

Death Valley National Park

National Park Service
U.S. Department of the Interior

Death Valley National Park
California and Nevada



Environmental Assessment

Lower Wildrose Road Rehabilitation and Repair

October 20, 2011



U.S. Department of Interior
National Park Service

Environmental Assessment
Lower Wildrose Road Rehabilitation and Repair Project

Death Valley National Park
Inyo County, California

Summary

Death Valley National Park proposes to rehabilitate 4.8 miles of the Emigrant Canyon Road, commonly referred to as Lower Wildrose Road. The section of road proposed for rehabilitation starts at the junction with Emigrant Canyon Road and Charcoal Kilns Road and ends at the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary. This section of Lower Wildrose Road has deteriorated over the years due to flash flooding and presents a hazard to vehicular travel in the Park. The existing road surface is in poor condition—in many sections, the road surface is a combination of broken worn pavement and dirt roadbed. In its current state, Lower Wildrose Road presents visitor safety and resource impact concerns.

Four alternatives are considered in this EA: 1) No Action; 2) Repave Wildrose Road and Widen Existing Road Near Wildrose Station; 3) Repave and Widen Lower Wildrose Road, and Provide Drainage Features and Road Reinforcement at Drainage Crossings; and 4) Repave and Widen Lower Wildrose Road, Provide Drainage Features and Road Reinforcement at Drainage Crossings, and Provide Turn-Out Parking Area for Observing Panamint Daisy Blooming Area. Alternative 4 is the Park's preferred alternative.

Public Comment, Notes to Reviewers and Respondents

If you wish to comment on this EA, you may mail the comments to the name and address below, comment by email, or comment directly through the Planning, Environment, and Public Comment website for this project. Our practice is to make comments, including names and addresses of respondents available for public review during regular business hours. Individual respondents may request that we withhold their home address from the record, which we would honor to the extent allowable by law. *If you want us to withhold your name and/or address, you must state this prominently at the beginning of your comment(s).* We will make all submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety.

Please Address Comments to:

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List of Abbreviations

AB	aggregate base
AC	asphalt concrete
AIRFA	American Indian Religious Freedom Act
APE	Area of Potential Effect
AQMD	Air Quality Management District
ARPA	Archaeological Resources Protection Act
BA	Biological Assessment
CAGN	Coastal California gnatcatcher
Caltrans	California Department of Transportation
CCC	Civilian Conservation Corps
CDFG	California Department of Fish and Game
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
cfs	cubic feet per second
Corps	United States Army Corps of Engineers
dBA	Decibels Adjusted
DEVA	Death Valley National Park
EA	Environmental Assessment
EPA	Environmental Protection Agency
ESA	Endangered Species Act
GMP	<i>Death Valley National Park General Management Plan</i>
MBTA	Migratory Bird Treaty Act
MP	Mile post
msl	above mean sea level
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPS	National Park Service
Park	Death Valley National Park
PCR	Pavement Condition Rating
RWQCB	Regional Water Quality Control Board
SCE	Southern California Edison
SCR	Surface Condition Rating
SHPO	California State Historic Preservation Office
spp	subspecies
SWPPP	Storm Water Pollution Prevention Plan
TES	Threatened, Endangered, or Sensitive
THPO	Tribal Historic Preservation Officer
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

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1.0 Introduction

1.1 Proposed Action

The National Park Service (NPS) is proposing to rehabilitate 4.8 miles of the Emigrant Canyon Road, commonly referred to as Lower Wildrose Road, from mile-post (MP) 20 to MP 24.8 (starting at the junction with Emigrant Canyon Road and Charcoal Kilns Road and ending at the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary) (Figure 1, *Project Vicinity Map* and Figure 2, *Project Setting*). The Lower Wildrose Road Rehabilitation Project (referred to herein as “the project”) is located entirely within Death Valley National Park (referred to herein as “DEVA” or “the Park”). This section of Lower Wildrose Road has deteriorated over the years due to flash flooding and presents a hazard to safe vehicular travel.

1.2 Project Background

Lower Wildrose Road serves as an access point to the Park from the southwest and is the most direct route of travel for visitors entering the Park from Ridgecrest, CA. It provides access to the Wildrose area of the Park, which is home to Charcoal Kilns, Telescope Peak Trail, and several backcountry campgrounds. The area is culturally significant because it supported several thousand years of use by the Timbisha Shoshone tribe. It is also the site of a Civilian Conservation Corps (CCC) encampment, and the Park's former summer headquarters. The road alignment itself is historic, and was an important travel corridor associated with various significant mining operations in the Park. The area also supports federally-protected plant and wildlife species.

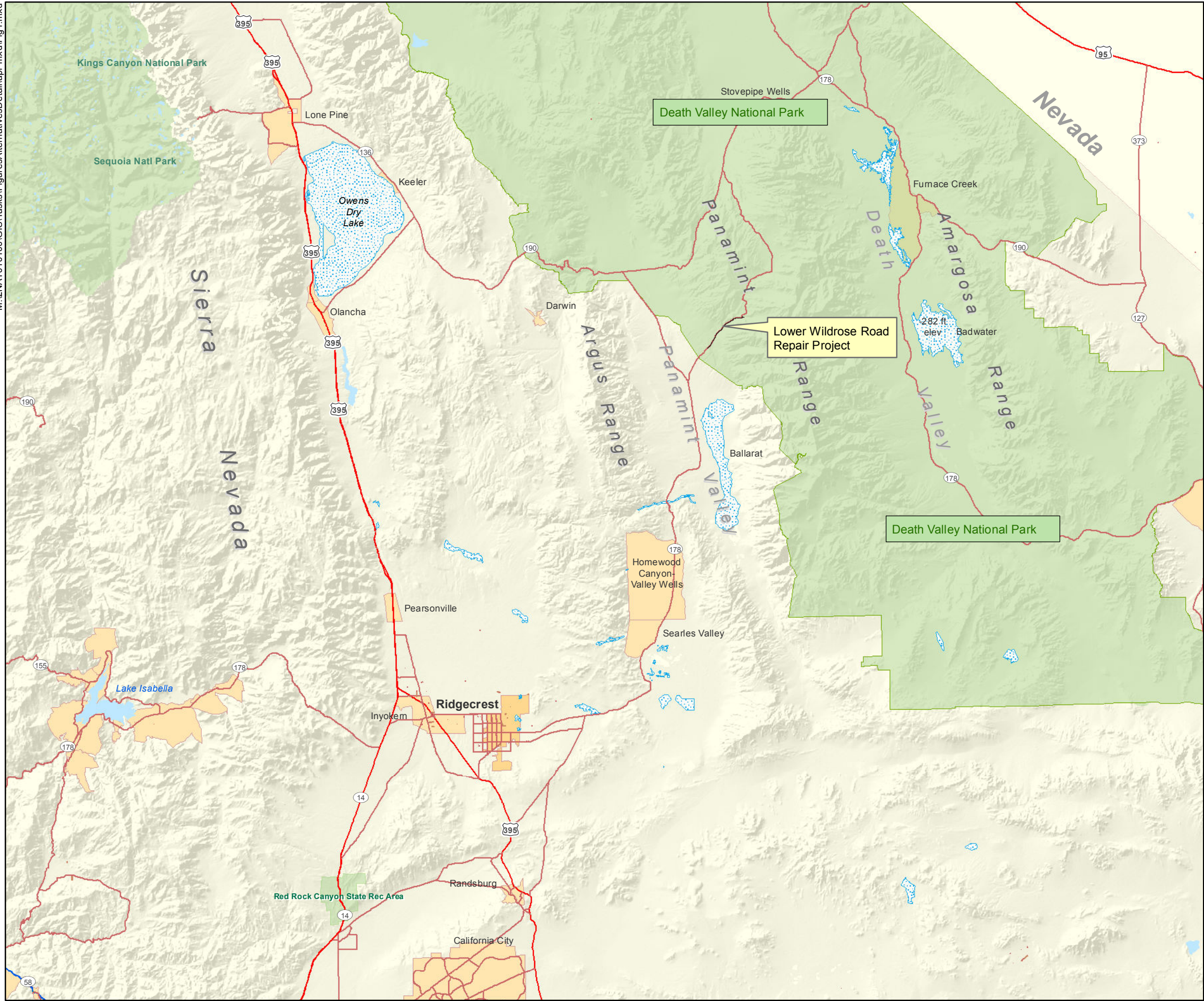
A flash flood in the late 1980s caused significant damage to the roadway. Since then, the roadway has continued to experience flooding episodes and has continued to degrade. The road is currently only partially paved and is a safety concern. Known resource issues affecting decisions regarding this road include natural spring flow under and over the roadbed, endemic plants, federally listed species, and the proximity of historic and archaeological sites.

1.2.1 Existing Conditions

The Wildrose area of Death Valley, which includes Wildrose Canyon, is located in the southwestern portion of the Park, approximately 56 miles northeast of the City of Ridgecrest. The floor of Wildrose Canyon descends from an elevation of approximately 4,100 feet above mean sea level (msl) to approximately 3,000 feet above msl at the western Park boundary. Lower Wildrose Road traverses the floor of Wildrose Canyon from the junction with Emigrant Canyon Road and Charcoal Kilns Road and to the National Park boundary.

