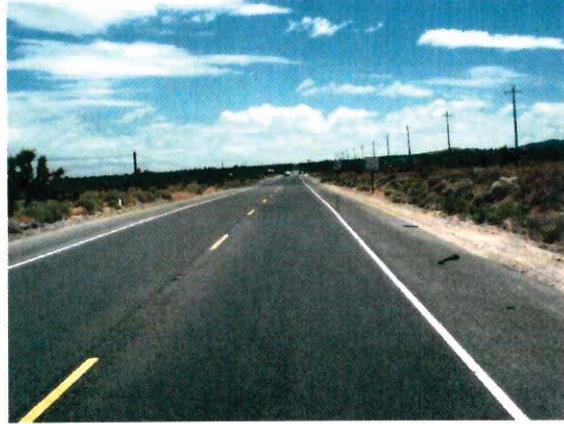




Transportation Concept Report

State Route 138

District 8

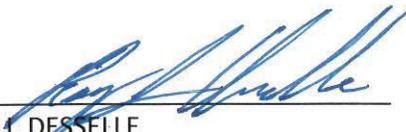


Disclaimer: The information and data contained in this document are for planning purposes only and should not be relied upon for final design of any project. Any information in this Transportation Concept Report (TCR) is subject to modification as conditions change and new information is obtained. Although 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 T. DESSELLE
 Deputy District Director
 Planning

06/15/16
 Date 

 JOHN BULINSKI
 District Director

6/24/16
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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 SR-138 TCR involved stakeholders bordering SR-138. 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 San Bernardino Associated Governments, the County of San Bernardino, and Native American tribes.

EXECUTIVE SUMMARY

CONCEPT SUMMARY

Seg.	Segment Description	Existing Facility	2035 Capital Facility Concept	2035 System Operations and Management Concept	No-Build		Planned SCAG-RTP		Minimum to attain LOS "D"
					V/C	LOS	V/C	LOS	
1	SBd Co. Line to SR-2	2-4L, C	4L, C	Add 2 MF, ITS: EMS	2 MF		4 MF		4 MFE
					V/C	LOS	V/C	LOS	
					0.61	E	0.37	B	
2	SR-2 to I-15	2-4L, C	4L, C	Add 2 MF, ITS: EMS, RWIS	2 MF		4 MF		4 MFE
					V/C	LOS	V/C	LOS	
					0.95	E	0.53	C	
3	I-15 to Summit Valley Road	2L, C	2L, C	Operational Improvements	2 MF		2 MF		2 MFE
					V/C	LOS	V/C	LOS	
					0.57	D	0.57	D	
4	Summit Valley Road To SR-173	2L, C	2L, C	Maintain Only	2 MF		2 MF		2 MFE
					V/C	LOS	V/C	LOS	
					0.27	C	0.27	C	
5	SR-173 to Pilot Rock Road	2L, C	2L, C	Maintain Only	2 MF		2 MF		2 MFE
					V/C	LOS	V/C	LOS	
					0.27	C	0.27	C	
6	Pilot Rock Road to Waters Drive	2L, C	2L, C	Maintain Only	2 MF		2 MF		2 MFE
					V/C	LOS	V/C	LOS	
					0.28	C	0.28	C	
7	Waters Drive to Knapps Cutoff	2L, C	2L, C	Maintain Only	2 MF		2 MF		4 MFE
					V/C	LOS	V/C	LOS	
					0.43	E	0.43	E	
8	Knapps Cutoff to Crest Forest	2L, C	2L, C	Maintain Only	2 MF		2 MF		2 MFE
					V/C	LOS	V/C	LOS	
					0.29	D	0.29	D	
9	Crest Forest To SR-18	2L, C	2L, C	Maintain Only	2 MF		2 MF		4 MFE
					V/C	LOS	V/C	LOS	
					0.31	E	0.31	E	

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

C = Conventional Highway
 L = Number of mainline lanes
 EMS = Extinguishable Message Sign
 RWIS = Roadway Weather Information System

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

CONCEPT RATIONALE

State Route 138 (SR-138) has a total length of 101.3 miles, beginning at Interstate 5 (I-5) near Gorman in Los Angeles County and terminating in Crestline, a mountain community in the San Bernardino National Forest. The District 8 portion of SR-138 begins at the Los Angeles/San Bernardino County Line and traverses the remaining 37.8 miles to the community of Crestline.

