

STATE ROUTE-163 TRANSPORTATION CONCEPT SUMMARY

This Transportation Concept Summary (TCS) for State Route 163 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 or at 619-688-6967.



CALIFORNIA DEPARTMENT OF TRANSPORTATION
PLANNING DIVISION
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Caltrans
DISTRICT 11

SR-163 Transportation Concept Summary July 2008

CORRIDOR PURPOSE

State Route 163 (SR-163) is one of the principal north/south freeways serving the inland portion of the greater San Diego metropolitan area. The southern terminus of SR-163 is the Central Business District (CBD), and Interstate 5 (I-5). The route extends 11.7 miles to its northern terminus at the I-15 junction. Four State Highways intersect SR-163 within District 11. They are I-5, I-8, SR-274, and SR-52. SR-163 also parallels I-15, I-805 and I-5. SR-163 serves intraregional travel by linking the CBD with the adjacent and surrounding communities. SR-163 acts as a direct link from the CBD to the primarily residential communities of Tierrasanta, Mira Mesa, and Scripps Ranch in the I-15 corridor, as well as the major employment centers located in Kearny Mesa and the Miramar areas. The southern terminus of the reversible High Occupancy Vehicle (HOV) lanes on I-15 joins with SR-163, further attracting commuters traveling to and from the CBD.

CORRIDOR NEEDS

Portions of SR-163 currently operate at unacceptable levels of service during the morning and afternoon peak periods and this congestion is expected to increase in the future if no improvements are made. SR-163 is a major commuter route to downtown San Diego. High occupancy Vehicle Lanes and HOV connectors should be considered in the SR-163 corridor between I-805 and I-15 to provide connectivity to proposed HOV lanes on I-805, SR-52, and I-15. Projected population and employment growth in the San Diego region will result in additional travel demand on the SR-163 corridor. The San Diego Association of Government's (SANDAG) Regional Growth Forecast anticipates population growth in the City of San Diego from 1.32 million people in 2007 to 1.66 million people in 2030. This represents a 26 percent increase in population. The growth forecast also projects the housing stock in the City of San Diego will increase from 504,500 units in 2007 to over 610,049 units in 2030, a 20.9 percent change. The total labor force is also expected to grow from 812,000 workers in 2007 to 980,374 workers in 2030, for an increase of 20.7 percent. These growth changes will create a demand for additional public facilities. Complementary land use and transportation improvements will be required to accommodate forecasted growth and to provide the additional public facilities. Most of SR-163 is operating at Level of Service (LOS) "E" and "F" during peak periods and will continue to do so unless improvements are made to the corridor.

CORRIDOR ANALYSIS

Improvements are needed in the SR-163 corridor to enhance the mobility of people and freight and to improve accessibility to major employment and other regional activity centers. Proposed land use development changes in Mission Valley may have an impact on traffic flow in the SR-163 corridor.

CORRIDOR TRAFFIC

SR-163 will be experiencing an increase in traffic in the future. The following table shows existing and future traffic conditions for SR-163.

Existing and Future Average Weekday Traffic

LOCATION	2007 AWDT¹	2007 LOS²	2030 AWDT³	2030 LOS²
I-5 to Laurel/El Prado	119,900	F	137,700	F
Laurel St./El Prado to Richmond St	117,700	F	138,500	F
Richmond St to Robinson Ave	115,500	F	128,800	F
Robinson Ave to Washington St	106,200	E	121,000	F
Washington St to 6 th Ave	139,800	F	168,000	F
6 th Ave to I-8	178,900	F	215,600	F
I-8 to Friars Rd	257,800	F	260,400	F
Friars Rd to Genesee Ave	191,500	E	228,500	F
Genesee Ave. to Mesa College Dr	196,200	E	231,100	F
Mesa College Dr to I-805	181,800	D	216,000	F
I-805 to Balboa Avenue	162,000	D	203,200	F
Balboa Ave to Clairemont Mesa Blvd	158,700	D	199,300	F
Clairemont Mesa Blvd to SR-52	155,400	D	197,000	F
SR-52 to Kearny Villa Rd	152,600	D	184,100	E
Kearny Villa Rd to I-15	140,600	D	169,700	D

¹ 2007 AWDTs derived from Caltrans District 11 Traffic Census Branch AADTs.

² 2007 and 2030 Levels of Service (LOS) are based on Highway Capacity Software 2000 and sketch level planning analysis and are not to be used for design purposes.

³ 2030 AWDTs are from the SANDAG Series 11 Reasonably Expected Regional Transportation Model, November, 2007.

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).

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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-94 corridor.

