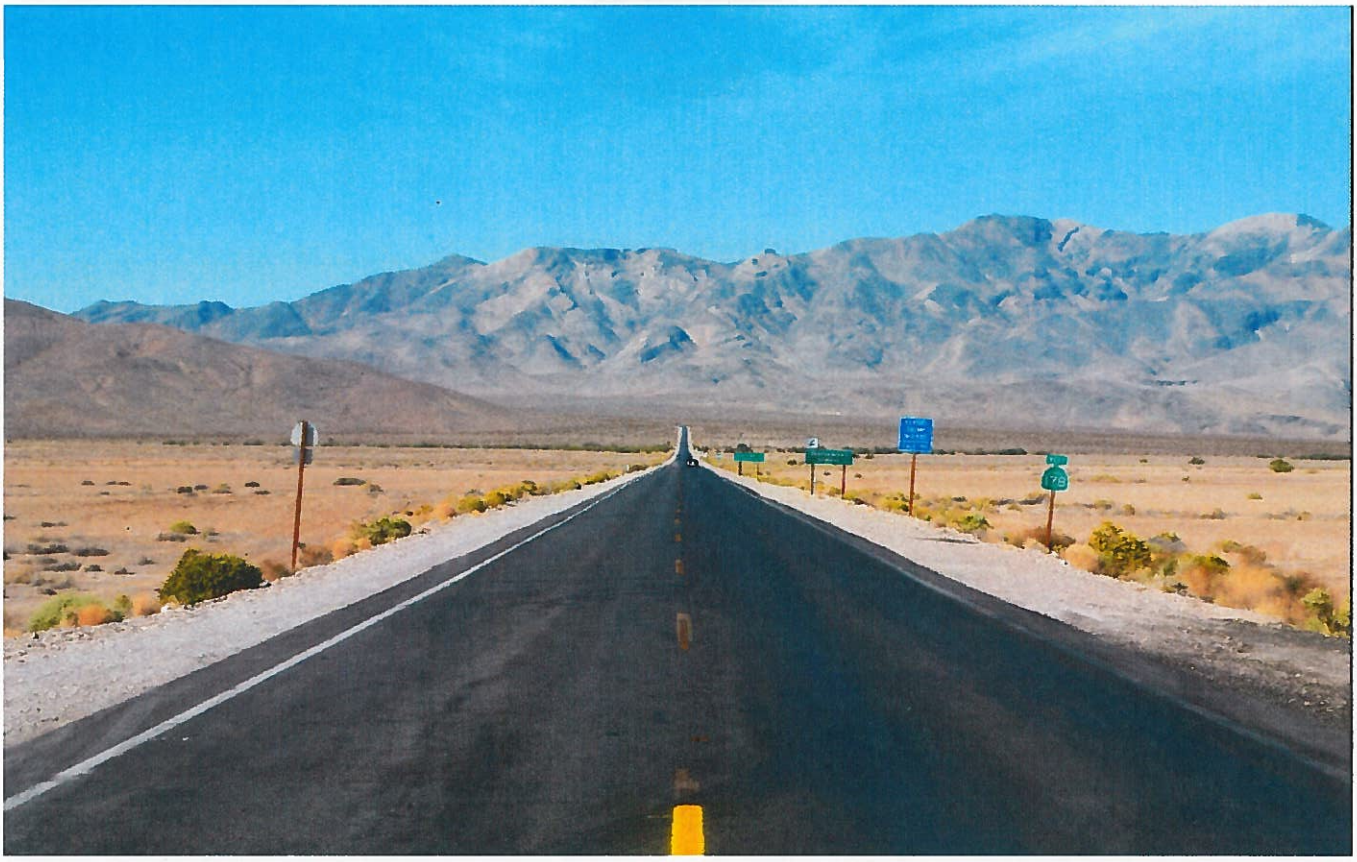
Transportation Concept Report

State Route 178

District 9

July 2016



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California Department of Transportation

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

Approvals:

Ryan A. Dermody	8/12/16 Date	Brent L. Green	9-15-16 Date
Deputy District 9 Director, Planning, Modal Programs, and Local Assistance		District 9 Director	

State Route 178
Transportation Concept Report

Prepared by:
Caltrans District 9
Office of System Planning

August 2016

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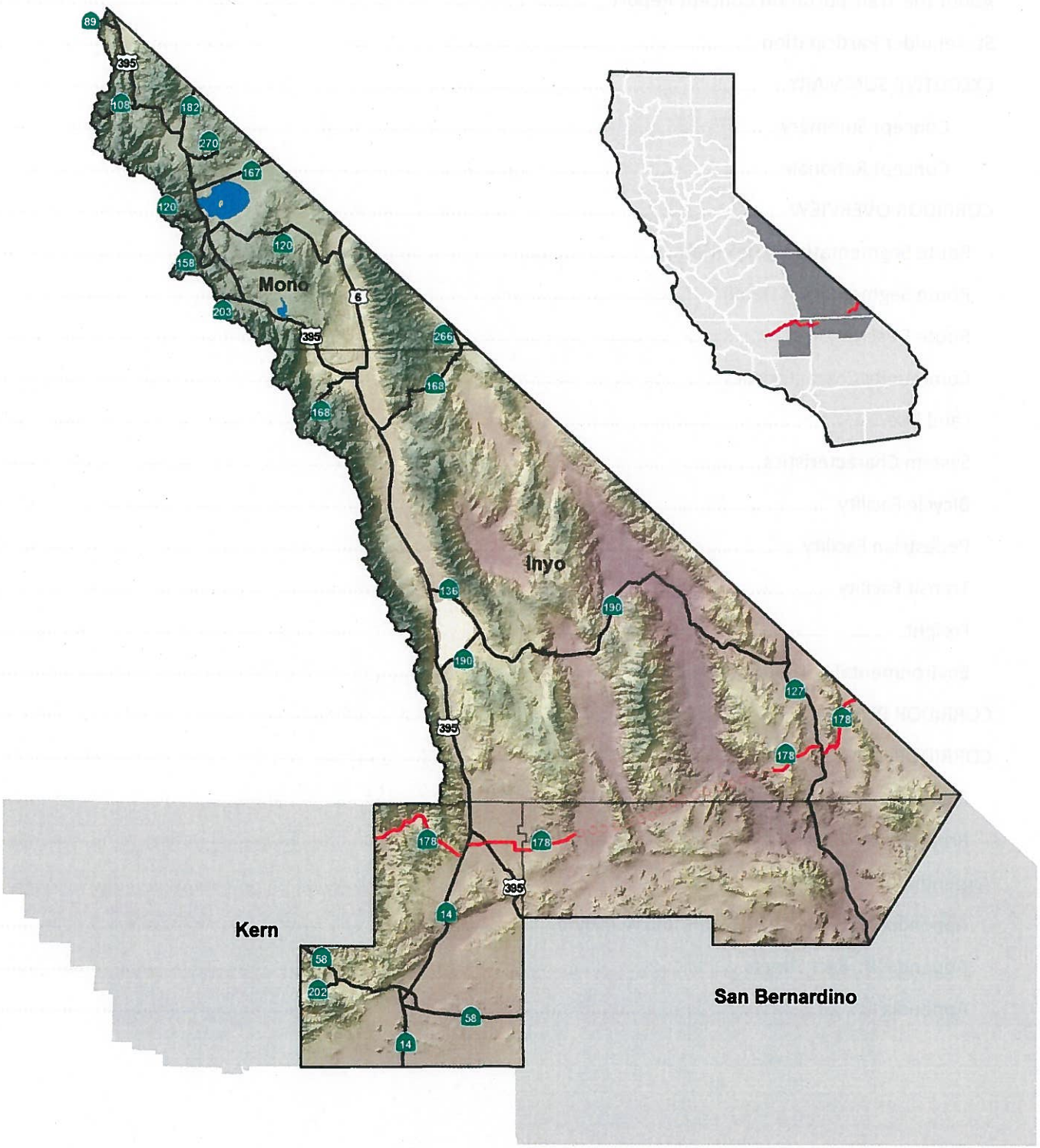


ABOUT THE TRANSPORTATION CONCEPT REPORT

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. 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 State Route (SR) 178 TCR. As information for the TCR was gathered, some stakeholders were contacted for input related to their particular specializations, and to verify data sources used and data accuracy. Prior to document finalization, stakeholders were asked to review the document for consistency with existing plans, policies, and procedures. The process of working with stakeholders adds to the value of the TCR, allows for external input and ideas to be included in the document, increases credibility, and helps strengthen public support and trust.

Stakeholders in the SR 178 planning area are community members and agencies including, but not limited to:

- Bureau of Land Management: Bakersfield, Barstow, Bishop, and Ridgecrest Field Offices
- California Department of Transportation (Caltrans)
- City of Ridgecrest
- Eastern Kern Air Quality Management District
- Eastern Sierra Transit Authority
- Great Basin Unified Air Pollution Control District (GBUAPCD)
- Inyo County
- Inyo County Local Transportation Commission
- Kern Council of Governments (Kern COG)
- Kern Regional Transit
- Kern County
- Mojave Desert Air Quality Management District
- National Park Service, Death Valley National Park (DVNP)
- Naval Air Weapons Station, China Lake
- San Bernardino Associated Governments (SANBAG)
- San Bernardino County
- Southern California Association of Governments (SCAG)

EXECUTIVE SUMMARY

This TCR examines the state of the highway in 2015, the base year (BY), and recommends upgrades to the facility to handle changes that are likely to occur up to the horizon year (HY), 2035. District 9 is responsible for 96.17 miles of constructed highway from Kelso Valley Road in Weldon in the Sierra Nevada Range to the California-Nevada state line as well as the estimated 56 miles of unconstructed highway from the Searles Valley in San Bernardino County to the Black Mountains in Death Valley National Park.

SR 178 passes through the Sierra Nevada Range in Kern County, including the unincorporated communities of Weldon and Onyx in the South Fork Valley and the unincorporated community of Canebrake on the Canebrake Flat. Also, in Kern County, SR 178 passes through Indian Wells Valley, including the unincorporated communities of Inyokern, China Lake Acres, and the City of Ridgecrest. In San Bernardino County, the route passes through the unincorporated community of Trona. Finally, in Inyo County, SR 178 passes through the unincorporated community of Shoshone as well as Death Valley National Park and Death Valley Wilderness.

SR 178 is a two-lane conventional highway (2-C) for 85.64 miles of the route with 10.54 miles being a four-lane conventional highway (4-C) in the Ridgecrest area. There is also a 56-mile unconstructed, legislative route which connects where SR 178 ends in San Bernardino County to the pavement begins again in Inyo County.

Concept Summary

Segment ID	Segment Description	Existing Facility	20-year System Operations and Management Concept	20-year Facility Concept
1	Kelso Valley Road in Weldon, to 0.28 mile northeast of the Cap Canyon Ranch entrance in Onyx	2-C	Paved shoulders widened to a five-foot minimum accommodating multi-modal transportation and safety features	2-C
2	0.28 mile northeast of the Cap Canyon Ranch entrance in Onyx to Canebrake Road on the Canebrake Flat	2-C	Paved shoulders widened to a five-foot minimum accommodating multi-modal transportation and safety features	2-C
3	Canebrake Road on the Canebrake Flat to 0.11 mile southeast of Walker Pass Summit	2-C	Paved shoulders widened to a five-foot minimum accommodating multi-modal transportation and safety features throughout the segment; pullout pavement extended on northeast side of highway in the vicinity of Walker Pass Summit, PM 79.68/79.86	2-C
4	0.11 mile southeast of Walker Pass Summit to SR 14 at "Freeman Junction" in the Indian Wells Valley	2-C	lanes widened to provide a uniform twelve-foot width; paved shoulders widened to a five-foot minimum, PM 80.00/88.25	2-C
5	SR 14 2.80 miles north of Freeman Junction in the Indian Wells Valley to Clodt Road in Inyokern	2-C	curb extended and realigned as feasible; sidewalk widened, extended, and gaps filled in from Broadway Street to Brown Road in Inyokern, PM 92.46/92.49 on north side of roadway	2-C
6	Clodt Road in Inyokern to the China Lake Boulevard-Inyokern Road-Sandquist Road intersection in Ridgecrest	4-C	Complete the curb, gutter, and sidewalk on the south side of roadway in the City of Ridgecrest, PM 99.09/100.61	4-C
7	China Lake Boulevard-Inyokern Road-Sandquist Road intersection to 0.17 mile west of Lumill Street in Ridgecrest	4-C	Complete the curb, gutter, and sidewalk on both sides of roadway	4-C
8	0.17 mile west of Lumill Street in Ridgecrest to the Kern-San Bernardino county line	2-C	Paved shoulders widened to a five-foot minimum accommodating multi-modal transportation and safety features	2-C
9	Kern-San Bernardino county line to the end of the adopted route in San Bernardino County, Pinnacle Road in the Searles Valley	2-C	Paved shoulders widened to a five-foot minimum accommodating multi-modal transportation and safety features at PM 0.00-R12.00 & PM R12.72-14.78	2-C

Segment ID	Segment Description	Existing Facility	20-year System Operations and Management Concept	20-year Facility Concept
10	End of adopted route in San Bernardino County to the beginning of adopted route in Inyo County (Unconstructed segment)	None	As part of Segment 10 would have to pass through the Death Valley Wilderness to connect with Segment 11, after determining likely traffic counts, consulting with the National Park Service, and performing route feasibility studies, a decision may be made **to**: ▪ select an alignment to connect with Segment 11 at its present location; ▪ select an alignment for Segment 10 and a new alignment for Segment 11 to avoid Segment 10's traversing the Death Valley Wilderness; or ▪ delete Segment 10 from the State Highway System (SHS).	2-C, if an alignment is adopted by the California Transportation Commission **or** Segment 10 is removed from the SHS
11	Beginning of adopted, paved route in Inyo County, to SR 127	2-C	Paved shoulders widened to a five-foot minimum accommodating multi-modal transportation and safety features	2-C
12	SR 127 to the California-Nevada state line	2-C	Lanes widened to provide a uniform twelve-foot width; Paved shoulders widened to a five-foot minimum accommodating multi-modal transportation and safety features	2-C

Concept Rationale

- In Segments 1 through 9, the predicted horizon traffic volumes are lower than base year; therefore, the present level of service is above or equal to Kern COG, the *Inyokern Specific Plan*, and the City of Ridgecrest minimums, there does not appear to be a need to increase capacity through the horizon year.

- As circumstances have changed, primarily the establishment of DVNP and the designation of wilderness within the limits of Segment 10, more information is needed regarding location restrictions and viability for an alignment of Segment 10 before an informed decision can be made to determine a course of action: either to recommend a suitable route enabling the construction of Segment 10 and making SR 178 useable throughout its entire length or recommend deletion of the segment of SR 178 from the SHS between 0.02 mile west of Pinnacle Road in the Searles Valley and 4.02 miles west of Salsberry Pass in DVNP.

- In Segments 11 and 12, since both base and horizon year LOS are "A" and the Inyo Local Transportation Commission recommends "C" as a minimum, capacity is adequate.

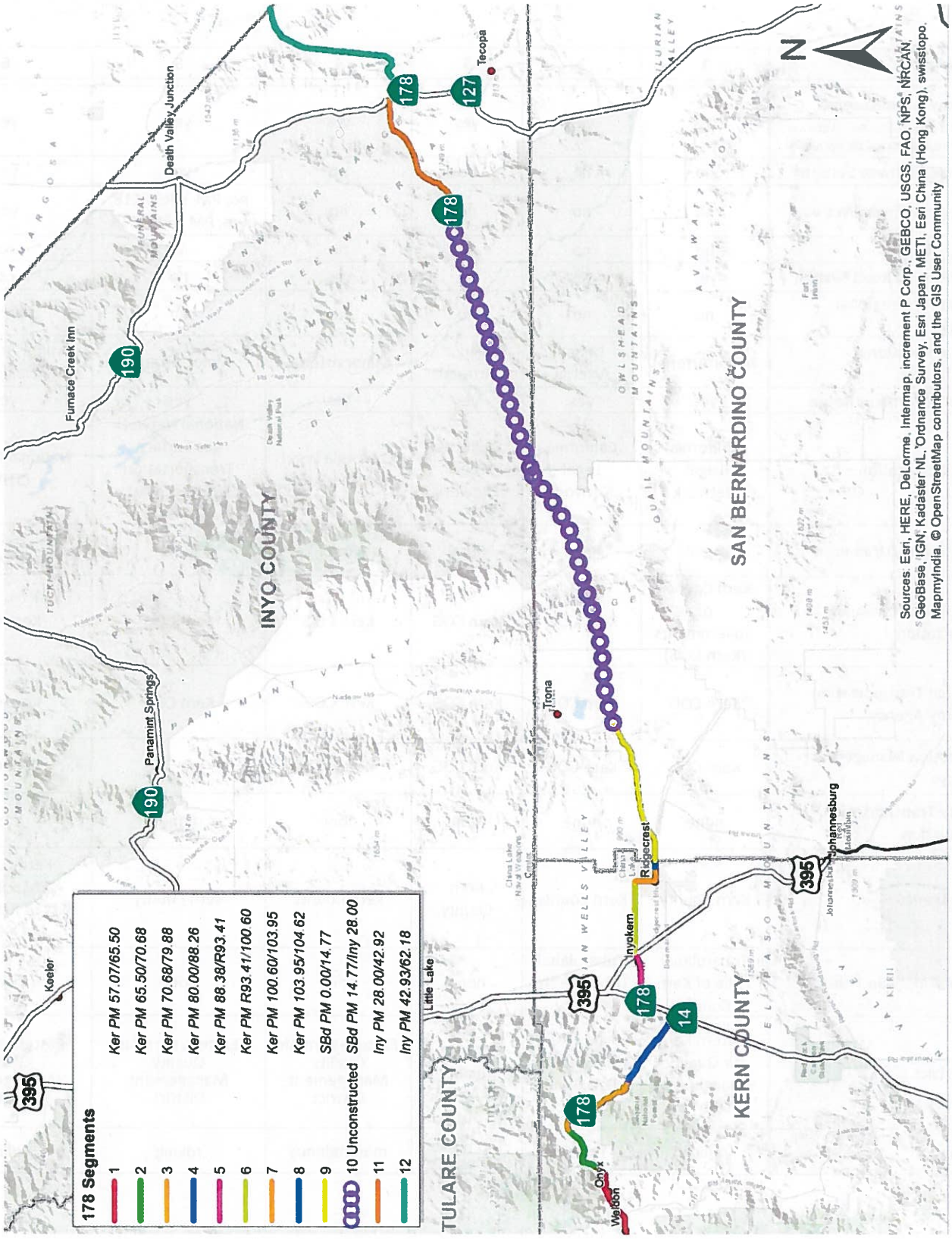
- In all segments of SR 178, special consideration towards Complete Streets, multi-modal users, and greenhouse gas reduction must be considered appropriately within the function and context of the facility. Shoulders should be constructed in areas lacking them to accommodate all modes of transportation, including bicycles. Increasing transit and multi-modal opportunities need to be considered in appropriate areas of the entire length of SR 178.