For the purposes of this study, SR-138 is divided into nine segments. The route is classified as a conventional highway and traverses mountain and high desert terrain serving inter-regional and local traffic; it also provides access to recreational areas such as Silverwood Lake and Lake Gregory located in the San Bernardino National Forest. Traffic growth on Segments 1 and 2 will require additional capacity in order to maintain a concept LOS “D” through 2035. These two segments are the highest traveled along the route, because they provide a connection between the High Desert and Interstate 15 (I-15).

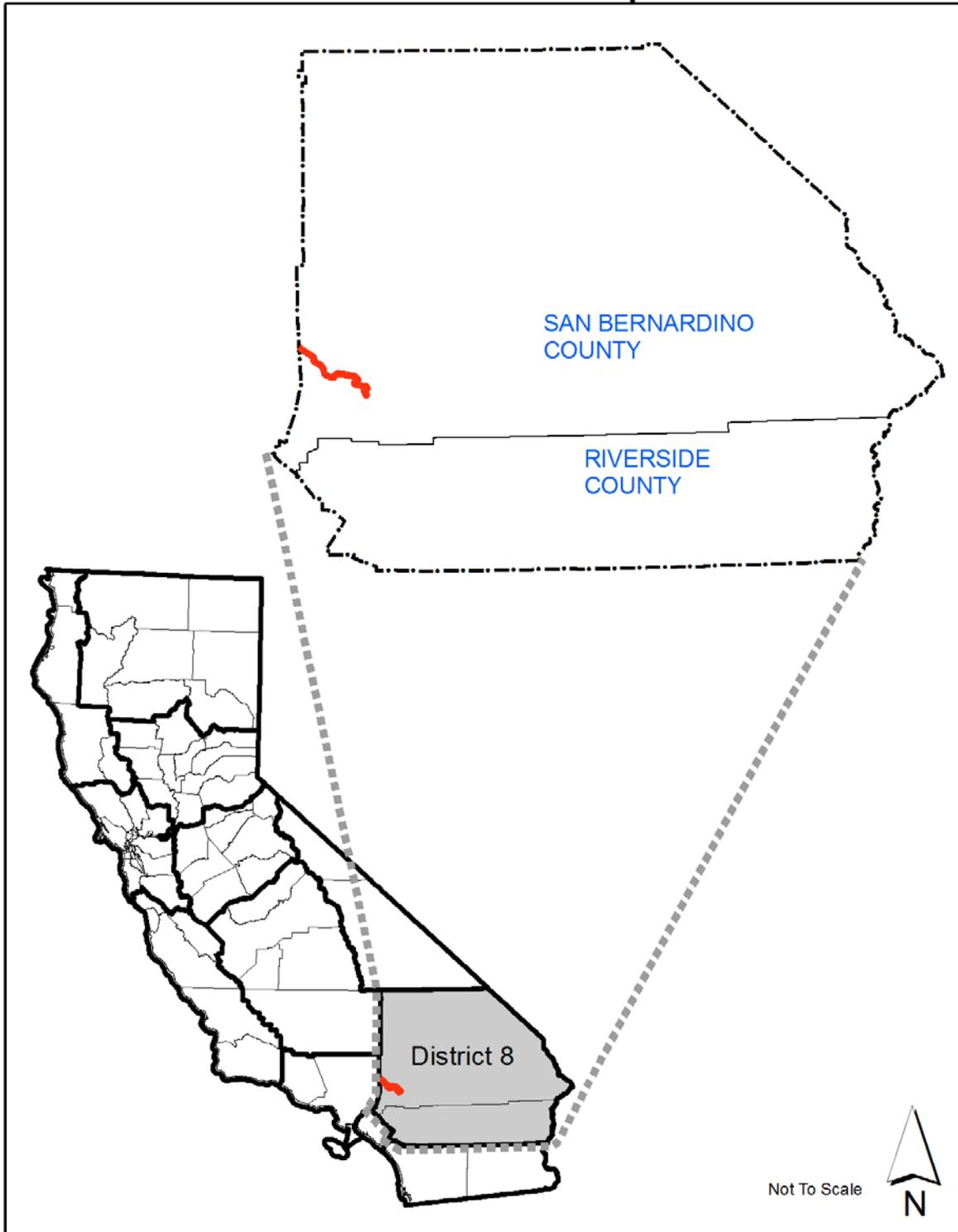
PROPOSED PROJECTS AND STRATEGIES

SR-138 is planned for widening from a two- to four-lane facility to four lanes on Segments 1 and 2. Segment 3 is programmed for realignment.

