



## INTERSTATE-15 TRANSPORTATION CONCEPT SUMMARY

This Transportation Concept Summary (TCS) for Interstate 15 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**  
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DISTRICT 11

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# **I-15 Transportation Concept Summary June 2012**

## **CORRIDOR PURPOSE**

Interstate 15/State Route 15 (I-15/SR-15) is a principal north/south freeway serving the inland portion of San Diego County, providing movement of commuter, regional, and interregional traffic (For discussion purposes, I-15/SR-15 will be identified as I-15 for the rest of this report). I-15 serves as an interregional route for travel and goods movement by linking the San Diego metropolitan area with Mexico to the south, and the Riverside/San Bernardino area to the north, continuing in a northeasterly direction to Las Vegas. I-15 serves regional travel needs by serving the Cities of San Diego, San Marcos, Poway, Escondido, and the unincorporated communities of Bonsall, Fallbrook and Rainbow. I-15 is a heavily utilized commuter route providing access to the growing residential communities of Tierrasanta, Mira Mesa, Scripps Ranch, Rancho Penasquitos, Sabre Springs, Carmel Mountain Ranch, Poway, Escondido, and Rancho Bernardo. I-15 bisects the Marine Corps Air Station Miramar and links major employment centers located in Kearny Mesa and the Miramar area, as well providing a connection to the 32<sup>nd</sup> Street Naval Station. The route interconnects with major District 11 freeways including I-5, SR-94, I-805, I-8, SR-52, SR-163, SR-56, SR-78 and SR-76.

## **CORRIDOR NEEDS**

Portions of the I-15 corridor currently operate at unacceptable levels of service during peak periods, and this congestion may increase in the future. The Average Daily Traffic (ADT) on the corridor currently ranges from 170,000 to 290,000 vehicles, and projected volumes are expected to approach 380,000 vehicles per day by the year 2020. In addition, binational trade between the U.S. and Mexico has increased steadily since the passage of the North American Free Trade Act in 1994, and this continued increase in trade may cause an increase in the number of trucks traveling the I-15 corridor.

There are currently limited travel alternatives in the I-15 corridor. There are no continuous arterial routes parallel to I-15, and there is a lack of high-speed transit service on the corridor. Existing transit routes on local streets operate at or near capacity.

Projected population and employment growth in the San Diego region will result in additional travel demand on the I-15 corridor. By the year 2030, population growth and employment growth in the areas surrounding the I-15 corridor is expected to reach 31% and 25%, respectively. In particular, growth along the I-15 corridor from Escondido to Riverside County is expected to be higher than the San Diego regional average.

## **CORRIDOR ANALYSIS**

Many improvements have been made in portions of the I-15 corridor to improve the mobility of people and freight and to improve accessibility to major employment and other regional activity centers. Additional improvements have been proposed for other portions of I-15 that will enhance mobility.

Caltrans District 11 developed the *Interstate 15 Project Report* in February 2003 that identified freeway improvements in the I-15 corridor from the SR-163 Interchange at Marine Corps Air Station Miramar to SR-78 in Escondido. The concept of managed lanes is to operate a "freeway within a freeway" in the Project Report area. The lanes are considered managed since they allow the flexibility to alter lane configurations through the use of a moveable barrier, improving freeway capacity for HOV and transit users in the peak direction. The managed lanes are developed with the latest technologies that maintain proper flow rates, sense problems, make adjustments at necessary locations and keep travelers informed of their choices. The managed lanes are mostly within the existing freeway median, though some outside widening was required. The concept is to allow entry and exit openings at two-to three-mile intervals into the managed lanes, with preference given to High Occupancy Vehicles (HOV), such as buses and carpools. SANDAG's I-15 FasTrak Program, which allows Single Occupant Vehicles (SOV) to access HOV lanes for a fee, has been expanded to include the managed lanes now that they are completed. As the managed lanes reach capacity, sensors will close off SOV access by relaying pre-programmed information to changeable message signs; in the future, the message could be relayed directly into approaching vehicles.