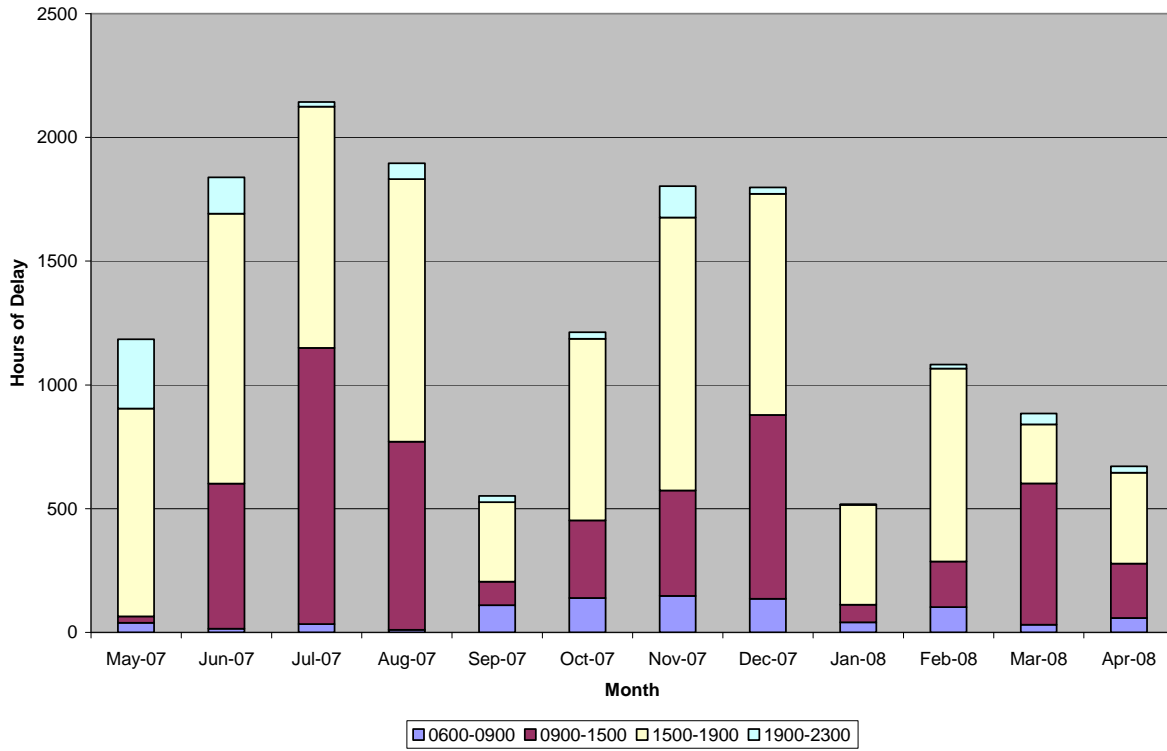
DELAY

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.

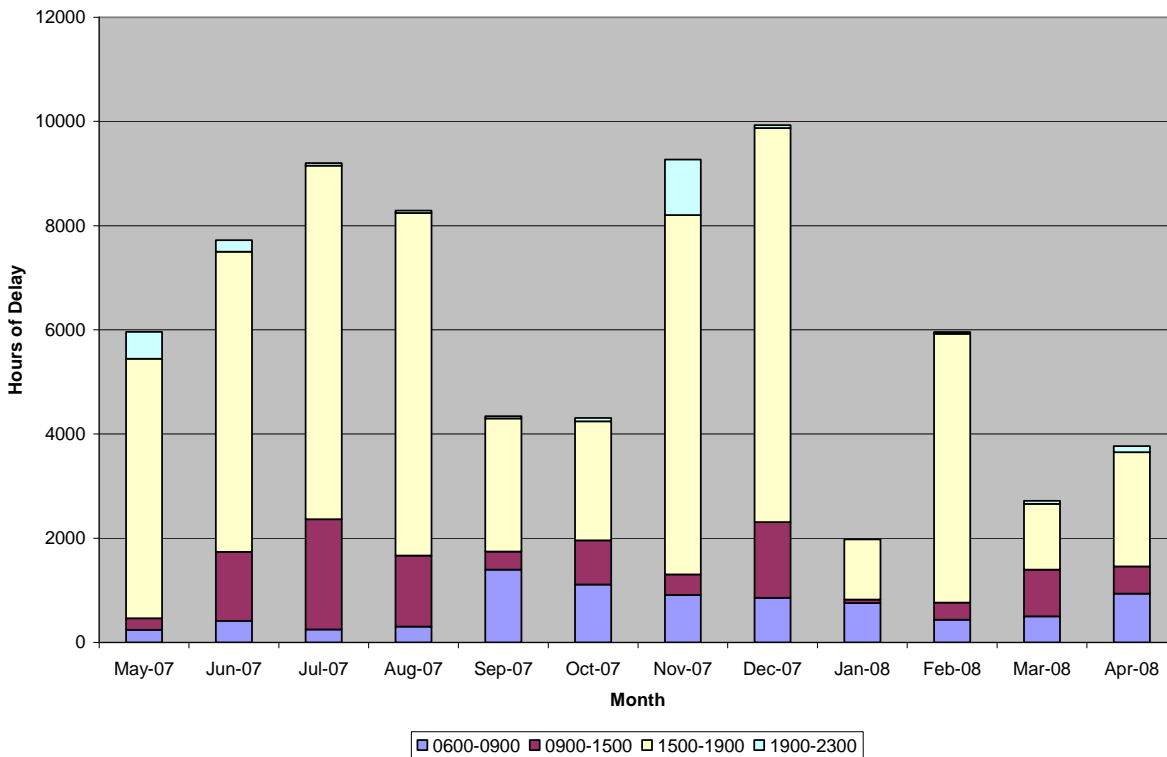
The two charts below depicts the vehicle hours of delay using the 35 mph threshold for SR-163 in the northbound and southbound directions between approximately Richmond St. in Balboa Park to I-15. The selected time frame is from May 2007 to April 2008.

