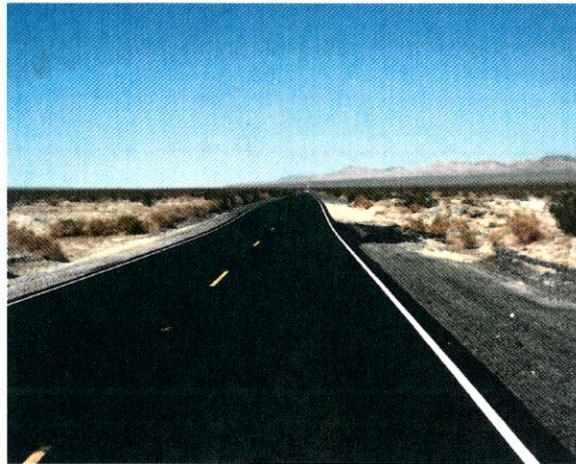
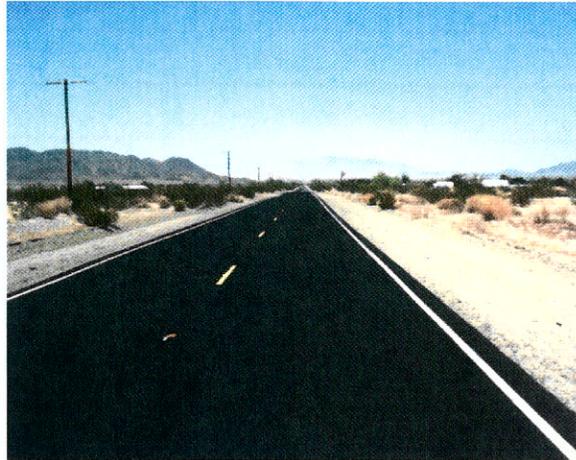




Transportation Concept Report

State Route 177

District 8



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 Transportation Concept Report (TCR) is subject to modification as conditions change and new information is obtained. Although planning information is dynamic and continually changing, the District 8 System Planning Division makes every effort to ensure the accuracy and timeliness of the information contained in the TCR. The information in the TCR does not constitute a standard, specification, or regulation, nor is it intended to address design policies and procedures.

California Department of Transportation

Mission: Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

Approvals:



 RAY I. DESSELLE
 Deputy District Director
 Planning

6/29/16
 Date 

 JOHN BULINSKI
 District Director

6/30/16
 Date

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ABOUT THE TRANSPORTATION CONCEPT REPORT

System Planning is the long-range transportation planning process for the California Department of Transportation (Caltrans). The System Planning process fulfills Caltrans' statutory responsibility as owner/operator of the State Highway System (SHS) (Gov. Code §65086) by evaluating conditions and proposing enhancements to the SHS. Through System Planning, Caltrans focuses on its mission to provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

The System Planning process (See Appendix E: System Planning Flow Chart) is primarily composed of four parts: the District System Management Plan (DSMP), the Transportation Concept Report (TCR), the Corridor System Management Plan (CSMP), and the DSMP Project List. The district-wide **DSMP** is strategic policy and planning document that focuses on maintaining, operating, managing, and developing the transportation system. The **TCR** is a planning document that identifies the existing and future route conditions as well as future needs for each route on the SHS. The **CSMP** is a complex, multi-jurisdictional planning document that identifies future needs within corridors experiencing or expected to experience high levels of congestion. The CSMP serves as a TCR for segments covered by the CSMP. The **DSMP Project List** is a list of planned and partially programmed transportation projects used to recommend projects for funding. These System Planning products are also intended as resources for stakeholders, the public, and partner, regional, and local agencies.

TCR Purpose

California's State Highway System needs long-range planning documents to guide the logical development of transportation systems as required by CA Gov. Code §65086 and as necessitated by the public, stakeholders, and system users. The purpose of the TCR is to document the evaluation of current and projected conditions along the route and to communicate the vision for the development of the route in each Caltrans District during a 20-25 year planning horizon. The TCR is developed with the goals of increasing safety and health; providing good stewardship and system efficiency; making Smart Mobility decisions that sustainably improve the environment and a vibrant economy; and providing reliable and accessible mobility options through an integrated management of the transportation network, including the highway, transit, pedestrian, bicycle, freight, operational improvements, and travel demand management components of the corridor.

STAKEHOLDER PARTICIPATION

The State Route 177 TCR involved stakeholders including representatives from cities bordering SR-177 corridor. Feedback from the stakeholders helped solidify the findings of the performance assessment, bottleneck identification, and causality analysis given their intimate knowledge of local conditions. Moreover, stakeholders have provided support and insight, and shared valuable field and project data without which this study would not have been possible. The stakeholders included representatives from the following organizations: the Southern California Association of Governments, the Riverside County Transportation Commission, the County of Riverside, and Native American tribes.