The 20-mile, state-of-the-art Express Lanes facility between SR 163 and SR 78 was completed in January 2012. The I-15 Express Lanes feature four lanes with a moveable barrier for maximum flexibility (similar to the moveable barriers on the San Diego-Coronado Bridge); multiple access points to the general purpose highway lanes; and direct access ramps for high-frequency Bus Rapid Transit (BRT) service.

The Express Lanes were built in three segments. The Middle Segment was the first to be constructed and opened to traffic in two phases. The first phase from SR 56 to Rancho Bernardo Road opened in September 2008. The second phase from Rancho Bernardo Road to Centre City Parkway opened in early 2009. The North Segment and the South Segment opened to traffic in 2011 and 2012, respectively.

The innovative Express Lanes provides vanpools, carpools, buses, and FasTrak® customers with a smoother trip along the booming corridor; and also relieves demand on the general purpose lanes.

## **CORRIDOR MOBILITY IMPROVEMENT ACCOUNT**

The Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006, approved by the voters as Proposition 1B on November 7, 2006, includes a program of funding from \$4.5 billion deposited in the Corridor Mobility Improvement Account (CMIA). The funds in the CMIA are available to the California Transportation

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Commission (CTC), upon appropriation in the annual Budget Act by the Legislature, for allocation for performance improvements on the State highway system or major access routes to the State highway system.

To include a project in the CMIA program, the CTC must find that it improves mobility in a high congestion corridor by improving travel times or reducing the number of daily vehicle hours of delay, improves the connectivity of the State highway system between rural, suburban, and urban areas, or improves the operation or safety of a highway or road segment. The project must also improve access to jobs, housing, markets, and commerce. The project can commence construction no later than December 31, 2012.

The CTC expects Caltrans and regional agencies to preserve the mobility gains of urban corridor capacity improvements over time and to describe how they intend to do so in project nominations. In selecting projects for funding under the CMIA program, the CTC intends to balance improvements to mobility in highly congested urban corridors, and improvements to mobility and connectivity in interregional State highway corridors.

CMIA funding was approved for the I-15 Managed Lanes between SR-163 and SR-56 in February 2007.

## **CORRIDOR SYSTEM MANAGEMENT PLAN**

For urban corridor capacity improvements, the Commission intends to give priority to projects where there is a Corridor System Management Plan (CSMP) in place to preserve corridor mobility or where there is a documented regional and local commitment to the development and effective implementation of a CSMP, which may include the installation of traffic detection equipment, the use of ramp metering, operational improvements, and other traffic management elements as appropriate.

The purpose of the CSMP for I-15 is to provide a comprehensive strategy for managing, operating, and improving the I-15 corridor, as well as to provide a timeframe for prioritizing improvements and resources based on current and future performance. The I-15 CSMP corridor is not the entire route, but is defined as I-15 from SR-78 to I-8, SR-15 from I-8 to SR-94, and SR-94 from SR-15 to I-5, along with adjacent major parallel arterials and other modal systems. The description and analysis of the I-15 Managed Lanes CMIA project is included in the CSMP, however, the primary focus of the CSMP is to provide a comprehensive corridor improvement strategy that will ultimately result in optimized performance of the corridor.

The I-15 CSMP utilizes a multi-disciplinary, multi-functional approach to coordinate and synthesize information. Coordination efforts include many functional areas within the District, including but not limited to Planning, Traffic Operations, Maintenance, and Program Management. These efforts also extend to the local jurisdictions and the County, as well as to the San Diego Association of Governments (SANDAG), the region's Metropolitan Planning Organization (MPO).

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Four separate documents bundled together constitute the I-15 CSMP: the I-15 Corridor System Management Plan Summary, the I-15 System Management Plan, the I-15 Managed Lanes Operations (MLOPS) Plan, and the I-15 Managed Lanes Traffic Incident Management (TIM) Plan. The latter two documents were approved by the California Transportation Commission (CTC) in April 2007, allowing the I-15 Middle Segment project to move forward. The complete I-15 CSMP was approved by the Caltrans District 11 District Director and the SANDAG Executive Director in February 2009.

The recommended corridor improvements presented in this document are consistent with the proposed improvements recommended in the aforementioned corridor studies and reports.

