



Transportation Concept Report
United States Route 6
District 9
June 2016



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California Department of Transportation

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**US Route 6
Transportation Concept Report**

Prepared
by
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Office of System Planning

June 2016

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US 6 LOCATION MAP

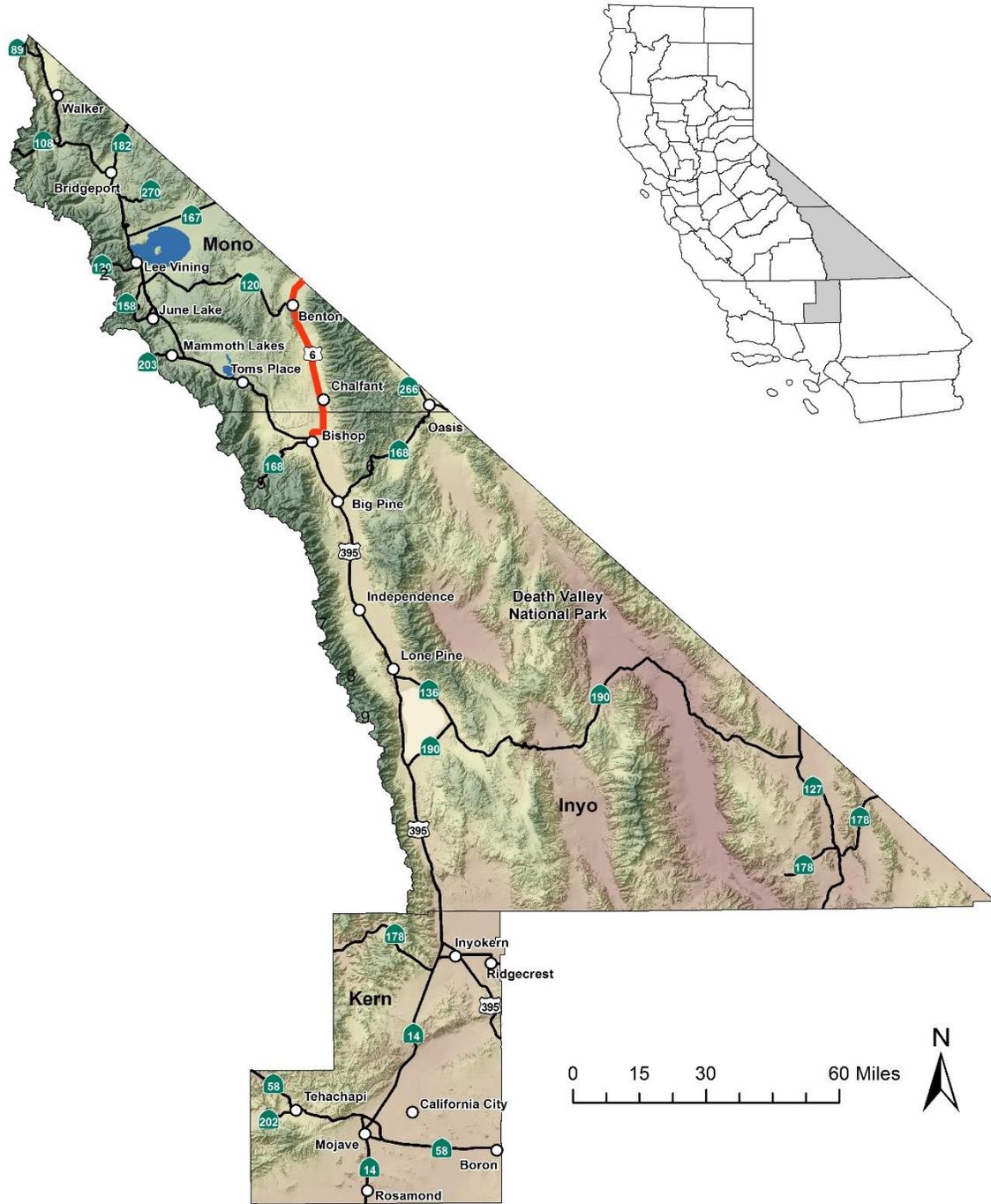


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ABOUT THE TRANSPORTATION CONCEPT REPORT

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 developing an integrated multimodal transportation system that meets Caltrans' goals of safety and health; stewardship and efficiency; sustainability, livability, and economy; system performance; and organizational excellence.

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 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. Guided by Caltrans' goals, 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 objectives 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 US Route 6 TCR. As information for the TCR was gathered, some stakeholders were contacted for input related to their particular specializations, verification of the data sources 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 US 6 planning area are community members and agencies, including, but not limited to:

- Utu Utu Gwaitu Tribe of the Benton Paiute Reservation
- Bishop Paiute Tribe
- Bureau of Land Management (BLM), Bishop Office
- California Department of Fish and Wildlife
- California Department of Agriculture
- City of Bishop
- Community of Benton
- Community of Chalfant
- County of Inyo
- County of Mono
- Eastern Sierra Transit
- Great Basin Unified Air Pollution Control District
- Inyo County Local Transportation Commission (LTC)
- Lahontan Regional Water Quality Control Board
- Los Angeles Department of Water and Power
- Mono County Local Transportation Commission (LTC)
- Nevada Department of Transportation

EXECUTIVE SUMMARY

In California, US 6 is a rural two lane conventional highway travelling nearly 41 miles from the City of Bishop to the California/Nevada state line. The route runs parallel to the western foothills of the White Mountains range, passing through three communities in Mono County (Chalfant, Hammil Valley and Benton). The US 6 corridor in California is a vital interregional and regional artery. It facilitates interstate commerce and provides access to rural communities. Recent traffic data was analyzed throughout this document using 2014 as a base year (BY) and 2034 as a horizon year (HY) for projecting operational conditions.