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Death Valley National Park

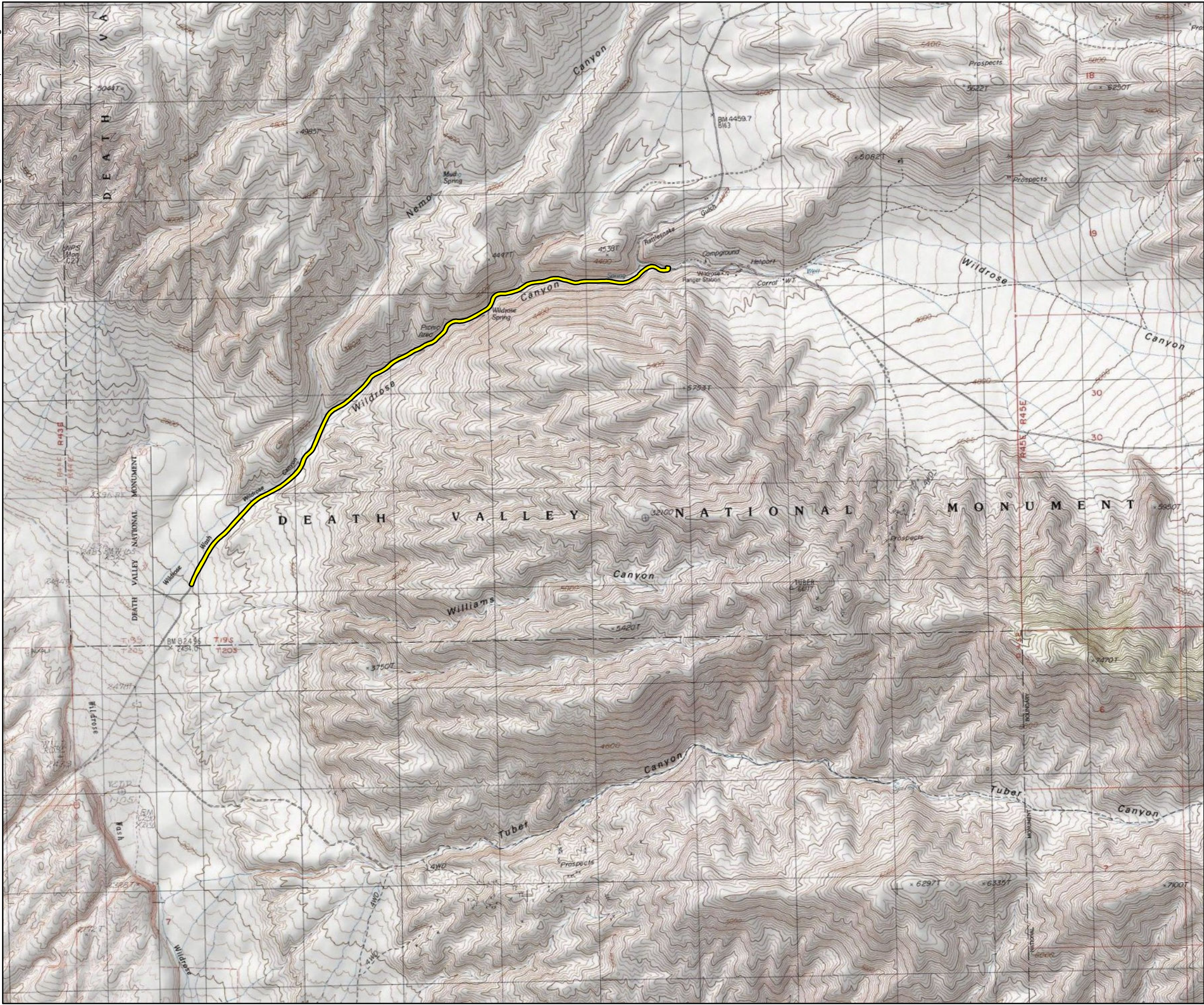
Lower Wildrose Road Repair Project



Project Vicinity Map

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Death Valley National Park

Lower Wildrose Road Repair Project

Legend

-  Section of Wildrose Road to be Repaired



0 0.5 1 Miles

Project Setting

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The northeastern-most segment of the roadway included in this project, starting at junction of Emigrant Canyon Road and Mahogany Flats Road, is adjacent to a natural drainage (Wildrose Wash). Wildrose Canyon is very narrow at this point, with the roadway occupying almost the entire width of the canyon floor, save for the adjacent Wildrose Wash and areas of riparian habitat associated with the wash. A natural spring occurs just beyond the junction of Emigrant Canyon Road and Mahogany Flats Road (Figure 2) (Appendix A, *Site Photographs*). At this location, the spring is surfacing in the middle of the roadway. The spring's water flows into the adjacent Wildrose Wash, which lies at this point along the north side of the roadway. Also at this location, there is a cluster of riparian vegetation consisting of mature willows and cottonwoods on the north side of the road. Wildrose Wash flows southwest along the north side of the road for about 1 mile, at which point the drainage crosses the road and continues to flow along the south side of the road for approximately 1.5 miles. The drainage flow appears to cross the road two more times until the drainage channel disappears and sheet flow occurs. In several locations where the drainage channel is adjacent to the road, the road is reinforced with rock gabion baskets.

Towards the southwestern-most portion of the project area, Wildrose Canyon widens and Wildrose Wash transitions from a narrow, constrained drainage to a drainage characterized by more open flow with areas of braided channels. Because of the braided nature of Wildrose Wash in this area, there are sections of Lower Wildrose Road that are located within one or more of the braided channels that comprise Wildrose Wash.

Along various sections of the road alignment within the project area, roadside berms (4-6 feet high) are present. The berms are located on one side of the road in some locations and on both sides of the road in other locations. The berms were created as a by-product of road maintenance activities, and do not serve a functional purpose.

The existing road varies in width, but generally has a minimum width of 20 feet. In one location, a rock outcropping on the north side of the road and Wildrose Wash on the south side of the road limit the road width to 18 feet. The rock outcropping is located just northeast of historic Wildrose Station (now a picnic area).

1.2.2 Project Purpose and Need

The Road Inventory of Death Valley National Park (DEVA – 8130), Cycle 4 (2006) characterizes the condition of all of the roadway miles and paved parking lots within the Park. Condition assessments assign a quantitative description of qualitative data observed over each mile of road surface. The assigned condition assessments include a Surface Condition Rating (SCR) and a Pavement Condition Rating (PCR). For both SCR and PCR, the scale ranges from 0 to 100, with a rating of 100 indicating a roadway in “perfect” condition (newly repaved, with no surface variations or faults). The condition ranges for both SCR and PCR are as follows:

95-100	Excellent
85-94	Good
61-84	Fair
≤ 60	Poor

Based on the data provided in *The Road Inventory for Death Valley National Park*, the SCR for this portion of Lower Wildrose Road is 27.6. The PCR is 38.6. Both numbers are substantially below the threshold for a characterization of “Poor.”

In its current state, Lower Wildrose Road presents visitor safety and resource impact concerns. Left unaddressed, the roadway will continue to degrade, perpetuate safety hazards, present roadway maintenance challenges, divert maintenance resources to respond to unpredictable emergency maintenance and repair concerns, and threaten adjacent natural and cultural resources. There is a need to bring the roadway to a safe condition for Park visitors and to protect natural and cultural resource to the greatest extent possible. The purpose of this Project is to address these safety concerns while providing maximum possible protection for natural and cultural resources.

1.2.3 Previous Planning

The *Death Valley National Park General Management Plan* (GMP) was completed in April 2002, and articulates the Park’s overall management strategy through 2017. The GMP serves as the guiding document under which more detailed activities and implementation plans will be prepared and implemented. The GMP establishes a shared understanding among Park managers and the public about the kinds of resource conditions and visitor experiences that will best fulfill the purpose of the Park. The management philosophy regarding roads is to protect cultural and natural resources, and enhance the visitor experience while providing for safe and efficient accommodation of Park visitors (GMP 2002, page 59). The Project is not tiered directly to the GMP, but will be guided by the management guidance and philosophy of the GMP.

1.3 Issues and Concerns

The following issues were identified during the public scoping process and through input from NPS staff:

- Safety for Park visitors traveling on Lower Wildrose Road and visiting Park attractions accessed via Lower Wildrose Road
- Safety for Park visitors viewing the Panamint daisy
- Protection of cultural and historic resources
- Protection of federally-listed endangered and threatened species
- Preservation of Wildrose Wash and its associated natural and physical resources
- Availability of portions of the Park primarily accessible via Wildrose Road (Wildrose Station, Wildrose Ranger Station/Campground, and the greater Wildrose/Charcoal Kilns/Thorndike/Mahogany Flat area) during construction
- Adherence to mitigation measures during the construction phase of project

These issues are addressed in the analysis presented in Section 3, Affected Environment and Environmental Consequences, and Section 4, Consultation and Coordination, below.

1.3.1 Resource Topics

This section of the Lower Wildrose Road Rehabilitation EA describes the existing conditions and the potential impacts of each alternative on the resource topic areas relevant to the project. The topics were selected based on federal law, regulations, and executive orders; NPS management policies; and concerns expressed by the public, Park staff or other agencies during scoping and comment periods. The topics analyzed include:

- Vegetation
- Wildlife
- Threatened, Endangered, and Sensitive Species
- Watershed Processes and Springs
- Transportation/Visitor Experience
- Cultural Resources

Each resource topic analyzed is described with the rationale for inclusion in the environmental analysis. This section also provides a discussion of topics that were dismissed from further analysis. Following the discussion on the topics selected and not selected the chapter presents the methodologies used in the environmental impact analysis.

The National Environmental Policy Act (NEPA) requires that environmental documents disclose the environmental impacts of a proposed federal action, reasonable alternatives to that action, and any adverse environmental effects that cannot be avoided should the proposed action be implemented. The description of the existing conditions and the potential impacts of each alternative for each selected topic are organized by resource category with methodologies used to measure that resource and impacts of the alternatives first, followed by a discussion of the existing conditions for that resource. The affected environment described herein encompasses the geographical area affected by all of the alternatives. This is followed by a description of the impacts to that resource that would occur as a result of implementation of each alternative beginning with the Alternative 1 (the No Action Alternative), followed by Alternatives 2, 3, and 4 (the action alternatives). This analysis provides the basis for comparing the beneficial and adverse effects of the alternatives.

1.3.1.1 Resource Topics Considered

Vegetation

The federal and state Endangered Species Acts (and associated legislation), Clean Water Act, Clean Air Act, and NEPA require that the effects of any federal undertaking examine its impact on federally listed threatened and endangered plant species. In addition, NPS management policies and natural resource management guidelines call for the consideration of natural resources in planning proposals. Five plant and/or wetland communities were observed within and adjacent to the Project area during the field surveys: Mojave riparian forest, Mojave desert wash scrub, emergent wetland, desert saltbush scrub, and Mojave creosote bush scrub. These plant communities have the potential to be impacted by project-related activities. Therefore, this issue area has been carried forward as a resource topic for further analysis in this EA.

Wildlife

The federal and state Endangered Species Acts (and associated legislation), Clean Water Act, Clean Air Act, and NEPA require that the effects of any federal undertaking examine its impact on federally listed threatened and endangered wildlife species. In addition, NPS management policies and natural resource management guidelines call for the consideration of natural resources in planning proposals. Two federally-listed species have been observed in the vicinity of the project area, least Bell's vireo (*Vireo bellii pusillus*), and desert tortoise (*Gopherus agassizii*). These species have the potential to be impacted by project-related activities. Therefore, this issue area has been carried forward for further analysis in this EA.

