



Transportation Concept Report

State Route 120

District 9

April 2014



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 9 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
Caltrans Improves Mobility Across California

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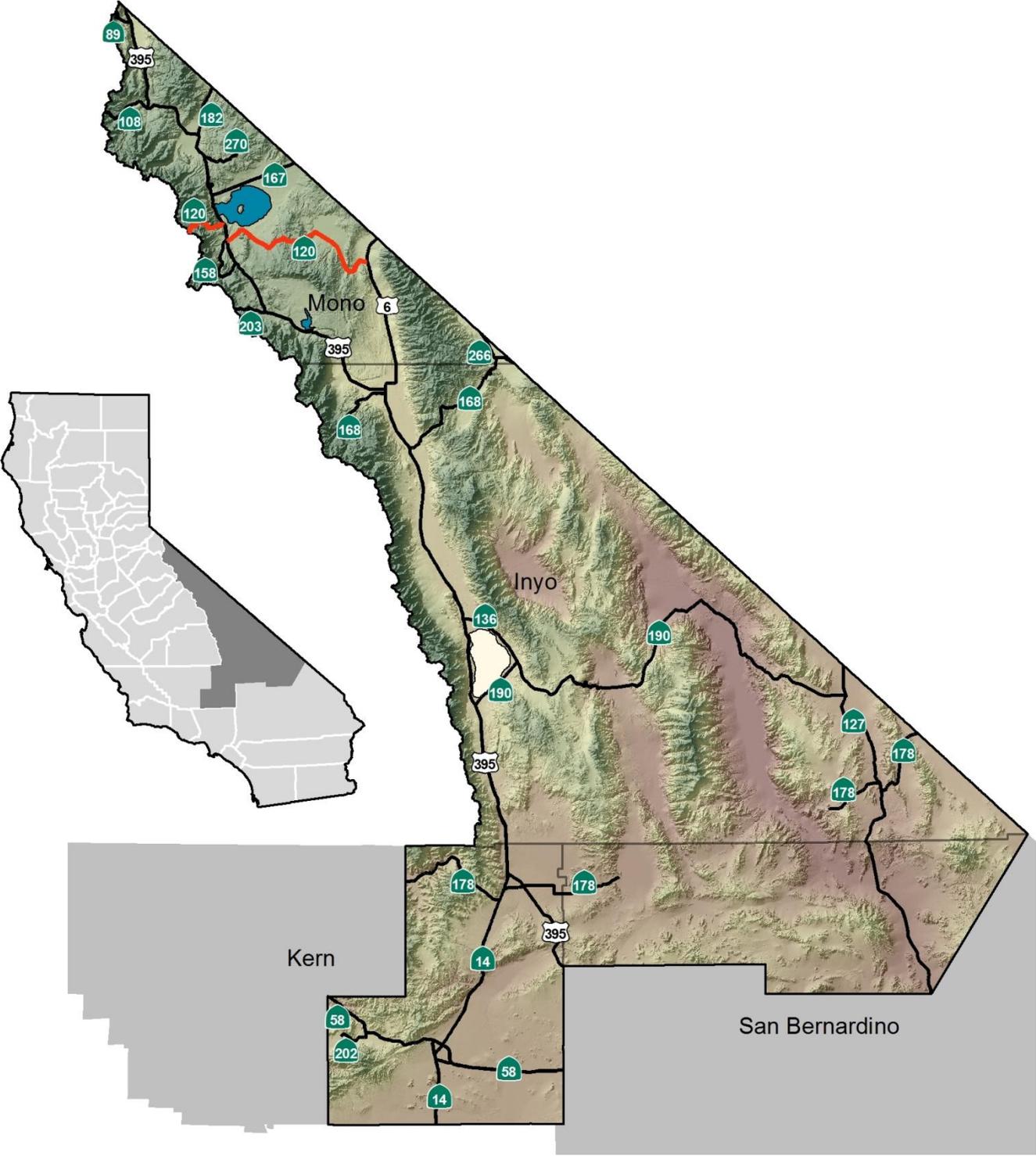
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TABLE OF CONTENTS

SR 120 LOCATION MAP.....	1
ABOUT THE TRANSPORTATION CONCEPT REPORT	2
STAKEHOLDER PARTICIPATION	2
EXECUTIVE SUMMARY.....	3
Concept Summary	3
Concept Rationale	3
Proposed Projects and Strategies.....	3
CORRIDOR OVERVIEW	4
Route Segmentation.....	4
Route Description.....	5
Route Designation and Characteristics	6
Community Characteristics	6
Land Use	7
System Characteristics.....	8
Bicycle Facility.....	9
Pedestrian Facility	10
Transit Facility.....	10
Environmental Considerations	11
CORRIDOR PERFORMANCE.....	15
KEY CORRIDOR ISSUES.....	15
CORRIDOR CONCEPT	16
Concept Rationale	16
Planned and Programmed Projects and Strategies.....	16
Projects and Strategies to Achieve Concept.....	16
APPENDICES.....	17
Appendix A: Glossary of Terms and Acronyms.....	17
Appendix B: Factsheets	25
Appendix C: Resources	33

SR 120 LOCATION MAP

Caltrans District 9



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 developing an integrated multimodal transportation system that meets Caltrans' goals of safety, mobility, delivery, stewardship, and service.

The System Planning process 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 the needs for each route on the SHS. The **CSMP** is a complex, multi-jurisdictional planning document that identifies the 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 requires 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 evaluate current and projected conditions along the route and communicate the vision for the development of each route in each Caltrans District during a 20-25 year planning horizon. The TCR is developed with the goals of increasing safety, improving mobility, providing excellent stewardship, and meeting community and environmental needs along the corridor through 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

Internal and external stakeholder participation was sought throughout the development of the State Route (SR) 120 TCR. As information for the TCR was gathered, some stakeholders were contacted for input related to their particular specializations, as well as to verify the data sources that were used and the data's accuracy. Prior to document finalization, primary stakeholders were asked to review the document for consistency with existing plans, policies, and procedures. The process of including and working closely with stakeholders adds value to the TCR, allows for external input and ideas to be reflected in the document, increases credibility, and helps strengthen public support and trust.

Stakeholders in the SR 120 planning area are community members and agencies, including, but not limited to:

- Benton Paiute Tribe
- Bureau of Land Management, Bishop Field Office
- Caltrans Functional Units: Environmental, Local Assistance, Maintenance, Maintenance Engineering, Planning, Program/Project Management, Right-of-Way and Traffic Operations
- Community of Benton
- Community of Lee Vining
- Great Basin Unified Air Pollution Control District
- Mono County
- Mono County Local Transportation Commission
- Mono Lake Committee
- United States Forest Service, Inyo National Forest
- United States National Park Service, Yosemite National Park

EXECUTIVE SUMMARY

SR 120 is both an undivided, two-lane conventional highway (2C) and an undivided, two-lane expressway (2E) primarily running in an east/west direction across the center of Mono County. It begins at Tioga Pass on the Tuolumne/Mono County line, continues down Lee Vining Canyon, through the Mono Basin, across the Adobe Valley, and ends at the highway’s junction with United States Route (US) 6 in Benton. The route provides east side access into Yosemite National Park as well as access into the Mono Basin Scenic Area. The surrounding environment is alpine to the west of US 395 and high desert to the east. Recent traffic data is analyzed throughout this document using 2012 as a base year (BY) and 2032 as a horizon year (HY) for projecting operational conditions for the highway.

Concept Summary

Segment	Segment Description	Existing Facility	20-25 Year Facility Concept
1	Tioga Pass on Tuolumne/Mono County line to north junction with US 395, 0.25 miles south of Lee Vining.	2E	2E, Maintenance, Auxiliary Lanes, Paved Turnouts, Widened Shoulders, Uphill Climbing Lane, Other Non-Capacity Increasing Operational Improvements
2	South junction with US 395, 0.38 miles south of SR 158 north junction, to winter closure gate 0.35 miles east of Test Station Road in the Mono Craters area.	2C	2C, Maintenance, Widened Shoulders, Other Non-Capacity Increasing Operational Improvements
3	Winter closure gate 0.35 miles east of Test Station Road in the Mono Craters area to winter closure gate 0.39 miles west of Benton Crossing Road in the Adobe Valley.	2C	2C, Maintenance, Widened Shoulders, Other Non-Capacity Increasing Operational Improvements
4	Winter closure gate 0.39 miles west of Benton Crossing Road in the Adobe Valley to junction with US Route 6 in Benton.	2C	2C, Maintenance, Widened Shoulders, Other Non-Capacity Increasing Operational Improvements

Concept Rationale

No significant growth or development is anticipated in the rural communities served by SR 120. Segments 2, 3, and 4 receive relatively low traffic volume and aren’t foreseen to require any increase in capacity within the TCR’s scope of concern. However, Segment 1 is expected to drop below the Concept Level of Service (LOS) by the document’s horizon year. This is due primarily to the expected growth in traffic volume over the next 20 years in addition to the restricted driving speeds and passing opportunities associated with the segment’s winding and mountainous grade. Because of the route’s relatively low traffic volume and its seasonal access, future projects will focus on safety enhancement, maintenance, and non-capacity-increasing operational improvements.