Concept Summary

Segment	Segment Description	Existing Facility	20 Year Facility Concept
1	US 395 to Dixon Lane	2C	2C
2	Dixon Lane to Inyo/Mono County Line	2C	2C
3	Inyo/Mono County Line to south end of Benton	2C	2C
4	Through the community of Benton	2C	2C
5	From north end of Benton to California/Nevada state line	2C	2C

Table 1: Concept Summary

Concept Rationale

US 6 is part of the national road network connecting the region to other states. This multipurpose two-lane conventional highway has an Average Annual Daily Traffic (AADT) of between 900 and 3,500 vehicles, depending on the segment. Truck traffic ranges between 12% and 31% of total traffic throughout the route, depending on the segment. Caltrans will explore continued improvements on US 6. The table above summarizes the existing facility of each segment as well as the 20 year concept facility.

Proposed Projects and Strategies

Within the 20 year horizon of this document, Caltrans will focus on improving and maintaining drainage facilities, rehabilitating pavement, widening shoulders, installing changeable message signs and making improvements at intersections.

CORRIDOR OVERVIEW

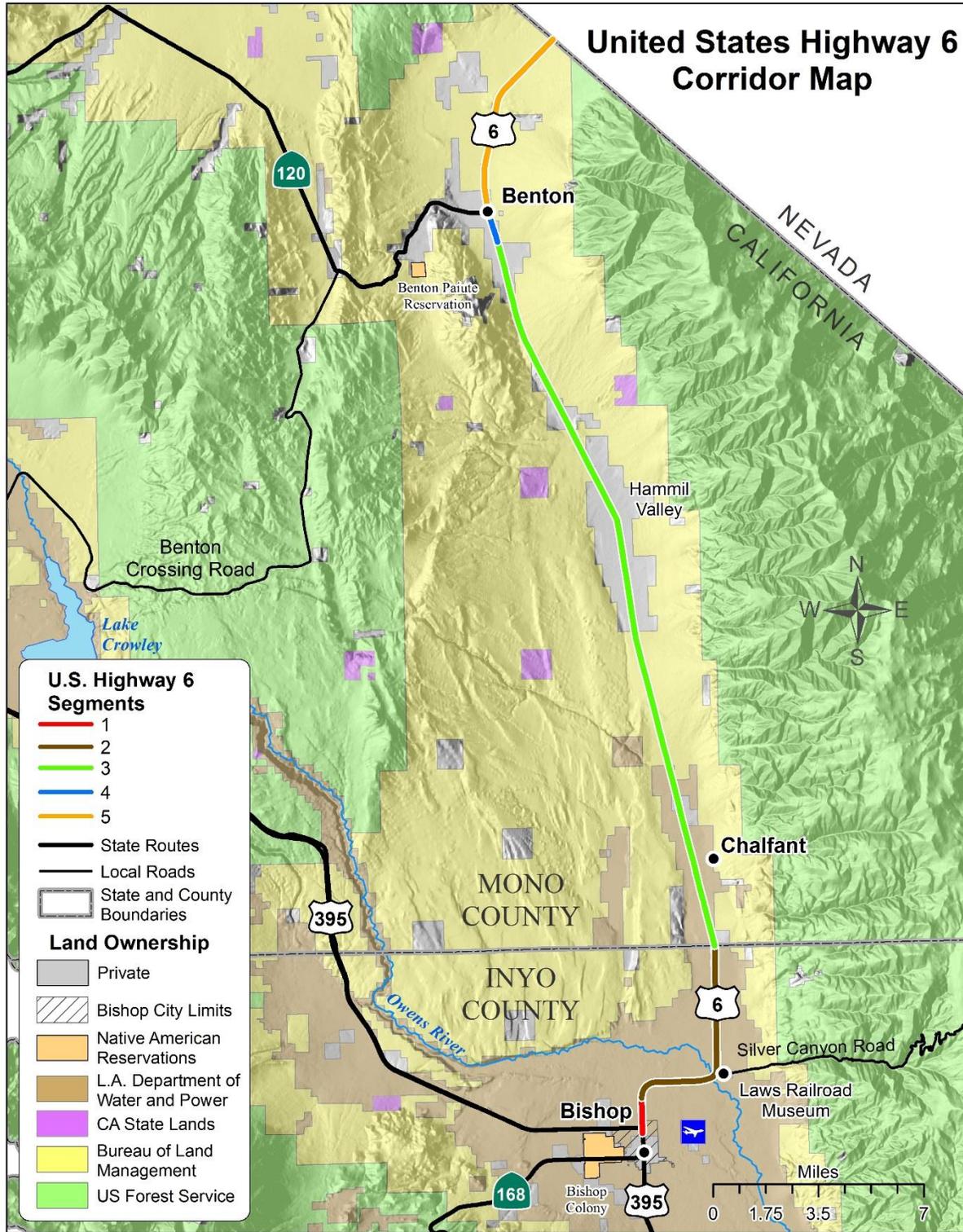
ROUTE SEGMENTATION

For the purpose of analysis, US 6 is divided into five segments based on jurisdiction, abutting land use, or facility characteristics. Segment 1 runs through an urban area from just within Bishop’s city limits to Dixon Lane. Segment 2 is mostly rural and ends at the change in jurisdiction from Inyo to Mono County. Segment 3 passes through a rural, agricultural valley and a rural community (Hamill Valley and the community of Chalfant) and ends at the start of another small community (Benton). Segment 4 goes through Benton and Segment 5 extends from the end of Benton to the state line (Nevada border).