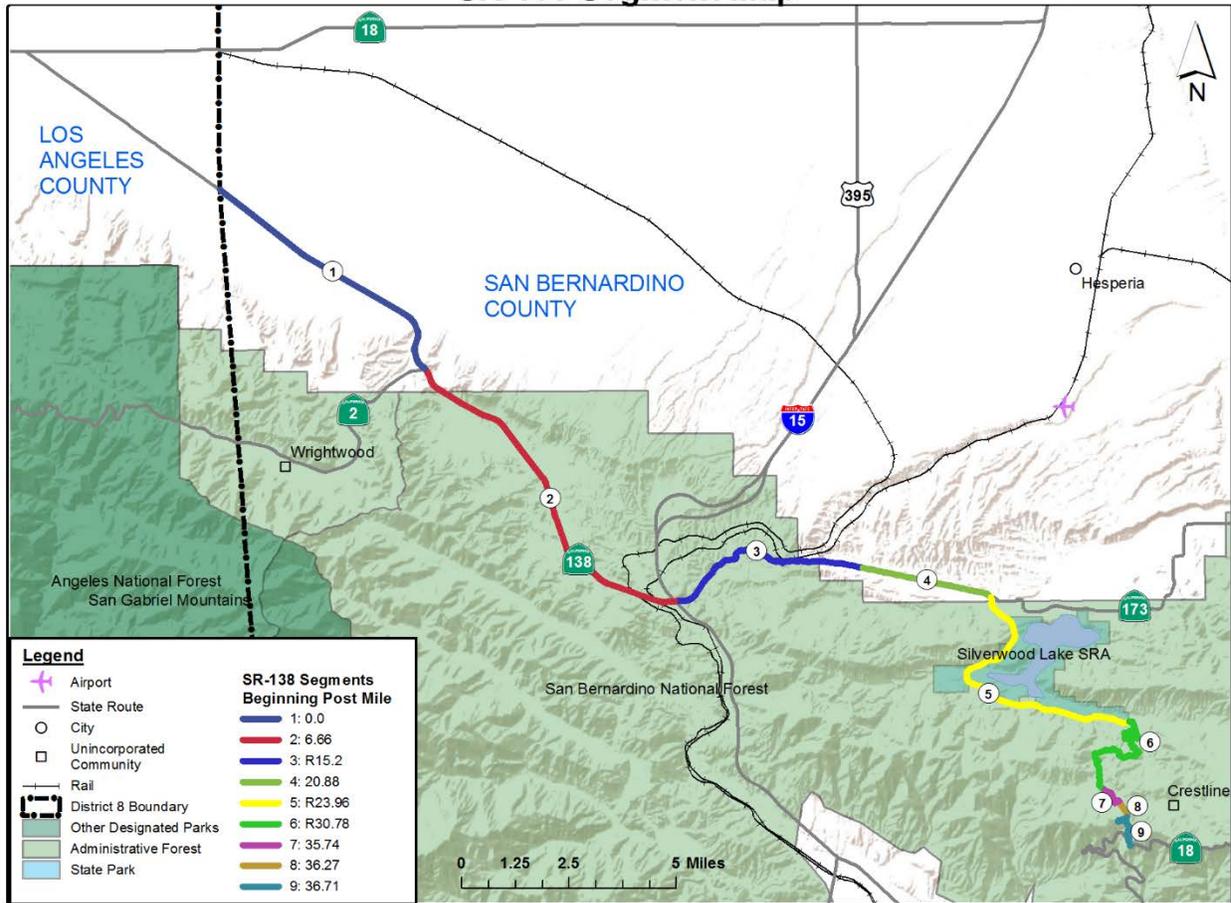
CORRIDOR OVERVIEW

ROUTE SEGMENTATION

SR-138 Location Map



SR-138 Segment Map



Segment	Location Description	County_Route_Begin PM	County_Route_End PM
1	Los Angeles/San Bernardino County Line to SR-2	SBd_138_0.0	SBd_138_6.7
2	SR-2 to I-15	SBd_138_6.7	SBd_138_15.2
3	I-15 to Summit Valley Road	SBd_138_15.2	SBd_138_19.8
4	Summit Valley Road to SR-173	SBd_138_19.8	SBd_138_23.9
5	SR-173 to Pilot Rock Road	SBd_138_23.9	SBd_138_30.8
6	Pilot Rock Road to Waters Drive	SBd_138_30.8	SBd_138_35.7
7	Waters Drive to Knapps Cutoff	SBd_138_35.7	SBd_138_36.3
8	Knapps Cutoff to Crest Forest	SBd_138_36.3	SBd_138_36.7
9	Crest Forest to SR-18	SBd_138_36.7	SBd_138_37.8

ROUTE DESCRIPTION

Route Location

State Route 138 (SR-138) has a total length of 101.3 miles, beginning at Interstate 5 (I-5) near Gorman in Los Angeles County and terminating at Crestline, a mountain community in the San Bernardino National Forest. The District 8 portion of SR-138 begins at the Los Angeles/San Bernardino County Line and traverses the remaining 37.8 miles to Crestline.

Route Purpose

SR-138 provides a connection between the communities of the High Desert and the San Bernardino National Forest. It also serves as a feeder to Interstate 15 (I-15).

Major Route Features