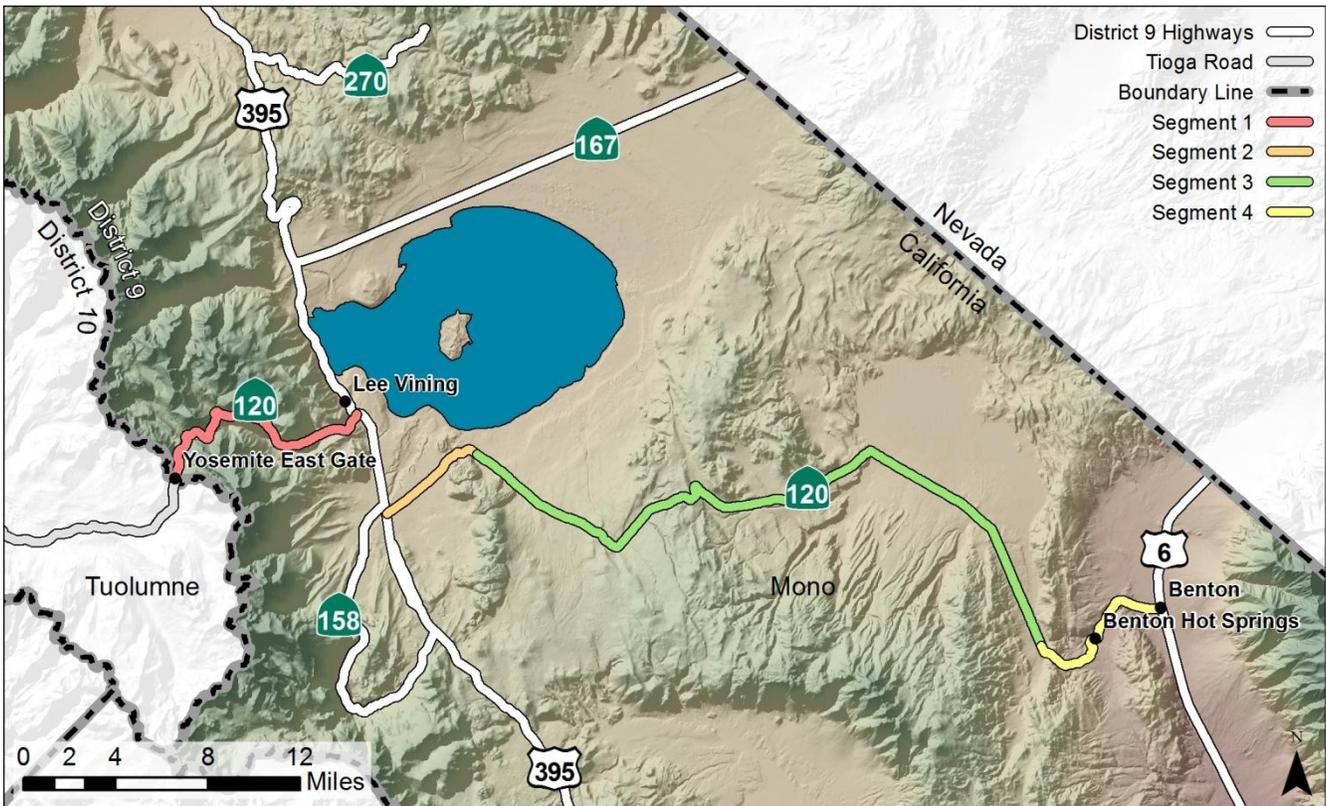
Proposed Projects and Strategies

There are no improvements currently programmed for the route. However, installing an uphill climbing lane to help ease future traffic loads on Segment 1 is the primary strategy to maintain the highway’s Concept LOS. The installation of physical barriers and warning signs within the Blue Slide rock fall area can help vehicles avoid potential conflicts with fallen road debris. In addition to vehicular safety, SR 120 is an important route for road cyclists whose safety and comfort are reduced by the narrow shoulders extending along most of the route. Mono County, in partnership with Caltrans, should seek funds from MAP-21’s Active Transportation Program in order to accommodate all modes of transportation. Furthermore, repairing culverts, installing guardrails, and constructing more turnouts where appropriate will aid traffic operations out on the highway.

CORRIDOR OVERVIEW

ROUTE SEGMENTATION

Segment #	Location Description	County – Route – Beg. PM	County – Route – End PM
1	Tioga Pass on Tuolumne/Mono County line to north junction with US 395, 0.25 miles south of Lee Vining.	MNO – 120 – R0.000	MNO – 120 – R12.055
2	South junction with US 395, 0.38 miles south of SR 158 north junction, to winter closure gate 0.35 miles east of Test Station Road in the Mono Craters area.	MNO – 120 – 13.370	MNO – 120 – 18.490
3	Winter closure gate 0.35 miles east of Test Station Road in the Mono Craters area to winter closure gate 0.39 miles west of Benton Crossing Road in the Adobe Valley.	MNO – 120 – 18.490	MNO – 120 – 51.860
4	Winter closure gate 0.39 miles west of Benton Crossing Road in the Adobe Valley to junction with US Route 6 in Benton.	MNO – 120 – 51.860	MNO – 120 – 58.990



SR 120 Segment Map

ROUTE DESCRIPTION

SR 120 originates at its intersection with Interstate 5 in Caltrans District 10. It travels across four counties and continues through Yosemite National Park as a park road before entering into District 9. The first segment of the District 9 portion of the highway (PM R0.000 to R12.055) begins at the Tuolumne/Mono County line, the highest point on the state highway system at 9,945 feet above sea level, and travels east down Lee Vining Canyon. It connects up with US 395 a quarter mile south of Lee Vining. From this junction, the route breaks in alignment as segment 2 (PM 13.370 to 18.490) begins 4.75 miles south along US 395. Segments 2, 3, and 4 level off in grade as they travel through the Mono Basin and the Adobe Valley where the highway becomes surrounded by high desert scrubland, a Jeffrey Pine forest, and roadside crags. The route ends at its junction with US 6 in the community of Benton; just a few miles southwest of the California/Nevada state line.

SR 120 is one of the District's trans-Sierra highways. Segment 1 is an Interregional Road System Route (IRRS) providing the District with east-side access into Yosemite National Park and beyond that into California's Central Valley. This segment is a two-lane expressway and has a functional classification as an Other Principal Arterial highway. Under the Surface Transportation Assistance Act, it services trucks as both a California Legal Network route from the county border to Saddlebag Lake Road (PM R0.000 to R2.123) and as a National Truck Network Terminal Access route from Saddlebag Lake Road to US 395 (PM R2.123 to R12.055). Truck access is prohibited inside Yosemite National Park. Scenic vistas of the canyon are offered from multiple turnouts along Segment 1 making it a National Forest Scenic Byway and eligible for State Scenic Highway designation.

Segments 2, 3, and 4 continue as a non-interregional, two-lane conventional highway and pass by various recreational sites including Panum Crater, Mono Lake, campsites, trails, and the Benton Hot Springs. All three segments are functionally classified as a Minor Arterial highway and as a California Legal Advisory truck route with a kingpin-to-rear-axle advisory (KPRA) of under 30 feet. Motor homes and coaches over 40 feet in length are prohibited along these segments.

Bicycling is allowed on all four segments of the route and in an effort to improve the highway for multi-modal users, has recently been outlined as an area for improvement in local transportation plans such as the *Mono Basin Community Plan* and the *Mono County Regional Transportation Plan*. Altogether, the route drops a total elevation of 4,588 feet starting at 9,945 feet above sea level from the county line and ending at 5,357 feet in Benton. The steepest average grade occurs along Segment 1 at -7.6% from Ellery Lake to Elephant Head Rock (PM R3.200 to R7.900). Segment 2 provides access into the Pumice Valley Landfill which attracts a larger volume of truck traffic for this segment compared to the rest of the highway. Winter snowfall closes Segments 1 and 3 at their respective closure gates typically from late October to early June making for seasonal access of the highway. Extending the highway's seasonal access has been cited as a long term transportation goal by the communities serviced by the route.



Segment 3 – Mono Basin



Segment 4 – Benton Crags

ROUTE DESIGNATION AND CHARACTERISTICS

Segment #	1	2	3	4
Freeway & Expressway	Yes	No	No	No
National Highway System	Yes	No	No	No
Strategic Highway Network	No	No	No	No
Scenic Highway	Eligible	No	No	No
Interregional Road System	Yes	No	No	No
High Emphasis	Yes	No	No	No
Focus Route	No	No	No	No
Federal Functional Classification	Other Principal Arterial	Minor Arterial	Minor Arterial	Minor Arterial
Goods Movement Route	No	No	No	No
Truck Designation	CA Legal Network/ Terminal Access	CA Legal Advisory Route	CA Legal Advisory Route	CA Legal Advisory Route
Rural/Urban/Urbanized	Rural	Rural	Rural	Rural
Regional Transportation Planning Agency	Mono LTC	Mono LTC	Mono LTC	Mono LTC
Local Agency	Mono County	Mono County	Mono County	Mono County
Tribes	None	None	None	Benton Paiute
Air District	Great Basin Unified Air Pollution Control District	Great Basin Unified Air Pollution Control District	Great Basin Unified Air Pollution Control District	Great Basin Unified Air Pollution Control District
Terrain	Mountainous	Rolling	Rolling	Rolling

COMMUNITY CHARACTERISTICS

There are two Census-Designated Places (CDP) within the SR 120 corridor. The first is the community of Lee Vining which is located a quarter mile north of Segment 1's junction with US 395. This small, tourist-based community overlooks the western shore of Mono Lake and resides within driving distance of Bodie State Historic Park and Yosemite National Park. The US Census Bureau's 5-year survey for 2011 estimates a total population of 406 residents living in 115 housing units. The racial breakdown for the population consists of 54% Native American, 33% White and 13% Other Race. The mean household income is \$61,025, 28% less than the state average. Given its isolated location along US 395, maintenance and service occupations compose the majority of the employment opportunity in Lee Vining. The community is currently trying to maintain a walkable, commercial periphery along the edges of US 395 that contain safe and convenient pedestrian crossings. The *Mono Basin Community Plan* guides development in Lee Vining and prioritizes rural characteristics and a healthy natural environment over community expansion.



Lee Vining, CA

Benton is the second CDP and is found at the terminus of SR 120 where it junctions with US 6. Benton is a small, rural community which serves as a highway stop for drivers crossing the California/Nevada State line. The Census Bureau's 5-year estimate for 2011 counts the resident population at 76 and a total of 94 housing units, only 66 of which are occupied. The majority of working residents are employed in the nearby communities of Mammoth Lakes and Bishop where job opportunity is more abundant. Over two-thirds of the residents identify as White while the remainder identify as Native American. The Benton Paiute Tribe is a key land and business owner in the Benton community, managing 370 acres of reservation land off the highway. Benton residents and visitors enjoy various recreational activities spread outside the community which include camping, hiking, horseback riding, and off-road driving. The community has stated that it is open to some form of growth so long as it's concentrated, conserves natural resources, and celebrates Benton's unique history and identity. There is a strong desire to develop more permanent rather than secondary homes for residents who will both live and work within the community. The Benton Hot Springs is the community's major visitor attraction.