Seg #	Location Description	County_Route_Beg. PM	County_Route_End PM
1	At the US 395 Junction in the City of Bishop, CA to Dixon Lane	INY_6_0.00	INY_6_1.12
2	Dixon Lane to the Inyo/Mono County Line	INY_6_1.12	INY_6_8.35
3	Inyo/Mono County Line to the south end of Benton	MNO_6_0.00	MNO_6_24.7
4	Through the community of Benton	MNO_6_24.7	MNO_6_26.04
5	From north end of Benton to the California/Nevada state line	MNO_6_26.04	MNO_6_32.29

Table 2: Route Segmentation

SEGMENT MAP



ROUTE DESCRIPTION

Route Location

The west end of US 6 is located in Inyo County at the US 395 junction in the City of Bishop. Although this route follows a north/south path through the valley between the Sierra Nevada and the White Mountains in Inyo and Mono Counties and crosses the Nevada state line northeast of the community of Benton, it is a west/east highway. US 6 then turns east into Nevada, crosses the entire country and terminates in Provincetown, Massachusetts.

Route Purpose

US 6 is functionally classified as Other Principal Arterial. The route is part of California's Interregional Road System (IRRS), which links the state with other economic hubs in the State. It provides access to commercial, residential, agricultural and recreational lands. The route gives access to employment opportunities and goods and services to the residents of Chalfant, Hammil Valley, Benton, and towns in west central Nevada. It is also part of the Strategic Highway Corridor Network (STRAHNET), which is a network of highways that provide the military with continuity and emergency capabilities for defense purposes. Residents of Tonopah, NV utilize US 6 to access Bishop for goods and services including medical care.

Route Designations and Characteristics

Segment #	1	2	3	4	5
Freeway & Expressway System – California Streets & Highways Code Section 250-257	Yes	Yes	Yes	Yes	Yes
National Highway System	Yes	Yes	Yes	Yes	Yes
Strategic Highway Network	Yes	Yes	Yes	Yes	Yes
Scenic Highway	No	No	No	No	No
Interregional Road System	Yes	Yes	Yes	Yes	Yes
Priority Interregional Facility	No	No	No	No	No
Federal Functional Classification	Other Principal Arterial	Other Principal Arterial	Other Principal Arterial	Other Principal Arterial	Other Principal Arterial
Goods Movement Route	Yes	Yes	Yes	Yes	Yes
Truck Designation	National Network (STAA)	National Network (STAA)	National Network (STAA)	National Network (STAA)	National Network (STAA)
Rural/Urban/Urbanized	Urban	Rural	Rural	Rural	Rural
Regional Transportation Planning Agency	Inyo LTC	Inyo LTC	Mono LTC	Mono LTC	Mono LTC
County Transportation Commission	Inyo LTC	Inyo LTC	Mono LTC	Mono LTC	Mono LTC
Local Agency	Inyo County, City of Bishop	Inyo County	Mono County	Mono County	Mono County
Federally Recognized Tribes	Bishop Paiute	None	None	Utu Utu Gwaitu Tribe	None
Air District	Great Basin Unified Air Pollution Control District (GBUAPCD)	GBUAPCD	GBUAPCD	GBUAPCD	GBUAPCD
Terrain	Rolling	Flat	Flat	Rolling	Rolling

Table 3: Route Designations and Characteristics

COMMUNITY CHARACTERISTICS

Residential land division projects are occasionally proposed for some of the private land along the US 6 corridor. If any come to fruition, projects should mitigate their transportation impacts to US 6. This has occurred with the White Mountain Estates development, east of US 6, which has provided a right-turn lane onto White Mountain Estates Road.

City of Bishop

Bishop is the largest (and the only incorporated) city in Inyo County. It has a permanent population of approximately 3,879 people, according to the 2010 Census. The total population of the Bishop area (including West Bishop and Dixon Lane - Meadow Creek) is about 10,000 people. The population of Bishop changes little over time because most of the land in the area is owned by government agencies. Release of land into private hands for development is rare. The Bishop region is a tourist attraction due to its close proximity to ski resorts, lakes and a variety of other outdoor activities.

Community of Chalfant

Chalfant is a rural unincorporated residential community in Mono County located 14 miles north of Bishop. Its facilities include a community center, park, solid-waste transfer station and a fire station. The population of Chalfant was 651 according to the 2010 Census with 301 housing units. Most residents of Chalfant work or go to school in Bishop and commute daily on US 6. Most of the land immediately surrounding the community is made up of large parcels owned by the Los Angeles Department of Water and Power (LADWP).

Hammil Valley

Hammil Valley is a rural stretch of dispersed private ranches in Mono County, along US 6, primarily used for the growing of alfalfa, potatoes, garlic and carrots. The population of this community is less than 200.