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SR-163 NB Delay <35 (Richmond St. to I-15)



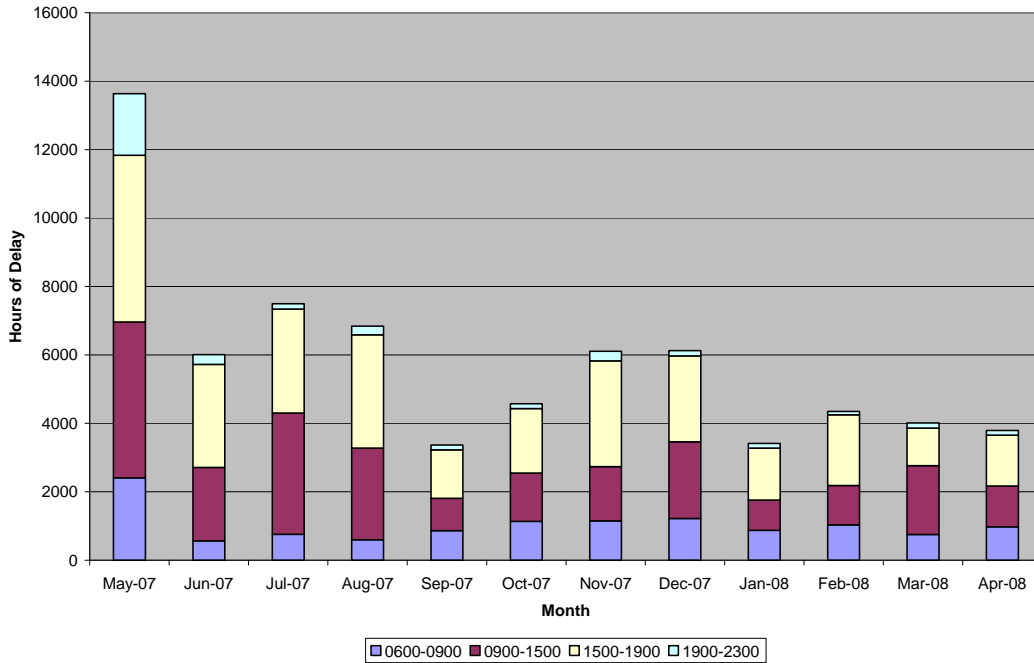
SR-163 SB Delay <35 (Richmond St. to I-15)



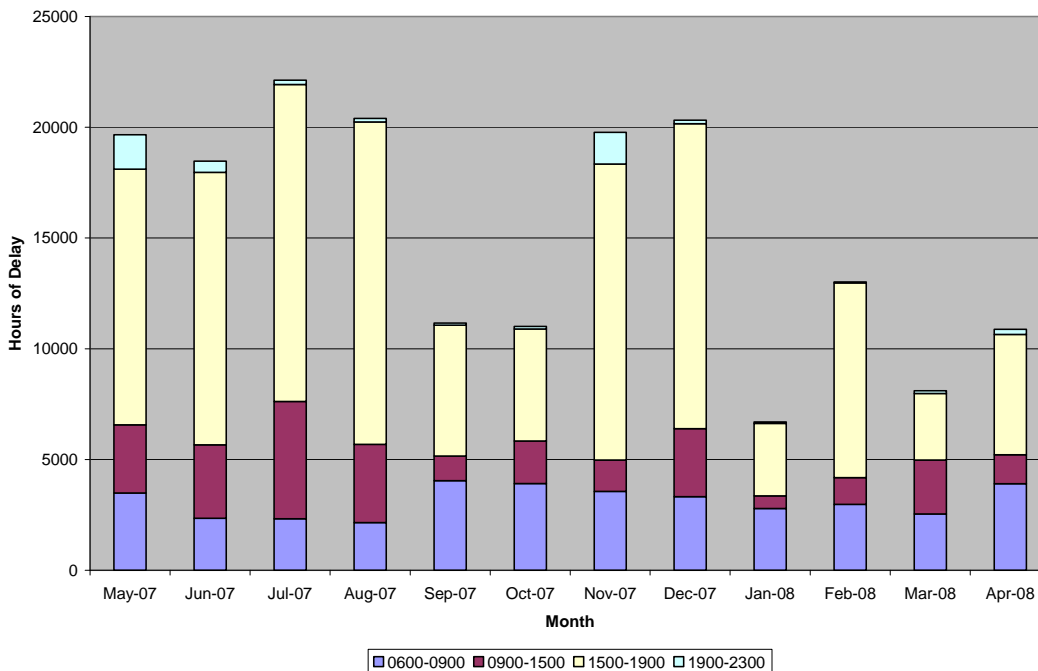
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The two charts below depicts the vehicle hours of delay using the 60 mph threshold for SR-163 in the northbound and southbound direction between Richmond Street and I-15. As expected, the vehicle hours of delay has increased because of the higher threshold speed.