Threatened, Endangered, and Sensitive Species

The federal and state Endangered Species Acts (and associated legislation), Clean Water Act, Clean Air Act, and NEPA require that the effects of any federal undertaking examine its impact on federally listed threatened and endangered wildlife species. In addition, NPS management policies and natural resource management guidelines call for the consideration of natural resources in planning proposals. No plant species have been identified as threatened or endangered pursuant to the federal Endangered Species Act for this project. However, four wildlife species listed as threatened or endangered have been identified as having the potential to be present within the project area. These species have the potential to be impacted by project-related activities. Therefore, this issue area has been carried forward for further analysis in this EA.

Watershed Processes and Springs

The project is located in a narrow canyon in a desert environment. The majority of the Wildrose Canyon drainage generally receives between 3.5 and 4.5 inches of precipitation annually. However, Wildrose Canyon also drains the 23.7 square-mile Upper Wildrose Basin, which receives runoff from precipitation on the Panamint Mountains to the east and southeast—the higher elevations of the Panamint Mountains receive an average of 11 inches of precipitation annually, which is the highest rate of average annual precipitation in the Park. Rainfall in the project area generally occurs during the winter months (November through March). The general wide-area winter storms that bring rain to the region tend to be relatively mild compared to summer storms. Summer storms (July through September) tend to be more intense, focusing a concentrated amount of rainfall in a localized area. These storms can result in flash flooding, particularly in a narrow canyon area like the project area.

Water flows through Wildrose Canyon in Wildrose Wash, which is an ephemeral stream (flows in response to runoff from precipitation events). Wildrose Canyon is known to be an area of flood hazard. Between October 1960 and September 1975, a gaging station was established and maintained by the US Geological Survey (USGS) along Wildrose Wash near Wildrose Station. The USGS National Water Information System reports daily, weekly, and monthly peak flow data in Wildrose Wash. In the 15 years the gaging station recorded flow data, the bulk of recorded data indicated that no flow was present in the wash. However, peak flows of more than 100 cubic feet per second (cfs) were recorded six times, with the highest of those flows recorded on September 4, 1967 at 1,060 cfs (480,000 gallons per minute) (USGS 2010). In 1981, the USGS prepared a report estimating the degree of hazard probable related to flooding within Wildrose Canyon (*Potential Hazards from Floodflows in Wildrose Canyon*, by John R. Crippen,

USGS 1981). The report concluded that irregular flooding is a potential hazard within Wildrose Canyon. Flooding from a 25-year storm event is likely to inundate a good portion of the roadway identified for rehabilitation as part of the project, and a 50-year event is likely to inundate most, if not all, of the roadway within the canyon (USGS 1981). Consultation with the National Park Service's Water Resources Division resulted in the recommendation to prepare a Floodplain Statement of Findings for the proposed project. Executive Order (EO) 11988 ("Floodplain Management") requires the National Park Service and other agencies to evaluate the likely impacts of actions in floodplains. It is NPS policy to preserve floodplain values and minimize potentially hazardous conditions associated with flooding. The Floodplain Statement of Findings is included as Appendix D to this EA.

In addition to the potential threat of flooding in Wildrose Canyon, a naturally occurring spring occurs in the middle of the roadway near the junction with Emigrant Canyon Road and Charcoal Kilns Road. The surface flow from the spring further compromises this portion of the existing roadway, which is currently unpaved. The spring creates a muddy area in the roadway that requires more maintenance than the remainder of the roadway to ensure safe passage of vehicles. Surface flow from the spring drains into the adjacent wash and drains through Wildrose Canyon, adding to the riparian habitat adjacent to this portion of the roadway.

Given the presence of springs, historic flooding and road damage, and the continued potential for flooding and road damage, this issue is carried forward for further analysis in this EA.

Transportation/Visitor Experience

Analysis of transportation examines the effects of the project on visitor access to the Park. Conserving the Park's scenery is a crucial component of the NPS Organic Act (1916) and the Park's enabling legislation. Stewardship of the Park requires consideration of two integrated purposes: to preserve the unique natural and cultural resources and scenic beauty, and to make these resources available to visitors for study, enjoyment, and recreation. Because vehicle travel and visitor experience are closely related at the Park, these two issues are considered together in this analysis. Construction of any of the action alternatives being considered for this project will result in road closures and roadway delays. Construction will also create opportunities for noise creation by construction equipment, which may also impact visitor experience. Improvement of the roadway may also lead to additional use of the roadway, which may include use by recreational vehicles and tour busses. Therefore, this issue area has been carried forward for further analysis in this EA.

Cultural Resources

Section 106 of the National Historic Preservation Act of 1966, the Archaeological Resources Protection Act (ARPA), the Native American Graves Protection and Repatriation Act (NAGPRA), the American Indian Religious Freedom Act (AIRFA), and Executive Order 13007 (Access to Indian Sacred Sites), and NEPA require that the effects of any federal undertaking on cultural resources be examined. In addition, NPS management policies and cultural resource management guidelines call for the consideration of cultural resources in planning proposals. Analysis was performed for archeological resources, traditional cultural properties, and the cultural landscape, including historic sites and structures, following the guidelines set forth by the National Historic Preservation Act (NHPA). Results of that analysis are provided in a

Cultural Resources Technical Report, which will be filed with the California State Historic Preservation Office (SHPO) and the Tribal Historic Preservation Officer (THPO). The roadway itself is a cultural resource, as is Wildrose Station, located along the roadway. The Cultural Resources Technical Report concludes that the alternatives considered in this document will not result in adverse impacts to cultural resources associated with the project area. While the project impacts to cultural resources are not considered to be adverse, the 2008 Nationwide Section 106 Programmatic Agreement requires the Park to consult with the SHPO on the potential impacts from this project. Given that additional consultation and concurrence from the SHPO is required, this issue is carried forward for further analysis in this EA.

1.3.1.2 Resource Topics Not Considered

Environmental Justice

The project would not result in disproportionately high and adverse human health or environmental effects on minority or low-income populations; destruction or disruption of community cohesion and economic vitality; displacement of public and private facilities and services; increased traffic congestion; and/or exclusion or separation of minority or low-income populations from the broader community. Therefore, this resource topic has been dismissed from further analysis in this document.

Geology and Geologic Hazards

The project does not propose to construct any new facility or structure other than the placement of new drainage features (e.g., culverts) beneath the rehabilitated roadway and the new berms along the road to direct heavily flowing water away from the roadway. The placement of these structures to facilitate drainage of water from the roadway would not constitute an impact with regard to geology or geologic hazards. No additional structures are contemplated. An area of rock wall that juts into the roadway, limiting the width of the roadway to 18 feet, is proposed to be chipped back two feet to allow for a uniform 20-foot-wide roadway along the length of the project area. The rock outcropping will be chipped back for a length of 10 feet along the roadway, and will be chipped back to a near vertical as long as the rock can stand up; otherwise it will be sloped back accordingly. Removal of two feet of rock wall for a length of 10 feet is not anticipated to represent an impact to geologic resources of the Park, nor is it anticipated to cause an increase in hazards associated with geologic resources. In fact, removal of the two feet of rock wall is anticipated to be of overall benefit by allowing the entire project area to become a uniform length, thus decreasing the potential of damage to vehicles using the roadway. Therefore, this resource topic has been dismissed from further analysis in this document.

Prime and Unique Agricultural Lands/Grazing Lands

There are no known agricultural lands in the project area, and the proposed action would not have any indirect effects to downstream agricultural lands. Therefore this resource topic has been dismissed from further analysis in this document.

Wilderness Experience

There is no designated Wilderness within the project area. Implementation of the proposed action would not have any direct or indirect effects to designated Wilderness in adjacent areas. Therefore, this resource topic has been dismissed from further analysis in this document.

Land Use

Land uses within the Park are classified as “Parklands,” regardless of the individual types of land uses within the park. Implementation of the Lower Wildrose Road Rehabilitation Project would not affect land uses within the Park. Therefore, this resource topic has been dismissed from further analysis in this document.

Socioeconomics

There would be no measurable effects to the regional or gateway community economies, or changes in visitor attendance or visitor spending patterns as a result of implementation of the Lower Wildrose Road Rehabilitation Project. Therefore, this resource topic has been dismissed from further analysis in this document.

Energy Consumption

Implementation of the project would not cause measurable increases or decreases in the overall consumption of electricity, propane, wood, fuel oil, gas or diesel for stationary or mobile sources associated with visitor attendance or the continued operation and maintenance of park operations and facilities in Death Valley. Therefore, this resource topic has been dismissed from further analysis in this document.

Museum Collection

Implementation of the project could indirectly affect museum collections by generating minimal additions to the collections resulting from the potential need for archeological data recovery performed as mitigation for direct site impacts at select locations. Such additions would require museum storage space and ongoing collection maintenance and management. Any efforts associated with this is expected to be minimal and undertaken as part of routine collection duties associated with the maintenance of the museum collection. Therefore, this resource topic has been dismissed from further analysis in this document.

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2.0 Alternatives

Four alternatives (including a No Action Alternative) were developed for consideration. These alternatives are briefly described below. These alternatives are considered feasible from an engineering standpoint, and are consistent with the guidelines for maintaining current levels of resource protection, resource access, and visitor experience within the Park.

2.1 No Action Alternative

2.1.1 Alternative 1

Alternative 1, the No Action Alternative, would consist of maintaining the roadway in its current condition. The existing road was once paved, but several flooding episodes have caused major damage to the road. There are several sections of the road where there is limited to no pavement present. Minimal repairs and rehabilitation has occurred on the road, therefore it continues to degrade.

Under this alternative, no comprehensive measures would be taken to repair or rehabilitate Lower Wildrose Road. No roadside drainage improvements would be contemplated or implemented to protect road surface. The roadway would continue to deteriorate over time until it eventually would be passable only by four-wheel-drive vehicles, forcing visitors in two-wheel-drive vehicles coming from the Ridgecrest, CA, area to drive north to Hwy. 190 to access the Park. The berms erected along the roadway would continue to be maintained on an emergency basis under this alternative, as would the gabions placed at irregular intervals along the roadway.