Benton, CA

LAND USE

Eighty-five percent of the land adjacent to SR 120 is designated for resource management of public lands. Multiple uses including recreation, timber harvesting, mineral extraction, water usage, grazing, fishing, hunting, wildlife, and wilderness are all regulated for the purposes of conservation and protection.

Segments 1, 2, and part of 3 run primarily through the Inyo National Forest which is managed by the United States Forest Service (USFS). Many are attracted to the forest's cultural and natural historic sites. These sites include prehistoric campgrounds, a historic railroad alignment, volcanic cones, glacial-swept planes, and Mono Lake. Mono Lake offers a seasonal habitat for a wide variety of migratory birds including Eared Grebes, Wilson's Phalarope, Snowy Plovers, and California Gulls. Recreation also provides a major draw in the winter months for snowmobilers and cross-country skiers.

The remainder of Segment 3 and most of Segment 4 fall within public lands under the administration of the Bureau of Land Management (BLM). BLM's *Bishop Resource Management Plan* adheres to two principal management themes for the land surrounding SR 120. The first theme is providing for a variety of dispersed recreational opportunities for the Benton community. In following this, the Bureau has designated 5,435 acres of available land for agricultural use, residential expansion, and community services along with an additional 200 acres provided for expanding the Benton Paiute Reservation. This expanded capacity for development is conditioned upon the second principal management theme of protecting scenery and enhancing key wildlife habitat.

The California Department of Finance projects Mono County's population to increase by an additional 14.2% by 2030. More specifically, the Mono Basin Community Area, which is directly served by SR 120, will increase in population by an additional 18.8% within that same time period. In addition to the marginal increases in average daily traffic, there are several other significant traffic-generating sources which could potentially affect the future Level of Service on the highway. The first is the proposed extension of the highway's seasonal access which is a transportation goal outlined in Mono County's *Regional Transportation Plan (RTP)*. A second source is the future visitation rates for the Town of Mammoth Lakes, Lee Vining, and Mono Lake, which altogether make up nearly 70% of all Segment 1 trips into Mono County.

(Land Use continued)

Segment	Place Type
1	Open Space, Rural
2	Open Space
3	Open Space
4	Open Space, Rural

SYSTEM CHARACTERISTICS

SR 120 is an undivided, 2-lane rural expressway from Tioga Pass to US 395 and a conventional, 2-lane highway for the remainder of its alignment. Currently, the Right-of-Way is held by easement and varies from 70 to 400 feet. Future operational improvements for the route include the installation of an uphill climbing lane, shoulder widening, and general maintenance. The route has one changeable message sign (CMS) located on the westbound side of the highway at PM R11.950 which is used to inform drivers of the closure status for the road.

Segment #	1	2	3	4
Existing Facility				
Facility Type	E	C	C	C
General Purpose Lanes	2	2	2	2
Lane Miles	24.12	10.22	66.28	15.04
Centerline Miles	12.06	5.11	33.14	7.52
Shoulder Width	0-8 ft	0-2 ft	0-2 ft	0-2 ft
Median Width	0 ft	0 ft	0 ft	0 ft
Lane Width	12 ft	12 ft	12 ft	12 ft
Distressed Pavement	0%	0%	24%	0%
Current ROW	145-400 ft Easement, Fee	Width not defined Easement	70-400 ft Easement, Prescriptive	70-100 ft Easement, Prescriptive, Fee Title
Concept Facility				
Facility Type	E	C	C	C
General Purpose Lanes	2	2	2	2
Lane Miles	24.12	10.22	66.28	15.04
Centerline Miles	12.06	5.11	33.14	7.52
Shoulder Width	4-8 ft	4 ft	4 ft	4 ft
Median Width	0 ft	0 ft	0 ft	0 ft
Lane Width	12 ft	12 ft	12 ft	12 ft
Passing Lanes	0%	0%	0%	0%
Truck Climbing Lanes	10%	0%	0%	0%
Transportation Management System (TMS) Elements				
TMS Elements (BY)	CMS	None	None	None
TMS Elements (HY)	CMS	None	None	None

BICYCLE FACILITY

Currently, bicycles are permitted along all four segments of SR 120. The *Mono County RTP* and *Mono Basin Multi-Modal Transportation Plan (MMTP)* both include shoulder widening along Segments 2, 3, and 4 as a prominent action needed to promote a comprehensive and coordinated trail system for the Mono Basin. These plans suggest incorporating this action into state highway rehabilitation projects in order to make shoulder widening more feasible. These three segments make up nearly one-third of the race course for the Mammoth High Sierra Fall Century bike ride. Segments 1A, 2, 3, and 4 have shoulder widths varying from 0 to 2 feet. Segment 1B provides the most comfortable width for cyclists ranging from 6 to 8 feet.

Seg	Seg ID	Post Mile	Location Description	Bicycle Access Prohibited	Facility Type	Outside Paved Shoulder Width	Facility Description	Posted Speed Limit
1	A	R0.000- R8.535	Tioga Pass on Tuolumne/Mono County line to winter closure gate 0.1 miles west of Poole Power Plant Road (1N21)	No	No Bikeway Designation	0-2 ft	Winding, mountainous terrain. Bicyclists share the road with automotive traffic.	50 mph
	B	R8.535- R12.06	Winter closure gate 0.1 miles west of Poole Power Plant Road (1N21) to north junction with US 395, 0.25 miles south of Lee Vining.	No	No Bikeway Designation	6-8 ft	Winding, mountainous terrain. Bicyclists share the road with automotive traffic.	50 mph
2	C	13.37- 18.48	South junction with US 395, 0.38 miles south of SR 158 north junction, to winter closure gate 0.35 miles east of Test Station Road in the Mono Craters area.	No	No Bikeway Designation	0-2 ft	Rolling terrain. Bicyclists share the road with automotive traffic.	60 mph
3	D	18.48- 51.47	Winter closure gate 0.35 miles east of Test Station Road in the Mono Craters area to winter closure gate 0.39 miles west of Benton Crossing Road in the Adobe Valley.	No	No Bikeway Designation	0-2 ft	Rolling terrain. Bicyclists share the road with automotive traffic.	60 mph
4	E	51.47- 58.99	Winter closure gate 0.39 miles west of Benton Crossing Road in the Adobe Valley to junction with US Route 6 in Benton.	No	No Bikeway Designation	0-2 ft	Rolling terrain. Bicyclists share the road with automotive traffic.	55 mph

PEDESTRIAN FACILITY

Pedestrian traffic on SR 120 is minimal and pedestrian-specific facilities do not exist. Paved and unpaved turnouts are dispersed along Segment 1 and are recommended for Segments 2, 3, and 4 by the *Mono County RTP* and *MMTP*. Segment 1 sets the course for the annual Tioga Pass Run. This 12.4 mile foot race begins outside the Information Center in Lee Vining and ends at Tioga Pass.

Seg	Post mile	Location Description	Ped. Access Prohibited	Sidewalk Present
1	R0.000- R12.06	Tioga Pass on Tuolumne/Mono County line to north junction with US 395, 0.25 miles south of Lee Vining.	No	No
2	13.37-18.48	South junction with US 395, 0.38 miles south of SR 158 north junction, to winter closure gate 0.35 miles east of Test Station Road in the Mono Craters area.	No	No
3	18.48-51.47	Winter closure gate 0.35 miles east of Test Station Road in the Mono Craters area to winter closure gate 0.39 miles west of Benton Crossing Road in the Adobe Valley.	No	No
4	51.47-58.99	Winter closure gate 0.39 miles west of Benton Crossing Road in the Adobe Valley to junction with US Route 6 in Benton.	No	No

TRANSIT FACILITY

There are three bus routes which follow along or cross over SR 120. Two of them are north-south running and are operated by The Eastern Sierra Transit Authority (ESTA). The first north-south route travels along US 395 and crosses over SR 120 in between Segments 1 and 2. This route provides service connecting the Owens Valley to Reno. The second north-south route travels along US 6 connecting Benton with Bishop. The third route is operated by the Yosemite Area Regional Transit System (YARTS) and provides seasonal service along Segment 1 connecting Lee Vining with the Yosemite Valley Visitor Center in Tuolumne County.

Seg	Mode & Collateral Facility	Name	Route End Points	Headway	Operating Period	Shelters		Amenities	
						Cities	Postmiles		
1,2	Traditional Bus	ESTA	Lone Pine, CA to Reno, NV	Once per Day	Mon., Tues., Thurs., Fri.	Lee Vining	Caltrans Maint. Yard [NB]	MNO/395/51.530	Food
							Chevron Station [SB]	MNO/395/51.530	Gas, Food
4	Traditional Bus	ESTA	Benton, CA to Bishop, CA	Once per Day	Tues. & Fri.	Benton	Benton Reservation	MNO/120/55.100	None
1	Traditional Bus	YARTS	Mammoth Mountain Inn to Yosemite Valley Visitor Center	Once (June/Sept.) & Thrice (July/Aug.) per Day	June & September (Weekend) July & August (Daily)	Lee Vining	Mono Basin Visitor Center	MNO/395/51.900	Bike Racks, Parking
							Lake View Lodge	MNO/395/51.250	Lodging, Food
							Tioga Mobile Gas Mart	MNO/395/11.850	Gas, Food

ENVIRONMENTAL CONSIDERATIONS

The following environmental factors were included in the scan:

- **Recreational land (Section 4(f)):** There are several designated land areas within the SR 120 corridor which could potentially qualify for protection under Section 4(f) of the US Department of Transportation Act as a Park, a Recreation Area, and a Refuge. Yosemite National Park can be accessed from its west gate via Segment 1 of SR 120. Under authorization by the Yosemite Grant Act, all park lands are reserved for public recreation in perpetuity and attract nearly 4 million visitors per year. Additionally, Segments 1 and 2 traverse through the Mono Basin National Forest Scenic Area from PM R7.7 to R10.5 and from PM 13.4 to 21.4. Title 16, Section 543C of the US Code requires that the Secretary of Agriculture provide for recreational use for the public within the designated area including trails, campgrounds, and other recreational and interpretive facilities. One location in particular, the South Tufa Area within the Mono Lake Tufa State Natural Reserve on the lake's southern shore, can be accessed from SR 120 via Test Station Road at PM 18.133.
- **Farmland/Timberland:** Both grazing and logging occur within Inyo National Forest and BLM lands. As of 1988, the USFS has reported a total production of 41,400 animal unit months (AUMs) of dry forage per year in the Inyo National Forest under its domestic livestock grazing program. In the land parcels directly adjacent to SR 120, this forage is used to feed domestic sheep in addition to wild horses and burros. The timber resource is managed through timber sales contracts with the expressed intent of providing a sustained yield of commercial saw timber, public fuel wood, and miscellaneous wood products. BLM manages 112,700 acres of pastureland directly adjacent to SR 120 which produce an estimated 6,101 AUMs of forage for cattle and sheep. In addition, it has adopted fuel wood harvesting prescriptions compatible with those on Forest Service lands.
- **Waters and Wetlands:** Mono Lake is the largest and most distinct water body within the SR 120 corridor. It plays a crucial role within Mono Basin's ecological food chain by supplying the salt- and mineral-rich environment necessary for algae to flourish. This in turn supports the fly and shrimp populations that attract over 300 species of migratory birds. In 1941, LADWP began siphoning water from Mono Lake's four tributary streams into the L.A. Aqueduct. This, in combination with preexisting diversions for local irrigation, caused Mono Lake to lose 31% of its surface area and double in salinity which greatly impacted the health of the aquatic ecosystem. Water rights rulings in 1986 and 1994 have helped to restore perennial stream flows into Mono Lake. This restoration effort in conjunction with the establishment of the Mono Lake Tufa Natural State Reserve and Mono Basin National Forest Scenic Area has helped to reclaim and protect Mono Basin's delicate ecology.

Two of the four creeks that feed into Mono Lake reside within the SR 120 corridor. Lee Vining Creek begins near the summit of Mount Conness where it travels down the Sierra through a series of lakes before crossing beneath SR 120 at PM R2.275 into Ellery Lake. From Ellery Lake, Lee Vining Creek turns east and flows down Lee Vining Canyon, running parallel to the highway until depositing into Mono Lake a mile and a half northeast of the community of Lee Vining. Rush Creek starts from the peak of Mount Davis and travels through a series of Lakes before crossing beneath US 395 at PM 46.233; just three-tenths of a mile north of Segment 2. Along the way, Rush converges with its tributaries, Walker and Parker Creek, and passes by the Pumice Valley landfill before flowing into Mono Lake. In addition to these Mono Lake tributaries, SR 120 crosses over several ephemeral creeks including Dry Creek (PM 27.700), Adobe Creek (PM 40.200), Sawmill Creek (45.500), and Spring Canyon Creek (58.150).

Wetlands in the area generally correspond to the 100- and 500-year flood zones and are located at Black Lake, Blind Spring Valley, and Spring Canyon Creek one mile south of SR 120. Mean annual precipitation ranges from 35 to 14 inches along Segment 1 and from 14 to 9 inches along Segments 2, 3, and 4.

(Environmental Considerations continued)

- **Air Quality:** All of Mono County is designated as an unclassified/attainment area for Ozone, Particulate Matter 2.5, and Carbon Monoxide. However, the Mono Basin Planning Area is designated as a nonattainment area for Particulate Matter 10 due primarily to the fine-grained sand exposed from Mono Lake's low water level.
- **Community Impacts/Environmental Justice:** The Native American community makes up a third of Benton and over half of Lee Vining by population. Any future projects capable of significantly affecting existing tribal land use or circulation patterns should acquire the community's input.
- **Visual Aesthetics:** SR 120 crosses through multiple landscapes including forests, mountains, and the Mono Basin; portions of which have been designated a National Forest Scenic Area. In order to preserve the corridor's varied scenery, large-scale transportation projects should include stakeholder input.
- **Cultural Resources:** Remnants from prehistoric and mining era settlements representing generations of Eastern Sierra inhabitants are scattered throughout the SR 120 corridor. Petroglyphs, gravesites, and artifacts telling the history of the Paiute Native Americans are regularly discovered by members of the public. The exact location of these cultural resources is generally undisclosed in order to protect them from vandalism and excessive disturbance. In addition, there are numerous ghost towns that are accessible along SR 120 including the once booming settlements of Montgomery, Bennetville, Mono Mills, and Old Benton. Since the passage of the *National Historic Preservation Act*, the National Park Service and the California State Office of Historic Preservation maintain federal and state registries cataloging and providing legislative protection for thousands of buildings, sites, documents and artifacts.

U.S. Department of the Interior, National Park Service

National Register of Historic Places (Landmark Number)

- Great Sierra Mine Historic Site (#78000382)
- Tioga Pass Entrance Station (#78000372)

California Department of Parks and Recreation, Office of Historic Preservation

California Historic Resources – Points of Interest (Plaque Number)

- Bodie and Benton Railroad (P265)
- Carson and Colorado Railroad (P26)
- Indian Petroglyphs (P31)
- Lee Vining and Tioga Canyon (P22)
- Mono Canals (P25)
- Mono Lake and Mono Lake Townsite (P20)
- Mono Mills and Adjacent Railroad (P24)
- Wells Fargo's Benton Stage Station (P29)

- **Geology/Soils/Seismic/Topography:** Segment 1 spans a mountainous region with steep topography. Blue Slide is a one-half mile section of Segment 1 (PM R4.70 to R5.20) aligned adjacent to a steep slope cut in Mt. Warren. This section of the highway is prone to severe rock fall which should be considered during the design and construction of highway projects. SR 120 falls within two of the Federal Emergency Management Agency's (FEMA) Seismic Design Categories (SDC). The majority of the route falls within SDC D2 which denotes areas which are susceptible to strong shaking. Damage in these areas is measured as being slight in specially designed structures, considerable with partial collapse in ordinary buildings, and great in poorly built structures. However, Segment 1 from PM R11.4 to R12.055 crosses into SDC E, FEMA's highest earthquake hazard zone which indicates areas near major active faults that are capable of producing the most intense shaking.

(Environmental Considerations continued)

- **Species Considerations:** As of the date of this TCR, five special status fauna and five special status flora species have been identified within a 2,000-foot-wide corridor centered along SR 120:
 - California wolverine, *Gulo gulo*;
 - Endangered Species Act (ESA): Proposed Threatened
 - California Endangered Species Act (CESA): Threatened
 - Department of Fish and Wildlife (DFW): Fully Protected
 - Mono Lake lupine, *Lupinus duranii*;
 - California Native Plant Society (CNPS) List: 1B.2
 - Mono milk-vetch, *Astragalus monoensis*;
 - CNPS: 1B.2
 - Parish's popcornflower, *Plagiobothrys parishii*
 - CNPS: 1B.1
 - Shevock's bristle moss, *Orthotrichum shevockii*
 - CNPS: 1B.3
 - Sierra Nevada red fox, *Vulpes vulpes necator*;
 - CESA: Threatened
 - Sierra Nevada yellow-legged frog, *Rana sierrae*;
 - ESA: Proposed Endangered, CESA: Threatened, DFW: Species of Special Concern
 - Tiehm's rockcress, *Boechera tiehmii*
 - CNPS: 1B.3
 - Willow flycatcher, *Empidonax traillii*;
 - CESA: Endangered
 - Yosemite toad, *Anaxyrus canorus*;
 - ESA: Proposed Threatened, DFW: Species of Special Concern
- **Habitat Connectivity:** The 2010 *California Essential Habitat Connectivity Project* is an interagency report conducted between Caltrans and the California Department of Fish and Game. The report maps out a functional network of connected wildlands in California which is defined by large, relatively natural habitat blocks that support native biodiversity and the areas essential for ecological connectivity between them. SR 120 is surrounded by 5 Natural Landscape Blocks totaling 7,573 square miles. These blocks range from 177 to 253 species in measured richness and provide critical habitats for 7 of them. Because these blocks are only divided by the state highway and by no other natural or manmade barriers, the connections between them are not designated as "Essential Connectivity Areas" which are the report's main focus. Instead, these connections are classified as "Road Fragmentation Areas" which carry their own set of prescriptions for mitigating the impact SR 120 has on breaking up these large habitat areas. Incorporating Habitat Connectivity goals can be especially helpful in reducing the danger to motorists of wild horse crossings which have occurred on SR 120.
- **Floodplain:** The majority of land surrounding SR 120 falls outside of any Special Flood Hazard Area (SFHA) as defined by FEMA's National Flood Insurance Program criteria. Some portions of this land can be subject to moderate or minimal flooding due to severe storm activity or local drainage problems but overall, there is no significant environmental concern. There are six portions of the highway which do fall within a designated SFHA. Five of these portions fall within the 100-year floodplain: Black Lake (PM 50.05 to 50.30), Benton Hot Springs (PM 55.00 to 55.30), Blind Spring Valley (PM 56.30 to 56.70) and Spring Canyon Creek (PM 57.85 to 57.95 & 58.10 to 58.40). The sixth portion falls within the 500-year floodplain near Benton (PM 58.4 to 58.99).

CORRIDOR PERFORMANCE

For the 2012 base year, all four segments of SR 120 perform at or above the Concept LOS. However, Segment 1 is expected to degrade below the concept level to LOS D by 2032. This is due to an estimated AADT growth rate of 2.13%. By 2032, Segment 1 is expected to carry an additional 1,291 daily vehicles which includes an additional 183 vehicles during peak hour traffic. Given the grade and physical constraints, capacity-increasing projects will be difficult to implement. Because SR 120 is closed for several months of the year due to snow, the AADT calculation is not done in a standard manner and is based only on the time of the year that the highway is open.