CORRIDOR OVERVIEW ROUTE SEGMENTATION

Segment I#	Location Description	County–Route–Beginning Post Mile	County–Route–Ending Post Mile
1	Kelso Valley Road in Weldon to 0.28 mile northeast of the Cap Canyon Ranch entrance in Onyx	Ker–178–57.08	Ker–178–65.51
2	0.28 mile northeast of the Cap Canyon Ranch entrance in Onyx to Canebrake Road on the Canebrake Flat	Ker–178–65.51	Ker–178–70.68
3	Canebrake Road on the Canebrake Flat to 0.11 mile southeast of Walker Pass Summit	Ker–178–70.68	Ker–178–79.88
4	0.11 mile southeast of Walker Pass Summit to SR 14 at Freeman Junction in the Indian Wells Valley match Seg 5 begin?	Ker–178–80.00	Ker–178–88.26
5	SR 14 2.80 miles north of Freeman Junction in the Indian Wells Valley to Clodt Road in Inyokern	Ker–178–88.38	Ker–178– R93.41
6	Clodt Road in Inyokern to the China Lake Boulevard-Inyokern Road-Sandquist Road intersection in Ridgecrest	Ker–178–R93.41	Ker–178–100.61
7	China Lake Boulevard-Inyokern Road-Sandquist Road intersection to 0.17 mile west of Lumill Street in Ridgecrest	Ker–178–100.61	Ker–178–103.95
8	0.17 mile west of Lumill Street in Ridgecrest to the Kern-San Bernardino county line	Ker–178–103.95	Ker-178-104.62
9	Kern-San Bernardino county line to the end of the adopted route in San Bernardino County, 90 feet west of Pinnacle Road in the Searles Valley	SBd–178–00.00	SBd–178–14.78
10	end of adopted route in San Bernardino County, 90 feet west of Pinnacle Road in the Searles Valley to the beginning of the adopted route 4.02 miles westerly of Salsberry Pass	SBd–178–14.78	Iny–178–28.00
11	beginning of adopted route in Inyo County 4.02 miles westerly of Salsberry Pass to SR 127 1.56 miles north of the U. S. Postal Service office in Shoshone match Seg 12	Iny–178–28.00	Iny–178–42.92
12	SR 127 0.13 mile south of the U. S Postal Service office in Shoshone to the California-Nevada state/Inyo-Nye county line in the Stewart Valley	Iny–178–42.93	Iny–178–62.19

ROUTE SEGMENTATION INDEX MAP

ROUTE DESCRIPTION



ROUTE SEGMENTATION DETAIL
Segments 1 – 6

Segment #	1	2	3	4	5	6
Freeway & Expressway System as defined in Section 253.7 of the California Streets and Highways Code	yes	yes	yes	yes	yes	yes
National Highway System	no	no	no	no	yes	yes
Strategic Highway Network	no	no	no	no	no, PM ≤ R93.118; yes, PM > R93.118	yes
Scenic Highway	no	no	no	no	no	no
Interregional Road System	yes	yes	yes	yes	no	no
Priority Interregional Facility	no	no	no	no	no	no
Federal Functional Classification	Minor Arterial	Minor Arterial	Minor Arterial	Minor Arterial	Minor Arterial	Minor Arterial & Principal Arterial
Goods Movement Route	yes	yes	yes	yes	yes	yes
Truck Designation	California Legal Network	California Legal Network	California Legal Network	California Legal Advisory Route	National Network aka Surface Transportation Assistance Act (STAA)	National Network (STAA)
Rural/Urban/Urbanized	Rural	Rural	Rural	Rural	Rural	Rural, PM ≤ 94.70; Urban, PM > 94.70
Metropolitan Planning Organization	Kern Council of Governments (Kern COG)	Kern COG	Kern COG	Kern COG	Kern COG	Kern COG
Regional Transportation Planning Agency	Kern COG	Kern COG	Kern COG	Kern COG	Kern COG	Kern COG
Congestion Management Agency	Kern COG	Kern COG	Kern COG	Kern COG	Kern COG	Kern COG
County Transportation Commission	none	none	None	none	none	none
Local Agency	Kern County	Kern County	Kern County	Kern County	Kern County	Kern County, PM ≤ 99.09; City of Ridgecrest, PM > 99.09
Native American Tribes	Tubatulabal Tribe of Kern County	Tubatulabal Tribe of Kern County	none	none	none	none
Air District	Eastern Kern Air Quality Management District	Eastern Kern Air Quality Management District	Eastern Kern Air Quality Management District	Eastern Kern Air Quality Management District	Eastern Kern Air Quality Management District	Eastern Kern Air Quality Management District
Terrain	rolling	rolling	mountainous	mountainous	rolling	rolling

Route Designations and Characteristics, Segments 7 – 12

Segment #	7	8	9	10 Unconstructed	11	12
Freeway & Expressway System as defined in Section 253.7 of the California Streets and Highways Code	yes	yes	no	not applicable	no	no
National Highway System	yes, PM ≤ 102.62	no	no	not applicable	no	no
Strategic Highway Network	no	no	no	not applicable	no	no
Scenic Highway as defined in Section 263.7 of the California Streets and Highways Code	no	no	no	not applicable	yes	no
Interregional Road System	no	no	no	not applicable	no	no
Priority Interregional Facility	no	no	no	not applicable	no	no
Federal Functional Classification	Other Principal Arterial	Other Principal Arterial	Major Collector	not applicable	Major Collector	Major Collector
Goods Movement Route	yes	yes	yes	not applicable	no	yes
Truck Designation	California Legal Advisory Route	California Legal Advisory Route	California Legal Network	not applicable	California Legal Network	California Legal Network
Rural/Urban/Urbanized	Urban	Urban	Rural	Rural	Rural	Rural
Metropolitan Planning Organization	Kern Council of Governments (Kern COG)	Kern COG	Southern California Association of Governments (SCAG)	SCAG in San Bernardino County; none in Inyo County	none	none
Regional Transportation Planning Agency	Kern COG	Kern COG	SCAG	SCAG in San Bernardino County and Inyo LTC	Inyo LTC	Inyo LTC
Congestion Management Agency	Kern COG	Kern COG	San Bernardino Associated Governments (SANBAG)	SANBAG in San Bernardino County; none in Inyo County	none	none
County Transportation Commission	none	none	SANBAG	SANBAG in San Bernardino County; none in Inyo County	none	none
Local Agency	City of Ridgecrest	City of Ridgecrest	San Bernardino County	San Bernardino County; Inyo County	Inyo County	Inyo County
Native American Tribes	none	none	none	none	none	none
Air District	Eastern Kern Air Quality Management District	Eastern Kern Air Quality Management District	Mojave Desert Air Quality Management District	Mojave Desert Air Quality Management District	Great Basin Unified Air Pollution Control District	Great Basin Unified Air Pollution Control District
Terrain	rolling	rolling	rolling	unknown; alignment not established	mountainous	rolling

ROUTE DESCRIPTION

SR 178 begins at the junction of State Routes 99 and 58 in the city of Bakersfield and traverses Caltrans' Districts 6, 8, and 9. As described in the California Streets and Highways Code Section 478 (a-c) it connects Bakersfield to Nevada's Pahrump Valley via Walker Pass and Freeman Junction. The route crosses one of the southern passes of the Sierra Nevada mountain range. This TCR covers SR 178 within the boundary of District 9 from Weldon in Kern County to the California/ Nevada State line in Inyo County.

SR 178 travels northeast from Bakersfield through the Kern River Canyon and over the Walker Pass (elevation 5,250 feet) to Freeman Junction at SR 14. The route resumes 2.8 miles north of the Freeman Junction and travels east through the town of Inyokern as it proceeds to US 395 and the City of Ridgecrest. At the west gate of the Naval Air Weapons Station, China Lake (NAWS), SR 178 turns south through the central business district to the City of Ridgecrest. The route turns again in an easterly direction, continuing into San Bernardino County for 14.7 miles, until a route break at Pinnacle Road in the Searles Valley. The highway is then unconstructed for approximately 56 miles from the junction at Pinnacle Road to the eastern side of Death Valley national Park (DVNP). There is however a county road connection from the Pinnacle Road junction via Trona Road to SR 190, near Panamint Springs. On the eastern side of DVNP, Badwater Road continues from SR 178 to SR 190, near Furnace Creek.

The constructed portion of SR 178 resumes in Inyo County in DVNP, four miles west of Salsberry Pass and is a continuation of DVNP's "Badwater Road" within DVNP and travels approximately 15 miles before intersecting at the north junction at SR 127. After a route break, the highway resumes near the community of Shoshone at the south junction at SR 127, continuing in a northeastern direction for approximately 19 miles where it ends at the Stateline and becomes Nevada Route 372, near the community of Pahrump.

Route Purpose:

In District 9, SR 178 is an east-west arterial that provides scenic, commuter, and commercial travel. It is predominately a rural corridor with an urbanized segment in the City of Ridgecrest. The route is 152 miles in length, traverses three counties, and has regional significance. The route gives access to employment opportunities, goods, and services to the residents of Weldon, Lake Isabella, Inyokern, Ridgecrest, China Lake NAWS, Trona, and to visitors heading to the Trona Pinnacles National Monument and DVNP.

COMMUNITY CHARACTERISTICS

In the District 9 portion of SR 178 in Kern County, SR 178 passes through several communities, including Weldon, Onyx, Inyokern, and Ridgecrest. Weldon and Onyx are in the western part of the South Fork Valley near Lake Isabella and are mostly ranching communities. Inyokern and China Lake Acres-west of Ridgecrest- are primarily residential communities. Ridgecrest, with a population of ~28,000, is near the center of the Indian Wells Valley and includes China Lake NAWS. In San Bernardino County, SR 178 does not pass through any communities. The only community along SR 178 in Inyo County is Shoshone, which has a population of 36. Shoshone's primary industries are tourist accommodations and public services.

LAND USE

Land use along most of the route is predominately agricultural, resource management, open space, National Park lands, and military; within the communities there's a mix of commercial, industrial, and residential property.

Segment #	Place Type/Land Use
1	Agricultural
2	Agricultural
3	Agricultural
4	Agricultural and undeveloped land administered by the BLM
5	Commercial, Industrial, Public facilities, and Residential
6	PM ≤ 99.09 south side of highway: commercial, industrial service, resource management, residential north side of highway: military reservation PM > 99.09 south side of highway: commercial, industrial north side of highway: military reservation
7	This segment is a various mix of commercial, institutional, recreational, and residential
8	Industrial on south side of highway; Military reservation on north side of highway
9	Military reservation property and BLM
10	Land use unknown; alignment has not been adopted
11	Undeveloped land; Death Valley NPS and BLM
12	Undeveloped land; administered by the BLM

SYSTEM CHARACTERISTICS

SR 178 is a conventional highway throughout its entire 96.34 constructed miles. Of its constructed length, 85.64 miles have two lanes and 10.70 miles have four lanes.

Transportation Management System (TMS), described in the table below, assist Caltrans in monitoring and managing the highway.

Segments 1–6

Segment #	1	2	3	4	5	6
Existing Facility						
Facility Type	Conventional	Conventional	Conventional	Conventional	Conventional	Conventional
General Purpose Lanes	2	2	2	2	2	4
Lane Miles	16.86	10.35	18.33	16.52	10.07	28.76
Centerline Miles	8.43	5.17	9.17	8.26	5.03	7.19
Median Width, feet	0	0	0	0	0	0, PM < 93.78; 14–17, PM 93.78/98.82; 0, PM > 98.82
Median Characteristics						unpaved, (PM 93.78/98.82)
Auxiliary Lanes, percent of segment length	0.31	0	1.4	0	3.4	18
Passing Lanes, percent of segment length	0	0	0	0	40	0
Current Right-of-way width, feet	41–92	42–100	44–100	48–400	57–140	106–152
20-year Concept Facility						
Facility Type	conventional	conventional	conventional	conventional	conventional	conventional
General Purpose Lanes	2	2	2	2	2	4
Lane Miles	16.86	10.35	18.33	16.52	10.07	28.76
Centerline Miles	8.43	5.17	9.17	8.26	5.03	7.19
Auxiliary Lanes, percent of segment length	0.31	0	1.4	0	3.4	18
Passing Lanes, percent of segment length	0	0	0	20	40	0
Traffic Management System (TMS) Elements						
TMS Elements , base year	Mainline metering station at PM 57.53[2] CalSAFE call boxes at PMs 60.0 and 64.0	CalSAFE call boxes at PMs 65.8 and 69.6	CalSAFE call box at PM 79.8	Mainline metering station at PM 87.92[1] CalSAFE call boxes at PMs 82.1, 84.1, and 85.8	Mainline metering stations at PMs 88.53[2] and 92.49[1] CalSAFE call boxes at PMs 89.0 and 90.9	Mainline metering stations at PMs 93.78[2] and 98.06[2] CalSAFE call boxes at PMs 94.0, 96.0, and 98.0 traffic signals at PMs 100.11 and 100.61

[1] full time
[2] part time

Segment #	1	2	3	4	5	6
TMS Elements						
TMS Elements, horizon year	Continuing mainline metering station at PM 57.53[2] continuing CalSAFE call boxes at PMs 60.0 and 64.0	Continuing CalSAFE call boxes at PMs 65.8 and 69.6	Conceptual mainline metering station at Canebrake Road, PM 70.68[1] continuing CalSAFE call box at PM 79.8	Continuing mainline metering station at PM 87.92[1] continuing CalSAFE call boxes at PMs 82.1, 84.1, and 85.8	Continuing mainline metering stations at PMs 88.53[2] and 92.49[1] continuing CalSAFE call boxes at PMs 89.0 and 90.9	Continuing mainline metering stations at PMs 93.78[2] and 98.06[2] continuing CalSAFE call boxes at PMs 94.0, 96.0, and 98.0 continuing traffic signals at PMs 100.11and 100.61

[1] full time
[2] part time

Segments 7–12

Segment #	7	8	9	10 Unconstructed	11	12
Existing Facility						
Facility Type	Conventional	Conventional	Conventional	n/a	Conventional	Conventional
General Purpose Lanes	4	2	2		2	2
Lane Miles	14.06	1.34	29.46		29.84	38.51
Centerline Miles	3.514	0.672	14.732	56.0, estimated	14.92	19.26
Median Width, feet	0, PM < 102.37; 14–17, PM 102.37/ 102.73; 0, PM > 102.73	0	0	n/a	0	0
Median Characteristics	curbed island, (PM 102.37/ 102.73)					
Auxiliary Lanes, percent of segment length	24	0	0		0	0
Passing Lanes, percent of segment length	0	0	0		0	2
Current Right-of-way width, feet	90–115	90–154	100–200 typical; 300 maximum		39–82	100–400

Segment #	7	8	9	10 Unconstructed	11	12
20-year Concept Facility						
Facility Type	Conventional	Conventional	Conventional	Conventional	Conventional	Conventional
General Purpose Lanes	4	2	2	2	2	2
Lane Miles	14.06	1.34	29.46	112 estimated	29.84	38.51
Centerline Miles	3.51	0.67	14.73	56.0 estimated	14.92	19.26
Auxiliary Lanes, percent of segment length	24	0	0	design needs are unknown	0	0
Passing Lanes, percent of segment length	0	0	0	unknown, alignment not selected	0	2
Transportation Management System (TMS) Elements						
TMS Elements , base year	fixed mainline metering stations at PMs 101.22[1], 102.59[1], and, 102.84[2] traffic signals at PM 100.61, 101.10, 101.60, 102.10, 102.45, 102.62, and 103.85	none	none	none	fixed mainline metering station at PM 42.86[1]	fixed mainline metering stations at PMs 42.99[1] and 60.04[1]
TMS Elements, horizon year	fixed mainline metering stations at PMs 101.22[1], 102.59[1], and, 102.84[2] traffic signals at PM 100.61, 101.10, 101.60, 102.10, 102.45, 102.62, and 103.85	conceptually one mainline metering station in segment	conceptually two mainline metering stations in segment	unknown; alignment not selected	continuing full-time fixed mainline metering station at PM 42.86[1]	continuing full-time fixed mainline metering stations at PMs 42.99[1] and 60.04[1]

[1] full time
[2] part time

BICYCLE FACILITY

Bicycles may be used throughout the constructed length of SR 178. Three percent of the total constructed length of SR 178 through the City of Ridgecrest is designated as a Bike Route, Class III. The remainder of SR 178 is designated as a shared roadway. In order to increase the comfort of bicyclists, it is recommended that shoulders less than five feet in width be widened to current standards. The following table defines the Bicycle accommodation per segment.