SR163 NB Delay <60 (Richmond St. to I-15)



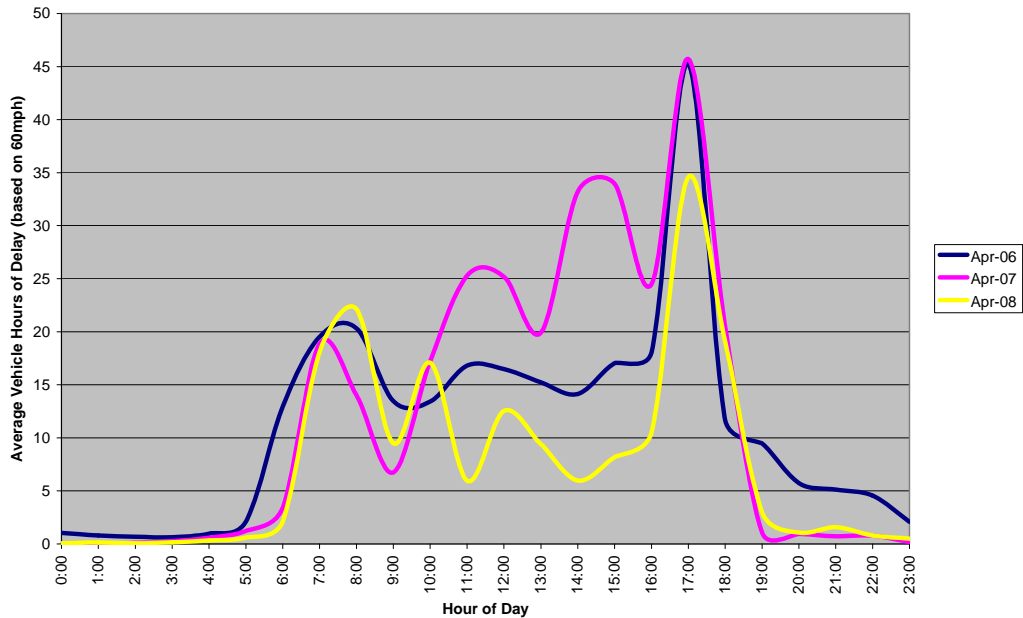
SR163 SB Delay <60 (Richmond St. to I-15)



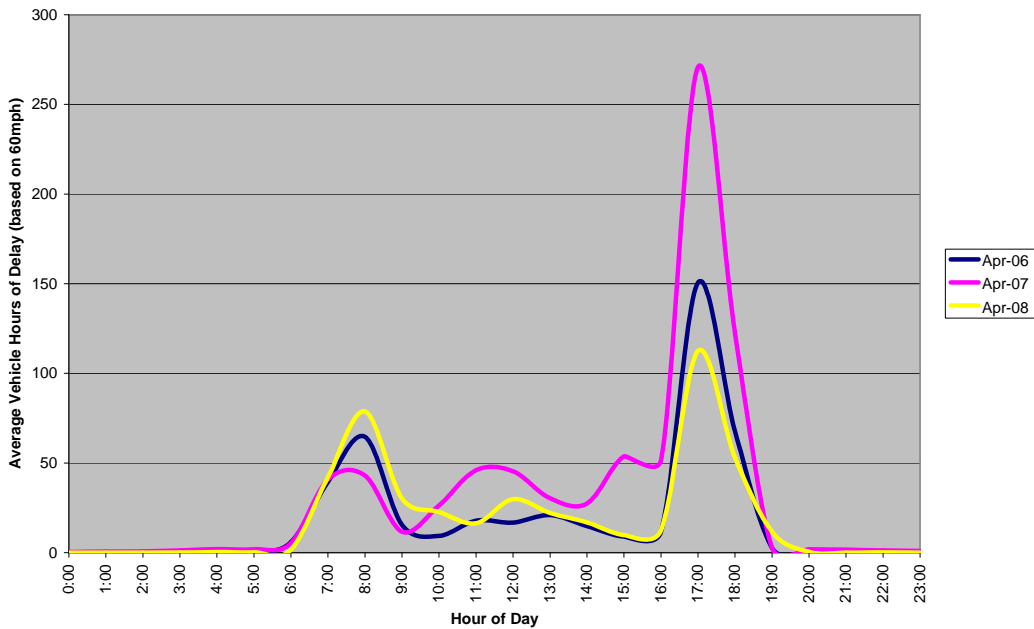
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Another way to understand the characteristics of congestion and related delays is to show average weekday hourly delay. The following two charts shows historical average weekday hourly delay in the northbound and southbound directions on SR-163 between Richmond St and I-15 for the representative month of April for calendar years 2006, 2007, and 2008.