The route is classified as a two-lane conventional highway and traverses mountain and high desert terrain serving interregional and local traffic. It also provides access to recreational areas such as Silverwood Lake located in the San Bernardino National Forest.

Route Designations and Characteristics

Segment #	1	2	3	4	5
Freeway & Expressway System	Yes	Yes	No	No	No
National Highway System	No	No	No	No	No
Strategic Highway Network	No	No	No	No	No
Scenic Highway	Eligible	Eligible	Eligible	Eligible	Eligible
Interregional Road System	Yes	Yes	Yes	Yes	Yes
High Emphasis	Yes	Yes	No	No	No
Focus Route	No	No	No	No	No
Federal Functional Classification	Minor Arterial	Minor Arterial	Minor Arterial	Minor Arterial	Minor Arterial
Goods Movement Route	Yes	Yes	No	No	No
Truck Designation	CA Legal KPRA Advisory	CA Legal KPRA Advisory	CA Legal KPRA Advisory	CA Legal KPRA Advisory	CA Legal KPRA Advisory
Rural / Urban / Urbanized	Urban	Rural	Rural	Rural	Rural
Metropolitan Planning Organization	SCAG	SCAG	SCAG	SCAG	SCAG
Regional Transportation Planning Agency	SCAG	SCAG	SCAG	SCAG	SCAG
Congestion Management Agency	SANBAG	SANBAG	SANBAG	SANBAG	SANBAG
County Transportation Commission	SANBAG	SANBAG	SANBAG	SANBAG	SANBAG
Local Agency	SBd County	SBd County	SBd County	SBd County	SBd County
Tribes	San Manuel Band of Mission Indians				
Air District	SCAQMD	SCAQMD	SCAQMD	SCAQMD	SCAQMD
Terrain	Mountainous	Mountainous	Mountainous	Mountainous	Mountainous