Highway Segment ID	On-highway Bicycle Accommodation							
	Bicycle Segment ID	County	Post Mile Limits	Is Bicycle Access Prohibited?	Accommodation Type (Bicycle Facility Designation)	Outside Paved Shoulder Width, feet	Facility Description	Posted Speed Limit (mph)
1	A	Ker	57.08/65.51	no	shared roadway	2–4	varying width paved shoulders	55, 50, and 60
2	B	Ker	65.51/70.68	no	shared roadway	2–4	varying width paved shoulders	60
3	C	Ker	70.68/79.88	no	shared roadway	2–5, typical; 12 maximum	varying width paved shoulders	60
4	D	Ker	80.00/88.26	no	shared roadway	2–5	varying width paved shoulders	60
5	E	Ker	88.38/R93.41	no	shared roadway	4–8	varying width paved shoulders	60, 55, 45, 35, and 25
6	F	Ker	R93.41/99.60	no	shared roadway	5–8	8-feet-wide, paved shoulder on left-hand side (lhs); variable-width 5–8 feet-wide, paved shoulder on right-hand side (rhs)	55, 65,45, and 35
	G	Ker	99.60/100.61	no	Bike Route, Class III	8	8-feet-wide, paved shoulder on lhs; 4-feet-wide shoulder on rhs	35
7	H	Ker	100.61/102.40 on lhs	no	Bike Route, Class III	10	constant width paved shoulder	35
	I	Ker	100.61/101.73 on rhs	no	Bike Route, Class III	10	constant width paved shoulder	35
	J	Ker	102.40/103.95 on lhs	no	shared roadway	10–15	varying width paved shoulder; bicycle locker facility on lhs between Richmond Road and 480 feet east of Richmond Road, PM103.850/103.942	35 and 45
	K	Ker	101.73/103.95 on rhs	no	shared roadway	10–12	varying width paved shoulder	35 and 45
8	L	Ker	103.95/104.62	no	shared roadway	10	constant width paved shoulders	65
9	M	SBd	0.000/14.78	no	shared roadway	1–4	varying width paved shoulders	65 and 55
10	N	SBd/ Iny	14.778/ 28.00	n/a	n/a	n/a	n/a	n/a
11	O	Iny	28.00/42.92	no	shared roadway	3–5 typical; 16 maximum	varying width paved shoulders	65
12	P	Iny	42.93/62.19	no	shared roadway	2–7	varying width paved shoulders	65

PEDESTRIAN FACILITY

Pedestrians are allowed throughout the constructed length of SR 178. Sidewalks are present only in Inyokern and Ridgecrest.

Segment #	Segment ID	County	Post Mile Limits	Is Pedestrian Access Prohibited?	Is Sidewalk Present?	Sidewalk Width, feet	Crossing Distance	Facility Description
1	Q	Ker	57.08/65.51	no	no	n. a.	n. a.	2–4 foot width paved shoulders
2	R	Ker	65.51/70.68	no	no	n. a.	n. a.	2–4 foot width paved shoulders
3	S	Ker	70.68/79.88	no	no	n. a.	n. a.	2–5 foot typical, 12-foot maximum width paved shoulders
4	T	Ker	79.88/88.26	no	no	n. a.	n. a.	2–5 foot width paved shoulders
5	U	Ker	88.38/92.42	no	no	n. a.	n. a.	8–16 foot width paved shoulders
	V	Ker	92.42/92.49 on left-hand side (lhs)	no	yes	2 and 6	65	except for 75 feet immediately west of the west shoulder of Brown Road, at PM 92.50, sidewalk present the entire block
	W	Ker	92.42/92.50 on right-hand side (rhs)	no	yes	8 and 6	65	sidewalk present the entire block
	X	Ker	92.49/93.41 on lhs	no	no	n. a.	n. a.	6–8 typical, 17-foot-width maximum paved shoulder
	Y	Ker	92.50/R93.41 on rhs	no	no	n. a.	n. a.	7–8-foot-width paved shoulder
6	Z	Ker	R93.41/100.61 on lhs	no	no	n. a	n. a.	8-foot-width paved shoulder
	AA	Ker	R93.41/99.09 on rhs	no	no	n. a.	n. a.	5–8-foot width paved shoulder
	AB	Ker	99.09/100.61 on rhs	no	yes	4–7	n. a.	sidewalk length is approximately 54% of total block length; remaining length is varying width paved shoulder
7	AC	Ker	100.61/100.72 on lhs	no	no	n. a.	n. a	10-foot-width paved shoulder
	AD	Ker	100.61/103.72 on rhs	no	yes	4–10	84–92	sidewalk length is approximately 84% of total block length; remaining length is varying width paved shoulder
	AE	Ker	100.72/103.62 on lhs	no	yes	5–9	n. a.	sidewalk present the entire block
	AF	Ker	103.62/103.95 on lhs	no	no	n. a.	n. a.	10-foot-width paved shoulder
	AG	Ker	103.72/103.95 on rhs	no	no	n. a.	n. a.	varying width paved shoulders

Segment #	Segment ID	County	Post Mile Limits	Is Pedestrian Access Prohibited?	Is Sidewalk Present?	Sidewalk Width, feet	Facility Description
8	AH	Ker	103.95/104.62	no	no	n. a.	10-foot-width paved shoulders
9	AI	SBd	0.00/14.79	no	no	n. a.	1–4-foot-width paved shoulders
10	AJ	SBd Iny	14.79/42.78 0.000/28.00	n. a	n. a	n. a.	n/a
11	AK	Iny	28.000/42.92	no	no	n. a.	3–5 foot typical, 16-feet maximum width paved shoulders
12	AL	Iny	42.93/62.19	no	no	n. a.	2–7-foot-width paved shoulders

TRANSIT FACILITY

Regularly scheduled bus service is available only between Bakersfield and Ridgecrest; between Weldon and Ridgecrest, the service is provided by Kern Regional Transit, the Eastern Sierra Transit Authority (ESTA), and the City of Ridgecrest's Ridgerunner Transit bus service.

Although not on a transit route, a Park and Ride Lot maintained by Caltrans at the northeast corner of Ridgecrest Boulevard (SR 178) and Richmond Road in Ridgecrest, is a facility providing 127 parking spaces for automobiles, six for motorcycles, and sixteen bicycle lockers.

Transit Administrative, Routing, and Scheduling Parameters			
Carrier Name	**Mode and Collateral Facility**	**End Points**	**Operating Period**
Kern Transit Route 225 Segment 1	traditional bus	Lake Isabella–Onyx	8 trips each way, Monday-Saturday, 5:20 AM to 8:35 PM
Kern Transit Route 227 Segments 1, 2, 3, 5, 7	traditional bus	Lake Isabella–Ridgecrest	3 trips each way, Monday, Wednesday, and Friday, 4:55 AM to 8:35 PM
Kern Transit Route 230 Segment 5, 7	traditional bus	Mojave–Ridgecrest	2 trips each way, Monday, Wednesday, and Friday, 4:35 AM to 8:27 PM
Eastern Sierra Transit Authority 395 Route Segment 5	commuter bus	Lancaster to Mammoth Lakes	1 trip each way, Monday, Wednesday, and Friday

Ridgerunner Transit Line 3 Rattlesnake Segment 7	traditional bus	Ridgecrest City Hall to the Pizza Factory, Ridgecrest[3]	8 loop-route trips, Monday-Friday, 7:00 AM to 4:39 PM
Ridgerunner Transit Line 4 Joshua Tree Segments 5, 6	traditional bus	Ridgecrest City Hall to the Inyokern Nutrition Site (aka Senior Center) Inyokern	3 trips each way, Monday-Friday,6:45 AM to4:05 PM

FREIGHT

In addition to mining products transported by the Trona Railway, substantial goods movement and truck traffic exists, mostly in Segments 5 through 7; however, freight generators, terminals, and/or inter-modal facilities are not present.

In segment 4, a truck climbing lane, passing lane, or turnouts may be justified for westbound SR 178 between SR 14 and Walker Pass Summit because:

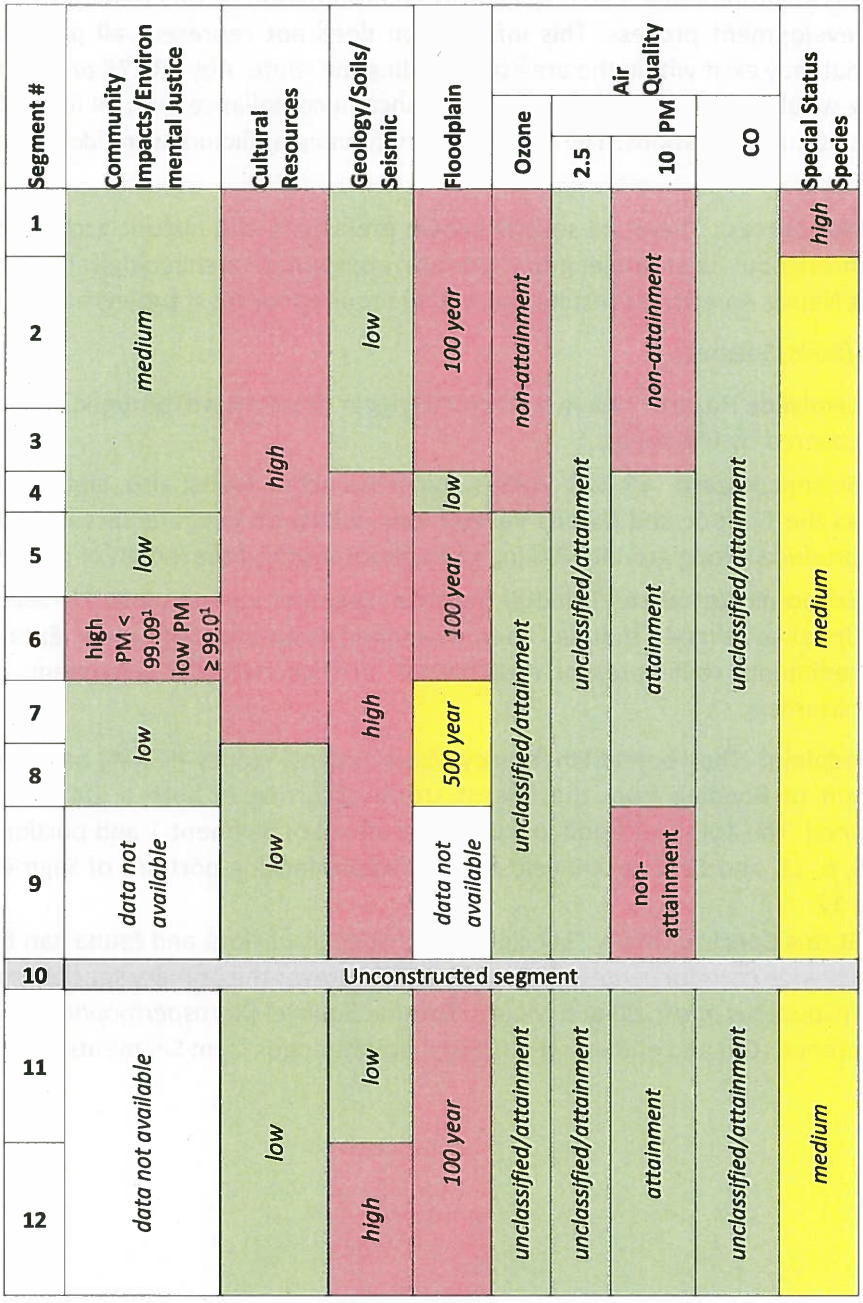
- The westbound peak-hour truck traffic volume exceeds twenty and the westbound peak-hour volume of all traffic exceeds 200 in both the base and horizon year; both are the minimum for climbing lanes to be considered.
- The average grade from SR 14 to Walker Pass Summit is 4.6 percent.

Facility Type/Freight Generator	Location	Mode	Name	Major Commodity/Industry	Comments/ Issues
Rail Line	West side of the Searles Lake lakebed near the west end of Segment 10	Rail	Trona Railway	processed mining products	Transport products, materials, and equipment used in mining Searles Dry Lake; 2 million tons annually, 4 trips/day.

ENVIRONMENTAL CONSIDERATIONS

The purpose of this environmental scan is to identify environmental factors that may need future analysis in the project development process. This information does not represent all possible environmental considerations that may exist within the area surrounding the route. Any SR 178 project being considered for programming would require environmental clearance in compliance with all federal, state, and local environmental laws and regulations. The following environmental factors were identified:

- **Cultural Resources**: There are several known prehistoric and historic archaeological sites along SR 178 throughout its entire length; therefore, appropriate archaeological and historical studies, including Native American consultation will be required for most projects along this route.
- **Geology/Soils/Seismic:**
    - **Landslide Hazard** Heavy rains could trigger debris flows throughout the length of SR 178 covered by this report.
    - **Seismic Hazard** SR 178 crosses numerous active faults; also, large regional faults, such as the Garlock and Owens Valley faults, which do not intersect the highway but could produce strong ground shaking throughout much of the length of SR 178.
    - **Economic Resources/Mineral Hazards** Segment 9 passes into the Searles Valley, now a dry alkali lakebed that has been developed as an evaporite mine. Excavation in dry lake sediments could present dust hazard, erosion hazards, settlement, and/or corrosion hazards.
- **Floodplain:** The Federal Emergency Management Agency (FEMA) has identified areas and extent of flooding from the largest storm occurring in both a 100-year and a 500-year interval. The 100-year flood locations include all of Segment 1 and portions of Segments 2, 3, 5, 6, 11, and 12. The 500-year flood locations include portions of Segments 5, 6, 7, 8, 11, and 12.
- **Special Status Species:** Many "special status" species of flora and fauna can be found within a 2,000-foot-wide corridor centered along SR 178; however the primary species of concern is Desert Tortoise (*Gopherus agassizii*) and Mojave Ground Squirrel (*Xerospermophilus mohavensis*) which are threatened (CA) and endangered (USA); habitat ranges from Segments 3–12.



1 The part of Segment 6 classified as high is in China Lake Acres and the unincorporated area of Kern County between the China Lake Acres community and the City of Ridgecrest. The part of Segment 6 classified as low is in Ridgecrest.

CORRIDOR PERFORMANCE

The Average Annual Daily Traffic (AADT) growth rate is assumed to be the same as the growth rate for the past twenty years. The Concept Level of Service has been taken as the minimum level accepted by the Kern COG in the unincorporated part of Kern County, by SANBAG in San Bernardino County, by the Inyo Local Transportation Commission in Inyo County, and by the City of Ridgecrest within the city boundary.