EXECUTIVE SUMMARY

State Route 177 (SR-177) is a north-south highway that begins at the I-10 interchange in Desert Center and runs north through the desert and terminates at the Junction of SR-62. Joshua Tree National Park lies to the west of the route. Shoulders are narrow and there are no sidewalks along the length of the route. The main economy of the area is recreation tourism to the national parks.

CONCEPT SUMMARY

Seg.	Segment Description	Existing Facility	2035						
			Capital Facility Concept	System Operations and Management Concept	No-Build		Planned SCAG-RTP	Minimum to attain LOS "D"	
1	I-10 to Ragsdale Road	2L, C	2L, C	None	2 MF		2 MF		2 MFE
					V/C	LOS	V/C	LOS	
					0.30	C	0.30	C	
2	Ragsdale Road to SR-62	2L, C	2L, C	None	2 MF		2 MF		2 MFE
					V/C	LOS	V/C	LOS	
					0.24	C	0.24	C	

Source: Caltrans District 8 District System Management Plan Update, 2016

C = Conventional Highway
L = Number of mainline lanes

MF = Mixed-Flow Lane
MFE = Mixed-Flow Lane Equivalent
V/C = Volume to Capacity Ratio
LOS = Level of Service

CONCEPT RATIONALE

This Transportation Concept Report serves as a guide for long-range planning of route improvements. Since SR-177 is not expected to experience significant traffic growth in the future, no capacity improvements are needed to maintain the concept LOS "D" through 2035. SR-177 may need other projects to achieve strategic plan goals such as providing adequate shoulders for bicycle and pedestrian travel.