Community of Benton

Benton is a rural unincorporated community located at the intersection of US 6 and SR 120 near the Nevada border, about 35 miles north of Bishop. Benton has approximately 280 residents, the majority of whom work in Mammoth and Bishop. The federally recognized Utu Utu Gwaitu Paiute Tribe has tribal lands in the Benton area and privately owns the gas station, store and café at the US 6/SR 120 intersection.

LAND USE

Much of the land abutting US 6 is used for very low density residential and agricultural purposes or is publicly owned land and not projected to undergo development.

Seg.	Place Type
1	Close-in Corridor - general commercial, light industrial and LADWP lands. LADWP lands are predominantly used for livestock grazing, aqueduct water channelization and day-use recreation.
2	Rural - light industrial, LADWP, and BLM lands. Lands are predominantly used for livestock grazing, farming and day-use recreation.
3	Rural/Agricultural + Rural Town - private, LADWP, and BLM lands. Lands are predominantly used for agriculture, low density residential and day-use recreation.
4	Rural Town - low density residential, light commercial, and BLM.
5	Rural - low density residential, agricultural, and BLM. Lands are primarily used for livestock grazing and day-use recreation.

Table 4: Land Use

SYSTEM CHARACTERISTICS

US 6 is currently a 2 lane conventional highway. Transportation Management Systems (TMS), described in the table below, assist Caltrans in monitoring and managing the highway.

Segment #	1	2	3	4	5
Existing Facility					
Facility Type	2C	2C	2C	2C	2C
General Purpose Lanes	2	2	2	2	2
Lane Miles	2.25	14.5	49.4	2.68	12.5
Centerline Miles	1.12	7.22	24.7	1.34	6.25
Current ROW	80-100 ft	100-125 ft	100-400 ft	100 ft	100-400 ft
Concept Facility					
Facility Type	2C	2C	2C	2C	2C
General Purpose Lanes	2	2	2	2	2
Lane Miles	2.25	14.5	49.4	2.68	12.5
Centerline Miles	1.12	7.22	24.7	1.34	6.25
TMS Elements					
TMS Elements (BY and HY)	1 Full Time Mainline Detector	1 Full Time and 1 Part Time Mainline Detector	4 Road Weather Information Systems	1 Part Time Mainline Detector	1 Full Time Mainline Detector, 1 Camera, 1 RWIS

Table 5: System Characteristics

BICYCLE FACILITY

Bicyclists are permitted to ride along the entire length of the route however bicycle traffic is minimal. Shoulder width varies from 4 to 8 feet with wider shoulders in and around Bishop, Chalfant and Benton.

Segment	Bicycle Access Prohibited	Facility Type	Outside Paved Shoulder Width	Distressed Shoulder Pavement	Posted Speed Limit
1	No	None	8 ft	0 %	55
2	No	None	4-6 ft	0 %	65
3	No	None	4-8 ft	0 %	65 (60 through Chalfant)
4	No	None	6 ft	0 %	45
5	No	None	4 ft	0 %	65

Table 6: Bicycle Facility

PEDESTRIAN FACILITY

Pedestrians are permitted to travel along the shoulders for the entire length of the route. There are no sidewalks except for approximately the first 400 feet of the east side of Segment 1. Pedestrian traffic is minimal due to the low density and low populations of the communities along the route.

Segment	Pedestrian access prohibited	Sidewalk present
1	No	Yes (only one block of sidewalk at beginning of segment)
2	No	No
3	No	No
4	No	No
5	No	No

Table 7: Pedestrian Facility

TRANSIT FACILITY

Transit service along US 6 is provided by the Eastern Sierra Transit Authority (ESTA). Benton-Bishop service is provided on Tuesdays and Fridays from 8:25 a.m. to 3:30 p.m., with interim stops in Hammil Valley and Chalfant. One round trip service per day is provided in which passengers are able to stay in Bishop for 5 hours before the return trip. Dial-A-Ride service, provided by ESTA, is also available daily in and around Bishop.

Mode & Collateral Facility	Name	Route End Points	Ridership	Headway	Amenities	Bikes Allowed on Transit
Bus	ESTA	Bishop to Benton	Approximately 1000 passengers/year	One round trip per day (Tue&Fri only)	Lift equipped. Riders can call in advance for special needs and door to door pickup.	Yes

Stop Location	Benton	Hamill Valley	Chalfant	Bishop
Description/Address	Benton Station, 25669 US 6, Benton, CA	Requires 24 hour advance notice. Call 760.872.1901	Chalfant Mercantile, 4750 US 6, Chalfant Valley, CA	K-mart/Vons, 1200 N. Main St. Bishop, CA
Westbound	8:25	8:50	9:05	9:30
Eastbound	15:30	15:10	14:45	14:30

Table 8: Transit Facility

FREIGHT

Most of the freight on US 6 flows between southern California, northern Nevada and Idaho. No major freight generators are located along US 6 in California or Nevada. Caltrans District 9 is currently seeking a grant to conduct a thorough study on goods movement along this corridor and others in the eastern Sierra. This study may include research of Nevada-originating truck trips, which utilize US 6. Such data would be used in determining the necessity for US 6 truck climbing and/or passing lanes.