Segments 1–6

Segment #	1	2	3	4	5	6
Basic System Operations						
AADT $_{BY}$ (Base year–2013)	2,417	2,121	1,811	1,430	4,167	6,300
AADT $_{HY}$ (Horizon year–2033)	2,320	2,025	1,716	1,336	3,754	4,938
AADT growth/year, percent	– 0.20	– 0.23	– 0.27	– 0.34	– 0.52	– 1.21
LOS Evaluation Method	Highway Capacity Software (HCS) 2010, two-lane program	HCS 2010, two-lane program	HCS 2010, two-lane program	HCS 2010, two-lane program	HCS 2010, two-lane program	Exhibit 17-2, Highway Capacity Manual (HCM) 2010
LOS $_{BY}$	C	C	C	B	C	A
LOS $_{HY}$	C	C	C	B	C	A
LOS $_{Concept\ (minimum\ acceptable\ through\ 2033)}$	D	D	D	D	D	D – PM < 99.09; C – PM ≥ 99.09
VMT $_{BY}$	40,600	22,700	34,300	23,000	42,000	90,600
VMT $_{HY}$	37,600	20,000	31,500	22,100	37,800	71,000
Truck Traffic						
Total Average Annual Daily Truck Traffic, AADTT $_{BY}$	205	181	155	124	379	433
Total Trucks, percent of AADT $_{BY}$	8.5	8.3	8.3	8.9	9.1	6.9
5+ Axle Average Annual Daily Truck Traffic, AADTT $_{BY}$	22	32	43	57	160	159
5+ Axle Trucks $_{BY}$/ AADT $_{BY}$, percent	0.91	1.5	2.3	4.1	3.7	2.5
Peak Hour Traffic						
Peak Hour Direction	east	east	west	west	insufficient information[1]	insufficient information[1]
Peak Hour Time of Day	1300	1300	1300	1300	AM	AM
Peak Hour Directional Split $_{BY}$	60/40	54/46	57/43	68/32	60/40[2]	60/40[2]
Peak Hour VMT $_{BY}$	4,659	2,580	4,048	3,072	4,878	10,784
Peak Hour VMT $_{HY}$	4,473	2,464	3,836	2,871	4,395	8,453
Peak Hour Average Speed $_{BY}$, mi/h	60 $_{daily\ average}$	data not available	data not available	data not available	46 $_{daily\ average}$	51 $_{daily\ average}$

1 directional data not available, only the sum of values for each direction of travel in the peak hour
2 60/40 is the default value in Exhibit 15-5 of the 2010 Highway Capacity Manual

Segments 7–12

Segment #	7	8	9	10	11	12
Basic System Operations						
AADT $_{BY}$ (Base year–2013)	19,047	2,351	2,300	n/a	250	785
AADT $_{HY}$ (Horizon year–2033)	16,066	2,321	2,784		329	880
AADT: Growth/Year, percent	− 0.85	− 0.05	+ 0.96		+ 1.38	+ 0.57
LOS Evaluation Method	Exhibit 17-2, HCM 2010	HCS 2010, two-lane program	HCS 2010, two-lane program		HCS 2010, two-lane program	HCS 2010, two-lane program
LOS $_{BY}$	A	A	B		A	A
LOS $_{HY}$	A	A	B		A	A
LOS $_{Concept\ (minimum\ acceptable\ through\ 2033)}$	C	C	D		C	C
VMT $_{BY}$	127,000	3,160	67,800		7,460	30,200
VMT $_{HY}$	107,000	3,120	82,000		9,820	33,900
Truck Traffic						
Total Average Annual Daily Truck Traffic, AADTT $_{BY}$	516	309	249	n/a	14.5	70.5
Total Trucks, percent of AADT $_{BY}$	3.9	13	11		5.8	9.0
5+ Axle Average Annual Daily Truck Traffic, AADTT $_{BY}$	183	128	178		3.50	14.0
5+ Axle Trucks as percent of AADT $_{BY}$	1.4	5.4	7.6		1.4	1.8
Peak Hour Traffic						
Peak Hour Direction	east	east	east	n/a	insufficient[1] information	east
Peak Hour Time of Day	AM	AM	AM		data not available	1100
Peak Hour Directional Split $_{BY}$	56/44	75/25	80/20		60/40[2]	57/43 at PM 62.19
Peak Hour VMT $_{BY}$	4,340	1,500	10,200		746	1,250
Peak Hour VMT $_{HY}$	3,640	1,490	12,300		981	1,400
Peak Hour Average Speed $_{BY}$, mi/h	$44_{daily\ average}$	$58_{daily\ average}$	data not available		$75_{daily\ average}$	$68_{daily\ average}$

1 directional data not available, only the sum of values for each direction of travel in the peak hour
2 60/40 is the default value in Exhibit 15-5 of the 2010 Highway Capacity Manual

ADDITIONAL TOPICS AND ISSUES

Alignment of Segment 10

In order to evaluate the possibility of adopting an alignment for Segment 10, an estimate of the number of vehicles likely to use the segment should be obtained to determine if the vehicular traffic count would be sufficient to justify the expense of obtaining the right of way and construction of the segment.

Also, as it is highly likely that any alignment of the segment would pass through the Death Valley Wilderness from its west boundary to the beginning of Segment 11, a distance of more than 35 miles or

more than 25 miles if Segment 10 includes Badwater Road South (aka Jubilee Pass Road) from Harry Wade Road to the beginning of Segment 11. If deemed feasible, the National Park Service (NPS) needs to be consulted regarding their requirements and conditions on Segment 10 passing through DVNP.

If a wilderness opening cannot be secured and/or the NPS is not interested in another paved road entering DVNP, an alignment could be considered for Segment 10 south of the park and connecting to a new Segment 11 outside of the park joining SR 127 south of the park. This possibility is in line with the legislative description of SR 178 as it does not specify where SR 178 intersects SR 127.

In contrast to constructing new roadway, deletion of Segment 10 from the legislative description should also be considered.

The County of Inyo has offered three alternatives:

- The State of California rescinds the unconstructed portion of SR 178.
- The State of California rescinds the unconstructed portion of SR 178 and adopts Trona Road, Trona-Wildrose Road, and Panamint Valley Road.
- The State of California rescinds the unconstructed portion of SR 178 and adopts Trona Road, Trona-Wildrose Road, and Panamint Valley Road; Inyo County adopts portions of SR 178 and 190, and DVNP adopts the portion of SR 178 that connects to Badwater Road in DVNP.

Plug-in Electric Vehicle Battery Charging Stations

Currently, five charging stations for plug-in electric vehicles are on or near SR 178; two are in Inyokern, one is in Ridgecrest; another is eight miles southeast of Shoshone in Tecopa Springs; and the final one is in Pahrump, Nevada, just over eight miles northeast of the California-Nevada state, Inyo-Nye county line.

CORRIDOR CONCEPT

PLANNED AND PROGRAMMED PROJECTS AND STRATEGIES

Segment ID	Description	Planned or Programmed	Location	Source	Purpose
12	Replace aging culverts; install culvert at new location	Planned	PM 43.39/43,44, at the Amargosa River; PM 44.16, 0.72 mile east of the Amargosa River near Shoshone	2016 SHOPP	To improve continued drainage system effectiveness; provide cross drainage at dry channel subject to flash flooding

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Segment ID	Location	Description	Source	Purpose
1	Kelso Valley Road in Weldon to 0.28 mile northeast of the Cap Canyon Ranch entrance in Onyx	Widen paved shoulders to a five-foot minimum	Caltrans District 9	Accommodate bicyclists, pedestrians, and enhance multi-modal use
	Fay Ranch Road to 0.06 mile east of Fay Ranch Road at Weldon	Provide eastbound left-turn and acceleration lanes and paved shoulders, five-feet minimum width	Caltrans District 9	Improve traffic flow
2	0.28 mile northeast of the Cap Canyon Ranch entrance at Onyx to Canebrake Road on the Canebrake Flat	Widen paved shoulders to a five-foot minimum throughout segment	Caltrans District 9	Accommodate bicyclists, pedestrians, and enhance multi-modal use
2 & 3	Canebrake Road on the Canebrake Flat	Install bi-directional mainline metering station	Caltrans District 9	Improve AADT data
3	Canebrake Road to Walker Pass Summit	Widen paved shoulders including the crossing of Canebrake Creek, Bridge 50-0054, to a five- foot minimum throughout segment	Caltrans District 9	Accommodate bicyclists, pedestrians, and enhance multi-modal use
	Near Walker Pass Summit; PM 79.66-79.77	Pave graded area	Caltrans District 9 & BLM field offices	Reduce dirt tracked onto travelled way, improve traction of parked and moving vehicles in inclement weather
4	Walker Pass Summit to SR 14; PM 80.00-88.26	Provide a climbing lane, passing lane, or turnouts, as appropriate, for westbound traffic	Caltrans District 9	Allow faster moving westbound vehicles to more efficiently pass slower vehicles
	Walker Pass Summit to SR 14; PM 80.00-88.26	Widen lanes from ten to twelve feet; widen paved shoulders including the crossing at Bridge 50-0055, to a five- foot minimum	Caltrans District 9	Improve operation; accommodate bicyclists, pedestrians, and enhance multi-modal use

Segment ID	Location	Description	Source	Purpose
5	East of SR 14 in the Indian Wells Valley at PM 88.53	Upgrade part-time mainline metering station to full-time operation capable of measuring peak period traffic in each direction	Caltrans District 9	To increase certainty of AADT data
	In Inyokern at PM 92.46-92.49 on north side of roadway	Relocate, if feasible, and extend curb to east; fill in gaps in and widen sidewalk on north side of roadway	Caltrans District 9	To better accommodate pedestrians
	In Inyokern at PM 92.51-92.55	Widen paved shoulder on north side of travelled way	Caltrans District 9	To better accommodate bicyclists and pedestrians
	In Inyokern at PM 92.51-92.56	Widen paved shoulder on south side of travelled way	Caltrans District 9	To better accommodate bicyclists and pedestrians
	In Inyokern at PM R93.06-R93.12	Widen paved shoulder on north side of travelled way	Caltrans District 9	To better accommodate bicyclists and pedestrians
6	In China Lake Acres to Ridgecrest; PM 93.71-99.37	Widen paved shoulders on south side of travelled way	Caltrans District 9	To better accommodate bicyclists and pedestrians
	In Ridgecrest; PM 99.17-100.50	Fill in curb and gutter(C&G) ; fill in sidewalk gaps both on south side of roadway	Caltrans District 9, City of Ridgecrest	To better accommodate pedestrians
6 and 7	The intersection of China Lake Boulevard, Inyokern Road, and Sandquist Road in Ridgecrest, PM 100.61	Widen travelled ways as necessary and increase curb-return radii to meet STAA requirements	Caltrans District 9; NAWS China Lake	To accommodate STAA Terminal Access trucking on China Lake Boulevard
7	Inyokern Road-China Lake Boulevard-Sandquist Road intersection to the southeast intersection with Triangle Drive in Ridgecrest PM 100.61/100.73	Replace hot-mix dike with concrete curb & gutter and construct sidewalk on the east side of roadway	Caltrans District 9, City of Ridgecrest	To better accommodate pedestrians

Segment ID	Location	Description	Source	Purpose
7	In Ridgecrest at PM 100.71-102.41	Construct C&G between 127 and 586 feet south of Feldspar Avenue, PM 101.864/ 101.951; fill in sidewalk gaps on west side of roadway	Caltrans District 9, City of Ridgecrest	To better accommodate pedestrians
	In Ridgecrest at PM 103.44-103.57	Fill in sidewalk gaps on south side of roadway	Caltrans District 9, City of Ridgecrest	To better accommodate pedestrians
	In Ridgecrest at PM 103.85-103.94	Widen paved shoulder to a five-foot minimum	Caltrans District 9	To better accommodate bicyclists and pedestrians
9	Kern-San Bernardino county line to 2.75 miles west of Pinnacle Road; PM 0.00-R12.00 and at PM 12.77-14.78	Widen paved shoulders to a five-foot minimum	Caltrans District 8	To better accommodate bicyclists and pedestrians
10	0.02 mile west of Pinnacle Road in the Searles Valley to 4.02 miles west of Salsberry Pass Summit in the Black Mountains of DVNP	Since the alignment of Segment 10 has not been established: ▪ Determine the initial AADT for Segment 10. ▪ Examine the possibility and time frame to establish a break in the Death Valley Wilderness to connect with the west end of Segment 11. ▪ Examine the feasibility of alignments of Segment 10 to connect with Segment 11. ▪ Discuss construction, maintenance, and operation responsibilities of the segment within DVNP with the NPS. ▪ Examine the feasibility of alignments of Segment 10 and new alignments of Segment 11 avoiding the Death Valley Wilderness.	Caltrans Districts 8 and 9	Determine a suitable course of action to either: #1- construct Segment 10 making SR 178 useable throughout its entire length or #2- recommend deletion from the SHS the part of SR 178 between 0.02 mile west of Pinnacle Road in the Searles Valley and 4.02 miles west of Salsberry Pass in DVNP.

Segment ID	Location	Description	Source	Purpose
11	Beginning of adopted route in Inyo County, 4 miles west of Salsberry Pass Summit to SR 127 in Shoshone	Widen paved shoulders to a five-foot minimum	Caltrans District 9	To better accommodate bicyclists and pedestrians
12	SR 127 in Shoshone to the Nevada State Line	Widen lanes from ten to twelve feet; widen paved shoulders to a five-foot minimum	Caltrans District 9	To improve operation; better accommodate bicyclists and pedestrians

APPENDIX

APPENDIX A

GLOSSARY OF TERMS AND ACRONYMS

Acronyms and Abbreviations

2-C/4-C-- Two-Lane/Four-Lane Conventional Highway
AADT–Annual Average Daily Traffic
ADA–Americans with Disabilities Act of 1990
ADT–Average Daily Traffic
APCD–Air Pollution Control District
BLM–United States Bureau of Land Management
Bus–Business Route
BY–Base Year
Caltrans–California Department of Transportation
C&G–curb and gutter
CCD–Census County Division
CDP–Census Defined Place
CEQA–California Environmental Quality Act
CSS–Context Sensitive Solutions
DVNP—Death Valley National Park
ESTA–Eastern Sierra Transit Authority
FEMA–Federal Emergency Management Agency
FHWA–Federal Highway Administration
HCM–Highway Capacity Manual
HCS–Highway Capacity Software
HY–Horizon Year
Iny–Inyo (County)
ITS–Intelligent Transportation System
Ker–Kern (County)
Kern COG–Kern Council of Governments
LOS–Level of Service
LTC–Local Transportation Commission
Mno–Mono (County)
NF–National Forest
PCC–Portland Cement Concrete
PID–Project Initiation Document
PM–Post Mile
PSR–Project Study Report
RTP–Regional Transportation Plan
RTIP–Regional Transportation Improvement Program
RTPA–Regional Transportation Planning Agencies
SAFETEA–Safe, Accountable, Flexible and Efficient Transportation Equity Act of 2005
SANBAG–San Bernardino Associated Governments
SBd–San Bernardino County
SCAG–Southern California Association of Governments
SHOPP–State Highway Operation Protection Program

SR –California State Route
STAA–Surface Transportation Assistance Act
STIP –State Transportation Improvement Program
TCR–Transportation Concept Report
TEA-21–Transportation Equity Act for the 21st Century
TMS–Transportation Management System
US–United States Highway Route
TSN–Transportation System Network

Glossary

AADT – Annual Average Daily Traffic is the total bi-directional traffic volume on a route or route segment for a 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 either stationary or 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, when present. Annual ADT is necessary for presenting a statewide picture of traffic flow, evaluating traffic trends, computing accident rates, planning and designing highways, and other purposes.

Base year – The year that the most current data is available to the districts is the base year. In this report, the year is 2013.

Bikeway Class I (Bike Path) – Bikeways completely separated from motor vehicle traffic on the same state highway with minimal stops required for bicyclists/pedestrians to accommodate traffic cross flow.

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

Bikeway Class III (Bike Route) – Provides shared use by bicyclists, pedestrians, and motor vehicles when designated by "Bike Route" signs or permanent markings

Bikeway Class IV (Separated Bikeway) — A Class IV bikeway is a bikeway for the exclusive use of bicycles and includes a separation required between the separated bikeway and the through vehicular traffic. The separation may include, but is not limited to, grade separation, flexible posts, inflexible posts, inflexible barriers, or on-street parking.

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 twenty-year (Horizon 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

Class I two-lane highway – Generally, Class I is assigned to two-lane highways that are major intercity routes, primary connectors or major traffic generators, daily commuter routes, or major links in state and national highway networks.

Class II two-lane highway – Class II is assigned to two-lane highways functioning as access routes to Class I facilities; serve as scenic or recreational routes, and not as primary arterials, or pass through rugged terrain where high-speed operation would be impossible.

Class III two-lane highway – Class III two-lane highways serve moderately developed areas. Class III may be a segment of a highway that passes through small towns or developed recreational areas and is surrounded by Class I and/or Class II segments.

Concept LOS – The minimum acceptable LOS over the next 20 years

Conventional – The designation of a highway, undivided or divided, without access control except where justified at spot locations; at those locations access control measures, including grade separations, may be employed

Corridor – A corridor is a broad geographical band that follows a general directional flow connecting major sources of trips that may include a number of streets, highways, bicycle, pedestrian, and transit route alignments.

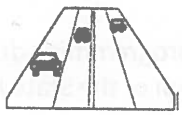
Facility Concept – Describes the facility and strategies that may be needed within 20-25 years. This can include capacity increasing, state highway, bicycle/pedestrian/transit facility, non-capacity increasing operational improvements, new managed lanes, conversion of existing managed lanes to another 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 a freeway, expressway, conventional, or one-way city street.

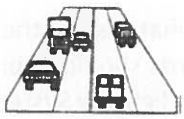
Freight Generator – Any facility, business, manufacturing plant, distribution center, industrial develop-ment, or other location (convergence of commodity and transportation system) that produces significant commodity flow, measured in load handling capacity, weight, carloads, or truck volumes.

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

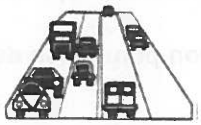
Level of Service (LOS) – A qualitative measure describing operational conditions within a traffic stream and their perception by motorists. LOS is a function of speed, travel time, freedom to maneuver, traffic interruption, comfort, and convenience. There are six types of levels of service which are categorized as follows:



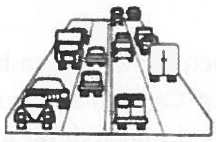
LOS A describes free flowing conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles, and operations are constrained only by the geometric features of the highway.



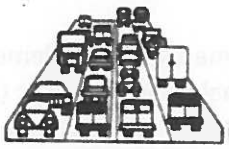
LOS B is indicative of free-flow conditions. Average travel speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver.



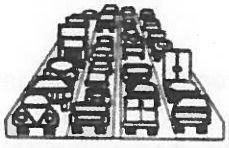
LOS C represents a range in which the influence of traffic density on operations becomes marked. The ability to maneuver with the traffic stream is clearly affected by the presence of other vehicles.



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



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



LOS F is a stop and go, low-speed condition with little or poor maneuverability. Speed and traffic flow may drop to zero and considerable delays occur. This level, considered by most drivers unacceptable often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection.

Mode – A mode is the means or structure used for movement or delivery of people or goods from one location to another over land or the sea and through the air and/or space.

Multi-modal – Transportation options using different modes within a system or corridor

Peak Hour – The hour of a day in which the maximum volume passes a point on the highway in a given direction

Peak Hour Volume – The hourly volume during the highest hour traffic volume of the day traversing a point on a highway segment, it is generally between six percent and ten percent of the ADT.