SR-163 Average Northbound Weekday Hourly Delay (Richmond St. to I-15)



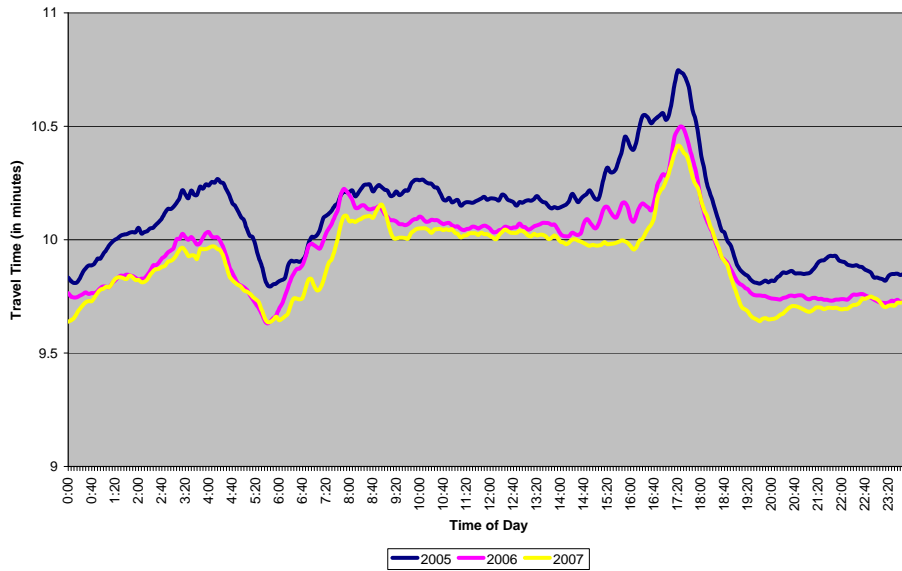
SR-163 Average Southbound Weekday Hourly Delay (Richmond St. to I-15)



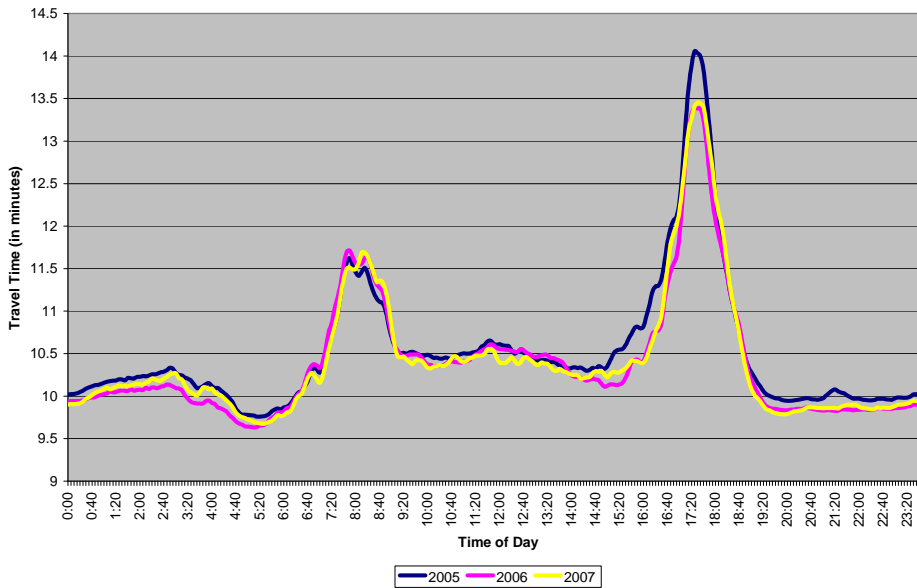
TRAVEL TIME

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 two charts shows historical average Northbound and southbound travel times on SR-163 between I-5 and I-15 for calendar years 2005, 2006, and 2007.

SR-163 Northbound Travel Times (I-5 to I-15)