Segment #	6	7	8	9
Freeway & Expressway System	No	No	No	No
National Highway System	No	No	No	No
Strategic Highway Network	No	No	No	No
Scenic Highway	Eligible	Eligible	Eligible	Eligible
Interregional Road System	Yes	Yes	Yes	Yes
High Emphasis	No	No	No	No
Focus Route	No	No	No	No
Federal Functional Classification	Minor Arterial	Minor Arterial	Minor Arterial	Minor Arterial
Goods Movement Route	No	No	No	No
Truck Designation	CA Legal KPRA Advisory	CA Legal KPRA Advisory	CA Legal KPRA Advisory	CA Legal KPRA Advisory
Rural / Urban / Urbanized	Urban	Urban	Urban	Urban
Metropolitan Planning Organization	SCAG	SCAG	SCAG	SCAG
Regional Transportation Planning Agency	SCAG	SCAG	SCAG	SCAG
Congestion Management Agency	SANBAG	SANBAG	SANBAG	SANBAG
County Transportation Commission	SANBAG	SANBAG	SANBAG	SANBAG
Local Agency	SBd County	SBd County	SBd County	SBd County
Tribes	San Manuel Band of Mission Indians			
Air District	SCAQMD	SCAQMD	SCAQMD	SCAQMD
Terrain	Mountainous	Mountainous	Mountainous	Rolling

COMMUNITY CHARACTERISTICS

Jurisdiction	Hesperia	Crestline
Total Population	90,173	10,770
Median Income	\$48,386	\$54,654
Drive Alone to Work	64.4%	80.6%

Source: 2010 U.S. Census

SR-138 traverses both the High Desert and mountainous terrain, with the majority of land in close proximity to the route being designated as rural. A small portion of the route, east of I-15 runs through the southernmost tip of the City of Hesperia. There is very low density development along this portion of the route. However, residential development may come to this area in the future – particularly since it is part of a fast-growing municipality.

The main place of existing development along the route is at its terminus in the community of Crestline. It is a small community with a population of 10,770 as of the 2010 Census. SR-138 is used by residents of this community to connect to the High Desert communities and I-15.

LAND USE

SR-138 primarily traverses rural, undeveloped areas in the communities of the High Desert and the San Bernardino National Forest. The main land use along the route is parklands, with the Silverwood Lake State Recreation Area being the largest draw of recreational traffic along the route.

The route's terminus in the Crestline area is the only portion of the route where residential development is located. Even here, development is minimal – the community of Crestline has a population of 10,770 as of the 2010 Census.

SYSTEM CHARACTERISTICS

Segment	1	2	3	4	5
Existing Facility					
Facility Type	C	C	C	C	C
General Purpose Lanes	2	2	2	2	2
Lane Miles	13.4	17.0	9.2	8.2	13.8
Centerline Miles	6.7	8.5	4.6	4.1	6.9
HOV Lanes	0	0	0	0	0
HOT/ Express Lanes	0	0	0	0	0
Concept Facility 2035					
Facility Type	C	C	C	C	C
General Purpose Lanes	4	4	2	2	2
Lane Miles	26.8	34.0	9.2	8.2	13.8
Centerline Miles	6.7	8.5	4.6	4.1	6.9
HOV Lanes	0	0	0	0	0
HOT/ Express Lanes	0	0	0	0	0
TMS Elements					
TMS Elements 2008	EMS	EMS, RWIS	None	None	None
TMS Elements 2035	None Planned				

Segment	6	7	8	9
Existing Facility				
Facility Type	C	C	C	C
General Purpose Lanes	2	2	2	2
Lane Miles	9.8	1.2	0.8	2.2
Centerline Miles	4.9	0.6	0.4	1.1
HOV Lanes	0	0	0	0
HOT/ Express Lanes	0	0	0	0
Concept Facility 2035				
Facility Type	C	C	C	C
General Purpose Lanes	2	2	2	2
Lane Miles	9.8	1.2	0.8	2.2
Centerline Miles	4.9	0.6	0.4	1.1
HOV Lanes	0	0	0	0
HOT/ Express Lanes	0	0	0	0
TMS Elements				
TMS Elements 2008	None	None	None	None
TMS Elements 2035	None Planned	None Planned	None Planned	None Planned

C = Conventional Highway
 EMS = Extinguishable Message Sign
 RWIS = Roadway Weather Information System

BICYCLE FACILITY

Segment	Bicycle Access Prohibited	Facility Type
1	No	No Designated Facility
2	No	No Designated Facility
3	No	No Designated Facility
4	No	No Designated Facility
5	No	No Designated Facility
6	No	No Designated Facility
7	No	No Designated Facility
8	No	No Designated Facility
9	No	No Designated Facility

Bicycle access is permitted along the entirety of SR-138. However, there are no designated bicycle facilities along the route. Cyclists must ride along the shoulder, or can utilize the full lane as they see fit.