ENVIRONMENTAL CONSIDERATIONS

The purpose of this environmental scan is to identify environmental factors that may need future analysis during the project development process. Any US 6 project being considered for programming would require environmental clearance in compliance with all federal, state, and local environmental laws and regulations. The environmental factors identified in the environmental scan have been scaled (high, medium, or low) by district staff based on the probability of encountering such environmental issues. The following environmental factors were included in the scan:

Cultural Resources:

There are several known prehistoric and historic archaeological sites along US 6; therefore, an appropriate level of archaeological and historical studies, including Native American consultation, will be required for projects along this route.

Geology/Soils/Seismic:

There is a history of seismic activity along the US 6 corridor. The corridor falls within the White Mountain Fault Zone and has had large earthquakes in the past, including the 1986 Chalfant Valley earthquake.

Floodplain:

Much of the corridor is in a 100 year floodplain while Benton is in a 500 year floodplain. Culverts should be regularly cleaned in order to allow for water to flow under the road unobstructed. Cooperation with BLM and LADWP may be necessary to improve drainage systems throughout the corridor.

Waters and Wetlands/Scenic Rivers:

Any projected work near Owens River or Bishop Creek will require a thorough analysis. Coordination with other agencies will be needed to ensure the protection of these bodies of water. Culvert cleaning requires internal Caltrans environmental approval and in some cases must be approved by the California Department of Fish and Wildlife.

Air Quality:

This route is located within the Great Basin Unified Air Pollution Control District. For National Ambient Air Quality Standards (NAAQS), this area is in attainment for ozone (8 hour) and for particulate matter (PM 2.5 and 10). For State of California Ambient Air Quality Standards, this area is at non-attainment for particulate matter (PM 10).

Species Consideration:

Owens Tui Chub fish is on the Federal endangered list and may also be located in waterways adjacent to the highway. The following species have also been recorded along State Route 6:

- Owens Speckled Dace
- Morrison Bumble Bee
- Swainson's Hawk
- Silver-haired Bat
- Owens Valley Vole
- Cliff Swallow

Seg	Cultural Resources	Geology/Soils/ Seismic	Floodplain	Waters and Wetlands	Air Quality			Species Consideration	
					Ozone	PM			CO
						2.5	10		
1	Medium	Medium	Medium	Medium	Low	Low	Medium	Low	Medium
2									
3									
4									
5									

Table 9: Environmental Considerations

CORRIDOR PERFORMANCE

The Corridor Performance table displays volume data for the base year (BY) 2014 and the horizon year (HY) 2034. US 6 currently operates at a high level of service and is expected to remain that way through the horizon year.

Segment #	1	2	3	4	5
Basic System Operations					
AADT (BY)	3,500	2,100	2,100	1,890	900
AADT (HY)	4,900	2,750	2,750	2,450	1,175
AADT: Growth Rate/Year	2.0%	1.5%	1.5%	1.5%	1.5%
LOS Method	Highway Capacity Manual				
LOS (BY)	B	A	A	A	A
LOS (HY)	B	A	A	A	A
LOS Concept	B	B	A	A	A
VMT (BY)	3,275	15,170	51,870	2,680	5,625
VMT (HY)	4,630	19,870	67,925	3,484	7,345
Truck Traffic					
Total Average Annual Daily Truck Traffic (AADTT) (BY)	420	644	435	214	207
Total Average Annual Daily Truck Traffic (AADTT) (HY)	475	853	632	624	275
Total Trucks (% of AADT) (BY)	12%	31%	23%	24%	23%
Total Trucks (% of AADT) (HY)	12%	31%	23%	24%	23%
5+ Axle Average Annual Daily Truck Traffic (AADTT) (BY)	354	351	309	146	133
5+ Axle Average Annual Daily Truck Traffic (AADTT) (HY)	398	535	489	492	295
5+ Axle Trucks (as % of AADT) (BY)	10%	17%	16%	16%	15%
5+ Axle Trucks (as % of AADT) (HY)	10%	17%	16%	16%	15%
Peak Hour Traffic Data					
Peak Hour Direction	West	West	West	West	West
Peak Hour Time of Day	AM	AM	AM	AM	PM
Peak Hour Directional Split (BY)	75/25	75/25	60/40	60/40	60/40
Peak Hour VMT (BY)	350	230	210	110	100
Peak Hour VMT (HY)	490	299	273	143	130

Table 10: Corridor Performance

KEY CORRIDOR ISSUES

The intersection of US 6 and Wye Road continues to be a topic of discussion between Caltrans and the City of Bishop. The irregular triangular geometry of the intersection and the numerous access points located within the area have inhibited optimal vehicular flow. Caltrans and the City of Bishop have explored ideas for improvement; however, a proposal at the intersection for construction of an Inyo County facility (court and court services) could complicate the issue. Multimodal trips will increase at the intersection with the addition of these facilities. Furthermore, the shoulders just north of this intersection are used by long haul freight truckers as parking space. This can create both safety and hazardous material issues. Relinquishing control of Wye Road from Caltrans to the City of Bishop, could be beneficial for the City as it explores developments in the area.

ADDITIONAL TOPICS

The *2007 Chalfant Community Visioning* report gave residents of Chalfant an opportunity to share their ideas with Caltrans. Residents requested a left turn pocket for eastbound traffic on US 6 turning onto Chalfant Road. This idea has been integrated into the concept planning strategies for the highway. Furthermore, Caltrans may consider traffic calming elements, access management strategies and pedestrian/bicycle connectivity if development occurs in Chalfant accordingly.