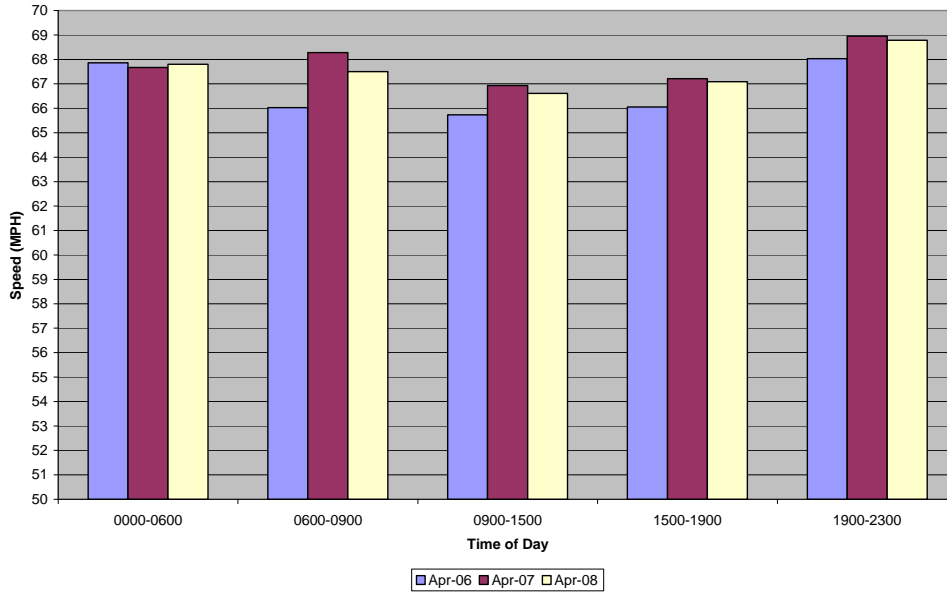
SR-163 Southbound Travel Times (I-5 to I-15)



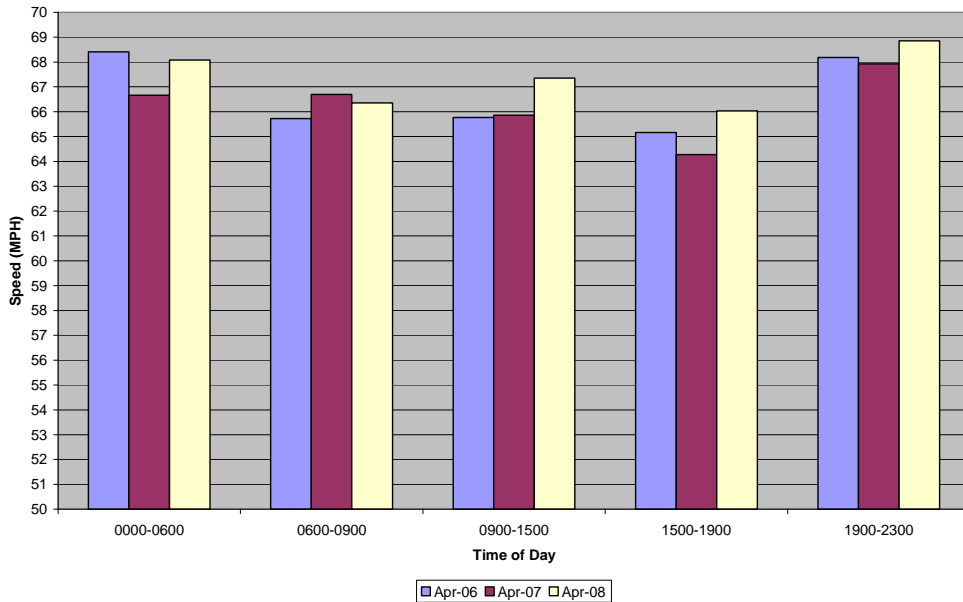
SPEED

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 northbound and southbound average speeds on SR-163 between Richmond Street and I-15 for the representative month of April for calendar years 2006, 2007, and 2008.

SR-163 Northbound Average Speeds (Richmond St. to I-15)



SR-163 Southbound Average Speeds (Richmond St. to I-15)



RECOMMENDED CORRIDOR IMPROVEMENTS

There are many types of improvements planned for SR-163, both highway and transit-related. Improvements are from the 2008 State Transportation Improvement Program (STIP), the 2007 State Highway Operation and Protection Plan (SHOPP), Minor A and future locally funded projects for SR-163, the most recent Status of Projects, and the District 11 Planning Division.

The following table shows recommended major freeway improvements for SR-163. These projects are not funded, but are included in the 2007 SANDAG Regional Transportation Plan Unconstrained Needs Network.

LOCATION	IMPROVEMENT DESCRIPTION
I-805 to I-15	Add 2 High Occupancy Vehicle Lanes
SR-163/I-805	Add North to North and South to South HOV Connectors
SR-163/I-15	Add North to North and South to South HOV Connectors

The following table shows projects included in the 2008 STIP and from the June 2008 Status of Projects.