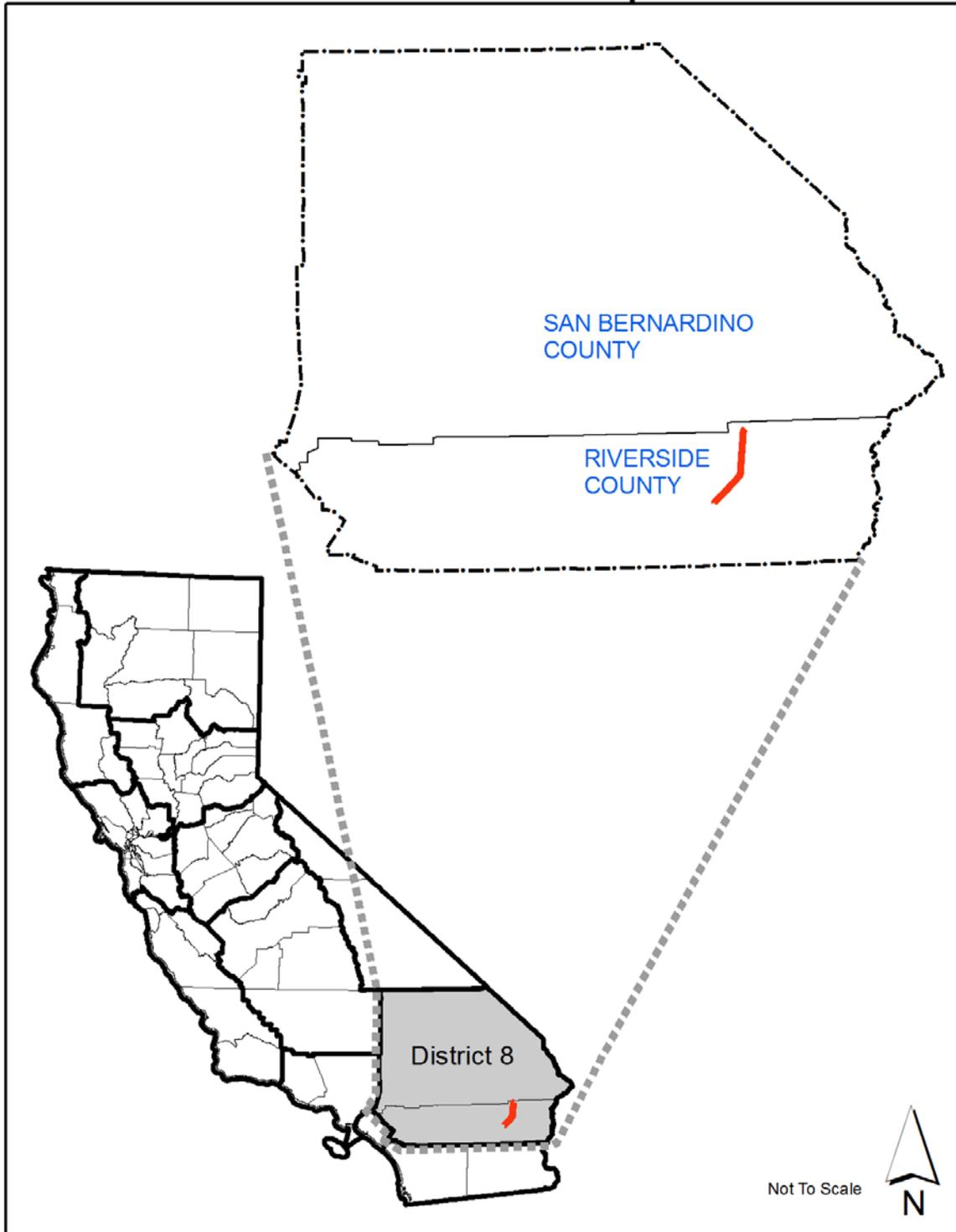
PROPOSED PROJECTS AND STRATEGIES

No planned or programmed projects or strategies are proposed for SR-177.