Segment #	1*	2	3*	4
Basic System Operations				
AADT (BY)	2,460	490	355	360
AADT (HY)	3,751	541	392	398
AADT: Growth Rate/Year	2.13%	0.50%	0.50%	0.50%
LOS Method	HCM	HCM	HCM	HCM
LOS (BY)	C	A	A	B
LOS (HY)	D	A	A	B
LOS Concept	C	C	C	C
VMT (BY)	29,655	2,509	11,846	2,567
VMT (HY)	45,218	2,770	13,081	2,838
Truck Traffic				
Total Average Annual Daily Truck Traffic (AADTT) (BY)	60	66	44	22
Total Trucks (% of AADT) (BY)	2.44%	13.47%	12.39%	6.11%
5+ Axle Average Annual Daily Truck Traffic (AADTT) (BY)	1	57	29	1
5+ Axle Trucks (as % of AADT) (BY)	.04%	11.63%	8.17%	0.28%
Peak Hour Traffic Data				
Peak Hour Direction	West	West	West	East
Peak Hour Time of Day	am	pm	pm	pm
Peak Hour Directional Split (BY)	80/20	60/40	60/40	67/33
Peak Hour VMT (BY)	4,207	553	1,902	406
Peak Hour VMT (HY)	6,415	611	2,102	449

* Segments 1 & 3 closed in winter months. Calculations based only on the times the highway is open.

BY: Base Year

HY: Horizon Year

KEY CORRIDOR ISSUES

The largest issue along Segment 1 is rock fall in the Blue Slide area (PM R4.7 to R5.2). In general, paved shoulders are 2 feet wide for the majority of the highway providing little paved space for vehicles to recover from leaving the travelled way. These shoulder widths are also inadequate for bicycle and pedestrian traffic. Non-standard curves and dips in the road are dispersed along segment 3.

CORRIDOR CONCEPT

CONCEPT RATIONALE

No significant growth or development is anticipated in the rural communities served by SR 120. Segments 2, 3, and 4 receive relatively low traffic volume and aren't foreseen to require any increase in capacity within the TCR's scope of concern. However, Segment 1 is expected to drop below the Concept Level of Service (LOS) by the document's horizon year. This is due primarily to the expected growth in traffic volume over the next 20 years in addition to the restricted driving speeds and passing opportunities associated with the segment's winding and mountainous grade. Because of the route's relatively low traffic volume and its seasonal access, future projects will focus on safety enhancement, maintenance, and non-capacity-increasing operational improvements.

PLANNED AND PROGRAMMED PROJECTS AND STRATEGIES

Seg.	Description	Planned or Programmed	Location	Source	Purpose	Implementation Phase
3	Cold In-Place Recycle	Planned	PM 43.0/45.1	Caltrans D-9	Maintenance	(Summer 2014)

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Seg.	Description	Location	Source	Purpose	Implementation Phase
1	Improve and pave scenic turnouts	Various	Mono County RTP	Enhancement	Long Term
1	Install auxiliary lanes for turnouts	Various	Caltrans D-9	Operations	Long Term
1	Widen shoulders across Blue Slide rock fall area	R4.700/R5.100	Caltrans D-9	Maintenance/Ops	Long Term
1	Install warning/CMS for Blue Slide rock fall area	R4.700/R5.100	Caltrans D-9	Operations	Long Term
1	Install reflective guide markers	Various	Caltrans D-9	Operations	Long Term
1	Install directional and warning signs	Various	Caltrans D-9	Operations	Long Term
1	Install a passing lane for uphill traffic	Various	Caltrans D-9	Operations	Long Term
2	Install culverts	13.400/18.000	Mono County RTP	Maintenance/Ops	Long Term
3	Install warning signs/guardrails and add delineation in "run-off-the-road" locations	Various	Caltrans D-9	Operations	Long Term
3	Correct vertical curves	Various	Caltrans D-9	Maintenance/Ops	Long Term
4	Geometric improvements in the Old Benton community	51.800/58.900	Mono County RTP	Maintenance/Ops	Long Term
4	Develop access management principles for additional development	Various	Caltrans D-9	Operations	Long Term
4	Perfect Caltrans R/W through Benton Springs	51.2/56.6	Caltrans D-9	R/W	Long Term
2-4	Improve delineation (snow poles, etc.)	13.370/18.490	Caltrans D-9	Maintenance/Ops	Long Term
3-4	Add rumble strips	18.490/58.990	Caltrans D-9	Operations	Long Term
All	Widen shoulders to 4 feet	R0.000/58.990	Caltrans D-9	Maintenance/Ops	Long Term
All	Realign non-standard curves and grades	Various	Caltrans D-9	Maintenance/Ops	Long Term
All	Improve guardrail system	Various	Caltrans D-9	Maintenance/Ops	Long Term
All	Improve obsolete/damaged drainage	Various	Caltrans D-9	Maintenance/Ops	Long Term

APPENDICES

APPENDIX A

GLOSSARY OF TERMS AND ACRONYMS

Acronyms

2C – Two-Lane Conventional Highway
2E – Two-Lane Expressway
AADT – Annual Average Daily Traffic
AADTT – Annual Average Daily Truck Traffic
ABC – American Bird Conservancy
ACEC – Area of Critical Environmental Concern
AUM – Animal Unit Month
BLM – Bureau of Land Management
BY – Base Year
Caltrans – California Department of Transportation
CDFW – California Department of Fish and Wildlife
CDP – Census-Designated Place
CESA – California Endangered Species Act
CMS – Changeable Message Sign
CNPS – California Native Plant Society
CNDDDB – California Natural Diversity Database
DFW – Department of Fish and Wildlife
ESA – Endangered Species Act
ESTA – Eastern Sierra Transit Authority
FEMA – Federal Emergency Management Agency
FHWA – Federal Highway Administration
HCM – Highway Capacity Manual
HY – Horizon Year
IRRS – Interregional Road System Route
KPRA – Kingpin-to-rear-axle distance
LOS – Level of Service
MAP-21 – Moving Ahead for Progress in the 21st Century
MMTP – Multi-Modal Transportation Plan
MNO – Mono County
MPH – Miles per Hour
N/A – Not Applicable
NB – Northbound
PM – Post Mile or Particulate Matter
R – (prefix to Post Mile) Realigned
R/W or **ROW** – Right-of-Way
RMP – Resource Management Plan
RTP – Regional Transportation Plan
SB – Southbound
SDC – Seismic Design Category
SFHA – Special Flood Hazard Area
SR – State Route
SSC – Species of Special Concern
TCR – Transportation Concept Report
USFS – United States Forest Service
VMT – Vehicle Miles Traveled
YARTS – Yosemite Area Regional Transportation System

Definitions

Annual Average Daily Traffic (AADT) – 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 to 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. AADT is necessary for presenting a statewide picture of traffic flow, evaluating traffic trends, computing accident rates, planning and designing highways and other purposes.

Animal Unit Month (AUM) – A measure for the amount of consumable forage for grazing animals. AUMs provide a standard measure in the issuance of grazing permits in order to properly manage and conserve the amount of forage production provided by the land. 1 AUM is measured as 26 pounds of forage dry matter per day; the estimated standard amount of food needed for a 1,000 pound cow.

Attainment/Unclassified – A status designation that the California Air Resources Board is required to apply to areas of the state which signifies either that pollutant concentrations do not violate the standard for that pollutant in that area or that data does not support either an attainment or nonattainment status.

Base Year (BY) – The year that the most current data is available to the districts.

California Department of Fish and Wildlife (DFW) Nongame Wildlife Program – A conservation program which categorizes sensitive bird, mammal, reptile and amphibian species for the purposes of resource assessment, research, conservation planning, recovery planning, permitting, and outreach activities.

Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the species

Species of Special Concern designates a species, subspecies, or distinct population of an animal native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria:

is extirpated from the state or, in the case of birds, in its primary seasonal or breeding role;

is listed as Federally-, but not State-, threatened or endangered; meets the state definition of threatened or endangered but has not formally been listed;

is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status;

has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for state threatened or endangered status.

California Endangered Species Act (CESA) List – A list of species determined to be “rare”, “threatened” or “endangered” by the California Fish and Game Commission under the California Endangered Species Act. Listing is based on present or threatened modification or destruction of habitat, competition, predation, disease, overexploitation by collectors, or other natural occurrences or human-related activities.

Endangered In serious danger of becoming extinct throughout all, or a significant portion, of a species’ range due to one or more causes, including loss of habitat, over exploitation, competition, or disease.

Threatened Likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts.

California Legal Advisory Route – A California Legal Network Route that advises against any California Legal Truck Tractor that is over the posted KPRA lengths. KPRA lengths typically range from 30 to 38 feet.

California Legal Network Route – A route which prohibits any truck tractor that does not conform to the standards of a California Legal Truck Tractor either for semitrailer conditions or semitrailer double conditions.

California Native Plant Society (CNPS) List – An inventory of rare and endangered plant species, subspecies, and varieties tracked in California. These plants are categorized based on their degree of rarity and endangerment.

1B. Plants rare, threatened, or endangered in California and elsewhere;

1B.1 seriously threatened in California.

1B.2 fairly threatened in California.

1B.3 not very threatened in California.

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/pedestrian/transit facility, grade separation, and new managed lanes.

Census Designated Place – An unincorporated concentration of population that is identifiable by name but not a legally incorporated entity. CDPs have statistical and count data collected for them by the US Census Bureau.

Changeable Message Sign (CMS) – A full matrix display sign capable of displaying a variety of character heights and up to three lines of text.

Concept LOS – The minimum acceptable LOS 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.

Conventional Highway – A highway generally without controlled access. Grade separations at intersections or access control may be used at spot locations when justified.

Endangered Species Act (ESA) List – A list of species determined to be “endangered” or “threatened” by the U.S. Fish and Wildlife Service under Section 4 of the Endangered Species Act. Listing is based solely on the basis of a species’ biological status and threats to their existence and makes the “take” and trade of the species without a permit unlawful.

Endangered In danger of extinction throughout all or a significant portion of a species’ range.

Threatened Likely to become endangered within the foreseeable future.

Candidate Eligible for a proposed listing but precluded by higher listing priorities.