CORRIDOR CONCEPT

CONCEPT RATIONALE

In accordance with the Caltrans mission, District 9's rationale for the US 6 concept is based on increasing and preserving system efficiency. Although significant growth is not expected to occur along the corridor, improvements can be made to the facility.

PLANNED AND PROGRAMMED PROJECTS AND STRATEGIES

Seg.	Description	Planned or Programmed	Location	Source	Purpose	Implementation Phase
All	Upgrade guardrail to barrier transitions	Programmed	25 locations in Inyo and Mono Counties	Caltrans D-9	System Management	PS&E/RW
2,3	Widen shoulders	Programmed	INY 4.3 / 8.35 MNO 0.0/0.8	Caltrans D-9	System Management	PID

Table 11: Planned and Programmed Projects and Strategies

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Seg.	Description	Location	Source	Purpose
1	Construct truck parking area	INY 0.13 /0.451	Caltrans Recommendation	System Management
2	Pavement rehabilitation	INY 1.4/8.3	Caltrans Recommendation	System Maintenance
3	Construct left turn pocket onto Chalfant Road	MNO 4.59/4.63	Caltrans Recommendation	System Management
3	Construct scenic lookout	To be determined	Caltrans Recommendation	System Management
3	Install "Watch for Tractor" signs	To be determined	Caltrans Recommendation	System Management

Seg.	Description	Location	Source	Purpose
3	Install High Wind Warning System	MNO 18.9/27.4	Caltrans Recommendation	System Management
3	Place culvert at driveway	MNO 12.3	Caltrans Recommendation	System Preservation
3	Widen shoulders	MNO 5/24.7	Caltrans Recommendation	Complete Streets
3,4,5	Pavement rehabilitation	MNO 0/4.7, 17.5/26.5	Caltrans Recommendation	System Maintenance
4	Provide bi-directional left turn lane	In Mono County at Benton from Walker Place to 0.3 miles north of Christy Lane	Caltrans Recommendation	System Management
4,5	Widen shoulders	MNO 24.7/32.29	Caltrans Recommendation	Complete Streets
All	Clean culverts	All 19 culverts under US 6 in Inyo County and all 110 culverts under US 6 in Mono County	Caltrans Recommendation	System Preservation

Table 12: Projects and Strategies to Achieve Concept

APPENDIX

APPENDIX A SEGMENT FACTSHEETS

Segment 1: INY_6_0.00 to INY_6_1.12



Segment 1 begins at the US 395 Junction in the City of Bishop and ends at Dixon Lane.

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Description	Location	Source	Purpose
Upgrade roadway from 2-lane to 4-lane	INY 0.0/8.35, MNO 17.17/32.29	Caltrans Recommendation	System Expansion
Construct truck parking area	INY 0.13/0.45; Bishop from Wye Road to Bishop Creek Bridge	Caltrans Recommendation	System Management
Clean culverts	All 19 culverts under US 6 in Inyo County and all 110 culverts under US 6 in Mono County	Caltrans Recommendation	System Preservation

Current Facility	2C	AADT	3,500	Truck AADT	435	Speed Limit	55 mph
		VMT	3,275	Truck % of AADT	12%	Shoulder Width	8 ft
Present LOS	B	Peak Hour VMT	392	ROW	80-100 ft	Functional Classification	Other Principal Arterial

Segment 2: INY_6_1.12 to INY_6_8.35



Segment 2 begins at Dixon Lane and travels to the Inyo/Mono County Line.

PLANNED AND PROGRAMMED PROJECTS AND STRATEGIES

Description	Planned or Programmed	Location	Source	Purpose	Implementation Phase
Widen Shoulders	Planned	INY 4.3/8.4	Caltrans D-9	System Management	PID
Upgrade guardrail to barrier transitions	Programmed	25 locations in Inyo and Mono Counties	Caltrans D-9	System Management	PS&E/RW

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Description	Location	Source	Purpose
Upgrade roadway from 2-lane to 4-lane	INY 0.0/8.35, MNO 17.17/32.29	Caltrans Recommendation	System Expansion
Pavement rehabilitation	INY 1.4/8.3	Caltrans Recommendation	System Maintenance
Clean culverts	All 19 culverts under US 6 in Inyo County and all 110 culverts under US 6 in Mono County	Caltrans Recommendation	System Preservation

Current Facility 2C	AADT	2,100	Truck AADT	435	Speed Limit	65 mph	
	VMT	15,170	Truck % of AADT	31%	Shoulder Width	4-6 ft	
Present LOS	A	Peak Hour VMT	1,660	ROW	100-125 ft	Functional Classification	Other Principal Arterial

Segment 3: MNO_6_0 to MNO_6_24.7



Segment 3 begins at the Inyo/Mono County Line and extends north to the community of Benton.