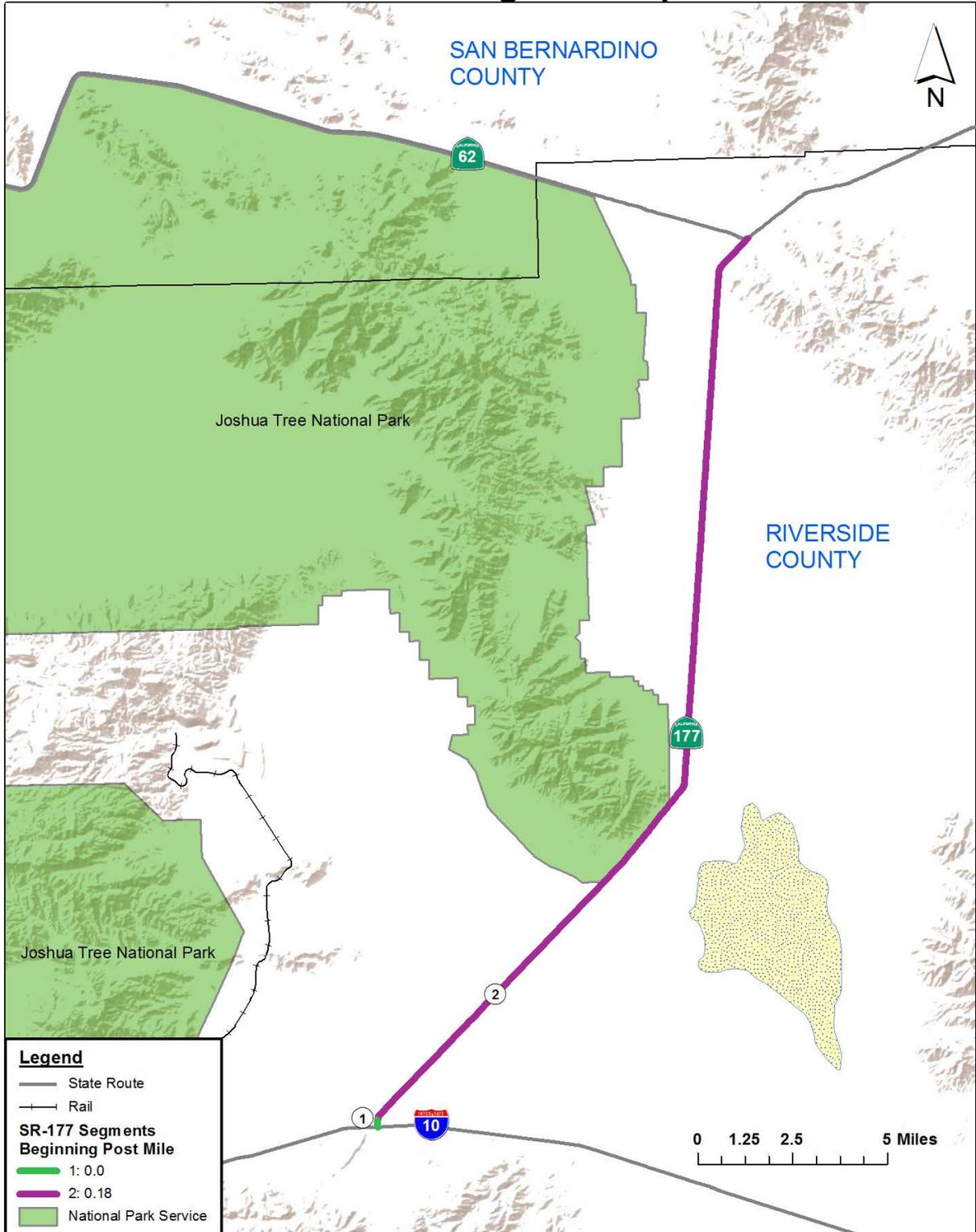
CORRIDOR OVERVIEW

ROUTE SEGMENTATION

SR-177 Location Map



SR-177 Segment Map



Segment	Location Description	County_Route_ Begin PM	County_Route_ End PM
1	I-10 to Ragsdale Road	RIV_177_0.00	RIV_177_0.18
2	Ragsdale Road to SR-62	RIV_177_0.18	RIV_177_27.02

ROUTE DESCRIPTION

Route Location

SR-177 is located in the eastern portion of California in Riverside County. It is 27 miles in length.

Route Purpose

SR-177 serves as a corridor for goods movement, and access for local residents and visitors heading to north to Las Vegas and Laughlin, Nevada via SR-62 and US-95 and south to connect with I-10. SR-177 can be used as a connector to an alternate route in the event of a closure on SR-62 or I-10.

Major Route Features

SR-177 is a north-south, a two-lane Conventional Highway through largely undeveloped desert connecting east-west routes, SR-62 and I-10. SR-177 passes the eastern border of Joshua Tree National Park providing limited dirt-road access to the park.

Route Designations and Characteristics

Segment #	1	2
Freeway & Expressway System	No	No
National Highway System	No	No
Strategic Highway Network	No	No
Scenic Highway	No	No
Interregional Road System	No	No
High Emphasis	No	No
Focus Route	No	No
Federal Functional Classification	Minor Arterial	Minor Arterial
Goods Movement Route	Yes	Yes
Truck Designation	Terminal Access Route (STAA)	Terminal Access Route (STAA)
Rural / Urban / Urbanized	Rural	Rural
Metropolitan Planning Organization	SCAG	SCAG
Regional Transportation Planning Agency	SCAG	SCAG
Congestion Management Agency	CVAG	CVAG
County Transportation Commission	CVAG	CVAG
Local Agency	County of Riverside	County of Riverside
Tribes	Cabazon Band of Mission Indians; Colorado River Indian Reservation; Twenty-Nine Palms Band of Mission Indians; Torres Martinez Desert Cahuilla Indians	
Air District	SCAQMD	SCAQMD
Terrain	Level	Level

COMMUNITY CHARACTERISTICS

Jurisdiction	Desert Center
Total Population	204
Median Income	\$50,000
Drive Alone to Work	83.9%

Source: 2010 U.S. Census

SR-177 is a rural route with a couple of population centers. There are uninhabited residential and commercial areas near the I-10 and SR-177 junction in the census designated place of Desert Center. SR-177 serves the communities of Lake Tamarisk and Eagle Mountain. Lake Tamarisk is a small unincorporated community with a lake, golf course and mobile home park about one mile west of SR-177. Eagle Mountain is a small unincorporated community several miles west of SR-177. Eagle Mountain is a small mining town with many abandoned and razed homes.

LAND USE

There are many land uses around SR-177. A portion of the route runs right next to Joshua Tree National Park. Most of the land is owned by the U.S. Bureau of Land Management and has never been privately owned. Several miles west, the Desert Sunlight Solar Farm was constructed in 2011 and provides 550 megawatts and covers 6 square miles. Also several miles west, the Eagle Mountain pumping station for the Colorado River Aqueduct that provides water to the Los Angeles Metropolitan Area. There is some agriculture in the area.

To the East, Desert Center Airport is a private airport with no fuel or services. Next to the airport is Chuckwalla Valley Raceway, a track for motorcycle and automotive racing. The raceway is a low-volume traffic generator for SR-177. There are plans for more development at the site.

SYSTEM CHARACTERISTICS

Segment #	1	2
Existing Facility		
Facility Type	C	C
General Purpose Lanes	2	2
Lane Miles	0.4	53.7
Centerline Miles	0.2	26.8
HOV Lanes	0	0
HOT/ Express Lanes	0	0
Concept Facility 2035		
Facility Type	C	C
General Purpose Lanes	2	2
Lane Miles	0.4	53.7
Centerline Miles	0.2	26.8
HOV Lanes	0	0
HOT/ Express Lanes	0	0
TMS Elements		
TMS Elements 2008	None	None
TMS Elements 2035	None	Add Highway Advisory Radio

C = Conventional Highway

SR-177 is a two-lane conventional highway without center turn lanes.