For additional I-15 CSMP information, click on the following link:

[http://www.dot.ca.gov/hq/tpp/corridor-mobility/CSMPs/d11\\_CSMPs/I-15%20SR%2094/I-15\\_CSMP\\_FINAL.pdf](http://www.dot.ca.gov/hq/tpp/corridor-mobility/CSMPs/d11_CSMPs/I-15%20SR%2094/I-15_CSMP_FINAL.pdf)

## **CORRIDOR TRAFFIC**

I-15 will be experiencing an increase in traffic in the future. This increased traffic will lead to higher levels of congestion unless corridor improvements are developed. The following table shows existing and future traffic conditions for I-15. For traffic analysis purposes, I-15 is examined in 47 segments.

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## Existing and Future Average Weekday Traffic

LOCATION	2011 AWDT <sup>1</sup>	2011 LOS <sup>2</sup>	2050 AWDT <sup>3</sup>
I-5 to National Avenue	106,700	F	163,400
National Avenue to Ocean View Boulevard	106,700	F	149,400
Ocean View Boulevard to Imperial Avenue	106,700	D	161,700
Imperial Avenue to Market Street	128,000	D	158,100
Market Street to SR-94	119,000	E	162,900
SR-94 to I-805	171,400	C	146,500
I-805 to Wightman Street	171,400	E	215,800
Wightman Street to University Avenue	169,600	E	202,400
University Avenue to Orange Avenue	169,600	D	221,300
Orange Avenue to El Cajon Boulevard	167,400	D	221,300
El Cajon Boulevard to Meade Avenue	167,400	D	215,300
Meade Avenue to Adams Avenue	176,100	C	215,300
Adams Avenue to I-8	176,100	D	231,500
I-8 to San Diego Mission Road	215,600	F	303,500
San Diego Mission Road to Friars Road	215,600	F	303,500
Friars Road to Aero Drive	224,000	F	253,700
Aero Drive to Balboa Avenue/Tierrasanta Boulevard	195,300	E	246,800
Balboa Avenue/Tierrasanta Boulevard to Clairemont Mesa Boulevard	179,900	D	231,900
Clairemont Mesa Boulevard to SR-52	159,400	C	234,200
SR-52 to SR-163	187,000	D	269,700
SR-163 to Miramar Way	312,000	E	415,100
Miramar Way to Pomerado Road	308,900	F	395,300
Pomerado Road to Carroll Canyon Road	273,700	F	356,400
Carroll Canyon Road to Mira Mesa Boulevard	273,700	F	354,200
Mira Mesa Boulevard to Mercy Road/Scripps Poway Parkway	264,100	D	351,900
Mercy Road/Scripps Poway Parkway to Poway Road	250,300	D	336,400
Poway Road to SR-56	220,500	E	329,500
SR-56 to Carmel Mountain Road	239,600	F	301,400
Carmel Mountain Road to Camino del Norte	226,800	D	288,300
Camino del Norte to Bernardo Center Drive	221,500	F	273,400
Bernardo Center Drive to Rancho Bernardo Road	212,500	F	307,200
Rancho Bernardo Road to Pomerado Drive/West Bernardo Drive	209,300	F	261,600
Pomerado Drive/West Bernardo Drive to Via Rancho Pkwy/Bear Valley	216,000	F	394,200
Via Rancho Parkway/Bear Valley to Centre City Parkway	207,200	F	308,600
Centre City Parkway to Gamble Lane/Citracado Parkway	181,800	E	279,500
Gamble Lane/Citracado Parkway to 9th Avenue	190,300	D	276,500
9th Avenue to Valley Parkway	189,200	E	282,800
Valley Parkway to SR-78	202,900	F	284,700
SR-78 to EI Norte Pkwy	130,600	C	178,900
EI Norte Pkwy to Centre City Pkwy	114,300	C	186,500
Centre City Pkwy to Deer Springs Rd	120,500	C	193,200
Deer Springs Rd to Gopher Canyon Rd	121,200	D	201,700
Gopher Canyon Rd to Old Hwy 395	113,600	D	213,300
Old Hwy 395 to SR-76/Pala Rd	116,400	D	221,600
SR-76/Pala Rd to Mission Rd	115,400	C	250,200
Mission Rd to Rainbow Valley Blvd	136,900	D	286,500
Rainbow Valley Blvd to Riverside Co Line	137,600	D	286,500

<sup>1</sup> 2011 AWDTs derived from Caltrans District 11 Traffic Census Branch AADTs.