The following future conditions are foreseeable under this alternative:

- **Continued Degradation of Roadway**—Deterioration of the roadway's shoulders and driving surface from vehicular traffic and flood events could continue, requiring costly emergency repairs, decreasing the safety of the road way and increasing the potential for severe damage to visitor vehicles from potholes and areas of semi paved roadway. In areas near the head of the project area, eroded roadbed material could enter flowing portions of Wildrose Wash, thus impacting sensitive biological resources at those locations.
- **Continued Need for Unpredictable Emergency Repairs**—A long-term, comprehensive roadway reconstruction solution would not be implemented. Instead, emergency repairs would continue as needed, resulting in unplanned restricted access to and from Death Valley during repair activities.
- **Perpetuated Safety Hazards**—The risk of unpredictable road failure and deterioration would continue to pose a safety hazard to visitors and Park staff traveling through the area. Driving conditions along this section of Lower Wildrose Road would continue to compromise visitor safety.
- **Roadway Maintenance Challenges**—Poor roadway drainage would continue to present challenges to Park road maintenance crews. Problems include the lack of appropriate

super-elevation (i.e., minor banking), lack of stormwater control during rain event, and the absence of roadway drainage features. Roadway drainage would continue to complicate emergency maintenance activities.

- **Threat to Natural, Cultural, and Scenic Resources**—The need for ongoing emergency repairs to Lower Wildrose Road would force the Park to implement actions under extremely short timeframes that may inadvertently cause damage to natural, cultural, and scenic resources. Opportunities to implement mitigation measures, such as those called for in the action alternatives, would be lost because emergency actions frequently occur without detailed planning, and may involve utilizing a greater area surrounding the road to make repairs. Additionally, since Wildrose Road is a cultural resource, under Alternative 1, the road would continue to deteriorate, which would have an adverse impact on cultural resources.
- **Roadside Environment**— The roadside environment is defined as the area directly adjacent to the roadway. When barriers and/or obstacles (such as rock walls, rock outcroppings, and earthen berms) are directly adjacent to the roadway, drivers tend to slow down and “shy” (i.e., move) away from them. Drivers may cross the centerline to avoid roadside obstacles, thereby risking collision with oncoming traffic. Also, a substantial or sudden reduction in speed due to these roadside barriers or obstacles can contribute to accidents.

2.2 *Action Alternatives*

The Action Alternatives, Alternatives 2, 3, and 4, are described in the text that follows. Alternative 4 is the agency’s preferred alternative. Figure 3, *Lower Wildrose Road Action Alternatives Overview*, provides an overview of the entire project area with landmarks (the Panamint Daisy viewing area, Wildrose Station, the rock outcropping encroaching on the existing roadway, and each mile marker) displayed. Figures 3a through 3f, *Alternatives Detail*, provide details of features specific to each alternative. Figure 4, *Typical Cross Sections*, provides a construction cross-section of the improved roadway and proposed low-flow crossings.

2.2.1 *Alternative 2*

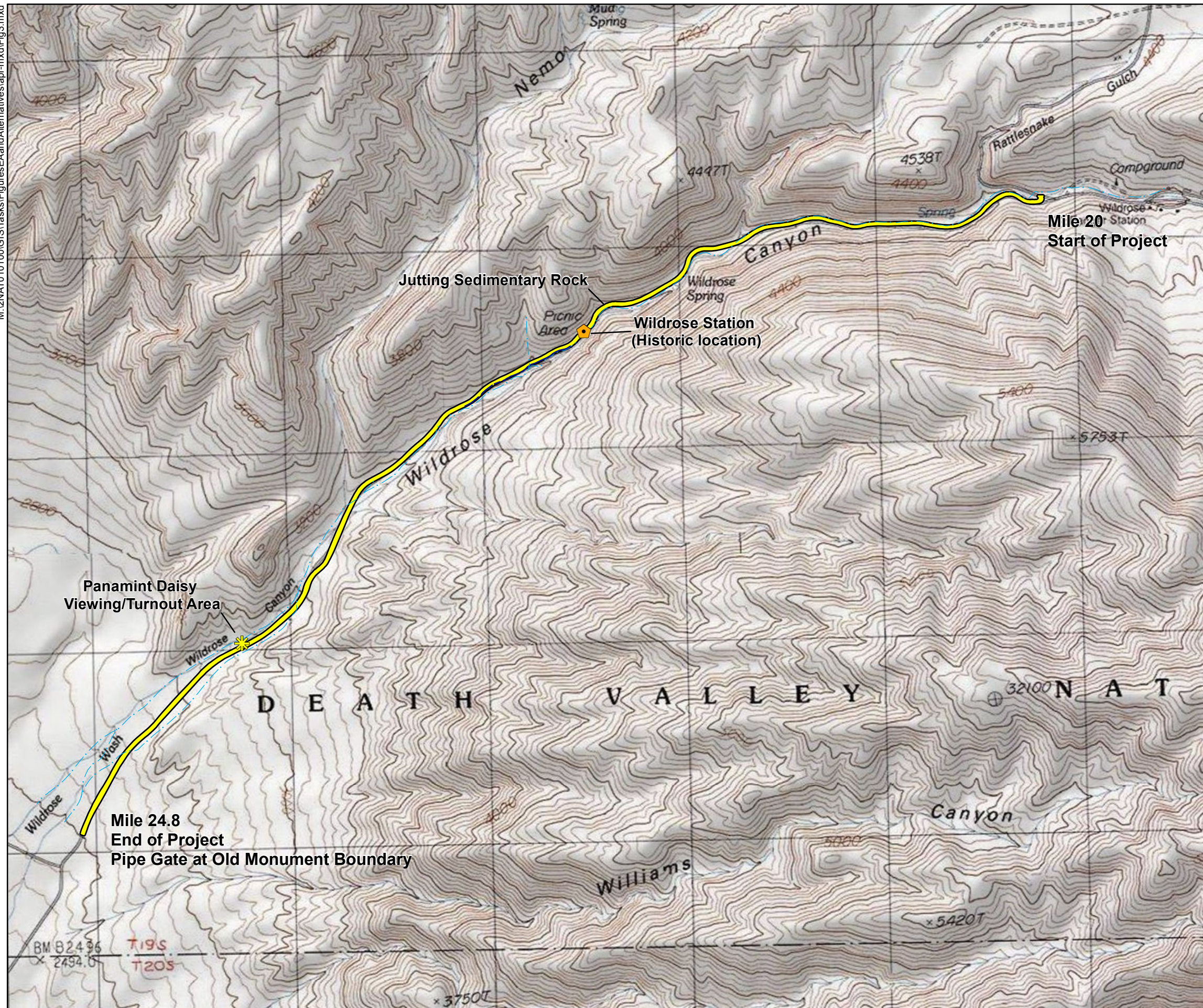
Repave Lower Wildrose Road and Widen Existing Road Near Wildrose Station: Alternative 2 would consist of maintaining the current road alignment and repaving the entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary.

M:\2NAT010100\GIS\Tasks\FiguresEAandAlternatives\apr-mxd\Fig3.mxd



Death Valley National Park

Lower Wildrose Road Repair Project



Legend

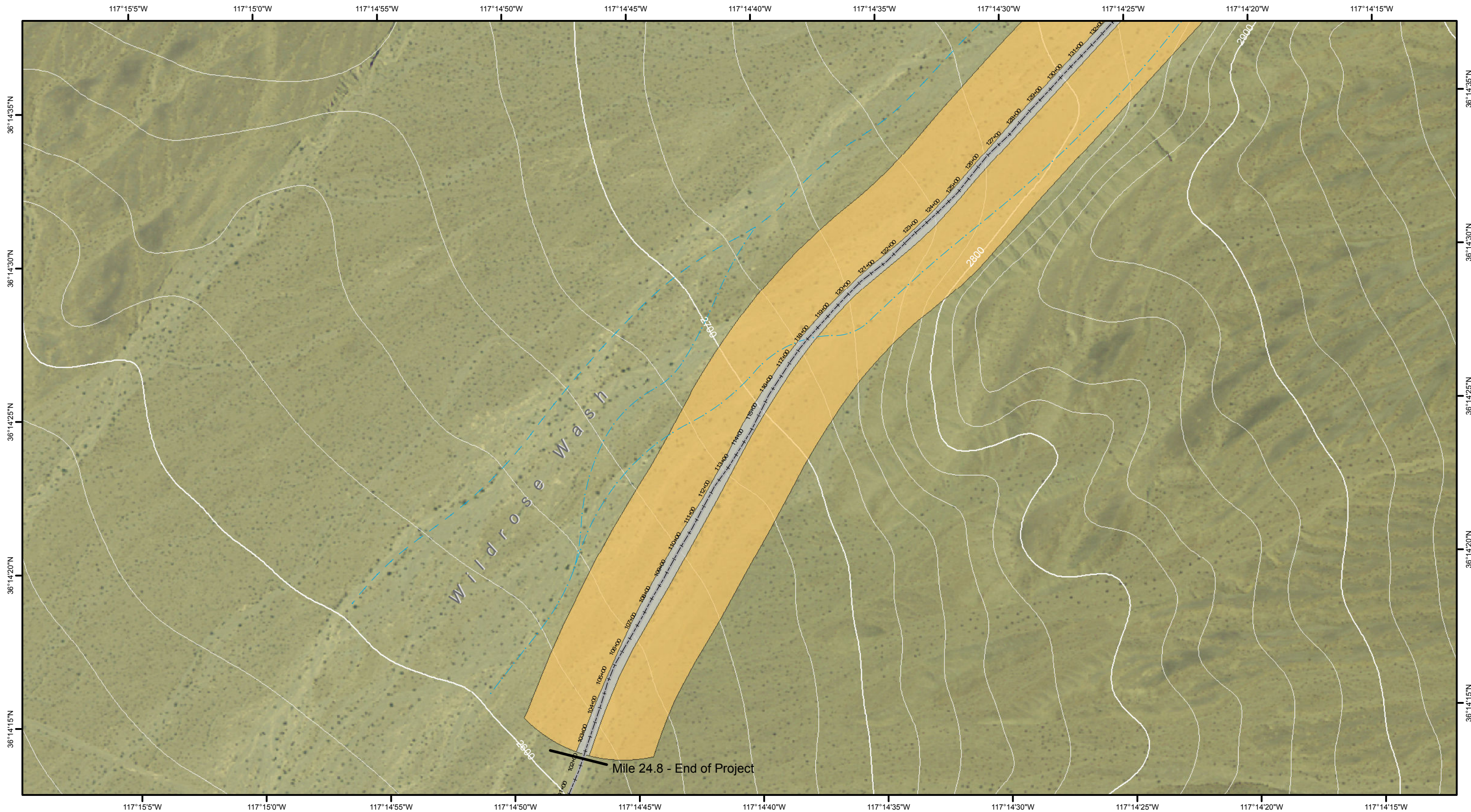
- Section of Wildrose Road to be Repaired
- Existing Channel
- Panamint Daisy Viewing/Turnout Area
- Wildrose Station (Historic)



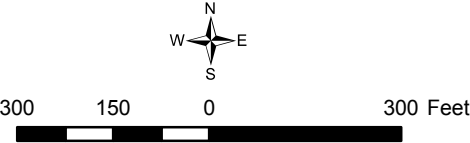
0 0.25 0.5 Miles

Action Alternatives Overview

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California State Plane Coordinate System Zone4 NAD83 feet
 Contour interval 20'. Derived from USGS 10 meter DEM
 GPS Gridlines DMS WGS84



Vegetation and surface features
 mapped December 2009.
 Vegetation classification based
 on Holland, 1986. Mapping boundary
 based on 200' buffer from centerline
 of road.