PEDESTRIAN FACILITY

While pedestrian access is permitted along the entire route, none of the segments have sidewalks and therefore pedestrians are expected to walk along the shoulder. The route traverses rural, mountainous terrain where pedestrian activity is minimal.

Segment	Pedestrian Access Prohibited	Sidewalk Present
1	No	No
2	No	No
3	No	No
4	No	No
5	No	No
6	No	No
7	No	No
8	No	No
9	No	No

TRANSIT FACILITY

There are no transit facilities along SR-138 outside of mountain communities at the east end of SR-138 (Segments 5 – 9, the Valley of Enchantment-Lake Arrowhead area). Given that the route traverses rural, mountainous terrain, there is not a dense enough customer base to support public transit services along remaining route.

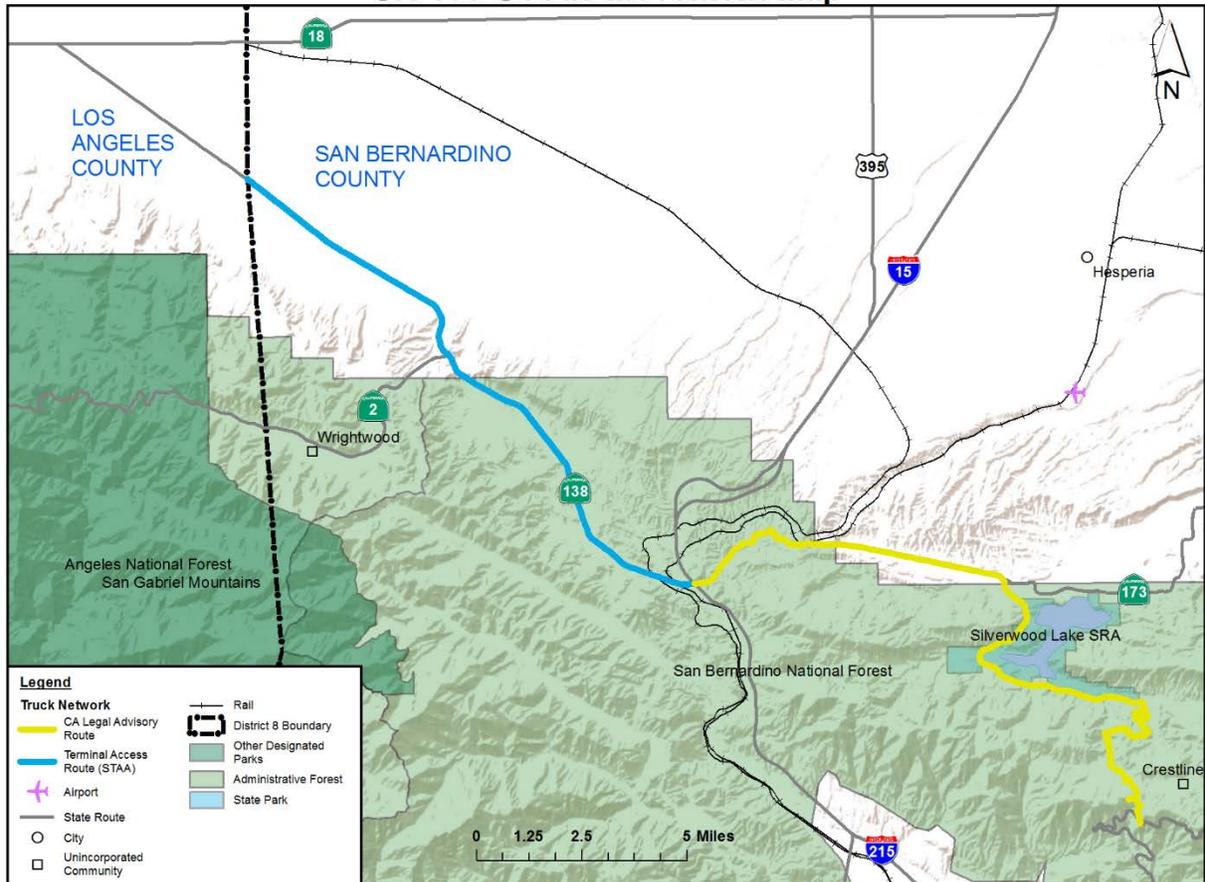
Segment #	Mode & Collateral Facility	Name	Route End Points	Operating Period	Station Cities	Bikes Allowed On Transit	Location Description	# Parking Spaces
5-9	Fixed-Route Bus	MARTA	Valley of Enchantment to Lake Arrowhead	6:15 am-6:30 pm Monday-Friday	Valley of Enchantment-Crestline-Lake Arrowhead	2	N/A	N/A