POST MILE	LOCATION	IMPROVEMENT DESCRIPTION	SOURCE/ PHASE
0.6 -7.0 (various locations)	I-5 to I-805	Clean and treat bridge decks with Methacrylate and replace Joint Seals	PSE
0.7 - 2.5 (various locations)	0.2 mile south of I-5/SR-163 separation to Robinson Ave Overcrossing	Slope Paving/Fence Replacement	PA&ED
0.9 – 3.7	I-5/SR-163 Separation to I-8/SR-163 Separation	Construct Operational Improvements	PA&ED
1.2 – 2.4	0.3 mile north of I-5/SR-163 separation to 0.1 mile south of Robinson Ave overcrossing	Prune/Replace trees, Rehabilitation	PA&ED
1.4	Laurel St. OC	Seismic Retrofit	PSR- Locally Funded Project
1.8-2.8	Richmond St. to Washington St.	Balboa Park Historic Landscape Preservation from 0.1 mile south of the Richmond Street overcrossing to 0.2 mile north of the 6th Avenue undercrossing	2008 STIP
4.3 – 4.7	0.5 mile south of Friars Rd to 1.3 miles north of Friars Rd	Revise Interchange and Widen Overcrossing and approach	PA&ED- Locally Funded

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R10.8	SR-163/Kearny Villa overcrossing	Construct HOV Bypass Lane	PSE
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The following table shows 2007 10–Year SHOPP Plan Projects for SR-163.

POST MILE	LOCATION	IMPROVEMENT DESCRIPTION	CATEGORY/FISCAL YEAR
Various	Various	Repair/replace culverts	Roadway Preservation 2012/13
3.8-11.1	From Rte 163/8 Separation to Rte 163/15 Separation	Grind PCC pavement, slab replacement, and ramp rehab	Roadway Preservation 2013/14
7.1-8.0	SR-163/I-805 to Balboa Ave.	Replace planting/ upgrade irrigation	Roadside Preservation
8.8	Clairemont Mesa Blvd	Bridge Rail Upgrade	Bridge Preservation FY 2013/14

Transit Improvements

Current transit service on and around SR-163 consists of peak hour Metropolitan Transit System (MTS) service that utilizes either the entire route or portions of SR-163. There are multiple local and express routes that serve commuter trips to local and regional transit stations as well as employment destinations. The following table shows existing MTS bus routes in the SR-163 corridor.

SERVICE VEHICLE	ROUTE	HOURS OF OPERATION	GEOGRAPHIC SERVICE AREA	LOCAL/ EXPRESS	PEAK PERIOD HEADWAY
Bus	MTS 15	4:40AM-12:55PM	CBD- SDSU Via 163/ Washington and El Cajon Blvd.	Local	15 min.
Bus	MTS 20	4:40AM-11:45PM	CBD- Escondido	Express	30 min.
Bus	MTS 41	5:25AM-11:50PM	Fashion Valley Mall- VA Hospital La Jolla	Local	15 min.
Bus	MTS 120	5:35AM-11:55PM	CBD- Kearny Mesa Transit Center	Local	15 min.
Bus	MTS 810	5:20AM-7:00PM Peak Hours	CBD- Escondido Transit Center	Express	15 min.
Bus	MTS 820	6:10AM-6:30PM Peak Hours	CBD- Poway/ Sabre Springs	Express	25 min.
Bus	MTS 850	6:00AM-6:30PM Peak Hours	CBD- Rancho Penasquitos	Express	30 min.
Bus	MTS 860	5:50AM-6:46PM Peak Hours	CBD- Rancho Bernardo	Express	30 min.

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Long range transit planning improved in 2001 when SANDAG, the Metropolitan Transit Development Board (MTDB), the North County Transit District (NCTD), Caltrans, local jurisdictions, and a 50-member City Advisory Committee developed the Regional Transit Vision (RTV). The RTV provided for a transit network that is fast, flexible, reliable, safe and convenient. The RTV emphasized 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.

The RTV has established the framework for more refined analysis and development of future transit improvements. A key component of viable transit in the San Diego region is the integration of transit and roadways. Competitive transit service must be able to operate in congestion-free lanes. The San Diego region will include an extensive network of Managed/HOV lanes on the highway system designed to accommodate transit services, as well as carpools, vanpools, and fee-paying FasTrak patrons. In addition, arterial improvements will include transit priority treatments and Intelligent Systems technologies designed to enhance transit headways. There will also be further development of major transit capital projects, such as transitways, double tracking, direct access ramps, and grade separations as well as additional operational funding for expanded transit services.

The Regional Transit Plan included in the 2007 SANDAG RTP documents many of the key elements necessary for implementing a strong system design that maximizes regional mobility needs.

Expansion of future transit service in the SR-163 corridor consists mostly of improving headways for existing local and express bus services. In addition, a potential transit guideway project between the Kearny Mesa area and downtown San Diego would utilize the 4th/5th/6th/SR-163 corridor. Additional feasibility studies will be needed to assess alignments, stations, environmental/community issues, and capital costs. Further studies are also needed to determine the practicality of allowing limited use of shoulders on SR-163 for transit buses during congested periods until the ultimate completion of the regional Managed/HOV lane system. The current Bus on Shoulders Demonstration Project on portions of SR-52 and I-805 has been operating successfully. Ultimately, Bus on Shoulders projects may not be necessary upon completion of the regional Managed/HOV lane system.