Peak Period – Is a part of the day when traffic congestion on a road is at its highest. Typically, peak congestion occurs once in the morning and once in the evening at the time when most people commute. Peak Period is defined for individual routes, not a District or a statewide standard.

Planned Project – A planned improvement or action is a project in a fiscally constrained section of a long-term plan, such as an approved regional or metropolitan transportation plan (RTP or MTP), 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. 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 (noted with a pre-fix as either "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.

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 the design standards should apply during project development and design. Typical designations include but not limited to, National Highway System (NHS), US Department of Defense Strategic Highway Network (STRAHNET), and US Forest Service Scenic Byway system.

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

Segment – A portion of a facility between two points.

Surface Transportation Assistance Act – A federal act permitting a range of tractor–trailer combinations exceeding lengths otherwise not allowed on the highways of many states, including California, to use state highways or segments of state highways as long as location service needs are justified and federal and state minimum geometric highway design requirements are met

System Operations and Management Concept – Describe the system operations and management elements that may be needed within 20 years. This can include non-capacity-increasing operational improvements (auxiliary lanes, channelization, turnouts, etc.), conversion of existing managed lanes to another managed lane type or characteristic (e.g. an HOV lane to a HOT lane), transportation demand management (TMS) including TMS field elements, and incident management.

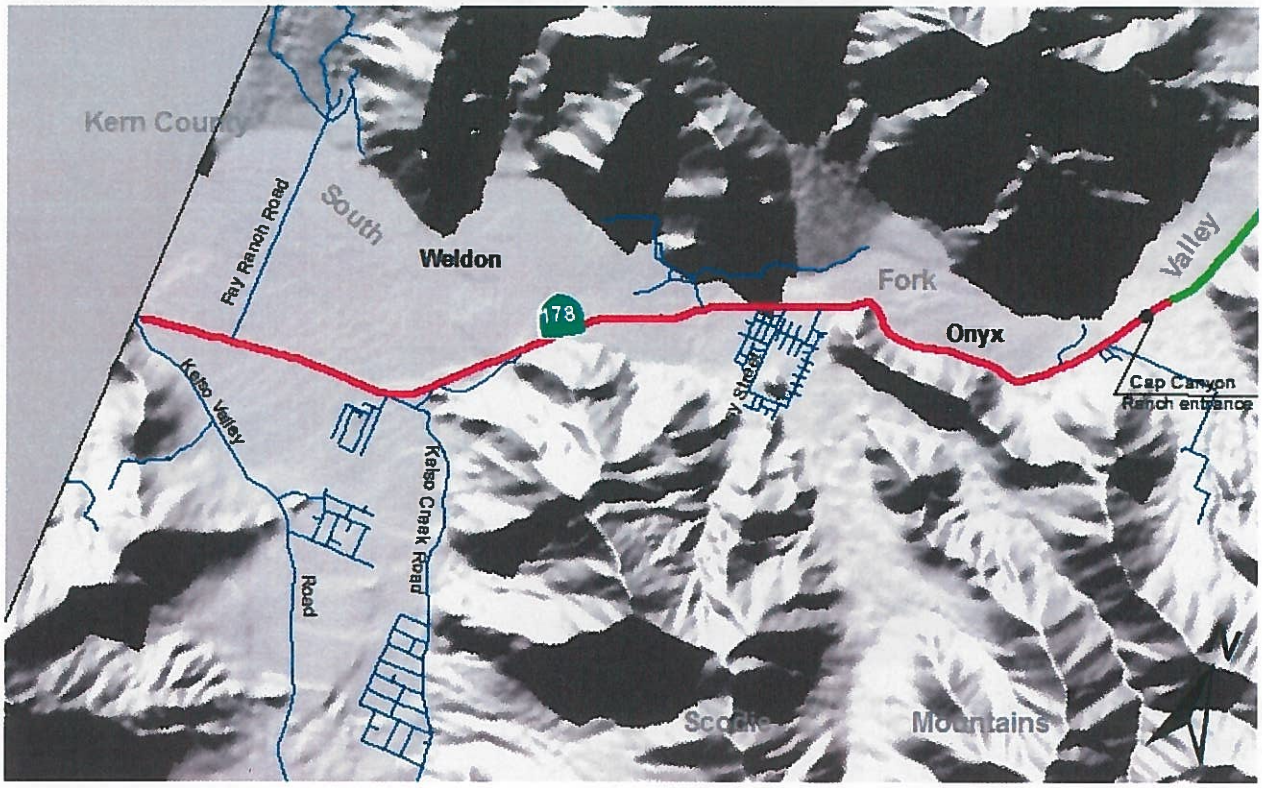
Transportation Management System — Business processes and associated tools, field elements and communications systems that help maximize the productivity of the transportation system are defined as a transportation management system (TMS). A TMS includes, but is not limited to, advanced operational hardware, software, communications systems and infrastructure for integrated advanced transportation management systems and information systems, and for electronic toll-collection systems.

Vehicle Miles Travelled – The total number of miles travelled by motor vehicles on a road segment.

APPENDIX B

FACTSHEETS

SEGMENT 1: POST MILES 57.08 TO 65.51 IN KERN COUNTY



Segment 1 begins at Kelso Valley Road in Weldon and ends 0.28 mile northeast of the Cap Canyon Ranch entrance in Onyx.

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Description	Location	Source	Purpose
Widen paved shoulders to a five-foot minimum	Entire segment, PM 57.08 to 65.51	Caltrans District 9	To better accommodate pedestrians and bicyclists; allow scenic viewer and disabled vehicles to park at least partially off of the travelled way

Current Facility	2C	AADT	2,417	Truck AADT	205	Speed Limit	55, 50, and 60 mph
		VMT	40,600	Truck % of AADT	8.5%	Shoulder Width	2–4 ft
Present LOS	C	Peak Hour VMT	4,659	ROW	41–92 ft	Functional Classification	Minor Arterial

SEGMENT 2: POST MILES 65.51 TO 70.68 IN KERN COUNTY

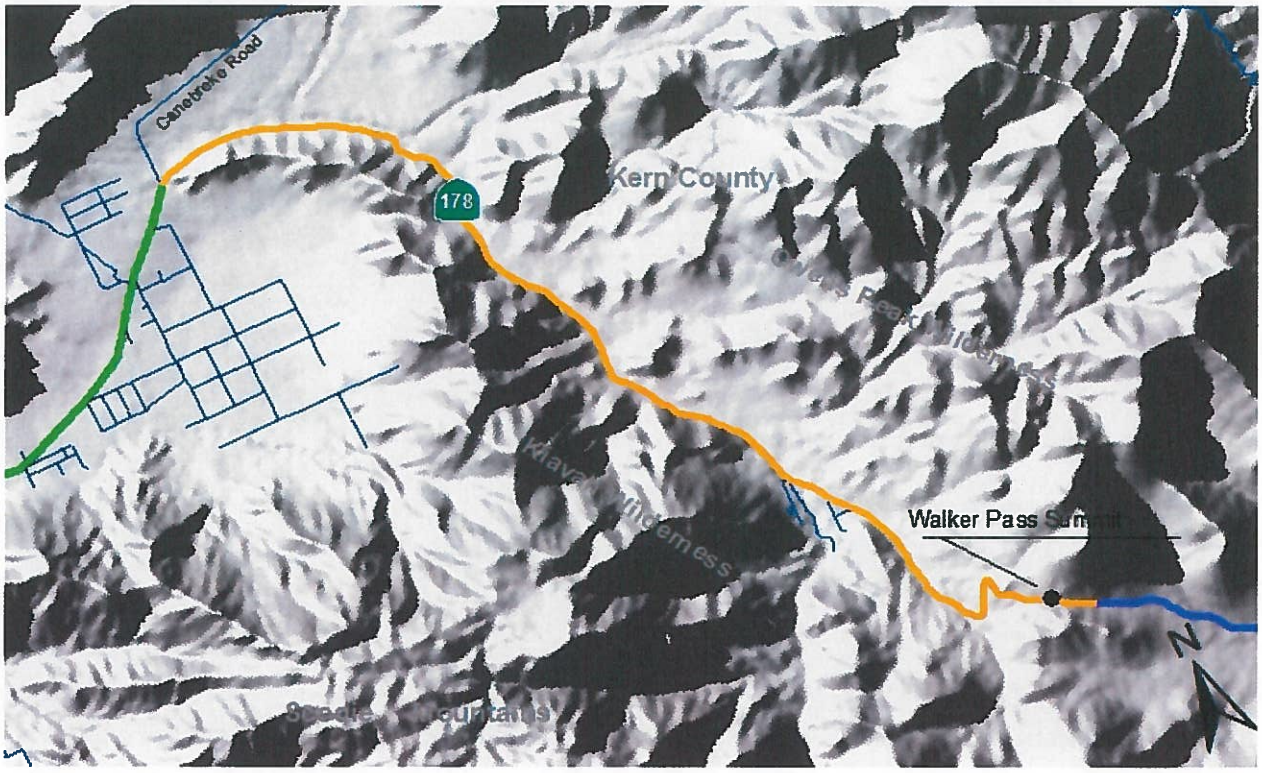
Segment 2 begins at 0.28 mile northeast of the Cap Canyon Ranch entrance in Onyx and ends at Canebrake Road in Canebrake.

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Description	Location	Source	Purpose
Widen paved shoulders as feasible to a five-foot minimum	Entire segment; PM 65.51/70.68	Caltrans District 9	To better accommodate pedestrians and bicyclists; allow scenic viewer and disabled vehicles to park at least partially off of the travelled way
Install bi-directional mainline metering station—also included in Segment 3 listing	At Canebrake Road, PM 70.68	Caltrans District 9	To improve data acquisition

Current Facility	2C	AADT	2,121	Truck AADT	181	Speed Limit	60 mph
		VMT	22,700	Truck % of AADT	8.3%	Shoulder Width	2–4 ft
Present LOS	C	Peak Hour VMT	2,580	ROW	41–92 ft	Functional Classification	Minor Arterial

SEGMENT 3: POST MILES 70.68 TO 79.88 IN KERN COUNTY



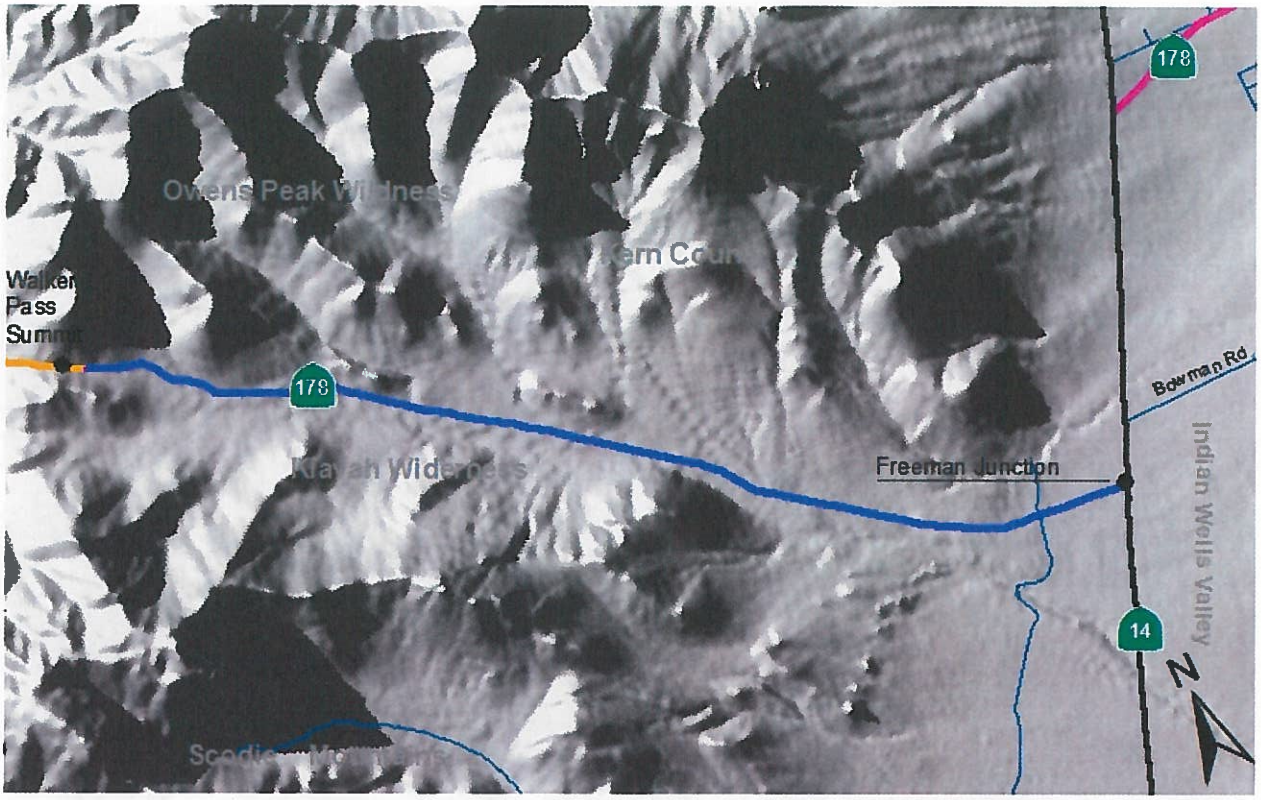
Segment 3 begins at Canebrake Road on the Canebrake Flat and ends at 0.11 mile southeast of Walker Pass Summit in the Scodie Mountains of the Sierra Nevada Range.

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Description	Location	Source	Purpose
Install bi-directional mainline metering station—also included in Segment 2 listing	At Canebrake Road, PM 70.68	Caltrans District 9	To improve data acquisition
Widen paved shoulders including the crossing of Canebrake Creek, presently on Bridge 50-0054, to a five-foot minimum throughout segment	All of Segment 3, Canebrake Road on the Canebrake Plain to 0.11 mile southeast of Walker Pass Summit	Caltrans District 9, BLM, Kern County	To better accommodate bicyclists and pedestrians
Conduct study to determine the best method to warn motorists approaching from the west on a 64-foot radius curve with six-percent uphill grade, of the presence of bicyclists ahead	0.85–0.80 mile northwest of Walker Pass Summit, PM 78.92/78.97	Caltrans District 9	To increase bicyclist comfort
Pave graded area on NE side of roadway SE of Walker Pass Summit	From Walker Pass Summit to 0.11 mile southeast of Walker Pass Summit, PM 79.66/79.77	District 9, BLM, Kern County	To reduce dirt tracked onto travelled way, improve traction of parked and moving vehicles in inclement weather

Current Facility	2C	AADT	1,811	Truck AADT	155	Speed Limit	60 mph
		VMT	34,300	Truck % of AADT	8.3%	Shoulder Width	2–5 ft
Present LOS	C	Peak Hour VMT	4,048	ROW	44–100 ft	Functional Classification	Minor Arterial

SEGMENT 4: POST MILES 80.00 TO 88.26 IN KERN COUNTY



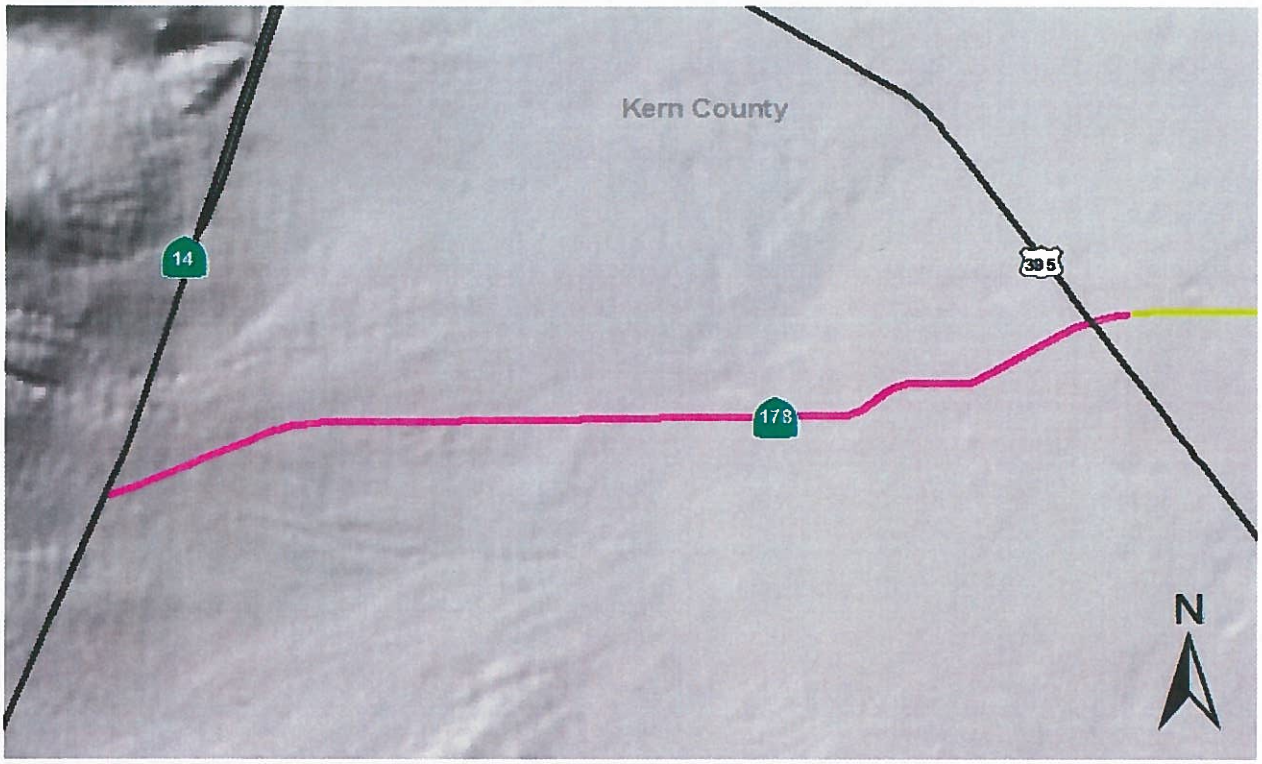
Segment 4 begins 0.11 mile southeast of Walker Pass Summit at PM 80.00 in the Scodie Mountains and ends at Freeman Junction, the south junction with SR 14 in the Indian Wells Valley.