Expressway – An arterial highway for through traffic which may have partial control of access, but which may or may not be divided or have grade separations at intersections.

Facility Concept – Describes the facility and strategies that may be needed within 20-25 years. This can include capacity increasing, state highway, bicycle/pedestrian/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, and transportation demand/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.

Fault – A break in the rocks that make up the Earth’s crust, along which rocks on either side have moved past each other.

Functional Classification – Guided by federal legislation, refers to a process by which streets and highways are grouped into classes or systems according to the character of the service that is provided, i.e. Principal and Minor Arterial Roads, Collector Roads, and Local Roads.

Principal Arterial A roadway that serves a large percentage of travel between cities and other activity centers, especially when minimizing travel time and distance is important. These roadways typically carry higher traffic volumes and are usually the route of choice for intercity buses and trucks.

Interstate A Principal Arterial roadway designed for mobility and long-distance travel. Characteristics include limited access, divided medians and emphasis on linking major urban areas of the United States.

Other Freeway or Expressway A Principal Arterial roadway with its directional travel lanes typically separated by some type of physical barrier, access and egress points that are limited to on- and off-ramp locations, and a very limited number of at-grade intersections. Abutting land uses are not directly served by this road type.

Other Principal Arterial A Principal Arterial roadway that serves major centers of metropolitan areas, provides a high degree of mobility and that can also provide mobility through rural areas. Abutting land uses can be directly served by this road type.

Minor Arterial A roadway that provides service for trips of moderate length, that serves geographic areas that are smaller than those served by the Principal Arterials, and that provides intra-community continuity and may carry local bus routes. In rural areas, Minor Arterials are typically designed to provide relatively high overall travel speeds, with minimum interference to through movement.

Collector A roadway which gathers traffic from Local Roads and funnels it to the Arterial Network. Primarily serves intra-county travel rather than statewide and constitutes those routes on which predominant travel distances are shorter than on Arterial Routes.

Major Collector A Collector that is longer in length, having a lower density of connecting driveways, higher speed limits and greater intervals of spacing than Minor Collectors. These roadways can serve a higher volume of traffic.

Minor Collector A Collector that is shorter in length, having a higher density of connecting driveways, lower speed limits and smaller intervals of spacing than Major Collectors. These roadways serve lower volumes of traffic.

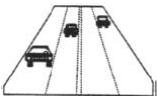
Local Road A roadway not intended for long distance travel and that provides direct access to abutting land. This road type accounts for the largest percentage of all roadways in terms of mileage. Through traffic and Bus Routes are typically discouraged.

Horizon Year (HY) – The year that the future (20-25 years) data is based on.

Interregional Road System Route (IRRS) – A route that is a part of the IRRS system of highways and a subset of the Freeway and Expressway System that is outside of any urbanized area and provides access to, and links between, the State’s economic centers, major recreation areas, and urban and rural regions.

Kingpin-to-rear-axle (KPRA) – The distance between the kingpin of a tractor to the rear axle of the semi trailer used to regulate the size of semi-trailer trucks permitted on CA Legal Advisory Routes.

Level of Service (LOS) – 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. The Six levels of LOS are 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 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.

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

Nonattainment – A designation that the California Air Resources Board is required to apply to areas of the state which signifies that a pollutant concentration violated the standard for that pollutant in that area at least once, excluding those occasions when a violation was caused by an exceptional event.

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 6 percent and 10 percent of the Annual Daily Traffic (ADT). The lower values are generally found on roadways with low volumes.

Petroglyph – An image or design made by engraving, carving or scratching away the dark layer of rock varnish on a rock's surface to reveal the lighter rock underneath.

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 Transportation Plan (RTP), Capital Improvement Plan, or bond measure program.

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

Prehistoric – Denoting a period of time before written records.

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 are not limited to, National Highway System (NHS), Interregional Route System (IRRS), and Scenic Highway System.

Rural – According to the United States Census Bureau, rural consists of all territory, population, and housing units located outside Urbanized Areas (UAs) and Urbanized Clusters (UCs). UA and UC boundaries represent densely developed territory, encompassing residential, commercial, and other nonresidential urban land uses. A UA consists of densely developed territory that contains 50,000 or more people. A UC consists of densely developed territory that has at least 2,500 people but fewer than 50,000 people.

Segment – A portion of a facility between two points.

Seismic Design Category (SDC) – An earthquake hazard classification assigned to a structure based on its occupancy or use and on the level of expected soil modified seismic ground motion.

A denotes very small seismic vulnerability.

B denotes low to moderate seismic vulnerability.

C denotes moderate seismic vulnerability.

D denotes high seismic vulnerability.

E and **F** denote very high seismic vulnerability and near a major fault.

Special Flood Hazard Area (SFHA) – The land area covered by the floodwaters of the base flood on National Flood Insurance Program (NFIP) maps. These areas are subject to floodplain management regulations where the mandatory purchase of flood insurance applies.

100-Year Flood Zone – An area that will be inundated by a flood event having a 1-percent chance of being equaled or exceeded in any given year.

500-Year Flood Zone – An area that will be inundated by a flood event having a 0.2-percent chance of being equaled or exceeded in any given year.

Special Status Species – Any species which is listed or proposed for listing under any of the ESA, CESA, ABC, DFG, IUCN, USFS or USFWS programs which tracks endangered or threatened species populations.

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, channelizations, turnouts, etc.), conversion of existing managed lanes to another managed lane type or characteristic, TMS field elements, transportation demand management, and incident management.

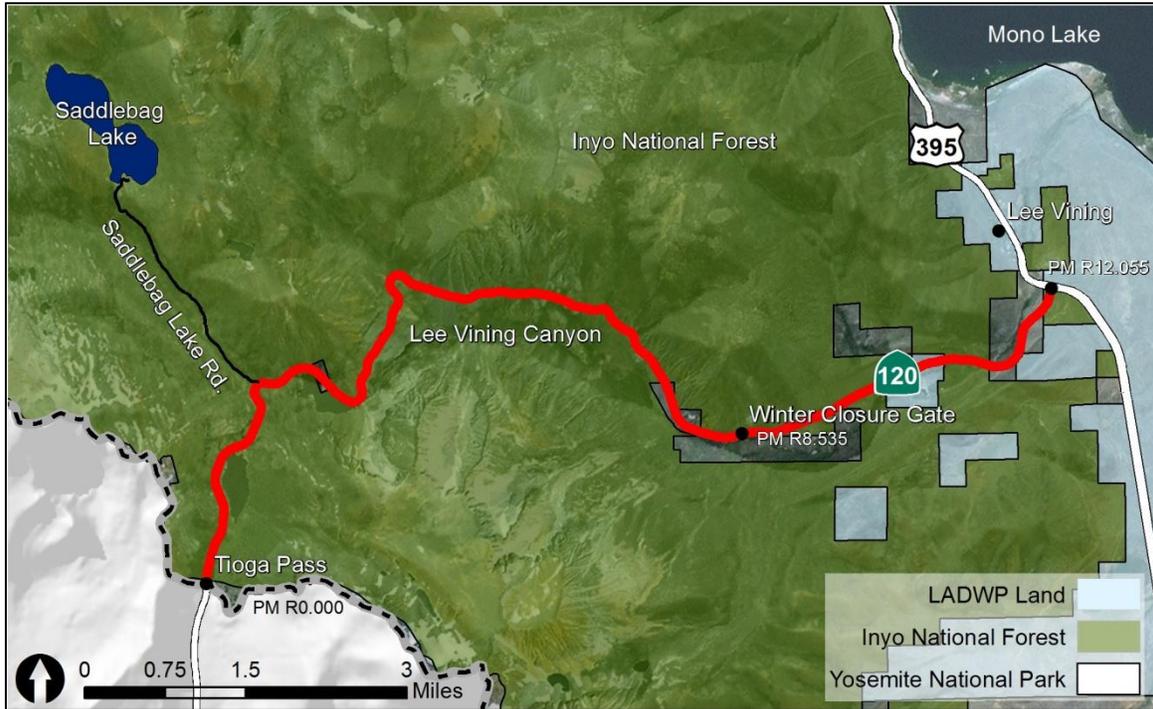
Terminal Access Route – A route which provides STAA trucks access to truck terminals to unload freight.

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

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**APPENDIX B
FACTSHEETS**

Segment 1: PM R0.000 – PM R12.055



Segment 1 begins at Tioga Pass located on the Tuolumne/Mono County line. It traverses a steep and winding grade down Lee Vining Canyon. This is an undivided, two-lane expressway with multiple turnouts used for scenic viewing. This segment is part of the California Legal Network for trucks up to Saddlebag Lakes Road (PM R2.100) and continues as a Terminal Access Route under the Surface Transportation Assistance Act until its junction with US 395 (PM R12.055). Food and gasoline are available near the end of this segment (PM R11.875) at the Tioga Gas Mart on the south side of the highway. Lodging and additional food and gas vendors are located in the nearby community of Lee Vining a quarter mile north of the segment’s terminus.