FREIGHT

Facility Type/Freight Generator	Location	Mode	Name
Freight Rail	Cajon Pass	Freight Rail	BNSF, UP

SR-138 is crossed by the Burlington Northern Santa Fe (BNSF) and Union Pacific (UP) rail lines that traverse the Cajon Pass. SR-138 connects with I-15, a major goods movement interstate corridor.

SR-138 Goods Movement Map



CORRIDOR PERFORMANCE

Segment #	1	2	3	4	5
Basic System Operations					
AADT 2008	13,500	17,600	4,400	4,400	1,600
AADT 2035	20,500	27,300	20,600	9,000	6,300
LOS Method	HCM	HCM	HCM	HCM	HCM
LOS 2008	D	E	C	C	B
LOS 2035	B	C	D	C	C
LOS Concept	D	D	D	D	D
VMT 2008	90,450	149,600	20,240	18,040	11,040
VMT 2035	137,470	231,863	94,921	36,928	43,207
Truck Traffic					
Total Average Annual Daily Truck Traffic (AADTT) 2008	1,490	2,080	520	560	90
Total Average Annual Daily Truck Traffic (AADTT) 2035	3,670	3,900	1,500	640	230
Total Trucks (% of AADT) 2008	11%	12%	12%	13%	6%
Total Trucks (% of AADT) 2035	18%	14%	7%	7%	4%
5+ Axle Average Annual Daily Truck Traffic (AADTT) 2008	362	362	210	200	4
5+ Axle Trucks (% of AADT) 2008	2.7%	2.1%	4.8%	4.5%	0.3%
Peak Hour Traffic Data					
Peak Hour Directional Split 2008	62%	62%	62%	62%	62%
Peak Hour Directional Split 2035	51%	50%	50%	50%	58%
Peak Hour % 2008	8%	10%	10%	10%	13%
Peak Hour % 2035	9%	10%	8%	7%	10%
Peak Hour V/C 2008	0.88	0.88	0.88	0.88	0.88
Peak Hour V/C 2035	0.88	0.88	0.88	0.88	0.88

Segment #	6	7	8	9
Basic System Operations				
AADT 2008	1,700	5,800	3,100	7,400
AADT 2035	6,200	9,600	6,500	7,500
LOS Method	HCM	HCM	HCM	HCM
LOS 2008	B	D	C	D
LOS 2035	C	E	D	E
LOS Concept	D	D	D	D
VMT 2008	8,330	3,480	1,240	8,140
VMT 2035	30,502	5,761	2,587	8,200
Truck Traffic				
Total Average Annual Daily Truck Traffic (AADTT) 2008	90	320	170	410
Total Average Annual Daily Truck Traffic (AADTT) 2035	240	820	240	450
Total Trucks (% of AADT) 2008	6%	6%	6%	6%
Total Trucks (% of AADT) 2035	4%	9%	4%	6%
5+ Axle Average Annual Daily Truck Traffic (AADTT) 2008	4	4	8	8
5+ Axle Trucks (% of AADT) 2008	0.2%	0.1%	0.3%	0.1%
Peak Hour Traffic Data				
Peak Hour Directional Split 2008	62%	62%	62%	62%
Peak Hour Directional Split 2035	62%	55%	58%	55%
Peak Hour % 2008	12%	13%	14%	14%
Peak Hour % 2035	10%	11%	11%	10%
Peak Hour V/C 2008	0.88	0.88	0.88	0.88
Peak Hour V/C 2035	0.88	0.88	0.88	0.88

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

KEY CORRIDOR ISSUES

The main issue the future of the SR-138 corridor is addressing the projected growth in travel demand in the segments west of I-15. Expected increases in demand will be mitigated through widening projects.