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

<sup>3</sup> 2050 AWDTs are from the SANDAG Regional Transportation Model. Volumes shown are estimated.

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# FREEWAY CORRIDOR PERFORMANCE MEASURES

The Freeway Performance Measurement Project (PeMs) is used to measure performance in the I-15 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.

Since the I-15 Managed Lanes project was only recently completed, PeMs performance measures are not included in this TCS. These performance measures will be included in future updates of the I-15 TCS.

## **RECOMMENDED CORRIDOR IMPROVEMENTS**

The following table shows recommended major freeway improvements for I-15.

POST MILE	LOCATION	IMPROVEMENT DESCRIPTION
0.0 - R3.4	I-5 to I-805	Add 2 Managed Lanes
R3.4 - R6.1	I-805 to I-8	Add 2 Transit Lanes
R6.1 - M12.1	I-8 to SR-163	Add 2 Managed Lanes
M12.1 - M27.4	SR-163 to Centre City Pkwy	Add 2 Main Lanes and 4 Managed Lanes/Moveable Barrier
M27.4 - R31.5	Centre City Pkwy to SR:-78	Add 2 Main Lanes and 4 Managed Lanes
R31.5 -R54.3	SR-78 to Riverside Co. Line	Add 4 Toll Lanes

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HOV connectors should be provided at the following locations on I-15:

INTERCHANGE	MOVEMENT
I-805	North to North and South to South
SR-94	East to North and South to West
SR-52	West to South and North to East
SR-52	West to North and South to East
SR-163	North to North and South to South
SR-56	East to North and South to West
SR-78	East to South and North to West

A northbound to westbound freeway connector should also be provided at the I-15/SR-56 interchange.

The following table shows additional 2010 STIP, 2010 SHOPP, Project Information Reporting System (PIRS), and projects from the District 11 Developer/Local Projects Funded by Others list (FY2011/12/Quarter 3) for the I-15 corridor. This table does not include projects that are in the Construction phase or the Close-Out phase.

POST MILE	LOCATION	IMPROVEMENT DESCRIPTION	SOURCE/PHASE
0.0 - M4.7	Various	Storm Water Mitigation	PIRS/PA&ED
R5.6 – R6.1	Adams Avenue Overcrossing to 0.5 miles north of the Adams Avenue Overcrossing	Pavement Rehabilitation	PIRS/PA&ED
R30.6 – R31.8	Valley Parkway Undercrossing to southbound I-15/eastbound SR-78 connector Overcrossing and from Nordahl Road Overcrossing to westbound I-15/southbound SR-78 connector.	Construct HOV Direct Connectors and add auxiliary lanes, widen bridge and ramps	PIRS/PSR
R36.3 - -R37.3	0.3 miles south of Deer Springs Road to 0.7 miles north of Deer Springs Road	Widen Ramps (Local/Private Funding; Caltrans Oversight only)	PIRS/PSR
R36.8 – R40.8	0.2 miles north of Deer Springs road overcrossing to Gopher Canyon Road undercrossing.	Median Barrier	PIRS/PSR
R40.8	Gopher Canyon road Undercrossing	Install signal at I-15 northbound and southbound off-ramps	District 11 Developer/Local Projects Funded by Others list
R50.1 – R54.3	Near Rainbow from 0.5 miles south of Mission road overcrossing to Riverside county line.	Conservation Corps- Fallbrook tree planting	PIRS/PA&ED
R 51.4 – R 54.3	3 miles north of Mission road overcrossing to 0.3 miles north of Rainbow Valley Blvd. Overcrossing	Storm water mitigation placement of structural best management practices.	PIRS/PA&ED
54.0	Rainbow truck inspection facility	Upgrade electrical and modify office	PIRS/PA&ED

PSR = Project Study Report

PA&ED = Project Approval and Environmental Document

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The following table shows 10-Year SHOPP Needs Plan Projects for I-15.