Legend

- Desert Creosote Bush Scrub
- Roadway to be Repaired
- Existing Channel
- Stationing



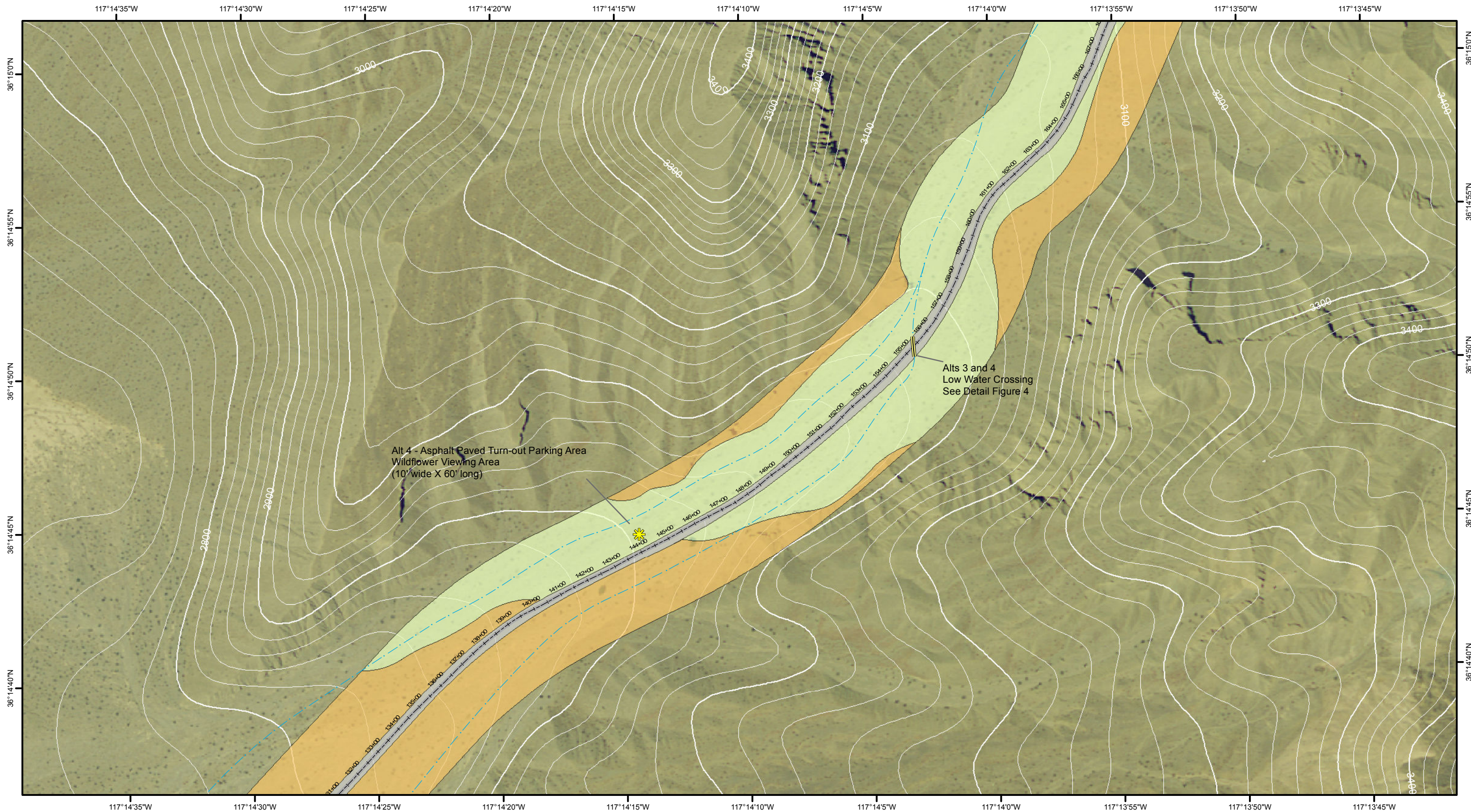
Death Valley National Park
 Lower Wildrose Road Repair Project

Alternatives Detail

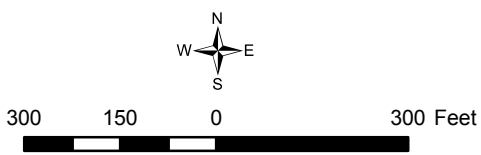
PSOMAS

Figure 3-a

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California State Plane Coordinate System Zone4 NAD83 feet
 Contour interval 20'. Derived from USGS 10 meter DEM
 GPS Gridlines DMS WGS84



Legend

- Desert Creosote Bush Scrub
- Mojave Desert Wash Scrub
- Roadway to be Repaired
- Existing Channel
- Proposed Low Water Crossing
- Panamint Daisy Viewing/Turnout Area

104 + 00 Stationing



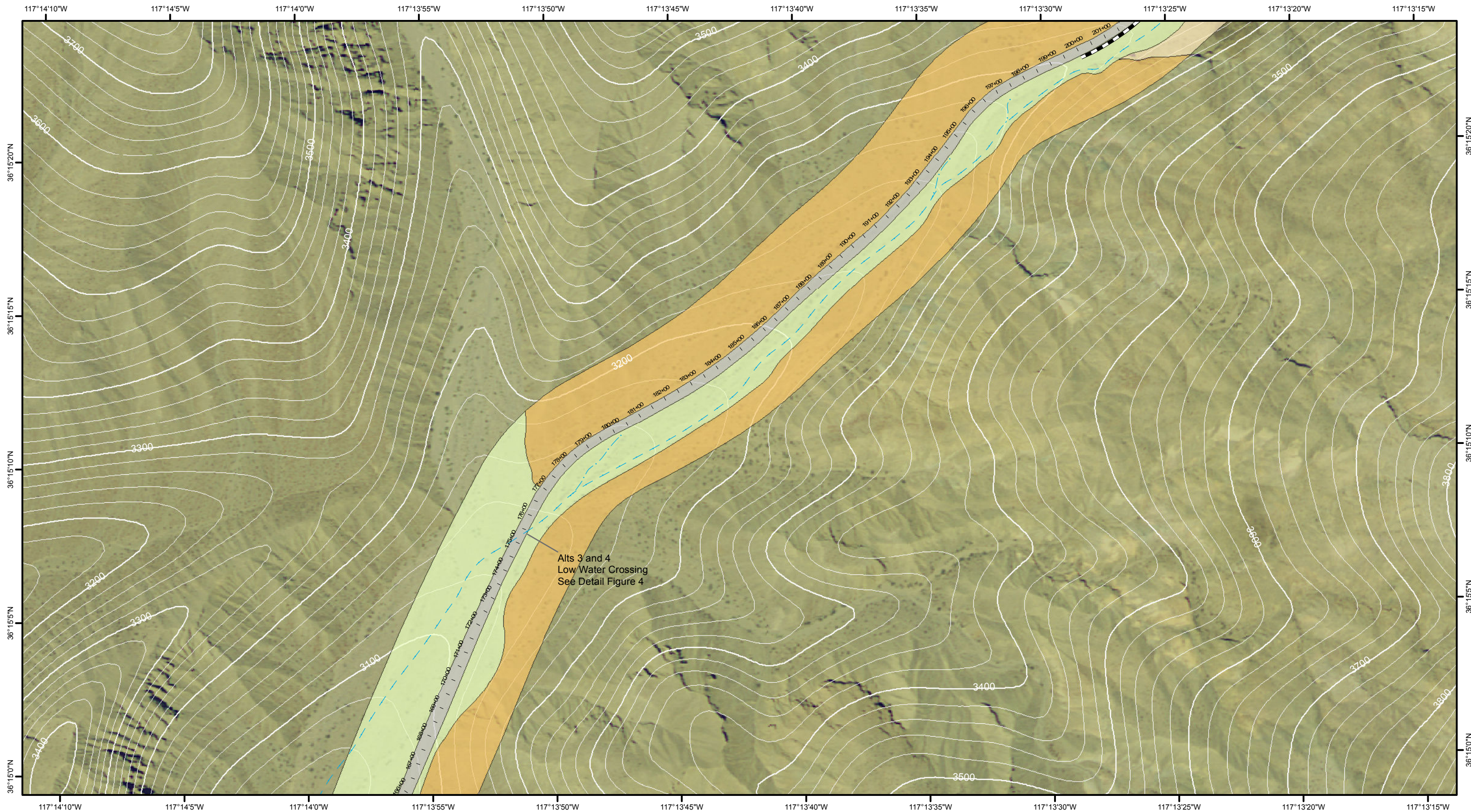
Death Valley National Park
 Lower Wildrose Road Repair Project