BICYCLE FACILITY

Segment	Bicycle Access Prohibited	Facility Type
1	No	No designated facility
2	No	No designated facility

Bicycles are allowed along the whole length of SR-177. However, shoulders are narrow along most of the route and vary from 1-4 feet.

PEDESTRIAN FACILITY

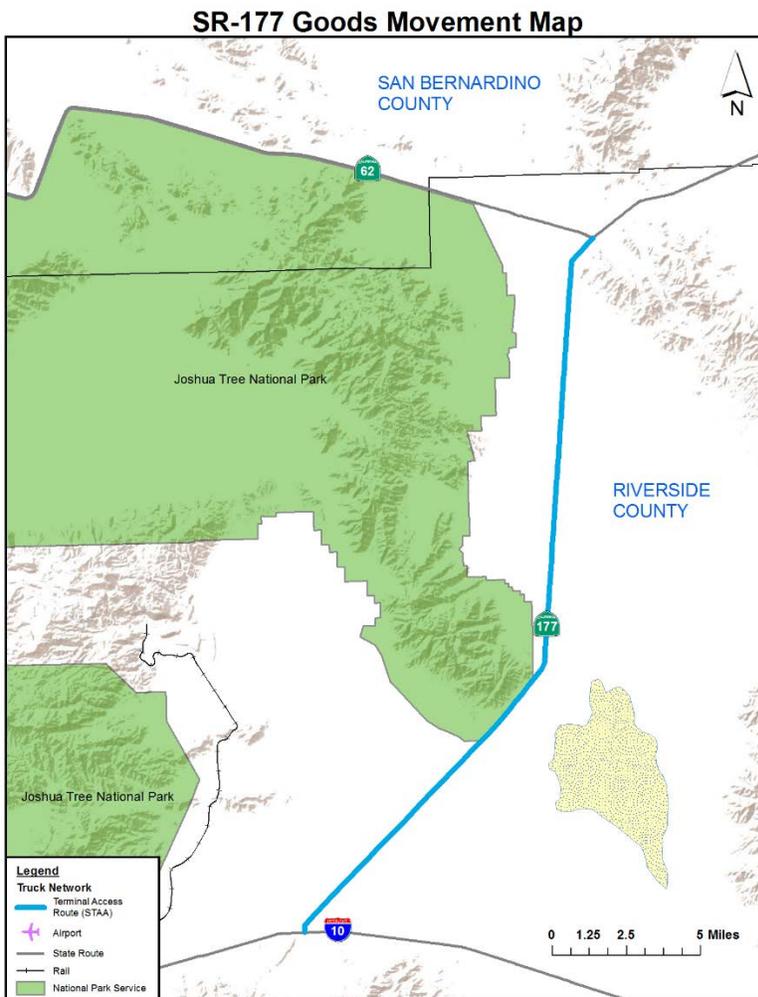
Segment	Pedestrian Access Prohibited	Sidewalk Present
1	No	No
2	No	No

Due to the rural nature of SR-177, sidewalks are not present along the route. Pedestrians may walk on the edge of the pavement.

TRANSIT FACILITY

There is no transit service on SR-177.

FREIGHT



Freight generators, terminals, and/or inter-modal facilities are not present on the constructed portion of SR-177. However, SR-177 can serve as a bypass when I-10 or SR-62 are closed.

CORRIDOR PERFORMANCE

Traffic volumes on SR-177 are expected to increase slightly over the next 20 years.

Segment #	1	2
Basic System Operations		
AADT 2008	3,700	1,300
AADT 2035	5,600	2,400
LOS Method	HCM	HCM
LOS 2008	C	B
LOS 2035	C	C
LOS Concept	D	D
VMT 2008	740	34,840
VMT 2035	1,740	65,320
Truck Traffic		
Total Average Annual Daily Truck Traffic (AADTT) 2008	300	200
Total Average Annual Daily Truck Traffic (AADTT) 2035	500	450
Total Trucks (% of AADT) 2008	8%	17%
Total Trucks (% of AADT) 2035	9.6%	18.5%
5+ Axle Average Annual Daily Truck Traffic (AADTT) 2008	100	200
5+ Axle Trucks (% of AADT) 2008	3%	15%
Peak Hour Traffic Data		
Peak Hour Directional Split 2008	53%	53%
Peak Hour Directional Split 2035	61%	65%
Peak Hour % 2008	13%	24%
Peak Hour % 2035	13.1%	22.1%
Peak Hour V/C 2008	0.18	0.11
Peak Hour V/C 2035	0.30	0.24

Source: Caltrans District 8 Forecast Unit forecast based on SCAG 2012 RTP traffic model

KEY CORRIDOR ISSUES WIDENING THE ROAD TO FOUR LANES

Key corridor issues along SR-177 include narrow shoulders that do not accommodate bicycles and pedestrians. Another issue is flooding of the roadway surface during winter rain storms since much of the route crosses across alluvial fans and is not elevated above the surrounding land.