POST MILE	LOCATION	IMPROVEMENT DESCRIPTION	CATEGORY/FISCAL YEAR
17.8	Los Penasquitos Creek	Bridge Seismic Restoration	Bridge Preservation 2016/2017
30.6 - 31.3	Valley Pkwy to SR-78	Braid connector and exit ramp	Mobility 2017/2018
31.0 - 43.0	SR-78 to Old Hwy 395	Rehabilitate roadway (PCC pavement grinding, slab replacement, ramp rehabilitation)	Roadway Preservation 2015/2016
R44.2	West Lilac Road Overcrossing	Bridge Seismic Restoration	Bridge Preservation 2015/16
R53.9 - R54.2	Truck Weigh-In-Motion Station	Install Loop Detection	Mobility 2014/15
Various	Various	Repair/replace culverts	Roadway Preservation 2014/15,2015 /2016
Various	Various	Bridge rail upgrade, rehabilitation and seismic retrofitting	Bridge Preservation 2015/2016

### Transit Improvements

#### Existing Transit Service

Both the Metropolitan Transit System (MTS) and the County of San Diego operate express bus services along the I-15 corridor. Current transit service operating on I-15 includes MTS Routes 20, 210, 320, 810, 820, 850, 860 and 960. Existing arterial bus services include MTS local Routes 1, 7, and 11 and limited-stop Routes 10 and 15. Greyhound also provides intercity bus service, with a major stop in Escondido, before continuing north into Riverside County. Currently there are four Bus Rapid Transit (BRT) stations accessible to I-15 by Direct Access Ramps (DARs). These BRT stations provide parking for transit users and carpoolers to connect to the managed lanes by DARs, allowing buses and HOVs to quickly bypass freeway on-ramps. The four DARs/BRT stations are:

- Sabre Springs/Penasquitos DAR/Transit Station
- Rancho Bernardo DAR/Transit Station
- Del Lago DAR/Transit Station
- Hale Avenue/Escondido DAR/Transit Station

The Mira Mesa DAR/Miramar College Transit Station is currently under construction and is anticipated to be completed by late 2015.

#### 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

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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, 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 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.

A major transit project to be developed in the I-15 corridor is the State Route 15 Mid-City Bus Rapid Transit Project. This project will extend from 0.4 mile north of the I-805/15 separation to 0.1 mile south of the Route 15/8 separation.

After extensive study, twenty Build Alternatives were considered during the project development process. After additional study, sixteen of these alternatives were

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rejected and deemed infeasible, and therefore were dropped from further consideration. Four alternatives were selected for further review and evaluation in the Project Study Report/Project Development Support (PSR/PDS) and associated Preliminary Environmental Analysis Report (PEAR) in 2009. These alternatives include:

- Alternative 1: Median Bus Lane with Center Platforms;
- Alternative 2: Median Bus Lane with Side Platforms;
- Alternative 4: Shoulder Bus Lane with Ramp Stations.
- No-Build Alternative

Alternative 2 emerged as the preferred alternative. This alternative includes construction of northbound and southbound Bus Rapid Transit (BRT) lanes within the existing median, BRT stations at University Avenue and El Cajon Boulevard, and elevator and stairs that connect pedestrians from the freeway level transit station to the street level of University Avenue and El Cajon Boulevard.

This alternative was selected due to the level of visual impact, comparative construction costs, community input, and Right Of Way (ROW) factors. This alternative has less visual impact since it has no BRT crossover bridges compared to Alternative 1. It does not require contra-flow operation of buses that will travel in the opposite direction of general purpose traffic as in Alternative 1. It also does not require the Landis Street Pedestrian Overcrossing relocation as required in Alternative 1. The construction cost of this preferred alternative is much less than that of Alternative 1, but it provides the same level of service to the BRT users. Community responses were also supportive of Alternative 2. Compared to Alternative 4 this preferred alternative has no ROW impact and less utility impacts, but it will provide center-running BRT service that is faster than Alternative 4 BRT service. Overall, Alternative 2, the preferred alternative, is cost effective and will satisfy the project goals with minimal environmental and right of way impacts.

For further information regarding this project, see the final [Mid-City BRT Project Report](#) (June 2011).

Two new routes are anticipated to use I-15 in the future. Route 610 will operate between downtown San Diego and the Escondido Transit Center. Route 680 will operate between Otay Mesa and Sorrento Mesa. These new routes will be high-frequency, every 10 minutes during the peak period. In addition, more frequent service is anticipated on existing Routes 210 and 960.