Alternatives Detail

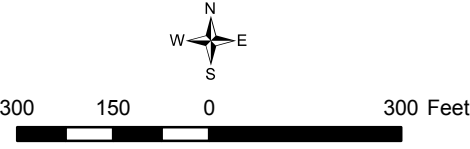
PSOMAS

Figure 3-b

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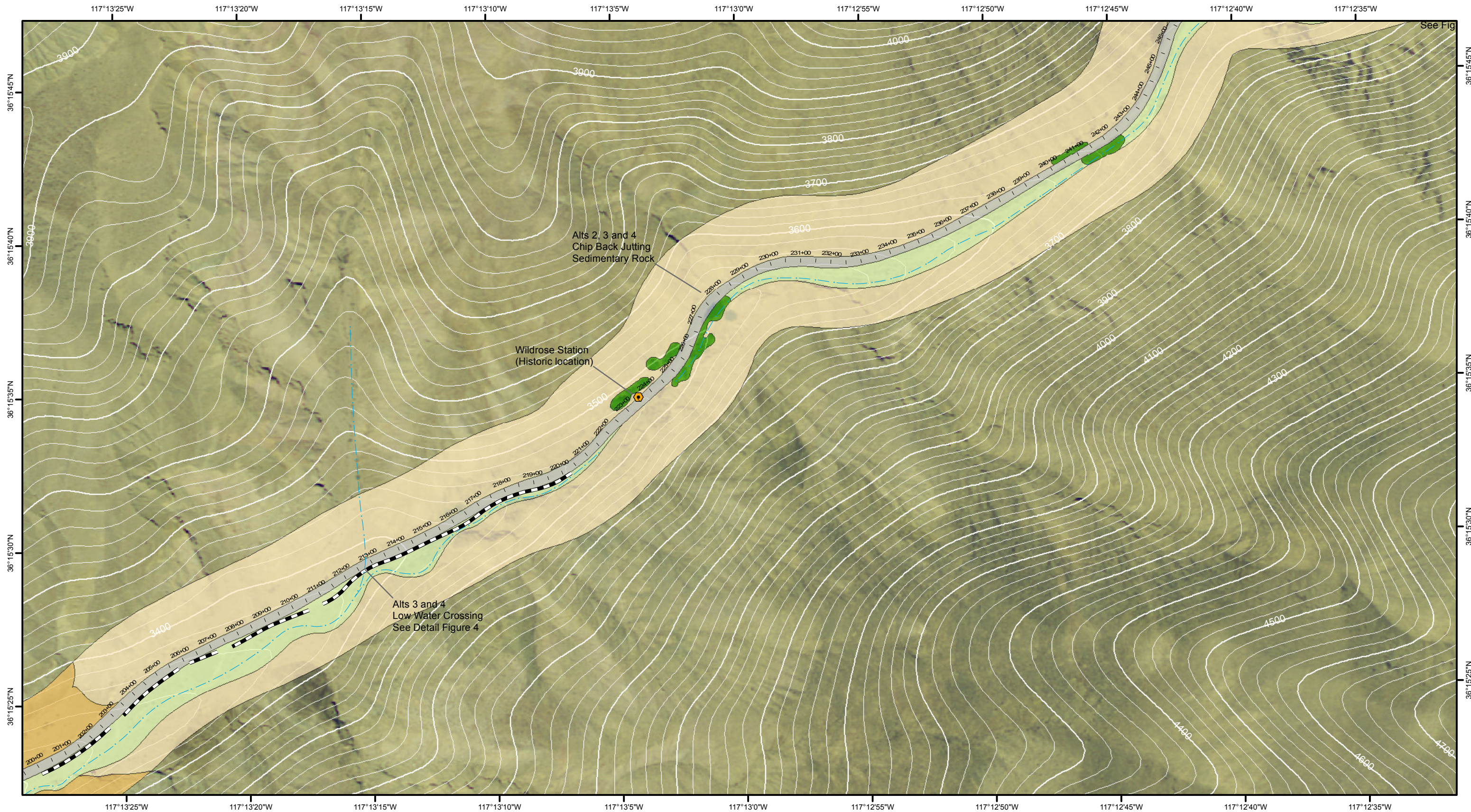
California State Plane Coordinate System Zone4 NAD83 feet
Contour interval 20'. Derived from USGS 10 meter DEM
GPS Gridlines DMS WGS84



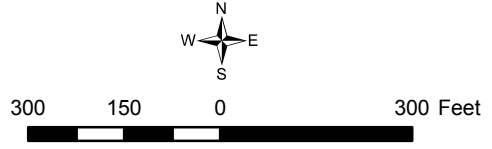
Legend

- | | | |
|----------------------------|-----------------------------|------------|
| Desert Creosote Bush Scrub | Roadway to be Repaired | Stationing |
| Mojave Desert Wash Scrub | Existing Channel | |
| Desert Saltbush Scrub | Proposed Low Water Crossing | |
| | Existing Berm | |



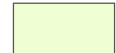




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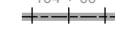



California State Plane Coordinate System Zone4 NAD83 feet
 Contour interval 20'. Derived from USGS 10 meter DEM
 GPS Gridlines DMS WGS84



Legend

- | | |
|--|---|
|  Desert Creosote Bush Scrub |  Mojave Riparian Forest |
|  Mojave Desert Wash Scrub |  Roadway to be Repaired |
|  Desert Saltbush Scrub |  Existing Channel |
| |  Proposed Low Water Crossing |

- | |
|---|
|  Existing Berm |
|  Stationing |
|  Wildrose Station (Historic) |



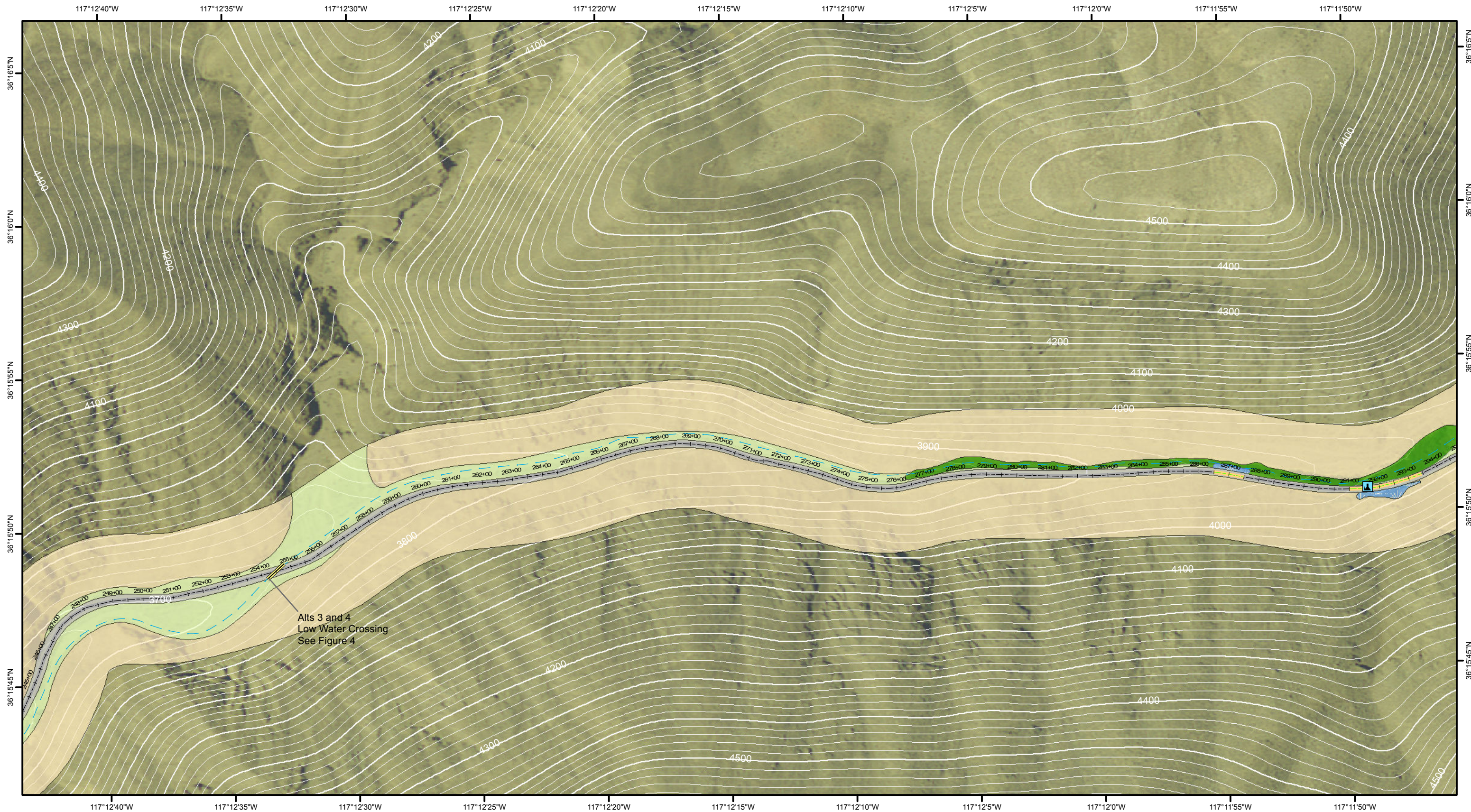
Death Valley National Park
 Lower Wildrose Road Repair Project

Alternatives Detail

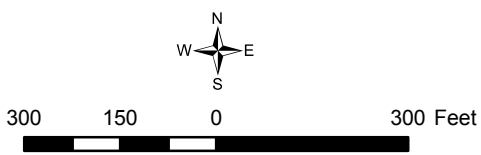
PSOMAS

Figure 3-d












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California State Plane Coordinate System Zone4 NAD83 feet
Contour interval 20'. Derived from USGS 10 meter DEM
GPS Gridlines DMS WGS84



Legend

- | | | |
|--|---|---|
|  Mojave Desert Wash Scrub |  Fresh Water Marsh |  Proposed French Drain |
|  Desert Saltbush Scrub |  Roadway to be Repaired |  Existing Berm |
|  Mojave Riparian Forest |  Existing Channel |  Stationing |
| |  Proposed Low Water Crossing |  Spring |



