is known as both the "Soledad Freeway" and the "San Clemente Canyon Freeway". SR-52 was established as part of the California Freeway and Expressway System in 1959 (former Route 279). The portion of SR-52 from I-5 to I-805 was adopted in 1962 and opened to traffic in 1970. The portion from I-805 to I-15 was adopted in July 1972 and opened to traffic in 1988. In July 1989, the California Transportation Commission (CTC) adopted the plan for the then unconstructed segments of SR-52 from I-15 to SR-67. I-15 to Mast Boulevard opened for traffic in December 1993, and Mast Boulevard to SR-125 opened in November 1998. As previously mentioned, the portion of SR-52 from SR-125 to SR-67 is currently unconstructed but will be completed.

In 1959, SR-52 was established as part of the California Freeway and Expressway System. The Federal functional classification of SR-52 is Other Principal Arterial – Freeway or Expressway. The Federal Highway Administration (FHWA) has designated the segments between I-5 and I-805 as part of the national network for Surface Transportation Assistance Act (STAA) for trucks and segments from I-805 to SR-125 as terminal access routes to the national network.

In 1968 the entire route was added to the California State Scenic Highway System and is eligible to be designated as an official State Scenic Highway upon completion of the route to SR-67. SR-52 is not a part of the following systems: National Highway System (NHS), LifeLine Routes for Earthquake Emergency Response, Intermodal Corridors of Economic Significance (ICES), Interregional Road System (IRRS), Blue Star Memorial Highways, High Emphasis Interregional Routes, International Border Trade Corridors, or the Strategic Highway Corridor Network.

The following table shows the relationship between the proposed SR-52 transportation improvements and the SANDAG Final 2007 RTP funding scenarios:

LOCATION	REVENUE CONSTRAINED	REASONABLY EXPECTED	UNCONSTRAINED
I-5 to I-805	4F	6F	6F+2HOV
I-805 to I-15	6F+2HOV	6F+2HOV	8F+2HOV
I-15 to SR-125	6F+2ML(R)	6F+2ML(R)	6F+3ML/MB
SR-125 to SR-67	4F	4F	6F

(R) = Reversible  
 ML = Manage Lanes  
 MB = Moveable Barrier  
 F = Freeway  
 HOV = High Occupancy Vehicle Lane

## **RECOMMENDED CORRIDOR IMPROVEMENTS**

There are many types of improvements planned for SR-52, both highway and transit-related. Improvements are from the 2004 and 2006 State Transportation Improvement Program (STIP), the 2006 State Highway Operation and Protection Plan (SHOPP), the District 11 Project Information Reporting System (PIRS), and the District 11 2005 Ten-Year SHOPP Needs Plan, the most recent Status of Projects, and the District 11 Planning Division.

### **Freeway Corridor Improvements**

The following table shows recommended major freeway improvements for SR-52.

<b>POST MILE</b>	<b>LOCATION</b>	<b>IMPROVEMENT DESCRIPTION</b>
0.0 – 3.9	I-5 to I-805	Add 2 Main Lanes
3.9 – 7.3	I-805 to I-15	Add 2 HOV Lanes
7.3 – 14.7	SR 163 to SR 125	Add 2 Main Lanes and 2 Reversible Managed Lanes
14.7 – 17.7	SR 125 to SR 67	Construct new 4 lane freeway

HOV connectors should be provided at the following locations on SR-52:

-- I-805 West to North &, South to East

Additional freeway corridor improvements and additional HOV connectors are included in the SANDAG Final 2007 RTP Unconstrained funding scenario.

The following table shows 2008 STIP, 2008 SHOPP and PIRS projects for SR-52.

<b>POST MILE</b>	<b>LOCATION</b>	<b>IMPROVEMENT DESCRIPTION</b>	<b>SOURCE/ PHASE</b>
5.5	Convoy St	Planting and Irrigation Upgrade	PIRS/PA&ED
8.7	Santo Road	Widen by 12 feet –Add southbound left turn lane and northbound right turn lane	PIRS/PA&ED
13.3 -14.9	Mast Blvd to 0.2 mile west of SR-52/125 Separation	Construct 12 foot median eastbound and westbound PCC lane and widen San Diego River Bridge	PIRS/PA&ED
15.5 -17.3	Forester Creek Bridge to Magnolia Ave undercrossing	Mitigation Planting –Phase I	PIRS/PSE
16.4 -17.7	Cuyamaca Street to SR 67	Replace Planting	PIRS/PA&ED

PSE = Plans, Specifications and Estimates

PA &ED = Project Approval and Environmental Document

## DRAFT

The following table shows 2007 10-Year SHOPP Needs Plan Projects for SR-52.

POST MILE	LOCATION	IMPROVEMENT DESCRIPTION	CATEGORY/FISCAL YEAR
0.0 – 14.8	I-5 to SR-125	Upgrade 158 signs (Materials and Exit #s) and Overhead Lighting to Inductive Technology	Roadway Preservation 2015-16
0.3 -1.0	I-5 to Eastbound offramp to Regents Rd	Tecolote Creek Metals Toxicity TMDL	Emergency & Mandated 2016-17
0.3 – 3.8	I-5 to I-805	Bridge Approach/Depart slab replacement	Roadway Preservation 2016-17
0.3 – 2.7	I-5 to Genesee Ave	Construct Eastbound Auxiliary Lane	Mobility/2015-2016
Various	Entire Corridor	Repair/Replace Culverts	Roadway Preservation 2010-11
1.2 -2.7	Regents to Genesee	Install Westbound and Eastbound Ramp Meters	Mobility/2010-11
1.2 – 3.4	Regents Rd to I-805	Construct Westbound Auxiliary Lane	Mobility/2011-12
1.2 – 8.7	Regents Rd to Santo Rd	Construct Curb Ramps	Emergency & Mandated 2015-16
4.9 – 6.4	0.5 miles west of Convoy St to eastbound offramp to southbound SR-163	Roadway Rehabilitation	Roadway Preservation 2011-2012