### **Other Transportation Improvements**

Bicycle riders and pedestrians have a legal right to access most public roads in California. While pedestrians are prohibited from most 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 Regional Transportation Plan (RTP) identifies the I-15 transportation corridor as

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an important route for intercommunity bicycle travel. Generally, north-to-south bicycle travel within the corridor is furnished primarily on parallel arterials and bikeways. Specifically, there is an existing Class I two-way bike path along the east side of I-15 which connects near Mira Mesa Boulevard, crosses Scripps Poway Parkway on the east side of I-15, then terminates at Poway Road. Additional Class I two-way bike paths include one located under Los Penasquitos Creek Bridge, and the other Class I bicycle facility is located adjacent to and west of I-15 and spans Lake Hodges. In the east-to-west direction of travel, there is a Class I two-way bike path that begins at Sabre Springs Parkway (east of I-15), traverses east-to-west along the south side of SR-56, then terminates just east of I-5 in Carmel Valley.

There are additional identified bikeway improvement needs within the I-15 corridor. One includes restoring the severed bicycle connection between Adams Avenue and Camino del Rio South. A Final Project Report, 95% engineering plans, and environmental clearance for this State Route 15 Mid-City Bike Path were completed in 2012 and the project is in need of funding sources for construction. Another bike project in the corridor that is in need of funding will provide safety improvements along Kearny Villa Road, a City of San Diego local street. The DAR structures and BRT stations that are part of the completed Managed Lanes Project have been designed to improve bike and pedestrian movement. Most buses within the I-15 corridor are furnished with bike racks for bicycle riders who augment their trip using transit.

There are two contiguous segments of I-15 (which together are under two miles in length) where one-way bicycle travel is permitted on the northbound and southbound outside freeway shoulders. One segment extends from Pomerado Road/West Bernardo Drive across the Lake Hodges to Via Rancho Parkway. The other extends from via Rancho Parkway to Center City Parkway.

## 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. 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:

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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](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 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

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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. In particular, portions of both I-5 and I-15 experience over 3,000 average daily vehicle hours of delay during these peak periods. TMS elements, HOV lanes, and Variable Toll pricing have been implemented to add efficiencies to the system. Recent highway improvements such as the I-15 Managed Lanes, as well as additional multimodal and operational improvements, may further improve mobility in the I-15 corridor.

For specific locations of operational and planned ramp meters on I-15, 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](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.

## **PROJECT INITIATION DOCUMENT INFORMATION - CORRIDOR AND SYSTEM COORDINATION**

The southern terminus of SR-15 is the junction of I-5 in the City of San Diego, just north of National City. SR-15 extends north for 6.8 miles (10.9 kilometers) to the junction of I-8, where it becomes I-15. In San Diego County, I-15 extends north for 47.7 miles (76.8 kilometers) through the City of Escondido to the Riverside County Line/District 8 boundary. The route continues north through Corona, bypassing San Bernardino, then turns northeast to pass through Las Vegas, Nevada; Salt Lake City, Utah; Pocatello, Idaho; and Butte, Montana before joining Alberta Highway 4 at the U.S./Canadian International Border.

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Then signed U.S. 395, I-15 was added to the State Highway System in 1931 and to the California Freeway and Expressway (F&E) System in 1959. The route from I-8 to the Riverside County line was added to the Interstate Highway System in 1969. From I-5 to I-8, the route was made part of the non-chargeable interstate system in 1984. The entire 54.5-mile length of I-15 in San Diego County is included in the National Highway System (NHS).

Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide. Functional classification is used in planning highway systems, determining jurisdictional responsibility, developing fiscal planning and determining eligibility for Federal-aid funding.

The current Federal functional classification of I-15 from I-5 (P.M. R0.0) to Mead Avenue (P.M. M5.2) is "Other Freeway or Expressway." The portion from Mead Avenue to the Riverside County Line (P.M. R54.3) is classified as "Interstate".