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Description	Location	Source	Purpose
Widen paved shoulders including the crossing of the original Los Angeles Aqueduct, presently on Bridge 50-0055, to a five-foot minimum	Entire segment; PM 80.00/88.26	Caltrans District 9, BLM, Kern County	To better accommodate pedestrians and bicyclists; allow scenic viewer and disabled vehicles to park at least partially off of the travelled way
Provide a climbing lane, passing lane, or turnouts, as appropriate for westbound traffic	Entire segment; PM 80.00/88.26	Caltrans District 9	To allow faster moving westbound vehicles to more efficiently pass slower vehicles

Current Facility	2C	AADT	1,430	Truck AADT	124	Speed Limit	60 mph
		VMT	23,000	Truck % of AADT	8.9%	Shoulder Width	2–5 ft
Present LOS	B	Peak Hour VMT	3,072	ROW	48–400 ft	Functional Classification	Minor Arterial

SEGMENT 5: POST MILES 88.38 TO R93.41 IN KERN COUNTY



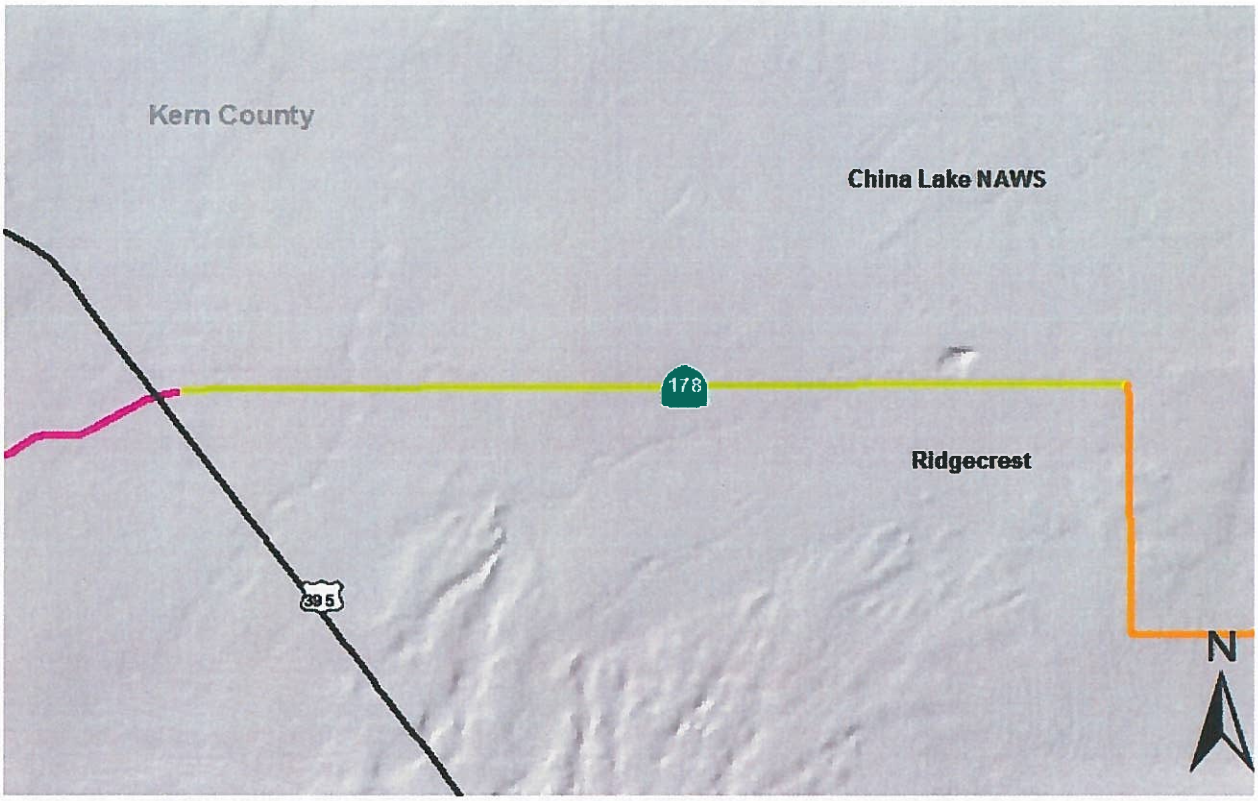
Segment 5 begins at SR 14, 2.80 miles north of Freeman Junction in the Indian Wells Valley and ends at Clodt Road in Inyokern. The travelled way of Segment 5 is undivided two-lane conventional.

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Description	Location	Source	Purpose
Upgrade part-time mainline metering station to full-time operation capable of measuring peak period traffic in each direction	PM 88.53	Caltrans District 9	To increase certainty of LOS calculations
Relocate and extend curb to east if feasible, fill in gaps in and widen sidewalk on north side of roadway	PM 92.46/92.49	Caltrans District 9, Kern County	To better accommodate pedestrians
Widen paved shoulder on north side of travelled way	PM 92.51/92.55 and R93.06/R93.12	Caltrans District 9	To better accommodate bicyclists and pedestrians

Current Facility	2C	AADT	4,167	Truck AADT	379	Speed Limit	60, 55, 45, 35, and 25 mph
		VMT	42,000	Truck % of AADT	9.1%	Shoulder Width	2–5 ft
Present LOS	C	Peak Hour VMT	4,878	ROW	57–140 ft	Functional Classification	Minor Arterial

SEGMENT 6: POST MILES R93.41 TO 100.61 IN KERN COUNTY



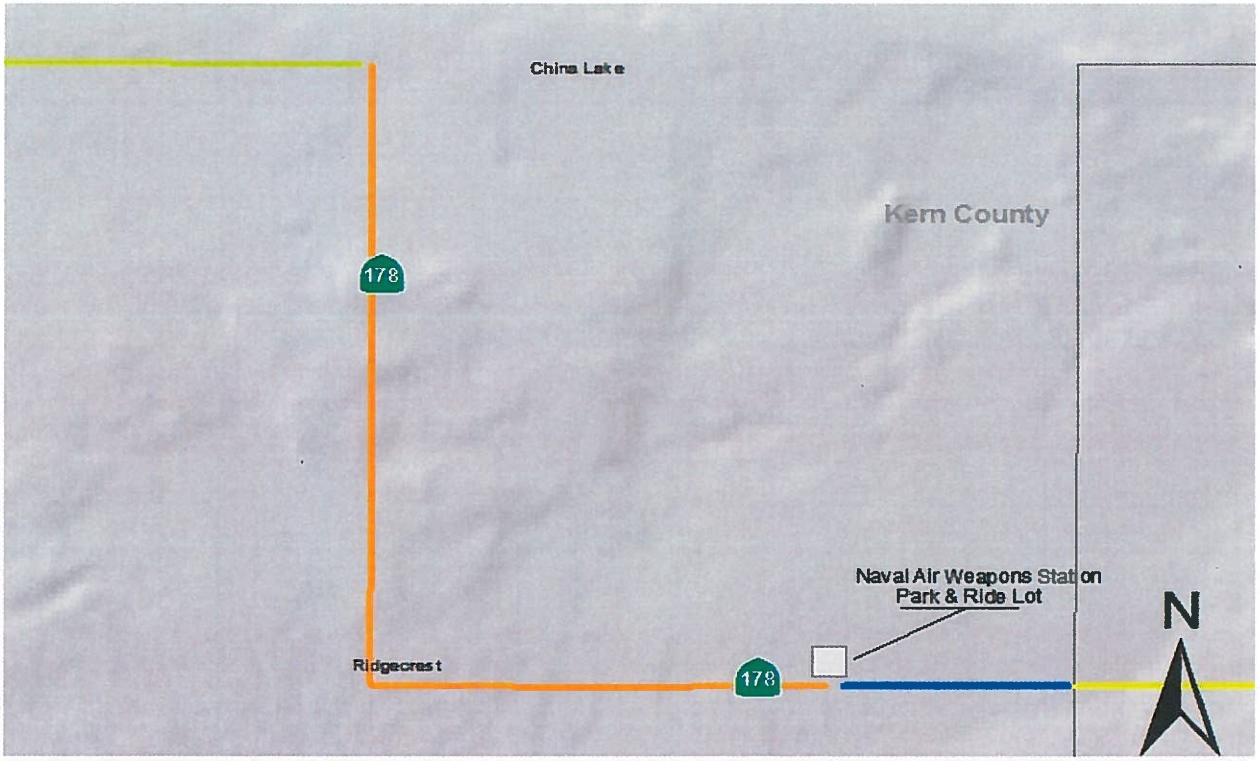
Segment 6 begins at Clodt Road in Inyokern, and ends at the China Lake Boulevard- Inyokern Road-Sandquist Road intersection in Ridgecrest.

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Description	Location	Source	Purpose
Widen paved shoulders on south side of travelled way	PM 93.71/99.37	Caltrans District 9, Kern County	To better accommodate pedestrians and bicyclists
Construct curb and gutter(C&G) in gaps between C&G segments; also, construct sidewalk in gaps between sidewalk segments—both on south side of roadway	PM 99.17/100.61	Caltrans District 9, City of Ridgecrest	To better accommodate pedestrians
Widen travelled ways as necessary and increase curb-return radii to meet Surface Transportation Assistance Act (STAA) requirements—also included in Segment 7 listing	PM 100.61	Caltrans District 9; Naval Air Weapons Station, China Lake	To accommodate STAA Terminal Access trucking on China Lake Boulevard

Current Facility	4C	AADT	6,300	Truck AADT	433	Speed Limit	55 mph
		VMT	90,600	Truck % of AADT	6.9%	Shoulder Width	4–8 ft
Present LOS	A	Peak Hour VMT	10,784	ROW	106–152 ft	Functional Classification	Minor Arterial, PM ≤ 97.60; Other Principal Arterial, PM > 97.60

SEGMENT 7: POST MILES 100.61 TO 103.95 IN KERN COUNTY



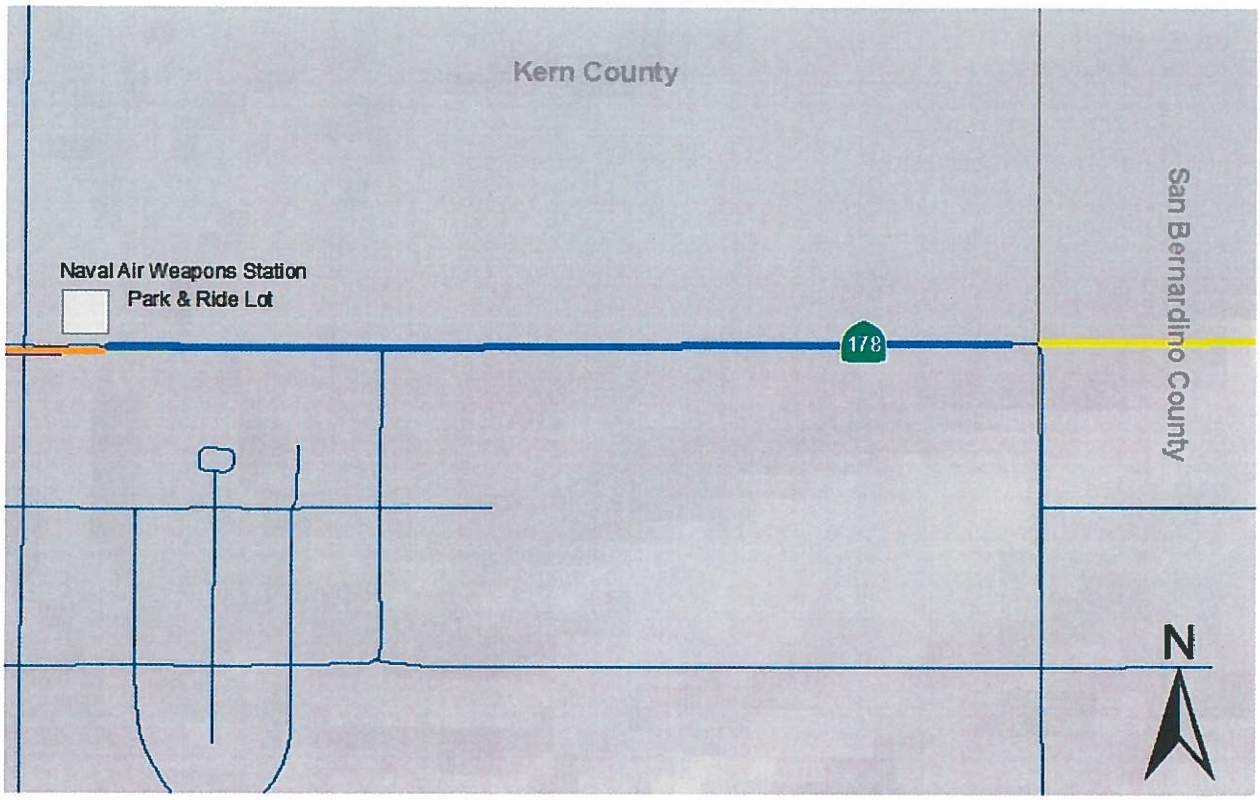
Segment 7 begins at the China Lake Boulevard-Inyokern Road-Sandquist Road (C-I-S) intersection and ends 0.17 mile west of Lumill Street in Ridgecrest.

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Description	Location	Source	Purpose
Widen travelled ways as necessary and increase curb-return radii to meet Surface Transportation Assistance Act (STAA) requirements—also included in Segment 6 listing	PM 100.61	Caltrans District 9; Naval Air Weapons Station, China Lake	To accommodate STAA Terminal Access trucking on China Lake Boulevard
Replace hot-mix asphalt dike with Portland Cement curb and gutter and construct sidewalk on the east side of roadway	PM 100.61/100.73	Caltrans District 9, City of Ridgecrest	To better accommodate pedestrians
Construct curb and gutter between 127 and 586 feet south of Feldspar Avenue, PM 101.864/ 101.951;construct sidewalk in gaps between sidewalk segments on west side of roadway	PM 100.71/102.41	Caltrans District 9, City of Ridgecrest	To better accommodate pedestrians
Construct sidewalk in gaps between sidewalk segments on south side of roadway	PM 103.44/103.57	Caltrans District 9, City of Ridgecrest	To better accommodate pedestrians
Widen paved shoulder to a four-foot minimum on north side of travelled way	PM 103.85/103.94	Caltrans District 9	To better accommodate bicyclists and pedestrians

Current Facility	4C	AADT	19,047	Truck AADT	516	Speed Limit	35, 45 mph
		VMT	127,000	Truck % of AADT	3.9%	Shoulder Width	10–15 ft
Present LOS	A	Peak Hour VMT	4,340	ROW	90–115 ft	Functional Classification	Other Principal Arterial

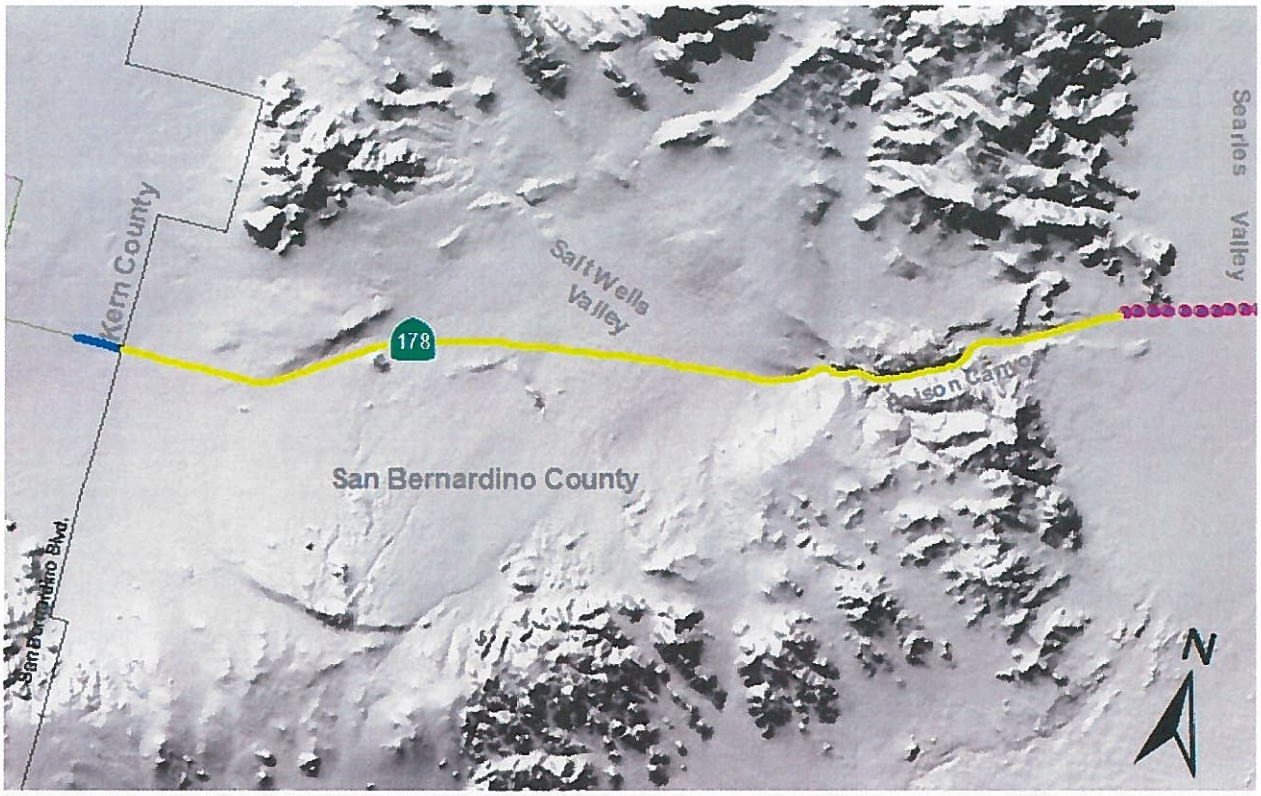
SEGMENT 8: POST MILES 103.95 TO 104.62 IN KERN COUNTY



Segment 8 begins 0.17 mile west of Lumill Street in Ridgecrest and ends at the east limit of Ridgecrest/Kern-San Bernardino county line.