CORRIDOR CONCEPT

CONCEPT RATIONALE

The corridor concept serves as a guide for long range planning of route improvements. Since SR-177 is not expected to experience significant traffic growth in the future, no capacity improvements are needed to maintain the concept LOS “D” through 2035. To achieve Caltrans Strategic Management Plan goals for non-motorized use on the state transportation system, infrastructure improvements such as shoulders for bicycle and pedestrian travel along the route should be explored.

PLANNED AND PROGRAMMED PROJECTS AND STRATEGIES

No capacity increasing or major operational projects or strategies are planned or programmed for SR-177.

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

No projects or strategies are proposed for SR-177.

APPENDICES

APPENDIX A: GLOSSARY OF TERMS AND ACRONYMS

Acronyms

- AADT** – Annual Average Daily Traffic
- AADTT** – Annual Average Daily Truck Traffic
- ADT** – Average Daily Traffic
- AQMD** – Air Quality Management District
- Caltrans** – California Department of Transportation
- CMA** – Congestion Management Plan
- CSS** – Context Sensitive Solutions
- FHWA** – Federal Highway Administration
- GHG** – Green House Gas
- HCM** – Highway Capacity Manual
- HCP** – Habitat Conservation Plan
- HCS** – Highway Capacity Software
- HOV** – High Occupancy Vehicle Lane (2 or more occupants per vehicle)
- HOT** – High Occupancy Toll Lane
- IC** – Interchange
- ITS** – Intelligent Transportation System
- LOS** – Level of Service
- MF** – Mixed-Flow Lane
- MFE** – Mixed-Flow Lane Equivalent
- ML** – Managed Lane
- MPO** – Metropolitan Planning Organizations
- NOA** – Naturally Occurring Asbestos
- NCCP** – Natural Community Conservation Plan
- OC** – Overcrossing
- PID** – Project Initiation Document
- PM** – Post Mile
- PSR** – Project Study Report
- RCTC** – Riverside County Transportation Commission
- Riv** – Riverside County
- RTP** – Regional Transportation Plan
- RTIP** – Regional Transportation Improvement Program
- RTPA** – Regional Transportation Planning Agency
- SANBAG** – San Bernardino Associated Governments
- SBd** – San Bernardino County
- SCAG** – Southern California Association of Governments
- SCS** – Sustainable Community Strategies
- SHOPP** – State Highway Operation Protection Program
- STIP** – State Transportation Improvement Program
- T** – Truck Lane
- TDM** – Transportation Demand Management
- TMS** – Transportation Management System
- TSN** – Transportation System Network
- UC** – Undercrossing
- V/C** – Volume to Capacity Ratio
- VMT** – Vehicle Miles Traveled

Definitions

Annual Average Daily Traffic (AADT) – Annual Average Daily Traffic is the total volume for the year divided by 365 days. The traffic count year is from October 1st through September 30th. Traffic counting is generally performed by electronic counting instruments moved from location throughout the State in a program of continuous traffic count sampling. The resulting counts are adjusted to an estimate of annual average daily traffic by compensating for seasonal influence, weekly variation and other variables which may be present. Annual ADT is necessary for presenting a statewide picture of traffic flow, evaluating traffic trends, computing accident rates, planning and designing highways, and other purposes.

Bikeway Class I (Bike Path) – Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with cross flow by motorists minimized.

Bikeway Class II (Bike Lane) – Provides a striped lane for one-way bike travel on a street or highway.

Bikeway Class III (Bike Route) – Provides for shared use with pedestrian or motor vehicle traffic.

Capacity – The maximum sustainable hourly flow rate at which persons or vehicles reasonably can be expected to traverse a point or a uniform section of a lane or roadway during a given time period under prevailing roadway, environmental, traffic, and control conditions.

Capital Facility Concept – The 20-25 year vision of future development on the route to the capital facility. The capital facility can include capacity increasing, state highway, bicycle facility, pedestrian facility, transit facility (Intercity Passenger rail, Mass Transit Guide way etc.), grade separation, and new managed lanes.

Concept LOS – The minimum acceptable level of service over the next 20-25 years.

Conceptual Project – A conceptual improvement or action is a project that is needed to maintain mobility or serve multimodal users, but is not currently included in a financially constrained plan and is not currently programmed. It could be included in a General Plan or in the unconstrained section of a long-term plan.