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-163 corridor. Currently, there are no Park and Ride facilities along the route. Bicycles and pedestrians are not allowed on any portion of SR-163, however there are many options for individuals engaged in these alternate commuting strategies to reach their destinations via adjacent city streets. Additional

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corridor mobility management strategies and Intelligent Transportation Systems (ITS) that can reduce daily vehicle hours of recurrent delay on SR-163 include continuing implementation of the Transportation Management System (TMS) and Traffic Operations Strategies (TOPS). TMS is the “wiring” needed to provide real-time corridor performance information, and TOPS includes a variety of near-term corridor improvements such as the provision of intelligent infrastructure and auxiliary lanes.

PROJECT INITIATION DOCUMENT INFORMATION - CORRIDOR AND SYSTEM COORDINATION

SR-163 was added to the State Highway System in 1931. In 1959, it was added to the Freeway and Expressway System.

The federal functional classification of SR-163 from ‘A’ Street (PM 0.531) to I-5 (PM 0.89) is a Minor Urban Arterial. From I-5 to the end of the route at junction I-15 (PM 11.662), SR-163 is functionally classified as an Other Urban Freeway or Expressway.

The National Highway System (NHS) Designation Act of 1995 was enacted by Congress in November, 1995. The purpose of the NHS is to provide an integrated national highway system that serves both urban and rural America; to connect major population centers, international border crossings, ports, airports, public transportation facilities, and other major travel destinations; to meet national defense requirements; and to serve interstate and interregional travel. The NHS includes the Interstate System routes. In Caltrans District 11, the NHS totals 490.3 miles. A small portion of SR-163 from ‘A’ Street (PM 0.531) to I-5 (PM 0.89) is included in the NHS.

California Senate Bill 300, enacted in 1989, created an Interregional Road System. Subsequently, Section 164.3 of the California Streets and Highways Code directed Caltrans to develop and submit to the Legislature an Interregional Road System (IRRS) Plan by February 1, 1990. In accordance with this plan, the IRRS is a series of interregional state highway routes outside the urbanized areas that provides access to, and links between, the state’s economic centers, major recreational areas, and urban and rural regions. SR-163 is not included as part of the IRRS.

From ‘A’ Street (PM 0.531) to I-5 (PM 0.89), ‘A’ Street (PM 0.531) to I-5 (PM 0.89), the Surface Transportation Assistance Act (STAA) classification for this segment is CL-40 (40-foot Kingpin-to-Rear Axle, 65-foot overall length). From I-5 to I-8, SR-163 is classified as a State Highway Terminal Access route connecting to the National Truck Network. From I-8 to I-15, SR-63 is included as part of the STAA National Network.

SR-163 from the south boundary of Balboa Park (PM 0.95) to the north boundary of Balboa Park (PM 2.18) was officially designated as a State Scenic Highway in April 1992. The portion of SR-163 from ‘A’ Street to the south boundary of Balboa Park is eligible to be designated as a Scenic Highway.

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SR 163 from 'A' Street and Sixth Avenue is designated as California Historic Parkway.

In 1996, parts of SR-163 and related contributing elements were designated as the Cabrillo Freeway Historic District. The south and north boundaries of the Historic District are roughly 300 feet south of the Cabrillo Bridge to a point just south of the 6th Avenue on-ramp undercrossing. The east and west boundaries are the Caltrans right-of-way limits on each side of the freeway. The Historic District includes:

- The Roadway
- The Landscaping
- Cabrillo (AKA Laurel Street) Bridge, #57-0215, 11-SD-163, P.M. 1.42, built in 1915
- Quince Street Overcrossing (OC), Bridge #57-0216K, 11-SD-163, P.M. 1.62, built in 1947
- Richmond Street OC, Bridge #57-0217Z, 11-SD-163, P.M. 1.8, built in 1947
- Upas Street Pedestrian OC, Bridge #57-0218, 11-SD-163, P.M. 2.07, built in 1947
- Robinson Av. OC, Bridge #57-0219, 11-SD-163, P.M. 2.49, built in 1942
- University Av. OC, Bridge #57-0085, 11-SD-163, P.M. 2.61, built in 1947
- Washington Street OC, Bridge #57-0220, 11-SD-163, P.M. 2.75, built in 1942
- Washington Street/6th Av. Separation, Bridge #57C-0009 (City of San Diego bridge), P.M. 2.75, built in 1940
- Pascoe Street on-ramp OC, Bridge #57-0221, 11-SD-163, P.M. 2.79, built in 1947

The City of San Diego Historical Resources Board listed the Historic District as local landmark #441 in September 2000. In August 2002, Governor Gray Davis signed legislation (AB3035§3.284) that officially designated the portion of Route 163 from PM 0.5/3.0 as the Cabrillo Historic Parkway.

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.

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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 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 three potential major development projects that may impact the SR-163 corridor. There may be an additional number of smaller development projects that 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-163 corridor can be obtained from the Caltrans District 11 Development Review Branch.

POST MILE	PROJECT NAME	DESCRIPTION
3.89	Riverwalk Center Specific Plan	Mixed Use
4.4	Hazard Center Redevelopment and Expansion	Mixed Use
4.4	Quarry Falls-Sudberry Properties	Mixed Use