PLANNED AND PROGRAMMED PROJECTS AND STRATEGIES

Description	Planned or Programmed	Location	Source	Purpose	Implementation Phase
Upgrade guardrail to barrier transitions	Programmed	25 locations in Inyo and Mono Counties	Caltrans D-9	System Management	PS&E/RW

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Description	Location	Source	Purpose
Upgrade roadway from 2-lane to 4-lane	INY 0.0/8.35, MNO 17.17/32.29	Caltrans Recommendation	System Expansion
Construct left turn pocket on Chalfant Rd	MNO 4.59/4.63; In Mono County at Chalfant	Caltrans Recommendation	System Management
Construct scenic lookout	Segment 3	Caltrans Recommendation	System Management
Provide bi-directional left turn lane	In Mono County at Benton from Walker Place to 0.3 miles north of Christy Lane	Caltrans Recommendation	System Management
Install High Wind Warning System	MNO 18.9/27.4	Caltrans Recommendation	System Management
Clean culverts	All 19 culverts under US 6 in Inyo County and all 110 culverts under US 6 in Mono County	Caltrans Recommendation	System Preservation
Widen shoulders	MNO 5/24.7	Caltrans Recommendation	System Management
Emplace culvert	MNO 12.3	Caltrans Recommendation	System Preservation
Pavement rehabilitation	MNO 0.0/4.7	Caltrans Recommendation	System Maintenance

Current Facility 2C	AADT	2,100	Truck AADT	435	Speed Limit	65 mph (60 through Chalfant)	
	VMT	51,870	Truck % of AADT	23%	Shoulder Width	4-8 ft	
Present LOS	A	Peak Hour VMT	5,187	ROW	100-400 ft	Functional Classification	Other Principal Arterial

Segment 4: MNO_6_24.7 to MNO_6_26.04



Segment 4 travels through the community of Benton.

PLANNED AND PROGRAMMED PROJECTS AND STRATEGIES

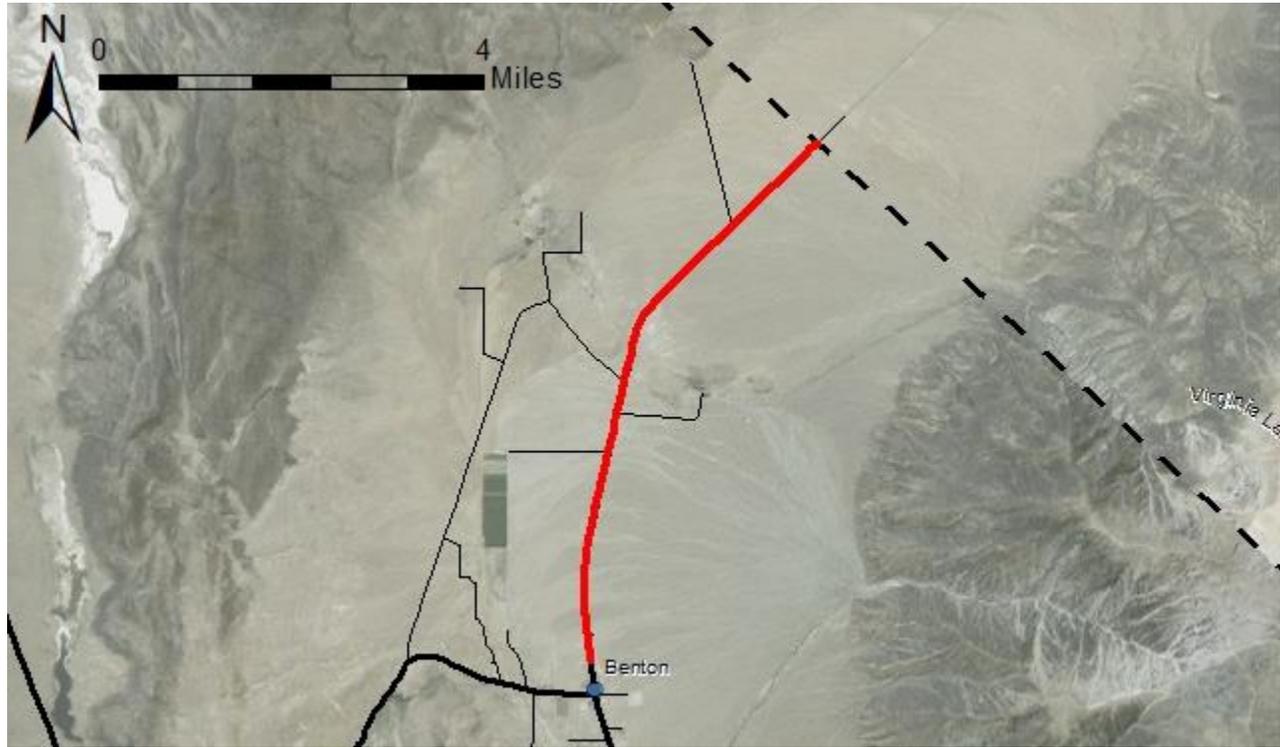
Segment	Description	Planned or Programmed	Location	Source	Purpose	Implementation Phase
All	Upgrade guardrail to barrier transitions	Programmed	25 locations in Inyo and Mono Counties	Caltrans D-9	System Management	PS&E/RW

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Description	Location	Source	Purpose
Upgrade roadway from 2-lane to 4-lane	INY 0.0/8.35, MNO 17.17/32.29	Caltrans Recommendation	System Expansion
Provide bi-directional left turn lane	In Mono County at Benton from Walker Place to 0.3 miles north of Christy Lane	Caltrans Recommendation	System Management
Widen shoulders	MNO 24.70/26.03, MNO 26.04/32.29	Caltrans Recommendation	System Management
Pavement rehabilitation	17.5/26.5	Caltrans Recommendation	System Maintenance

Current Facility 2C	AADT	1,890	Truck AADT	435	Speed Limit	45 mph	
	VMT	2,680	Truck % of AADT	24%	Shoulder Width	6 ft	
Present LOS	A	Peak Hour VMT	147	ROW	100 ft	Functional Classification	Other Principal Arterial

Segment 5: MNO_6_26.04 to MNO_6_32.29



Segment 5 travels from Benton to the California/Nevada state line.