Corridor – A broad geographical band that follows a general directional flow connecting major sources of trips that may contain a number of streets, highways, bicycle, pedestrian, and transit route alignments. Off system facilities are included for informational purposes and not analyzed in the TCR.

Facility Concept – Describes the facility and strategies that may be needed within 20-25 years. This can include capacity increasing, state highway, bicycle facility, pedestrian facility, transit facility, non-capacity increasing operational improvements, new managed lanes, conversion of existing managed lanes to another managed lane type or characteristic, TMS field elements, transportation demand management, and incident management.

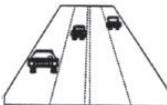
Facility Type – The facility type describes the state highway facility type. The facility could be freeway, expressway, conventional, or one-way city street.

Freight Generator – Any facility, business, manufacturing plant, distribution center, industrial development, or other location (convergence of commodity and transportation system) that produces significant commodity flow, measured in tonnage, weight, carload, or truck volume.

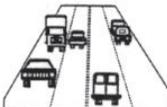
Headway – The time between two successive vehicles as they pass a point on the roadway, measured from the same common feature of both vehicles.

Intelligent Transportation System (ITS) – Improves transportation safety and mobility and enhances productivity through the integration of advanced communications technologies into the transportation infrastructure and in vehicles. Intelligent transportation systems encompass a broad range of wireless and wire line communications-based information and electronics technologies to collect information, process it, and take appropriate actions.

Level of Service (LOS) – It is a qualitative measure describing operational conditions within a traffic stream and their perception by motorists. A LOS definition generally describes these conditions in terms of speed, travel time, freedom to maneuver, traffic interruption, comfort, and convenience. LOS can generally be categorized as follows:



LOS A describes free flowing conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles, and operations are constrained only by the geometric features of the highway.



LOS B is also indicative of free-flow conditions. Average travel speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver.



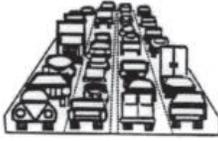
LOS C represents a range in which the influence of traffic density on operations becomes marked. The ability to maneuver with the traffic stream is now clearly affected by the presence of other vehicles.



LOS D demonstrates a range in which the ability to maneuver is severely restricted because of the traffic congestion. Travel speed begins to be reduced as traffic volume increases.



LOS E reflects operations at or near capacity and is quite unstable. Because the limits of the level of service are approached, service disruptions cannot be damped or readily dissipated.



LOS F is a stop and go, low speed conditions with little or poor maneuverability. Speed and traffic flow may drop to zero and considerable delays occur. For intersections, LOS F describes operations with delay in excess of 60 seconds per vehicle. This level, considered by most drivers unacceptable often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection.

Mainline – Includes travelway for through traffic but not freeway to freeway interchanges, local road interchanges, ramps, or auxiliary lanes.

Multimodal – The availability of transportation options using different modes within a system or corridor, such as automobile, subway, bus, rail, or air.

Peak Hour – The hour of the day in which the maximum volume occurs across a point on the highway.

Peak Hour Volume – The hourly volume during the highest hour traffic volume of the day traversing a point on a highway segment. It is generally between six percent and 10 percent of the Annual Daily Traffic (ADT). The lower values are generally found on roadways with low volumes.

PeMS – Caltrans Performance Measurement System is an archived data user service that provides over ten years of data for historical analysis. PEMS provides access to real-time and historical performance data which conducts assessment of freeway performance, base operational decisions on knowledge of the current state of the freeway network, and identifies congestion bottlenecks.

Planned Project – A planned improvement or action is a project in a financially constrained section of a long-term plan, such as an approved Regional or Metropolitan Transportation Plan (RTP or MTP), Capital Improvement Plan, or measure.

Post-25 Year Concept – This dataset may be defined and re-titled at the District's discretion. In general, the Post-25 Year concept could provide the maximum reasonable and foreseeable roadway needed beyond a 20-25 year horizon. The post-25 year concept can be used to identify potential widening, realignments, future facilities, and rights-of-way required to complete the development of each corridor.

Post Mile (PM) – A post mile is an identified point on the State Highway System. The milepost values increase from the beginning of a route within a county to the next county line. The milepost values start over again at each county line. Mile post values usually increase from south to north or west to east depending upon the general direction the route follows within the state. The mile post at a given location will remain the same year after year. When a section of road is relocated, new milepost (usually noted by an alphabetical prefix such as "R" or "M") are established for it. If relocation results in a change in length, "mile post equations" are introduced at the end of each relocated portion so that mile posts on the remainder of the route within the county will remain unchanged.