Current Facility	2C	AADT	2,351	Truck AADT	309	Speed Limit	65 mph
		VMT	3,160	Truck % of AADT	13%	Shoulder Width	10 ft
Present LOS	A	Peak Hour VMT	1,500	ROW	90–154 ft	Functional Classification	Other Principal Arterial

SEGMENT 9: POST MILES 0.00 TO 14.79 IN SAN BERNARDINO COUNTY



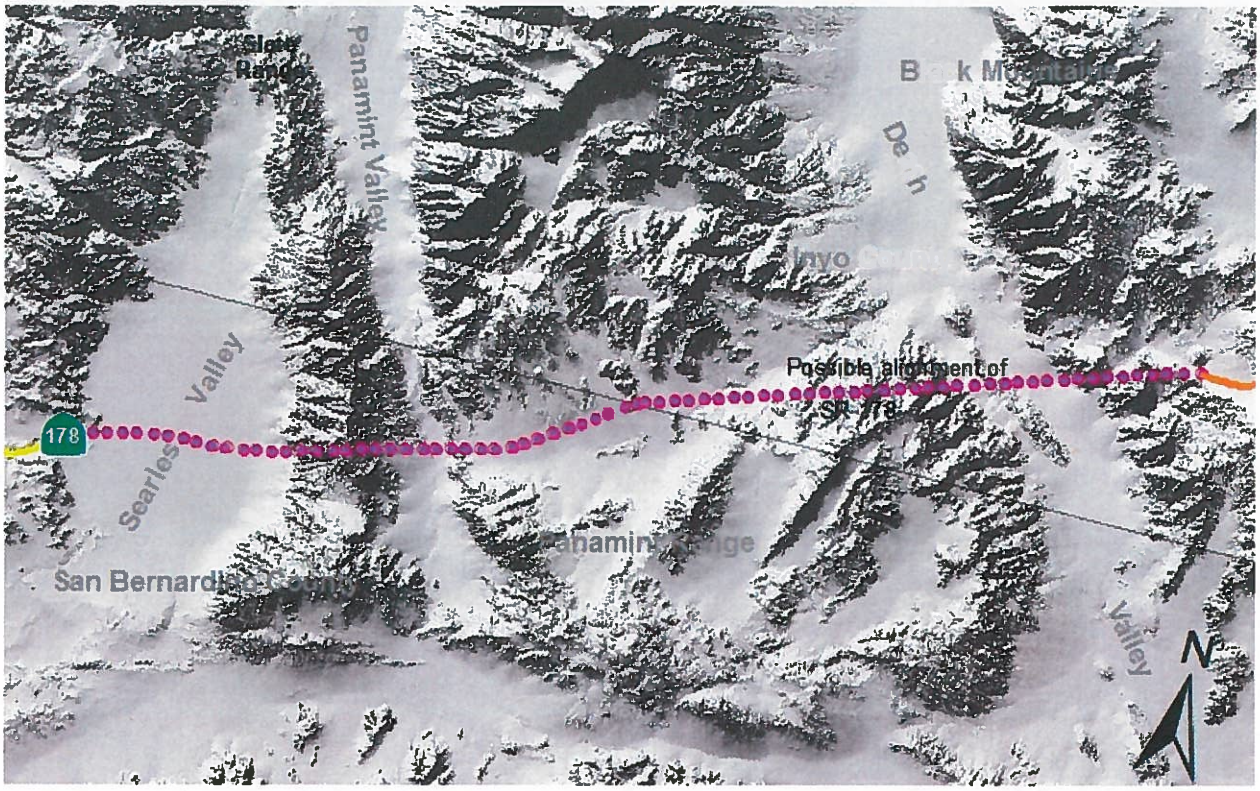
Segment 9 begins at the Kern-San Bernardino county line and ends 90 feet (0.02 mile) west of Pinnacle Road in the Searles Valley.

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Description	Location	Source	Purpose
Widen paved shoulders to a five-foot minimum	PM 0.00/R12.00 and 12.75/14.78	Caltrans District 8	To better accommodate pedestrians and bicyclists

Current Facility	2C	AADT	2,300	Truck AADT	249	Speed Limit	55, 65 mph
		VMT	67,800	Truck % of AADT	11%	Shoulder Width	1-4 ft
Present LOS	B	Peak Hour VMT	10,200	ROW	100-200 ft	Functional Classification	Major Collector

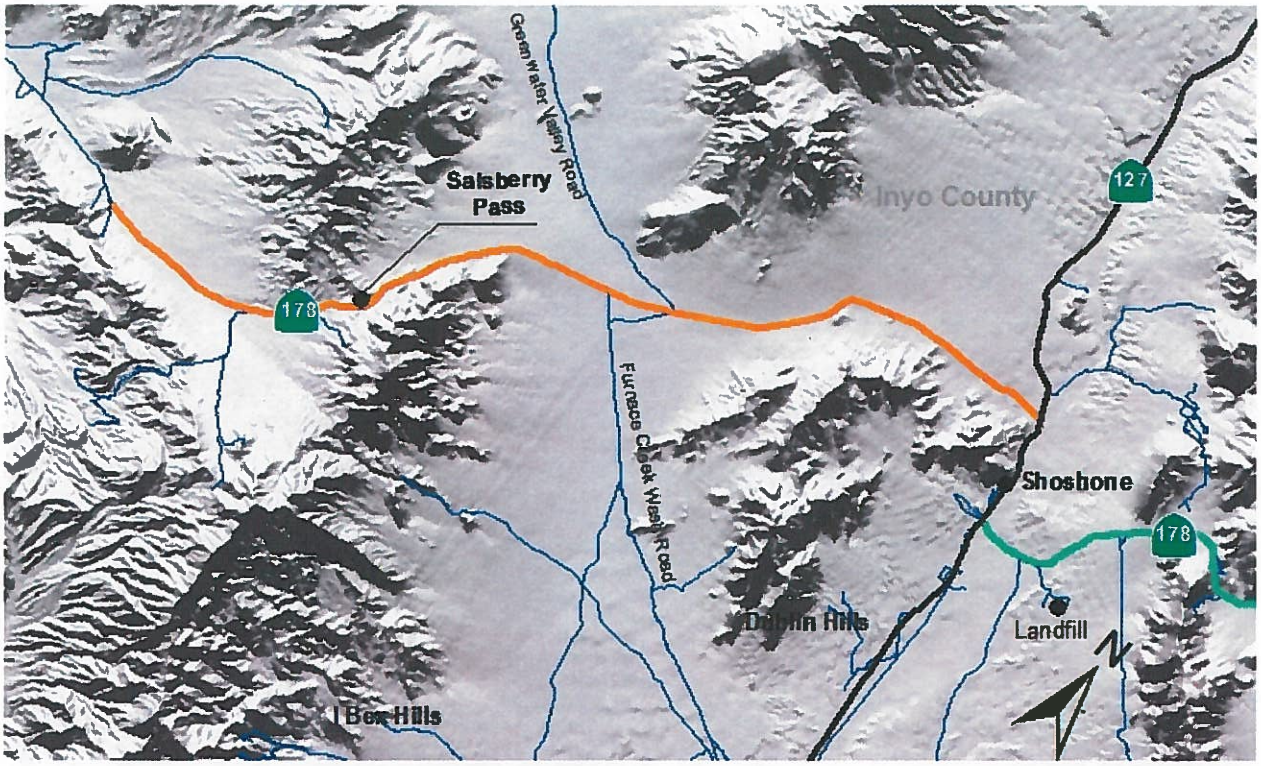
SEGMENT 10: POST MILES 14.78 TO 42.78 IN SAN BERNARDINO COUNTY AND 0.00 TO 28.00 IN INYO COUNTY



Segment 10 begins 90 feet (0.02 mile) west of Pinnacle Road in the Searles Valley and ends 4.02 miles west of Salsberry Pass in the Black Mountains of Death Valley National Park. The California Transportation Commission has not determined the alignment of this segment.

This section is unconstructed.

SEGMENT 11: POST MILES 28.00 TO 42.92 IN INYO COUNTY



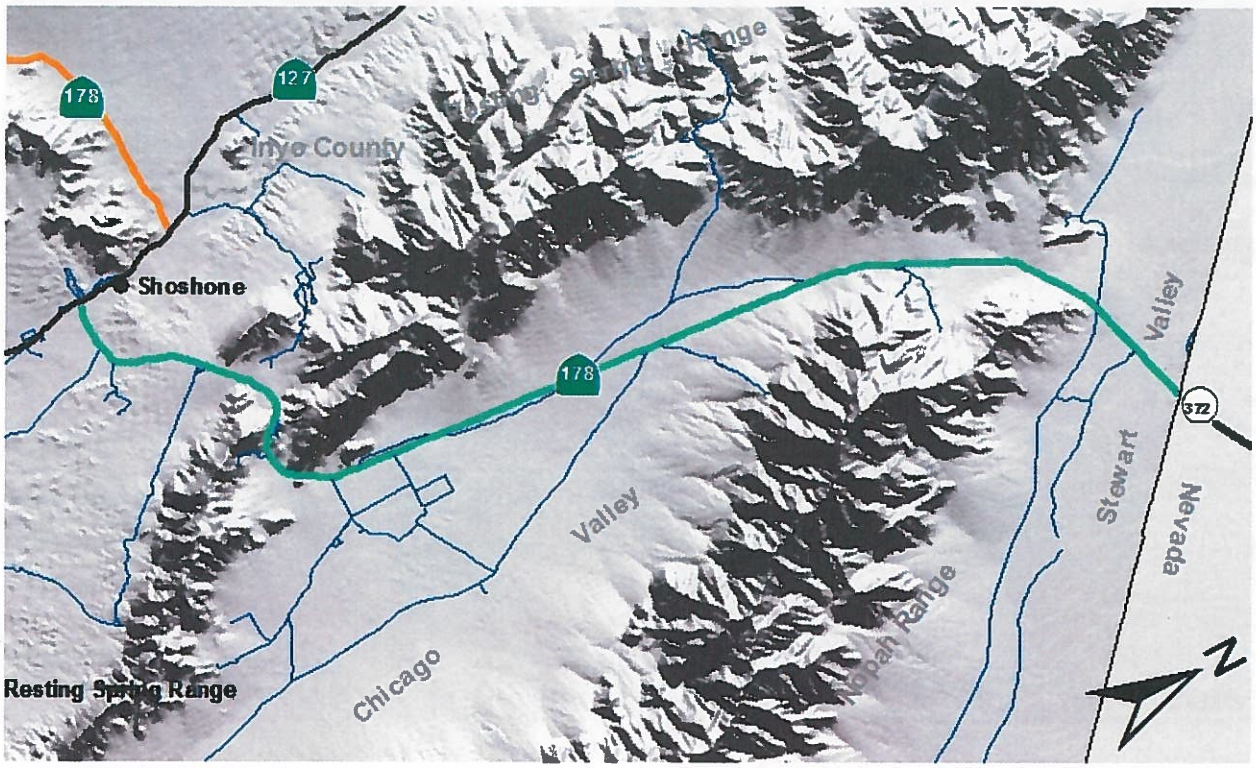
Segment 11 begins 4.05 miles west of Salsberry Pass in the Black Mountains of Death Valley National Park and ends at SR 127 1.56 miles north of the U. S. Postal Service office in Shoshone.

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Description	Location	Source	Purpose
Widen paved shoulders to a five-foot minimum	PM 28.00/42.92	Caltrans District 9	To better accommodate bicyclists and pedestrians

Current Facility	2C	AADT	329	Truck AADT	14.5	Speed Limit	65 mph
		VMT	7,460	Truck % of AADT	5.8%	Shoulder Width	3-5 ft
Present LOS	A	Peak Hour VMT	746	ROW	39-82 ft	Functional Classification	Major Collector

SEGMENT 12: POST MILES 42.93 TO 62.19 IN INYO COUNTY



Segment 12 begins at SR 127 0.13 mile south of the U. S. Postal Service office in Shoshone and ends at the California-Nevada state line in the Stewart Valley.

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Description	Location	Source	Purpose
Widen lanes from ten to twelve feet; widen paved shoulders to a five-foot minimum	PM 42.93/62.19	Caltrans District 9	To better accommodate bicyclists and pedestrians

Current Facility	2C	AADT	785	Truck AADT	70.5	Speed Limit	65 mph
		VMT	30,200	Truck % of AADT	9%	Shoulder Width	2-7 ft
Present LOS	A	Peak Hour VMT	1,250	ROW	100-400 ft	Functional Classification	Major Collector

DEPARTMENT OF PUBLIC WORKS

P.O. DRAWER Q
INDEPENDENCE, CA 93526
PHONE: (760) 878-0201
FAX: (760) 878-2001

COUNTY OF INYO

Clint Quilter, Director

January 13, 2015

Robert Rubinstein
Caltrans District 9 Office
500 South Main Street
Bishop, CA 93514

Subject: **Review of Draft SR 178 TCR**

Bob,

Thank you for the opportunity to comment on the Draft Transportation Concept Report for CA 178. These comments focus on Segments 10, 11, and 12.

The discontinuous nature of SR 178 makes it confusing to travelers entering and leaving the area. The County is in possession of a Caltrans District 9 document titled "Re-Routing SR 178: Present and Future Alignment." It would beneficial to expand the discussion set forth in this working paper and to incorporate this discussion in the SR 178 TCR.

The portion of the TCR "Alignment of Segment 10" fails to address issues that should be included in a TCR. The conclusion that the National Park Service should be approached at a later date to discuss this matter leaves the unconstructed portion of roadway in limbo. Death Valley National Park (DVNP) staff should be approached prior to this document being released. It is almost certain that DVNP staff will defer to the Congress. Changing a wilderness boundary requires congressional action. This requirement should be stated in the PCR. The State should pursue rescission of the unconstructed Section 10 alignment because it is infeasible and pursue a solution to make SR 178 more continuous.

The discontinuous nature of this road makes it unclear to users. Caltrans should search for a manner to continue SR 178 through the community of Trona and connect with SR 190 in Panamint Valley (Trona Road, Trona-Wildrose Road, and Panamint Valley Road). Caltrans should consider working with DVNP to name Badwater Road SR 178 as well to make the make the continuity of the route apparent to the public. Though the two additional segments of SR 178 would be partially north-south, they would make the roadway more continuous and make the overall purpose of the road clearer to the traveling public.

If Caltrans is not able to add these two sections of Highway to their system, an option should be explored to change the name of the roadways and to keep the existing maintenance responsibilities. The traveling public does not care who maintains a portion of roadway – they are just looking to get from point A to point B. The parties could install similar signage that reflects the maintenance responsibility but includes the same name (SR 178).

If you have any outstanding questions or concerns regarding our response, don't hesitate to contact transportation planner, Courtney Smith at (760) 878-0201.