Projects and Strategies to Achieve Concept				
Description	Location	Source	Purpose	Implementation
Improve and pave scenic turnouts	Various	Mono Co RTP	Enhancement	Long Term
Install auxiliary lanes for turnouts	Various	Caltrans D-9	Operations	Long Term
Widen shoulders across Blue Slide rock fall area	PM R4.700/ PM R5.100	Caltrans D-9	Maintenance & Operations	Long Term
Install warning/CMS for Blue Slide rock fall area	PM R4.700/ PM R5.100	Caltrans D-9	Operations	Long Term
Install reflective guide markers	Various	Caltrans D-9	Operations	Long Term
Install directional and warning signs	Various	Caltrans D-9	Operations	Long Term
Install a passing lane for uphill traffic	Various	Caltrans D-9	Operations	Long Term
Widen shoulders to 4 feet	PM R0.000/ PM R8.535	Caltrans D-9	Maintenance & Operations	Long Term
Realign non-standard curves and grades	Various	Caltrans D-9	Maintenance & Operations	Long Term
Improve guardrail system	Various	Caltrans D-9	Maintenance & Operations	Long Term
Improve obsolete/damaged drainage	Various	Caltrans D-9	Maintenance & Operations	Long Term

(Segment 1 Factsheet continued)

Route Designation and Characteristics	Freeway & Expressway	Yes
	National Highway System	Yes
	Strategic Highway Network	No
	Scenic Highway	Eligible
	Interregional Road System	Yes
	High Emphasis	No
	Focus Route	No
	Federal Functional Classification	Other Principal Arterial
	Goods Movement Route	No
	Truck Designation	CA Legal Network/ Terminal Access
	Rural/Urban/Urbanized	Rural
	Regional Transportation Planning Agency	Mono LTC
	Local Agency	Mono County
	Tribes	N/A
Air District	Great Basin Unified Air Pollution Control District	
Terrain	Mountainous	

Environmental Considerations	Section 4(f) Land	High		
	Farmland/ Timberland	Low		
	Waters and Wetlands	High		
	Air Quality	Ozone	Attainment/ Unclassified	
			PM	2.5
		10	Non-Attainment	
		CO	Attainment/ Unclassified	
	Community Impacts	Low		
	Visual Aesthetics	High		
	Cultural Resources	High		
	Geo/Soils/Seismic/Topo	High		
	Special Status Species	High		
Habitat Connectivity	Med			
Floodplain	Low			

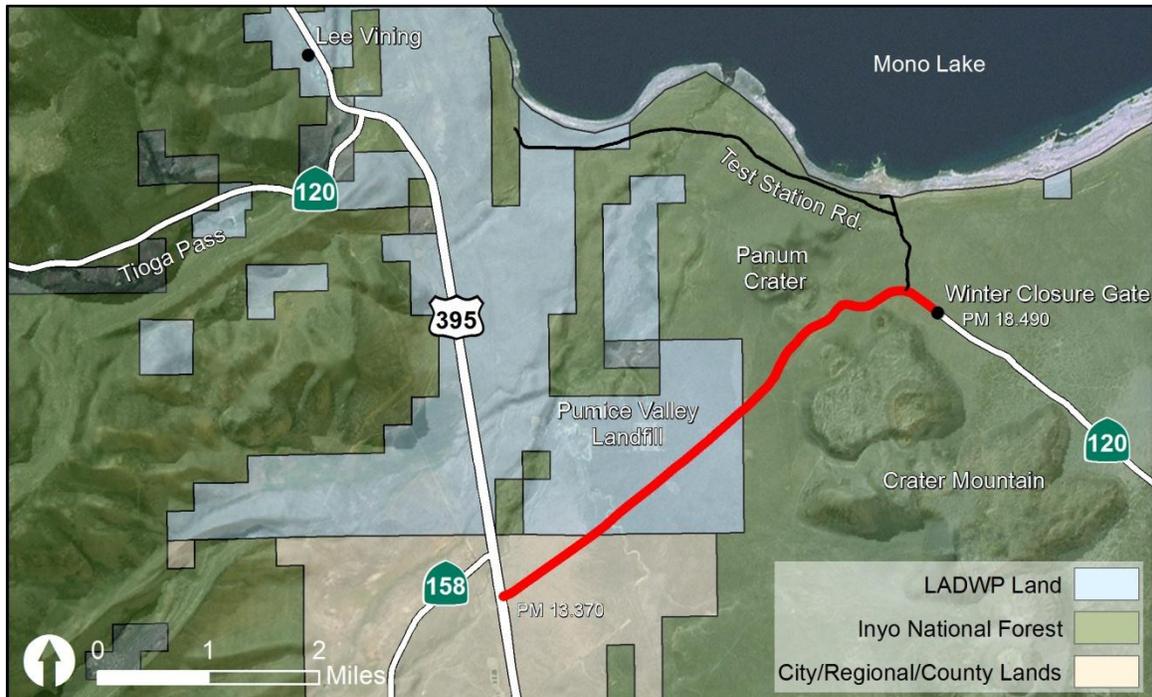
Ped.	Pedestrian Access Prohibited	No
	Sidewalk Present	No

System Characteristics	Facility Type	C
	General Purpose Lanes	2
	Lane Miles	24.12
	Centerline Miles	12.06
	Shoulder Width	0-8 ft
	Median Width	0 ft
	Lane Width	12 ft
	Passing Lanes	0
	Truck Climbing Lanes	0
	Distressed Pavement	0%
	Current ROW	145-400 ft Easement, Fee

Bicycle Facility	Subsegment	A	B
	Post Mile	R0.00- R8.54	R8.54- R12.06
	Bicycle Access Prohibited	No	No
	Facility Type	None	None
	Outside Paved Shoulder Width	0-2 ft	6-8 ft
	Facility Description	Shoulder Widening needed for Bike Route	No obstacles
	Posted Speed Limit	50 mph	50 mph
	Parallel Facility	No	No

Corridor Performance	Basic Systems Operations	AADT (BY)	2,460
		AADT: Growth Rate/Year	2.13%
		LOS Method	HCM
		LOS (BY)	C
		LOS Concept	C
		VMT (BY)	29,655
	Truck Traffic	Total Average Annual Daily Truck Traffic (AADTT) (BY)	60
		Total Trucks (% AADT) (BY)	2.44%
		5+ Axle Average Annual Daily Truck Traffic (AADTT)(BY)	1
	Peak Hour Traffic Data	Peak Period Length	1
		Peak Hour Direction	West
Peak Hour Time of Day		am	
Peak Hour Directional Split (BY)		80/20	
	Peak Hour VMT (BY)	4,207	

Segment 2: PM 13.370 – PM 18.490



Segment 2 begins 4.75 miles south the junction between Segment 1 and US 395. It travels across relatively flat terrain up to the winter closure gate located 0.35 miles east of Test Station Road. Access into the Pumice Valley Landfill attracts a larger volume of truck traffic for this segment. This is an undivided, two-lane conventional highway intersecting many private, county, and forest service roads. This segment is a California Legal Advisory Route with a KPRA of under 30 feet. Services such as food, lodging, and gasoline are not available along this segment.

Projects and Strategies to Achieve Concept				
Description	Location	Source	Purpose	Implementation Phase
Install culverts	PM 13.400/ PM 18.000	Mono Co RTP	Maintenance & Operations	Long Term
Improve delineation (snow poles, etc.)	PM 13.370/ PM 18.490	Caltrans D-9	Maintenance & Operations	Long Term
Widen shoulders to 4 feet	PM 0.000/ PM 58.990	Caltrans D-9	Maintenance & Operations	Long Term
Realign non-standard curves and grades	Various	Caltrans D-9	Maintenance & Operations	Long Term
Improve guardrail system	Various	Caltrans D-9	Maintenance & Operations	Long Term
Improve obsolete/damaged drainage	Various	Caltrans D-9	Maintenance & Operations	Long Term

(Segment 2 Factsheet continued)

Route Designation and Characteristics	Freeway & Expressway	No
	National Highway System	No
	Strategic Highway Network	No
	Scenic Highway	No
	Interregional Road System	No
	High Emphasis	No
	Focus Route	No
	Federal Functional Classification	Minor Arterial
	Goods Movement Route	No
	Truck Designation	Ca Legal Advisory Route
	Rural/Urban/Urbanized	Rural
	Regional Transportation Planning Agency	Mono LTC
	Local Agency	Mono County
	Tribes	N/A
	Air District	Great Basin Unified Air Pollution Control District
Terrain	Rolling	

Environmental Considerations	Section 4(f) Land	High		
	Farmland/ Timberland	Med		
	Waters and Wetlands	Low		
	Air Quality	Ozone	Attainment/ Unclassified	
			2.5	Attainment/ Unclassified
		PM	10	Non-Attainment
			CO	Attainment/ Unclassified
	Community Impacts	Low		
	Visual Aesthetics	High		
	Cultural Resources	High		
	Geo/Soils/Seismic/Topo	Low		
Special Status Species	Med			
Habitat Connectivity	High			
Floodplain	Low			

Ped.	Pedestrian Access Prohibited	No
	Sidewalk Present	No

System Characteristics	Facility Type	C
	General Purpose Lanes	2
	Lane Miles	10.22
	Centerline Miles	5.11
	Shoulder Width	0-2 ft
	Median Width	0 ft
	Lane Width	12 ft
	Passing Lanes	0
	Truck Climbing Lanes	0
	Distressed Pavement	0%
	Current ROW	Width not defined: Easement

Bicycle Facility	Bicycle Access Prohibited	No
	Facility Type	None
	Outside Paved Shoulder Width	0-2 ft
	Facility Description	No obstacles
	Posted Speed Limit	60 mph
	Parallel Facility	No

Corridor Performance	Basic Systems Operations	AADT (BY)	490
		AADT: Growth Rate/Year	0.50%
		LOS Method	HCM
		LOS (BY)	A
		LOS Concept	C
	Truck Traffic	VMT (BY)	2,509
		Total Average Annual Daily Truck Traffic (AADTT) (BY)	66
		Total Trucks (% AADT) (BY)	13.47%
		5+ Axle Average Annual Daily Truck Traffic (AADTT)(BY)	57
	Peak Hour Traffic Data	Peak Period Length	1
		Peak Hour Direction	West
Peak Hour Time of Day		pm	
Peak Hour Directional Split (BY)		60/40	
	Peak Hour VMT (BY)	553	

Segment 3: PM 18.490 – PM 51.470



Segment 3 begins at the winter closure gate located 0.35 miles east of Test Station Road and ends at the winter closure gate located 0.39 miles west of Benton Crossing Road. This is an undivided, two-lane conventional highway intersecting with many private, county, and forest service roads. This segment is a California Legal Advisory Route with a KPRA of less than 30 feet. Services such as food, lodging, and gasoline are not available along this segment.