PLANNED AND PROGRAMMED PROJECTS AND STRATEGIES

Segment	Description	Planned or Programmed	Location	Source	Purpose	Implementation Phase
All	Upgrade guardrail to barrier transitions	Programmed	25 locations in Inyo and Mono Counties	Caltrans D-9	System Management	PS&E/RW

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Description	Location	Source	Purpose
Upgrade roadway from 2-lane to 4-lane	INY 0.0/8.35, MNO 17.17/32.29	Caltrans Recommendation	System Expansion
Widen shoulders	MNO 24.70/26.03, 26.04 /32.29	Caltrans Recommendation	System Management
Pavement rehabilitation	MNO 17.5/26.5	Caltrans Recommendation	System Maintenance

Current Facility 2C	AADT	900	Truck AADT	435	Speed Limit	65 mph	
	VMT	5,625	Truck % of AADT	23%	Shoulder Width	4 ft	
Present LOS	A	Peak Hour VMT	625	ROW	100-400 ft	Functional Classification	Other Principal Arterial

APPENDIX B
GLOSSARY OF TERMS AND ACRONYMS

Acronyms

2C – Two-Lane Conventional Highway
AADT – Annual Average Daily Traffic
AADTT – Annual Average Daily Truck Traffic
AUM – Animal Unit Month
BLM – Bureau of Land Management
BY – Base Year
Caltrans – California Department of Transportation
CDCA – California Desert Conservation Area Plan
CDP – Census-Designated Place
CESA – California Endangered Species Act
CNPS – California Native Plant Society
CNDDDB – California Natural Diversity Database
CO – Carbon Monoxide
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
KPRA – Kingpin-to-rear-axle distance
LOS – Level of Service
LTC – Local Transportation Commission
MNO – Mono County
MPH – Miles per Hour
N/A – Not Applicable
NB – Northbound
NEHRP – National Earthquake Hazards Reduction Program
PM – Post Mile or Particulate Matter
R – (prefix to Post Mile) Realigned
R/W or ROW – Right of Way
RTP – Regional Transportation Plan
SB – Southbound
SDC – Seismic Design Category
SFHA – Special Flood Hazard Area
SR – State Route
SSC – Species of Special Concern
STAA – Surface Transportation Assistance Act
TCR – Transportation Concept Report
US – United States Highway
USFS – United States Forest Service
USFWS – United States Fish & Wildlife Service
VMT – Vehicle Miles Traveled

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

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.

Cattle Guard – A type of obstacle used to prevent cattle and other livestock from passing along a road or railway while permitting the passage of vehicles and pedestrians. It consists of a depression in the road covered by a transverse grid of bars or tubes spaced far enough apart to deter livestock but close enough not to impede a wheel or foot.

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

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

Easement – A non-possessing interest held by one person in land of another.

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.

Fee Title – an absolute fee; a fee without limitation to any particular class of heirs or restrictions...; an inheritable estate.

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.

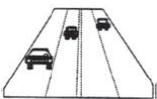
Minor Collector A Collector that is shorter in length, having a higher density of connecting driveways, lower speed limits and smaller intervals of spacing than Major Collectors. These roadways serve lower volumes of traffic.

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.

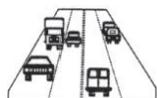
Horizon Year (HY) – The year that the future (20-25 years) data is based on.

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.

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. Six levels of 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 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.

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.

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 (PM) – 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.

Prescriptive Right – title obtained in law by long possession.

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.

Right of Way (ROW) – Any strip or area of land granted by deed or easement for ... a designated use.

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.

Rumble Strip – The application of a series of equally-spaced grooves either mounted or applied inside the pavement of a road used to alert drivers that they are exiting the travel way through an audible rumbling.

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.

Scenic Highway – A highway that is located in an area of natural scenic beauty that is designated for special conservation treatment.

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.

Surface Transportation Assistance Act (STAA) – A transportation funding and policy act which allows on a federally designated system of highways (National Network) and on Terminal Access Routes the use of semitrailers up to 48 feet in length with no KPRA restrictions and semitrailers up to 53 feet in length with certain KPRA restrictions.

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.

APPENDIX C RESOURCES

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- Caltrans, District 9, GIS Data Library
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- Caltrans, District 9, Post Mile Log, 2007
- Caltrans, District 9, R/W Record Maps
- Caltrans, District 9, *US Route 6 Transportation Concept Report*, 2009
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- Caltrans, Division of Operations, Office of Traffic Engineering, Speed Zone Surveys
- Caltrans, Division of Research, Innovation and System Information (DRISI), California Road System (CRS) Maps
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- Caltrans, Traffic Accident Surveillance and Analysis System (TASAS)
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- Eastern Sierra Transit Authority, <http://www.estransit.com/CMS/>
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