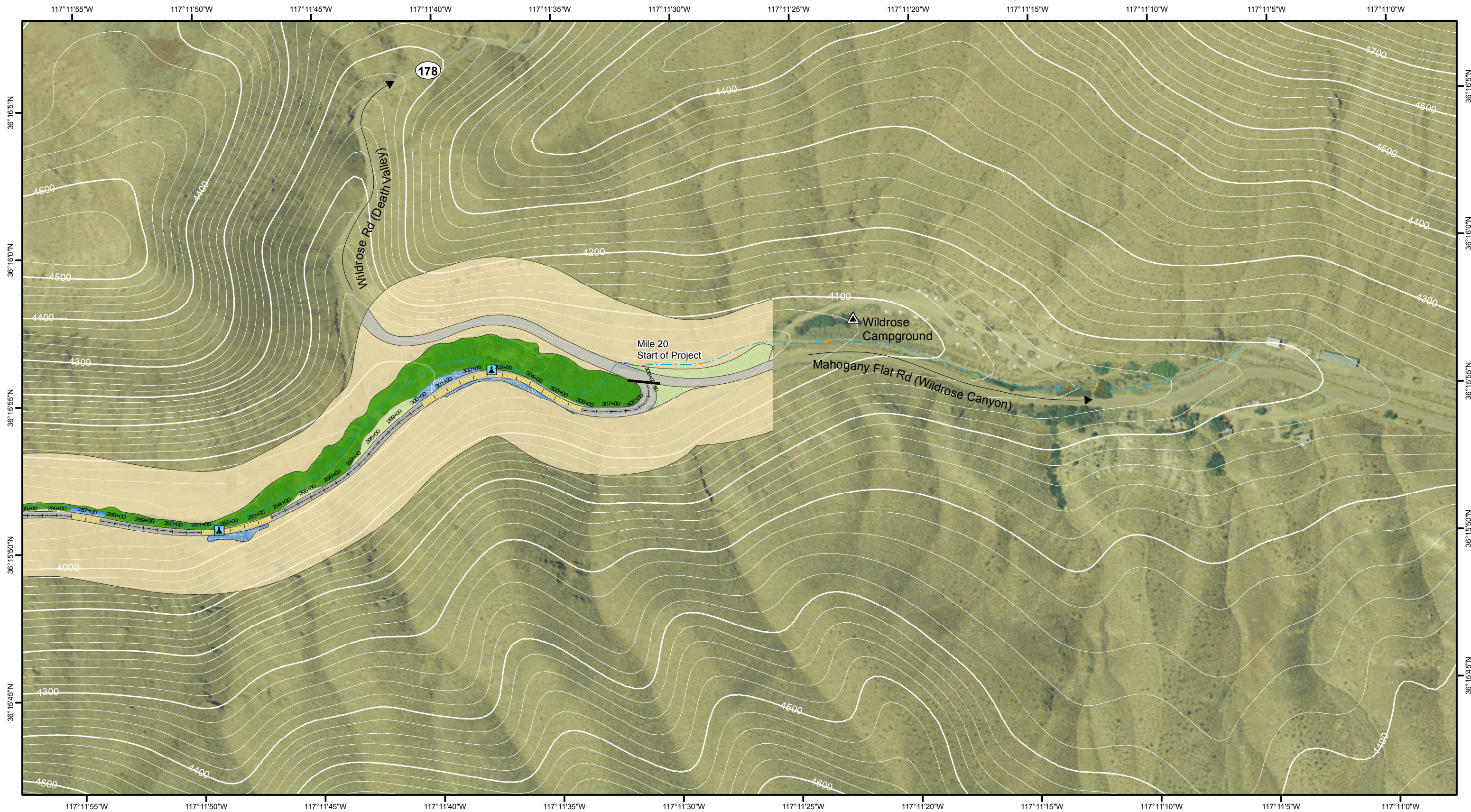
Death Valley National Park
Lower Wildrose Road Repair Project

Alternatives Detail

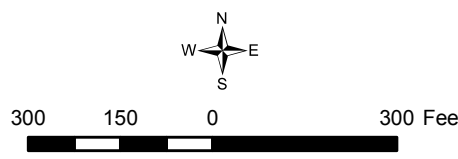
PSOMAS

Figure 3-e

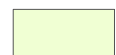










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California State Plane Coordinate System Zone4 NAD83 feet
Contour interval 20'. Derived from USGS 10 meter DEM
GPS Gridlines DMS WGS84



Legend

- | | | |
|--|---|---|
|  Mojave Desert Wash Scrub |  Fresh Water Marsh |  Proposed French Drain |
|  Desert Saltbush Scrub |  Roadway to be Repaired |  Existing Berm |
|  Mojave Riparian Forest |  Existing Channel |  Stationing |
| |  Proposed Low Water Crossing |  Spring |



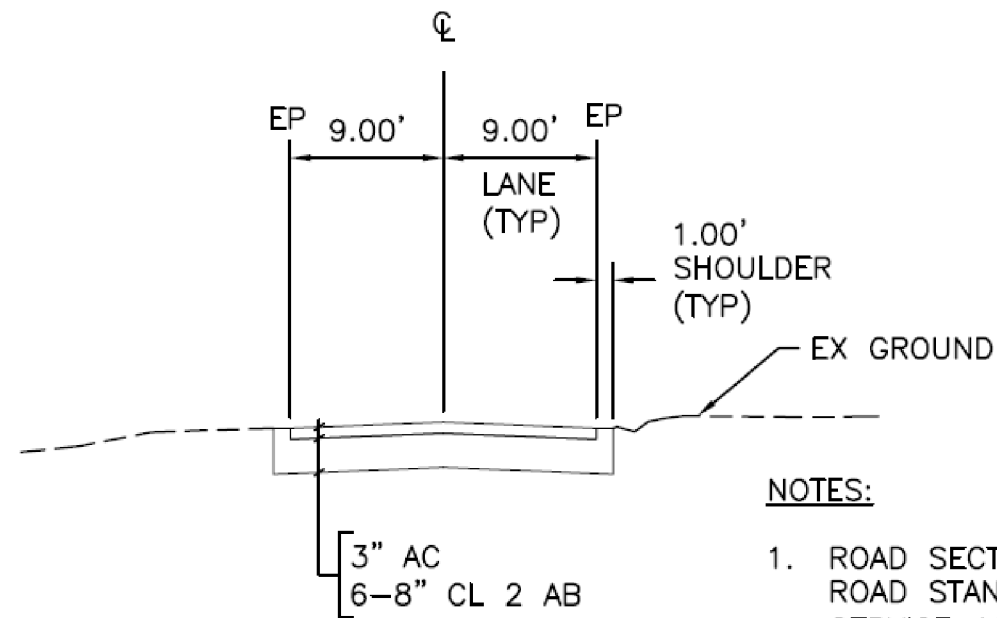
Death Valley National Park
Lower Wildrose Road Repair Project

Alternatives Detail

PSOMAS

Figure 3-f

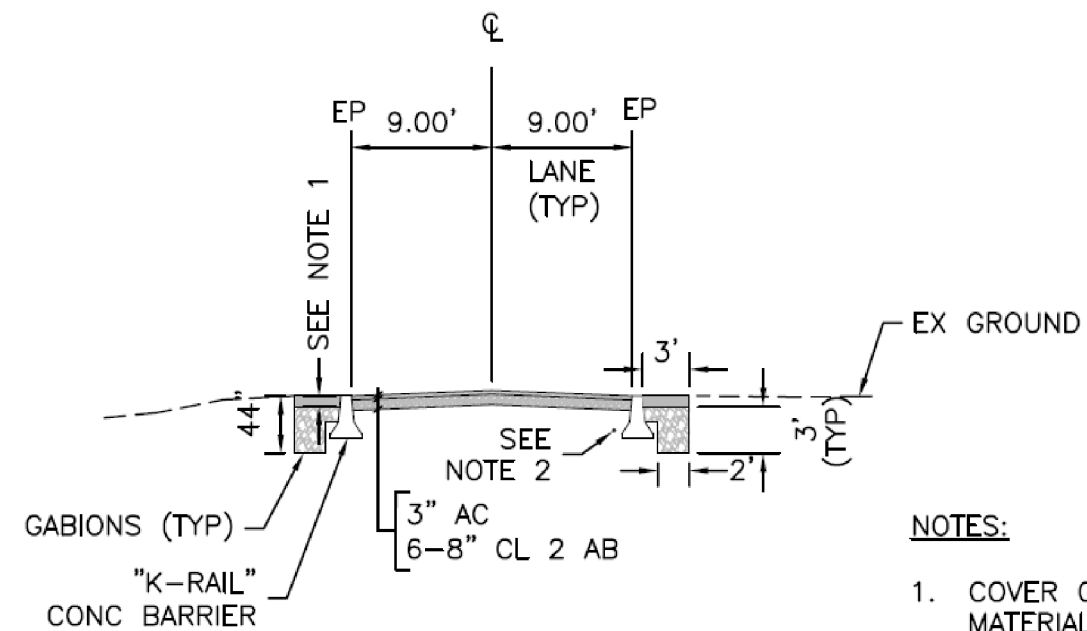
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NOTES:

1. ROAD SECTION IS BASED ON PARK ROAD STANDARDS, NATIONAL PARK SERVICE 1984 TABLE 10 "MINIMUM ROADWAY CROSS-SECTION REQUIREMENTS".
2. AVERAGE DAILY TRAFFIC = 50-200.
3. PULVERIZE EXISTING ROAD AC FOR PROPOSED ROAD BASE SECTION.

1 PROPOSED ROAD SECTION
TYP NO SCALE



NOTES:

1. COVER GABIONS WITH 8" OF NATIVE MATERIAL.
2. COMPACT MATERIAL AS NEEDED BEHIND CONCRETE BARRIER.

2 LOW WATER CROSSING PROTECTION DETAIL
TYP NO SCALE



Death Valley National Park
Lower Wildrose Road Repair Project

Typical Cross Sections

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Minor roadside drainage improvements would also be implemented, including but not limited to French drains¹ (Figures 3d, 3e, and 3f). The new road would be two lanes, with each lane measuring 9-feet wide. A 1-foot wide gravel shoulder would be constructed on both sides of the road for a total road width of 20 feet. The one location where the road does not meet the 20-foot minimum width is located approximately 400 feet northeast of the old Wildrose Station and Resort site, where a rock outcropping and a drainage channel limit the road width to 18 feet. At this location the rock outcropping would be chipped-back to allow for a 20-foot road width. The road cross-section would be 3" asphalt concrete (AC) over 6-8" aggregate base (AB) and be a hot-mix application (Figure 4).

2.2.2 *Alternative 3*

Repave and Widen Lower Wildrose Road, and Provide Drainage Features and Road Reinforcement at Drainage Crossings: Alternative 3 would consist of maintaining the current road alignment, but modifying the road in several locations to allow drainage to cross the road (Figures 3b, 3c, 3d, 3e, and 3f). In these locations, road reinforcement will also be provided to support the road during rain events. These different types of drainage features (e.g., culverts, Arizona crossings²), and road reinforcements (e.g., gabion baskets, buried k-rails, concrete subbase) will be evaluated to determine the impacts on the surrounding area (Figure 4). The entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains (Figures 3d, 3e, and 3f).