CORRIDOR CONCEPT

CONCEPT RATIONALE

The route is a two-lane conventional highway. It traverses high desert and mountain terrain serving inter-regional and local traffic; it also provides access to recreational areas such as Silverwood Lake and Lake Gregory located in the San Bernardino National Forest. Growth in interregional traffic is expected in Segments 1 and 2 requiring additional capacity.

PLANNED AND PROGRAMMED PROJECTS AND STRATEGIES

The first two segments of SR-138 in San Bernardino County are proposed to be widened from two to four lanes to four lanes for their entire length. These two segments are projected to have the highest traffic volumes along the route, mainly because they provide a connection between the High Desert communities and I-15. Widening these two segments will help to ensure all segments maintain a concept LOS “D” or higher through 2035. Segment 3 is programmed for realignment.

Seg.	Description	Planned or Programmed	Location	Source
1	Widen from 2 to 4 Lanes	Programmed, Constrained	0.0-6.7	SCAG 2016 RTP
2	Widen from 2 to 4 Lanes	Programmed, Constrained	6.7-15.2	SCAG 2016 RTP
3	Realign Roadway	Programmed	17-89.1	2014 SHOPP
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A

APPENDICES

APPENDIX A: GLOSSARY OF TERMS AND ACRONYMS

Acronyms

- AADT** – Annual Average Daily 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.

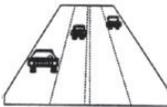
Facility Type – The facility type describes the state highway facility type. The facility could be freeway, expressway, conventional, or one-way city street.

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.

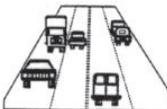
Headway – The time between two successive vehicles as they pass a point on the roadway, measured from the same common feature of both vehicles.

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:



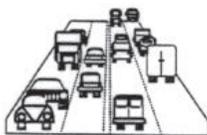
LOS A describes free flowing conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles, and operations are constrained only by the geometric features of the highway.



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

Bicycle Facility

City of Fontana San Sevaine Trail Connectivity Plan (<http://www.fontana.org/trailplan>)

City of Rancho Cucamonga Circulation Master Plan
(<https://www.cityofrc.us/civica/filebank/blobdload.asp?BlobID=20475>)

Land Use

City of Fontana Zoning District Map (<https://www.fontana.org/index.aspx?NID=854>)

City of Rancho Cucamonga Adopted Specific Plans and Planned Communities
(<https://www.cityofrc.us/cityhall/planning/zoning.asp>)

City of Redlands Zoning Map (<http://www.cityofredlands.org/ds/pd/zoningmap>)

City of Rialto Official City Zoning Map (http://www.rialtoca.gov/documents/downloads/Zoning_Map_-_July_2013.pdf)

City of San Bernardino Zoning Map

(http://www.sbcity.org/cityhall/community_development/planning/default.asp)

City of Upland Zoning Map

(http://www.ci.upland.ca.us/uploads/ftp/city_departments/development_services/planning/pdfs/Attachment%204B%20-%20Final%20Draft%20Zoning%20Map.pdf)

Transit Facility

Amtrak Southwest Chief (<http://www.amtrak.com/southwest-chief-train>)

Caltrans District 8 Park and Ride

(http://www.dot.ca.gov/hq/traffops/trafmgmt/hov/Park_and_Ride/maps/d8.html)

Omnitrans Schedules and Maps (<http://www.omnitrans.org/schedules>)

SANBAG Park & Ride Lots (<http://www.sanbag.ca.gov/commuter/park-ride.html>)

Planned and Programmed Policies and Strategies

City of Fontana General Plan Circulation Element

(<http://www.fontana.org/DocumentCenter/Home/View/4296>)

City of Rancho Cucamonga Circulation Master Plan

(<https://www.cityofrc.us/civica/filebank/blobdload.asp?BlobID=20475>)

APPENDIX E: SYSTEM PLANNING FLOW CHART