### **Transit Improvements**

Currently, Metropolitan Transit System (MTS) Bus Route 870 operates on the east end of SR-52 between Kearny Mesa and Santee. This route is a Premium Express route providing two transit trips in the AM and two transit trips in the PM. MTS Bus Route 960 operates on the western portion of SR-52 from I-805 to Kearny Villa Road. This route offers peak hour service only every 30 minutes from the Euclid Trolley station to the Kearny Mesa Transit Center and the UTC Towne Center. MTS also provides local bus service around the western portion of the corridor along parallel and perpendicular arterials.

In December 2005, SANDAG, in partnership with MTS, Caltrans, and the California Highway Patrol, implemented a demonstration pilot project to evaluate the effectiveness of using the freeway shoulder for transit lanes. The location of the pilot project is on SR-52 and I-805 between Kearny Mesa and University City using MTS Express Route 960. The pilot was completed successfully, and there were no safety or operational issues. Caltrans District 11 recommends continuing the transit lane pilot project while evaluating its performance characteristics and potentially expanding the transit lane concept to other locations. In addition, further studies are needed to determine if

## DRAFT

additional transit lanes warrant legislation to modify California Vehicle Code 21755, which would allow combined usage of the shoulders as transit lanes.

There are additional specialized transit services serving the SR-52 corridor. MTS provides demand-responsive paratransit service within this area.

Commuter Rail service between Oceanside and downtown San Diego is provided by Coast Express Rail (Coaster). The nearest commuter rail connection to SR-52 is the Sorrento Valley Coaster Connection located adjacent to I-5 just south of SR-56.

Future transit service is based on the Regional Transit Plan component of the final November 2007 Regional Transportation Plan (RTP). This long-range transit vision was first developed in 2001 when SANDAG, MTS and the North County Transit District (NCTD) adopted the Regional Transit Vision, setting in place the framework for transit improvements in the MOBILITY 2030 RTP in 2003, and now in the 2007 RTP. The Regional Transit Plan provides a transit network that is fast, flexible, reliable, safe and convenient. It emphasizes the integration of public transportation and local land uses by developing new higher speed routes, spacing transit stations further apart, and providing priority treatments on highways and arterials to attain higher speeds and make transit more competitive with automobile travel.

### **Other Transportation Improvements**

Additional modal option improvements such as non-motorized, park and ride, transportation demand management, and transportation system management should also be developed for the SR-52 corridor. Currently bikes are allowed on the shoulders of SR-52 from Santo Road to Mast Boulevard. This alleviates a detour of 17 miles for bikes if they were not permitted on the shoulders of the freeway. Caltrans has no plans to construct a Class I Bike Path from I-5 to I-15. Shoulders will remain open between Santo Rd. and Mast Blvd., but no exclusive Class I facility is planned at this time as part of the early action TransNet projects. When SR-52 was constructed over a decade ago, sufficient funds were earmarked in that project to provide a Class I Bike Path between Mast Blvd. and Santo Road, with exclusive bike bridges spanning Spring Canyon and Oak Canyon. As the SR-52 project progressed, however, highway funds were depleted much sooner than expected and those earmarked bike facility funds were used to complete the highway project, so bikes were placed on the outside shoulders. Currently, there is an ongoing low cost project to add an additional vehicle travel lane without widening existing vehicle bridges. Consequently, that outside shoulder space that has been used by bikes on the Spring Canyon and Oak Canyon bridges will be used to add another vehicle lane. The current plan is to accommodate bikes via a two-way Class I Bike Path on the outside westbound shoulder, separated by K-rail, and will remain in place for at least 6 years, after which time bikes will be back on the outside shoulders.

Additional corridor mobility management strategies and Intelligent Transportation Systems (ITS) that can reduce daily vehicle hours of recurrent delay on SR-52 include continuing implementation of the Transportation Management System (TMS) and Traffic Operations Strategies (TOPS). TMS is the "wiring" needed to provide real-time corridor

## DRAFT

performance information, and TOPS includes a variety of near-term corridor improvements such as the provision of intelligent infrastructure and auxiliary lanes.

### **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 guidelines, a 1,000 Average Daily Traffic (ADT) threshold size triggers the need for developers to prepare a traffic study for 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 approximately 14 potential major development projects within and adjacent to the SR-52 corridor between I-5 and SR-125 that will each generate more than the 1,000 ADT threshold. Total cumulative projected ADT from these developments is expected to be approximately 174,100. 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 SR-52 corridor can be obtained from the Caltrans District 11 Development Review Branch.

## DRAFT

The following table shows projects currently within the development review process.

<b>POST MILE</b>	<b>PROJECT NAME</b>	<b>DESCRIPTION</b>	<b>ADT</b>
13.27	Villages At Fanita	Residential Subdivision	13,800
13.27	Sycamore Landfill	Landfill	6,100
14.47	Santee Town Center Specific Plan Amendment	Residential, Commercial, Office	33,200
14.47	Edgemoor (Santee Town Center)	Corporate Office Park	30,800
15.00	Market Place At Santee (Sudberry)	Redevelopment, Includes A Henry's & Jack-In-The-Box	10,700