The I-15 corridor is included into the International Border Trade Corridors (IBTC), a Caltrans District 11 designated system comprised of routes of statewide significance to facilitate and increase trade, ensure safe cross-border trucking, and to improve the multimodal transportation network leading to the major international border crossings. The system includes both highway and rail intended to provide for the movement of both goods and people.

The entire portion of I-15 is included under the Interregional Road System (IRRS) and has been designated as "high emphasis." The IRRS was identified in 1989 as part of the legislation that serves the interregional movement of people and goods; the 1998 Interregional Transportation Strategic Plan (ITSP) supersedes the prior 1990 Plan required by the 1989 legislation. The inclusion of the interstate as a high emphasis route highlights its critical importance to interregional travel.

All of I-15 is designated as a Surface Transportation Assistance Act (STAA) National Network (NN) Route.

In accordance with the Truck Kingpin-to-Rear-Axle Length State Highway System Evaluation Report of December 1989, all of I-15 has been identified as geometrically adequate for use by truck tractor-semitrailer combinations having a 40 foot kingpin-to-rear-axle length.

The I-15 corridor is included in the Intermodal Corridors of Economic Significance (ICES) System. The system is composed of California's major seaports and airports and a network of National Highway System routes and National Highway System Connectors that link these intermodal facilities most directly, conveniently and efficiently in time and distance to intrastate, interstate, and international markets.

The portion of I-15 from SR-76 (P.M. 46.3) to the Riverside County line (P.M. 54.3) is

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in the California State Scenic Highway System and is eligible to be designated as an official State Scenic Highway. The program is used to protect and preserve highways in areas of outstanding natural beauty.

The entire length of I-15 in San Diego County is included in the Statewide List of Lifeline Routes. A lifeline route is critical to emergency response activities of a region or the state and must remain open immediately following a major earthquake, thus preplanning for detour and/or expeditious repair and reopening must guarantee through movement of emergency response activities.

SANDAG's adopted 2050 RTP (October 2011) includes the following corridor improvements under the Revenue Constrained Plan the Unconstrained scenario:

### **Highway Scenarios**

<b>LOCATION</b>	<b>REVENUE CONSTRAINED</b>	<b>UNCONSTRAINED</b>
I-5 to I-805	8F + 2ML	8F + 2ML
I-805 to I-8	8F + 2 Transit Lanes	8F + 2 Transit Lanes
Viaduct @ I-8	8F + 2ML	8F + 2ML
I-8 to SR-163	8F + 2ML	8F + 2ML
SR-163 to Centre City Pkwy	10F + 4ML/MB	10F + 4ML/MB
Centre City Pkwy to SR-78	8F + 4ML	10F + 4ML
SR-78 to Riverside Co. Line	8F + 4T	8F + 4T

F = Freeway Lanes  
HOV = High Occupancy Vehicle Lanes  
ML/MB = Managed Lanes/Movable Barrier  
T = Toll Lanes

## **DEVELOPMENT REVIEW**

Caltrans District 11 Development Review staff in the Planning Division review federal, state, and local planned or proposed development activities that have the potential to impact state transportation facilities or other resources under Caltrans' jurisdiction, and 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

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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 currently 5 potential major development projects within or adjacent to the I-15 corridor. There may be an additional number of smaller development projects that may have additional cumulative impacts on traffic in the corridor. Due to uncertainties associated with future demographic, socioeconomic, and political climates, the scale of development may be subject to change. Changes in land use prompting rapid commercial and industrial 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 by developers and reviewed carefully by Caltrans staff. Land development and local capital improvement projects should also be coordinated with Caltrans projects.

The following table shows proposed projects in the I-15 corridor that are currently active in the Caltrans/SANDAG Development Review Project Tracking System:

<b>Post Mile</b>	<b>Project Name</b>	<b>ADT</b>	<b>Project Description</b>
R31.52	Escondido Ball Park	3,030	Sports Facility
R43.28	Accretive I-15 Planned Community	20,020	Mixed Use
R47.2	Campus Park West <sup>1</sup>	2,400	Mixed Use
R47.4	Meadowood <sup>1</sup>	8,740	Residential
R47.5	Campus Park <sup>1</sup>	43,395	Mixed Use

<sup>1</sup> These projects are also included in the SR-76 Transportation Concept Summary due to their proximity to the I-15/SR-76 interchange.