Projects and Strategies to Achieve Concept				
Description	Location	Source	Purpose	Implementation Phase
Install warning signs/guardrails and add delineation in "run-off-the-road" accident locations	Various	Caltrans D-9	Operations	Long Term
Correct vertical curves	Various	Caltrans D-9	Maintenance & Operations	Long Term
Improve delineation (snow poles, etc.)	PM 13.370/ PM 18.490	Caltrans D-9	Maintenance & Operations	Long Term
Add rumble strips	PM 18.490/ PM 58.990	Caltrans D-9	Operations	Long Term
Widen shoulders to 4 feet	PM 0.000/ PM 58.990	Caltrans D-9	Maintenance & Operations	Long Term
Realign non-standard curves and grades	Various	Caltrans D-9	Maintenance & Operations	Long Term
Improve guardrail system	Various	Caltrans D-9	Maintenance & Operations	Long Term
Improve obsolete/damaged drainage	Various	Caltrans D-9	Maintenance & Operations	Long Term

(Segment 3 Factsheet continued)

Route Designation and Characteristics	Freeway & Expressway	No
	National Highway System	No
	Strategic Highway Network	No
	Scenic Highway	No
	Interregional Road System	No
	High Emphasis	No
	Focus Route	No
	Federal Functional Classification	Minor Arterial
	Goods Movement Route	No
	Truck Designation	Ca Legal Advisory Route
	Rural/Urban/Urbanized	Rural
	Regional Transportation Planning Agency	Mono LTC
	Local Agency	Mono County
	Tribes	N/A
	Air District	Great Basin Unified Air Pollution Control District
Terrain	Rolling	

Environmental Considerations	Section 4(f) Land	Low		
	Farmland/ Timberland	High		
	Waters and Wetlands	Low		
	Air Quality	PM	Ozone	Attainment/ Unclassified
			2.5	Attainment/ Unclassified
			10	Non-Attainment
		CO	Attainment/ Unclassified	
	Community Impacts	Low		
	Visual Aesthetics	Low		
	Cultural Resources	High		
	Geo/Soils/Seismic/Topo	Low		
	Special Status Species	High		
Habitat Connectivity	Med			
Floodplain	High			

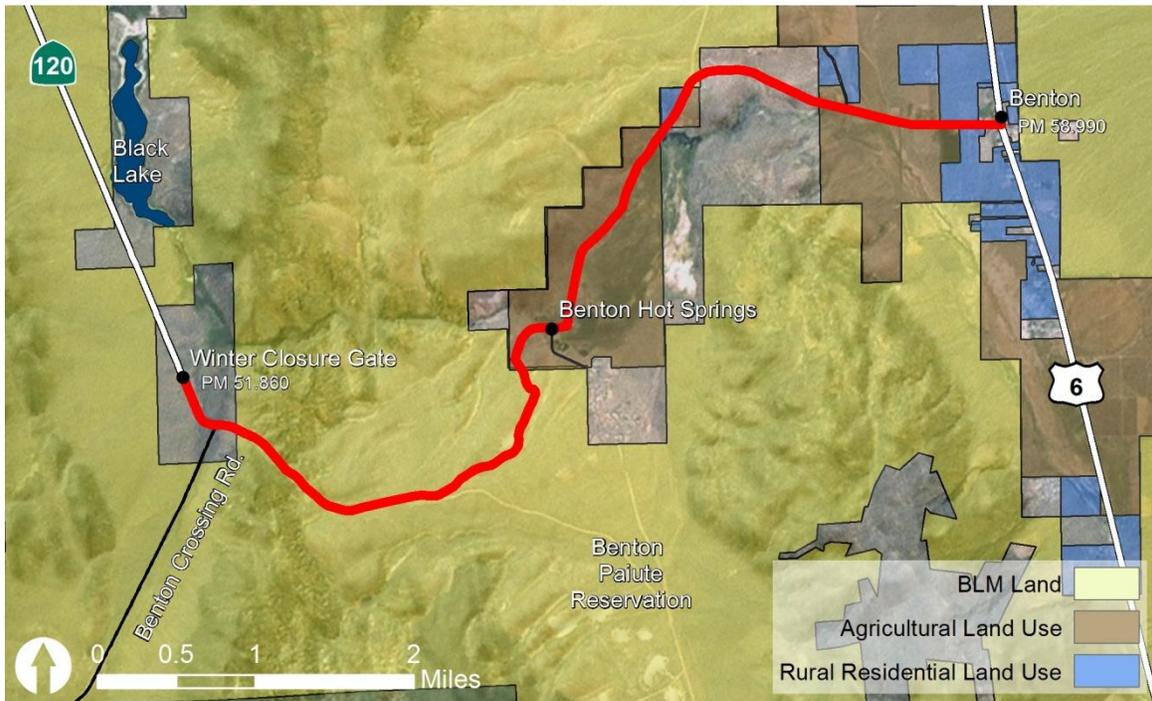
Ped.	Pedestrian Access Prohibited	No
	Sidewalk Present	No

System Characteristics	Facility Type	C
	General Purpose Lanes	2
	Lane Miles	66.28
	Centerline Miles	33.14
	Shoulder Width	0-2 ft
	Median Width	0 ft
	Lane Width	12 ft
	Passing Lanes	0
	Truck Climbing Lanes	0
	Distressed Pavement	24%
	Current ROW	70-400 ft Easement, Prescriptive

Bicycle Facility	Bicycle Access Prohibited	No
	Facility Type	None
	Outside Paved Shoulder Width	0-2 ft
	Facility Description	No obstacles
	Posted Speed Limit	60 mph
	Parallel Facility	No

Corridor Performance	Basic Systems Operations	AADT (BY)	355
		AADT: Growth Rate/Year	0.50%
		LOS Method	HCM
		LOS (BY)	A
		LOS Concept	C
	Truck Traffic	VMT (BY)	11,846
		Total Average Annual Daily Truck Traffic (AADTT) (BY)	44
		Total Trucks (% AADT) (BY)	12.39%
		5+ Axle Average Annual Daily Truck Traffic (AADTT)(BY)	29
	Peak Hour Traffic Data	Peak Period Length	1
		Peak Hour Direction	West
		Peak Hour Time of Day	pm
Peak Hour Directional Split (BY)		60/40	
Peak Hour VMT (BY)		1,902	

Segment 4: PM 51.470 – PM 58.990



Segment 4 begins at the winter closure gate located 0.39 miles west of Benton Crossing Road and ends at the junction between SR 120 and US 6 in Benton. This is an undivided, two-lane conventional highway which merges into Benton’s paved local circulation system. This segment is a California Legal Advisory Route with a KPRA of less than 30 feet. Services such as food, lodging, and gasoline are available in the community of Benton and the Benton Hot Springs.

Projects and Strategies to Achieve Concept				
Description	Location	Source	Purpose	Implementation Phase
Geometric improvements in the Old Benton community	PM 51.800/ PM 58.900	Mono Co RTP	Maintenance & Operations	Long Term
Develop access management principles for additional development	Various	Caltrans D-9	Operations	Long Term
Improve delineation (snow poles, etc.)	PM 13.370/ PM 18.490	Caltrans D-9	Maintenance & Operations	Long Term
Add rumble strips	PM 18.490/ PM 58.990	Caltrans D-9	Operations	Long Term
Widen shoulders to 4 feet	PM R0.000/ PM 58.990	Caltrans D-9	Maintenance & Operations	Long Term
Realign non-standard curves and grades	Various	Caltrans D-9	Maintenance & Operations	Long Term
Improve guardrail system	Various	Caltrans D-9	Maintenance & Operations	Long Term
Improve obsolete/damaged drainage	Various	Caltrans D-9	Maintenance & Operations	Long Term
Perfect Caltrans R/W through Benton Springs	51.2/56.6	Caltrans D-9	R/W	Long Term

(Segment 4 Factsheet continued)

Route Designation and Characteristics	Freeway & Expressway	No
	National Highway System	No
	Strategic Highway Network	No
	Scenic Highway	No
	Interregional Road System	No
	High Emphasis	No
	Focus Route	No
	Federal Functional Classification	Minor Arterial
	Goods Movement Route	No
	Truck Designation	Ca Legal Advisory Route
	Rural/Urban/Urbanized	Rural
	Regional Transportation Planning Agency	Mono LTC
	Local Agency	Mono County
	Tribes	Benton Paiute
	Air District	Great Basin Unified Air Pollution Control District
Terrain	Rolling	

Environmental Considerations	Section 4(f) Land	Low		
	Farmland/ Timberland	Med		
	Waters and Wetlands	High		
	Air Quality	PM	Ozone	Attainment/ Unclassified
			2.5	Attainment/ Unclassified
		10	Attainment/ Unclassified	
		CO	Attainment/ Unclassified	
	Community Impacts	High		
	Visual Aesthetics	Med		
	Cultural Resources	High		
	Geo/Soils/Seismic/Topo	Low		
	Special Status Species	High		
Habitat Connectivity	Low			
Floodplain	High			

Ped.	Pedestrian Access Prohibited	No
	Sidewalk Present	No

System Characteristics	Facility Type	C
	General Purpose Lanes	2
	Lane Miles	15.04
	Centerline Miles	7.52
	Shoulder Width	0-2 ft
	Median Width	0 ft
	Lane Width	12 ft
	Passing Lanes	0
	Truck Climbing Lanes	0
	Distressed Pavement	0%
Current ROW	70-100 ft Easement, Prescriptive, Fee	

Bicycle Facility	Bicycle Access Prohibited	No
	Facility Type	None
	Outside Paved Shoulder Width	0-2 ft
	Facility Description	No obstacles
	Posted Speed Limit	55 mph
	Parallel Facility	No

Corridor Performance	Basic Systems Operations	AADT (BY)	360
		AADT: Growth Rate/Year	0.50%
		LOS Method	HCM
		LOS (BY)	B
		LOS Concept	C
	Truck Traffic	VMT (BY)	2,567
		Total Average Annual Daily Truck Traffic (AADTT) (BY)	22
		Total Trucks (% AADT) (BY)	6.11%
	Peak Hour Traffic Data	5+ Axle Average Annual Daily Truck Traffic (AADTT)(BY)	1
		Peak Period Length	1
		Peak Hour Direction	East
		Peak Hour Time of Day	pm
Peak Hour Directional Split (BY)		67/33	
Peak Hour VMT (BY)	406		

APPENDIX C RESOURCES

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