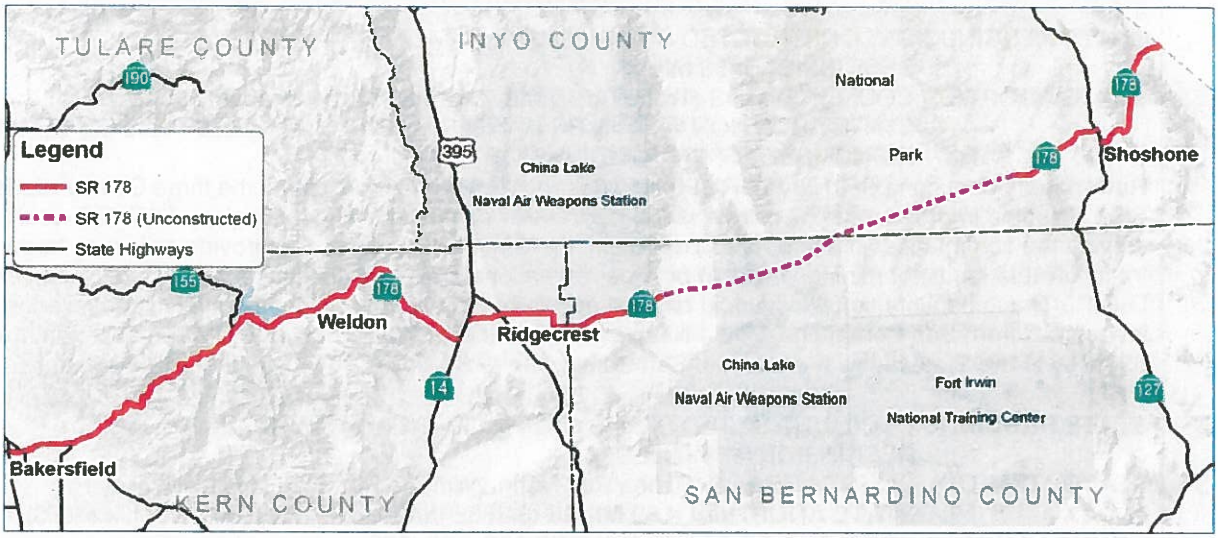
Sincerely,

Courtney Smith, Transportation Planner
Inyo County Public Works Department

cc: Ryan Dermody

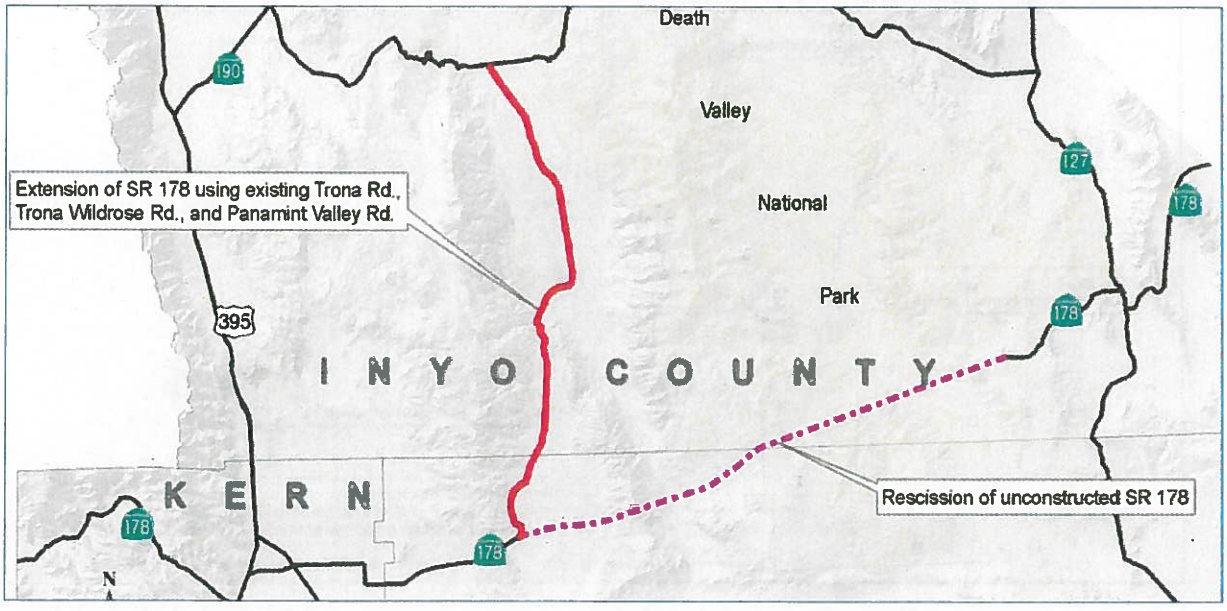
RE-ROUTING SR 178
PRESENT AND FUTURE ALIGNMENT

Purpose:
State Route (SR) 178 legislatively connects Bakersfield to Nevada's Pahrump Valley via Walker Pass and Freeman Junction. State Route 178 is a discontinuous highway due to three route breaks, including an unconstructed 56-mile section. This document proposes a future transportation facility and identifies solutions for SR 178 that will improve route continuity, mobility, and reduce traveler confusion.



Rescission of Unconstructed SR 178
District 9 recommends that the legislatively designated 56 mile unconstructed portion of SR 178, with no adopted alignment, be rescinded. The unconstructed segment is unlikely to ever be constructed because of three main factors that will prohibit its completion: 1) the proximity to China Lake Naval Air Weapons Station, 2) topography, 3) impacts to wilderness in Death Valley National Park.

Extension of SR 178
Where constructed SR 178 ends east of Ridgecrest, County roads (consisting of Trona Rd, Trona-Wildrose Rd, and Panamint Valley Rd) connect to SR 190 near Panamint Springs. These three roads adjoin and combine for a total of 52 miles. If extended, SR 178 would continue in a northerly direction from its present route break at Pinnacle Road to end at SR 190.



3 OPTIONS FOR RE-ROUTING SR 178

OPTION 1

STATE RESCINDS UNCONSTRUCTED SR 178 (SBD PM 14.7-42.8 & INY PM 0.0-28.0)
RESCISSION = 56 MILES

Rationale: The unconstructed segment is unlikely to ever be constructed because of three main factors that will prohibit its completion: 1) the proximity to China Lake Naval Air Weapons Station, 2) topography, 3) impacts to wilderness in Death Valley National Park (DVNP). The impact of rescission would be to acknowledge the impossibility of completing the unconstructed portion of SR 178.

OPTION 2

STATE RESCINDS UNCONSTRUCTED SR 178 (SBD PM 14.7-42.8 & INY PM 0.0-28.0)
RESCISSION = 56 MILES

STATE ADOPTS COUNTY ROADS (Trona Rd, Trona-Wildrose Rd, and Panamint Valley Rd)
STATE ADOPTION = 52 MILES (SAN BERNARDINO CO/ 9.6 MILES + INYO CO/ 42.4 MILES)
RE-NUMBER SR 178 (INYO PM 42.9-62.18) as SR 372

Rationale: Connecting SR 178 to SR 190 provides route continuity. Adopting the three County roads as SR 178 would improve route mobility and reduce traveler confusion. The extension of SR 178 would service the communities of Lone Pine, Trona, and the City of Ridgecrest and provide access to large tracts of BLM lands for mining. It would provide recreational travelers access to the Mojave Desert and DVNP. The impact of this option would remove approximately 56-miles from the maintained mileage inventories from San Bernardino (28.1 Miles) & Inyo Counties (28.0 Miles). It would add approximately 52-miles to the State highway system in San Bernardino (9.6 Miles) & Inyo Counties (42.4 Miles).

OPTION 3

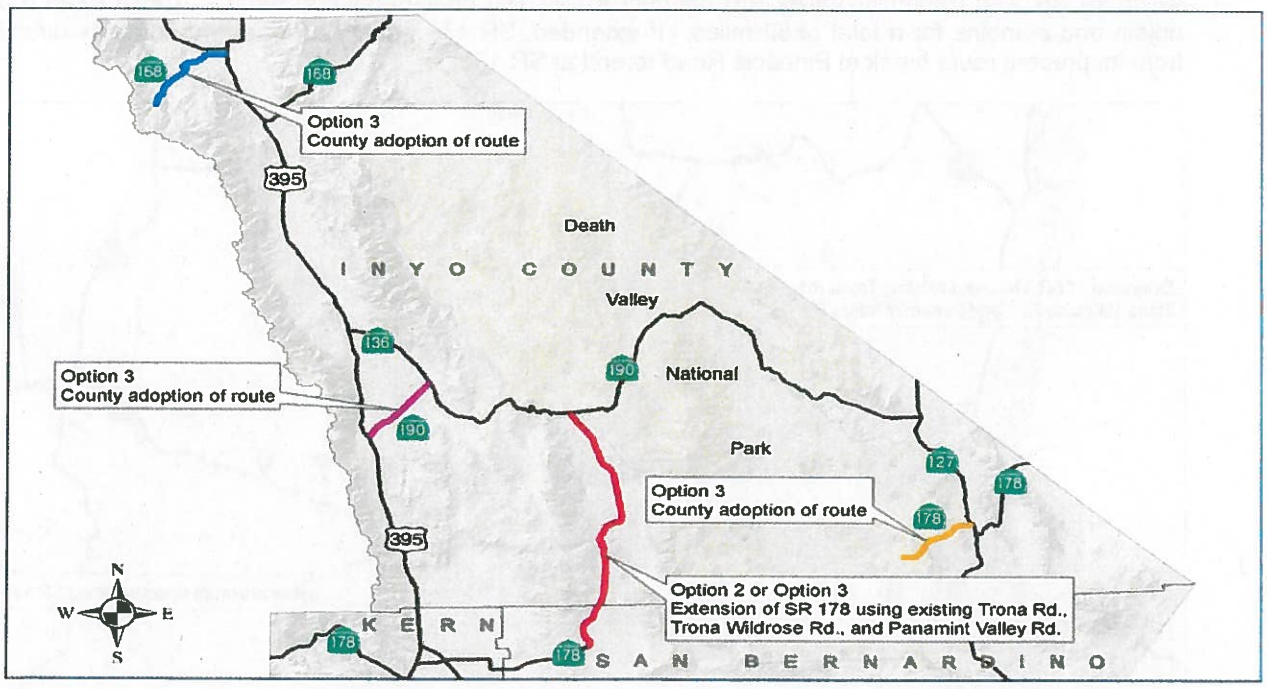
STATE RESCINDS UNCONSTRUCTED SR 178 (SBD PM 14.7-42.8 & INYO PM 0.0-28.0)
RESCISSION = 56 MILES

STATE ADOPTS COUNTY ROADS (Trona Rd, Trona-Wildrose Rd, and Panamint Valley Rd)
STATE ADOPTION = 52 MILES (SAN BERNARDINO/ 9.6 MILES + INYO/ 42.4 MILES)

COUNTY ADOPTS PORTIONS OF STATE ROUTES 178, 190, 168
SR 178/**8.42** MILES (INY PM 34.5-42.91); SR 190/**14.7** MILES (INY PM 9.85-24.55); SR 168/**17.53** MILES (INY PM 0.00-17.53)
INYO CO. ADOPTION = 40.65 MILES
RE-NUMBER SR 178 (INYO PM 42.9-62.18) **as SR 372 & SR 136** (INYO PM 0.0-17.7) **as SR 190**

DVNP ADOPTS **DVNP ADOPTION = 6.5 MILES**/ SR 178 INSIDE PARK BOUNDARY (INY PM 28.0-34.5)

Rationale: This option removes portions of the existing State highways in Inyo Co. (SR 178, SR 190, & SR 168) by transfer to County control. The impact of State adoption would add approximately 52-miles to the State highway system. It would transfer 40.65 miles to Inyo County and 6.5 miles to DVNP. The State highway system would gain 4.85 miles after Inyo County and DVNP adoptions.



OPTION 3

STATE ADOPTION FOR INYO COUNTY AND DVNP ROUTE EXCHANGE

ROUTE EXCHANGE A:
State adopts the County roads in exchange for Inyo Co. taking a portion of **SR 178** (INYO PM 34.5-42.91) and DVNP taking a portion of **SR 178** (INYO PM 28.0-34.5) Re-number SR 178 (INYO PM 42.9-62.18) as SR 372.

ROUTE	TOTAL LENGTH (MILES)	STATE ADOPTED MILES INYO CO. ADOPTED MILES **NET TO STATE**
Inyo Co. takes **SR 178** (W of SR 127 to DVNP)	8.42	52.00 - 8.42 **43.58**
DVNP takes **SR 178** (Inside Park boundary)	6.5	43.58 -6.50 **37.08**

ROUTE EXCHANGE B:
State adopts the County roads in exchange for Inyo Co. also taking a portion of **SR 190** (INYO PM 9.85-24.55) which becomes a County road. Re-number SR 136 as SR 190.

ROUTE	TOTAL LENGTH (MILES)	NET STATE ADOPTED MILES INYO CO. ADOPTED MILES **NET TO STATE**
Co. takes **SR 190** (At South Junction 395)	14.70	37.08 -14.70 **22.38**

If Inyo Co. and DVNP accept Route Exchange A

ROUTE EXCHANGE C:
State adopts the County roads in exchange for Inyo Co. also taking a portion of **SR 168** (INYO PM 0.00-17.53)

ROUTE	TOTAL LENGTH (MILES)	NET STATE ADOPTED MILES INYO CO. ADOPTED MILES **NET TO STATE**
Co. takes **SR 168** (to W. Bishop City Limit)	17.53	22.38 -17.53 **4.85**

If Inyo Co. and DVNP accept Route Exchanges A + B

APPENDIX C
RESOURCES

- Caltrans Digital Highway Inventory Photography Program (DHIPP), March 23, 2003 (data collected between August, 2001 and September, 2003)
- Caltrans Division of Traffic Operations, Office of System Planning Management *Digital Photolog*
- Caltrans TASAS *Highway Sequence Listing for Caltrans District 06, July 24, 2014*
- Caltrans TASAS *Highway Sequence Listing for Caltrans District 08, July 24, 2014*
- Caltrans TASAS *Highway Sequence Listing for Caltrans District 09, July 24, 2014*
- Caltrans Bridge Inspection Records Information System (BIRIS) for Bridges 50-0054 and 50-0055, on line April 03, 2015
- U. S. Bureau of Land Management, *California Desert Protection Act; Ibex Wilderness Area, Map 57; October, 1994*
- U. S. Bureau of Land Management, *California Desert Protection Act; Nopah Range Wilderness Area, Map*
- *60; October, 1994*
- U. S. Bureau of Land Management, *California Desert Protection Act; Resting Spring Range Wilderness Area, Map 61; October, 1994*
- U. S Department of Interior, Bureau of Land Management http://www.blm.gov/ca/st/en/fo/bakersfield/Programs/wilderness/kiavah.html
- County of Kern Planning and Community Development Services, *Kern County Circulation Element, Kern County General Plan, September 22, 2009*
- County of Kern Planning and Community Development Services, *Kern County General Plan, Eastern Section Map, April 15, 1982*
- County of Kern Planning and Community Development Services, *Kern County General Plan, Lake Isabella East Priority Area map April 15, 1982*
- County of Kern Planning and Community Development Services, *Kern County General Plan, Ridgecrest Priority Map, April 15, 1982*
- County of Kern Planning and Community Development, *Inyokern Specific Plan, January 29, 1990*
- Planning Commission, City of Ridgecrest, *Land Use Element, City of Ridgecrest General Plan, public draft, October 15, 2008*
- Planning Commission, City of Ridgecrest, *Circulation Element, City of Ridgecrest General Plan, public draft, October 15, 2008*
- URS Corporation for County of San Bernardino Land Use Services Division, *Land Use Element, County of San Bernardino General Plan, effective April 12, 2007, Amended April 24, 2014*
- URS Corporation for County of San Bernardino Land Use Services Division, *Circulation and Infrastructure Element, County of San Bernardino General Plan, effective April 12, 2007, Amended April 24, 2014*
- Jones & Stokes for County of Inyo Planning Department, *Inyo County General Plan, Land Use and Conservation/Open Space Elements, Diagram 1, 01-16-2002*
- Jones & Stokes for County of Inyo Planning Department, *Inyo County General Plan, Circulation Element, Diagram C, 01-11-2002*
- Jones & Stokes for County of Inyo Planning Department, *Inyo County General Plan, Circulation Element, Diagram F, 01-11-2002*
- Bob Robinson, brobinson@iwvisp.com, Co-chair, Kern Valley Indian Council aka Kern Valley Indian Community–Robert Rubinstein, Caltrans District 9 Transportation Planning telephone conversation, winter, 2014-15 re: Native American land holdings along SR 178

- State of California, The Natural Resources Agency, Department of Fish and Wildlife, Biogeographic Data Branch, California Natural Diversity Data Base, *STATE & FEDERALLY LISTED ENDANGERED & THREATENED ANIMALS OF CALIFORNIA, March 2015*
- *Work and Jobs in Weldon, California (CA) Detailed Stats* http:///www.city-data.com/work/work-Weldon-California.html
- *Work and Jobs in Onyx, California (CA) Detailed Stats* http:///www.city-data.com/work/work-Onyx-California.html
- *Inyokern, California (CA 93527) profile: population, maps, real estate, averages, homes, s...* http:///www.city-data.com/city/Inyokern-California.html
- *China Lake Acres, California (CA 93527, 93555) profile: population, maps, real estate, av...* http:///www.city-data.com/city/China-Lake-Acres-California.html
- *Ridgecrest, California (CA 93555) profile: population, maps, real estate, averages, homes,...* http:///www.city-data.com/city/Ridgecrest-California.html
- *Shoshone, California (CA 92384, 92389) profile: population, maps, real estate, averages,...* http:///www.city-data.com/city/Shoshone-California.html
- Anna Sojourner, Engineering Geologist, May 13, 2015 memorandum to Traci Menard, Acting Office Chief, Office of Geotechnical Design–North, California Department of Transportation re: *Geologic Hazards, State Route 178, Kern, Inyo, and San Bernardino Counties*
- Anna Sojourner, Engineering Geologist, May 18, 2015 memorandum to Robert E. Rubinstein, Planning Technical Support, District 9, California Department of Transportation re: *identifying relative categorization of seismic danger on Route 178 between Weldon (in Kern County) and the California–Nevada state line in the Stewart Valley*
- U. S. Department of Transportation (DOT), Federal Railroad Administration, *U. S. DOT Crossing Inventory Form, Crossing 840939M*; Trona Railway, Milepost 0029.50, Trona Road (in Argus, California); 35.7488218 degrees latitude, -117.391117 degrees longitude; information revised 01/25/2016