Programmed Project – A programmed improvement or action is a project in a near-term programming document identifying funding amounts by year, such as the State Transportation Improvement Program or the State Highway Operations and Protection Program.

Route Designation –A route’s designation is adopted through legislation and identifies what system the route is associated with on the State Highway System. A designation denotes what design standards should apply during project development and design. Typical designations include but not limited to National Highway System (NHS), Interregional Route System (IRRS), and Scenic Highway System.

Rural – Fewer than 5,000 in population designates a rural area. Limits are based upon population density as determined by the U.S. Census Bureau.

RTP Model – Forecasting model developed by Southern California Association of Governments (SCAG) prepares travel demand model approximately every 4 years in conjunction with the Regional Transportation Plan Project List. SCAG’s trip based model is structured on a four-step gravity model, which includes trip generation, trip distribution, mode choice, and trip assignment.

Segment – A portion of a facility between two points.

System Operations and Management Concept – Describes the system operations and management elements that may be needed within 20-25 years. This can include Non-capacity increasing operational improvements (Auxiliary lanes, channelization’s, turnouts, etc.), conversion of existing managed lanes to another managed lane type or characteristic (e.g. HOV lane to HOT lane), TMS Field Elements, Transportation Demand Management, and Incident Management.

Transportation Demand Management (TDM) – Programs designed to reduce or shift demand for transportation through various means, such as the use of public transportation, carpooling, telework, and alternative work hours. Transportation Demand Management strategies can be used to manage congestion during peak periods and mitigate environmental impacts.

Transportation Management System (TMS) – Is the business processes and associated tools, field elements, and communications systems that help maximize the productivity of the transportation system. TMS includes, but is not limited to, advanced operational hardware, software, communications systems, and infrastructure, for integrated Advanced Transportation Management Systems and Information Systems, and for Electronic Toll Collection System.

Urban – 5,000 to 49,999 in population designates an urban area. Limits are based upon population density as determined by the U.S. Census Bureau.

Urbanized – Over 50,000 in population designates an urbanized area. Limits are based upon population density as determined by the U.S. Census Bureau.

Vehicle Miles Traveled (VMT) – Is the total number of miles traveled by motor vehicles on a road or highway segments.

APPENDIX B: FACTSHEETS

There are no factsheets available for this route.

APPENDIX C: ADDITIONAL CORRIDOR DATA

There is no additional corridor data for this route.

APPENDIX D: RESOURCES

- California State Transportation Improvement Program Project List 2014
- Caltrans Earth: <http://earth.dot.ca.gov/>
- Caltrans TASAS Highway Sequence Listing for Caltrans District 8
- Census 2010: <http://www.census.gov/2010census/>
- District 8 System Management Plan 2011
- Focus Routes: http://www.dot.ca.gov/hq/tpp/corridor-mobility/documents/library/List_of_Focus_Routes.doc
- GIS Data Library: <http://www.dot.ca.gov/hq/tsip/gis/datalibrary/gisdatalibrary.html>
- High Emphasis Routes: http://www.dot.ca.gov/hq/tpp/corridor-mobility/documents/library/Caltrans_High_Emphasis_Routes_HER.doc
- Interregional Transportation Strategic Plan 2015
- Metropolitan Planning Organizations and RTPAs Map: http://www.dot.ca.gov/hq/tpp/offices/orip/index_files/Updated%20Files/MPO_RTPA_Map_June_2012.pdf
- Regional Transportation Planning Contacts: http://www.dot.ca.gov/hq/tpp/offices/orip/list/agencies_files/regional_6-12.xls
- SCAG FY 2011-2012 Annual Listing of Obligated Projects for State and Local Highways
- SCAG 2012 Regional Transportation Plan: <http://rtpscscag.ca.gov/Pages/2012-2035-RTP-SCS.aspx>
- SCAG 2012 Regional Transportation Plan Level of Service Model
- Scenic Highway Routes: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/scenic_hwy.htm
- Streets and Highways Code §250-257: <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=shc&group=00001-01000&file=250-257>
- Truck Route List and Truck Network Maps: <http://www.dot.ca.gov/hq/traffops/trucks/truckmap/>
- Desert Sunlight Solar Farm: https://en.wikipedia.org/wiki/Desert_Sunlight_Solar_Farm
- Chuckwalla Raceway Plans: <http://goracecvr.com/tag/future-plans/>
- Chuckwalla Raceway Original Plans: <http://www.socalviper.com/images/Chuckwalla%20Valley%20Track%20Map.pdf>

APPENDIX E: SYSTEM PLANNING FLOW CHART