The new road would be two lanes, with each lane measuring 9-feet wide. A 1-foot wide gravel shoulder would be constructed on both sides of the road for a total road width of 20 feet. The one location where the road does not meet the 20-foot minimum width is just northeast of the old Wildrose Station and Resort site, where a rock outcropping and a drainage channel limit the road width to 18 feet. At this location the rock would be chipped-back to allow for a 20-foot road width. The road cross-section would be 3" AC over 6-8" AB and be a hot-mix application (Figure 4).

2.2.3 *Alternative 4 (Preferred Alternative)*

Repave and Widen Lower Wildrose Road, Provide Drainage Features and Road Reinforcement at Drainage Crossings, and Provide Turn-Out Parking Area for Observing Panamint Daisy Blooming Area: Alternative 4 would consist of maintaining the current road alignment, but modifying the road in several locations to allow drainage to cross the road (Figures 3b, 3c, 3d, 3e, and 3f). In these locations, road reinforcement will also be provided to support the road during rain events. These different types of drainage features (e.g., culverts, Arizona crossings), and road reinforcement (e.g., gabion baskets, buried k-rails, concrete

¹ A French drain is a trench covered with gravel, rock, or some other permeable surface that redirects surface and groundwater away from an area.

² An Arizona crossing is a type of road construction through a usually dry waterway that allows water to run over a road. Arizona crossings also describe culverts that allow water to pass through (beneath) a paved roadway.

subbase) will be evaluated to determine the impacts on the surrounding area (Figure 4). The entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains (Figures 3d, 3e, and 3f).

The new road would be two lanes, with each lane measuring 9-feet wide. A 1-foot wide gravel shoulder would be constructed on both sides of the road for a total road width of 20 feet. The one location where the road does not meet the 20-foot minimum width is just northeast of the old Wildrose Station and Resort site, where a rock outcropping and a drainage channel limit the road width to 18 feet. At this location the rock would be chipped-back to allow for a 20-foot road width (Figure 3-d).

This alternative would also include construction of a vehicle turn-out area at the location of the Panamint Daisy population to facilitate public observation of this protected wildflower, which is visible in a small area in Wildrose Canyon (Figure 3-b). The turn-out would provide safe visitor parking for viewing the Panamint Daisy during blooming season. The paved vehicle turn-out area would consist of a turn-out up to 10 feet wide and long enough to allow parallel parking for up to 3 (three) passenger vehicles (approximately 60 feet long). Directional signage and other road features will be implemented in accordance with local and federal requirements.

The road cross-section would be 3" AC over 6-8" AB and be a hot-mix application (Figure 4).

2.3 Comparison of Alternative Features

Table 1, *Comparison of Action Alternatives*, summarizes the primary features of each alternative.

Table 1
Comparison of Action Alternatives

Feature	Alt. 2	Alt. 3	Alt. 4
Maintain current road alignment	■	■	■
Repave roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary	■	■	■
Implement minor roadside drainage improvements (e.g., install French drains)	■	■	■
Roadway would measure 20 feet wide (2 lanes, each 9 feet wide, plus a 1-foot wide unpaved shoulder on each side)	■	■	■
Road cross-section would be 3-inch asphalt concrete over 6 to 8-inch aggregate base	■	■	■
Provide road reinforcement (e.g., gabion baskets, buried k-rails, and/or concrete sub-base) to protect the roadway from damage during rain events		■	■
Provide drainage features (e.g., Arizona crossings) to protect the roadway from damage from flooding		■	■
Construct paved vehicle turn-out at the Panamint Daisy viewing area			■

2.4 *Alternatives Considered but Dismissed*

Permanent Road Closure: Permanently closing Lower Wildrose Road was discussed as an alternative. Permanently closing the road would protect natural and cultural resources in the area and ensure visitor safety by denying visitor access to the area. However, assuring the ability of Park visitors to experience the unique resources of the Wildrose Area of the Park is a primary objective of the Park, which would be prevented by this alternative. Finally, this alternative would not meet the purpose and need of the Project, identified in Section 1.2.2, above. Therefore, this alternative was dismissed.

Gravel Road: Resurfacing Lower Wildrose Road with gravel was discussed as an alternative. This alternative would ensure uniformity of road surface throughout the project area. Closures related to construction would be minimized, and visitors would be able to access the unique natural and cultural resources of the Wildrose Area of the Park. However, vehicular travel along the roadway would be significantly slowed, which would discourage road use by Park visitors. Also, a gravel roadway would require more maintenance resources, as gravel would have to be reapplied regularly to ensure uniformity of surface throughout the project area. Over time, the additional maintenance efforts would be more costly to the Park than repaving the roadway. Therefore, this alternative was dismissed.

Realignment and raising the roadbed above the flood plain: This alternative was discussed. This alternative would provide the highest level of protection for the roadway, and the highest level of safety for Park visitors traversing the new roadway. However, construction of a raised, realigned roadway would destroy the existing alignment of Lower Wildrose Road (which is itself historic), and has the potential to severely impact natural and cultural resources within Wildrose Canyon. In addition, the cost for construction of such a roadway would be prohibitively high. High cost and the potential for severe impact to the historic roadway alignment and roadside environment that the Park is called upon to protect and preserve for enjoyment of visitors caused this alternative to be dismissed.

2.5 *Environmentally Preferred Alternative*

After completing the environmental analysis (provided in Section 3, below), the alternative that causes the least damage to the biological and physical environment and which best protects, preserves, and enhances historic, cultural, and natural resources is:

- **Alternative 4:** Repave and Widen Lower Wildrose Road, Provide Drainage Features and Road Reinforcement at Drainage Crossings, and Provide Turn-Out Parking Area for Observing Panamint Daisy Blooming Area.

Alternative 4 is the alternative that best promotes the national environmental policy expressed in NEPA (Sec. 101 (b)). The environmentally preferred alternative is the alternative that:

- **fulfills the responsibilities of each generation as trustee of the environment for succeeding generations.** Implementation of Alternative 4 would ensure that NPS has fulfilled this responsibility as trustee for the Park. Rehabilitation of the roadway,

including installation of drainage features and roadway reinforcements, would provide a safe alternative access to DEVA for motorists attempting to visit the Park from the Ridgecrest area, and a safe roadway upon which to visit the resources unique to the Wildrose Area of the Park. Construction of the Panamint Daisy viewing area would provide visitors seeking to view the blooming Panamint Daisy a specified area in which to park their vehicles without either blocking the roadway (creating a hazard for themselves and other visitors), parking on the shoulder (creating a potential hazard for themselves and other visitors), or venturing off the shoulder (creating a situation where natural resources might inadvertently be negatively impacted).

- **ensures for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.** Implementation of Alternative 4 would provide safe access to the resources unique to the Wildrose Area of the Park for all visitors. These resources include Wildrose Station, Wildrose Ranger Station/Campground, and the greater Wildrose/Charcoal Kilns/Thorndike/Mahogany Flat area.
- **attains the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.** Implementation of Alternative 4 would provide safe visitor access to the Wildrose Area of the Park, and through it, access to the remainder of the resources available at DEVA. Alternative 4 provides for construction of an off-road visitor parking area in the Panamint Daisy viewing area. Construction of the Panamint Daisy viewing area would provide visitors seeking to view the blooming Panamint Daisy a specified area in which to park their vehicles without either blocking the roadway (which creates a hazard for themselves and other visitors), parking on the shoulder (which creates a potential hazard for themselves and other visitors), or venturing off the shoulder (which creates a situation where natural resources might inadvertently be negatively impacted, which would be an undesirable consequence).
- **preserves important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.** Implementation of Alternative 4 would allow safe access to the Wildrose Area of the Park, in which can be found several important historic, cultural, and natural aspects of our national heritage. These include Wildrose Station, Wildrose Ranger Station/Campground, and the greater Wildrose/Charcoal Kilns/Thorndike/Mahogany Flat area. The Wildrose Area also supports the remains of a CCC camp which was established in 1935 and was the summer headquarters for NPS personnel. The site has been determined eligible for the National Register of Historic Places in consultation with the California SHPO. The roadway also served as a stagecoach road in the early 1900s, and the Wildrose Station served as a stage station and later as a gasoline station and small resort catering to Park visitors until it was closed in the 1970s. The Wildrose Area is also the historic homeland of the Timbisha Shoshone Tribe (members of the Tribe use the area seasonally to this day). Rehabilitation of the existing Wildrose Road will ensure safe access to and traversing through this area of unique historic, cultural, and natural resource for Park visitors.

- **achieves a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities.** Implementation of Alternative 4 would allow a greater number of Park visitors to more easily traverse Wildrose Road to visit and enjoy the resources unique to the Wildrose Area of the Park. Rehabilitation of the roadway and construction of the Panamint Daisy parking area would also serve to more closely define the boundaries of safe vehicular travel, making less likely the possibility of a motorist venturing outside of the roadway alignment during travel and potentially adversely impacting a natural or cultural resource or injuring themselves.
- **enhances the quality of renewable resources and approaches the maximum attainable recycling of depletable resources.** None of the alternatives presents an opportunity for enhancing the quality of renewable resources or helping to maximize attainable recycling of depletable resources.

The other three alternatives were not selected as the Environmentally Preferred Alternative because they fulfill fewer of these criteria comprising the national environmental policy expressed in NEPA (Sec. 101 (b)) than Alternative 4. The No Action Alternative (Alternative 1) meets none of these criteria. Alternatives 2 and 3 fulfill the same criteria as Alternative 4, with the exception of provision of a safe, off-road parking area for viewing the blooming Panamint Daisy, which enhances visitor safety and serves to prevent inadvertent impact to natural resources. Therefore, Alternative 4 is the Park's Environmentally Preferred Alternative.

2.6 *Comparison of Alternatives*

Table 2, *Comparison of Potential Environmental Effects*, provides a side-by-side comparison of the potential environmental effects of the alternatives under consideration in this EA.

Table 2
Comparison of Potential Environmental Effects

Alternative 1: No Action Alternative	Alternative 2: Maintain the current road alignment and repave the entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary. Includes minor roadside drainage improvements.	Alternative 3: Maintain the current road alignment and repave the entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary. Modify the road in several locations to improve drainage. Includes some road reinforcement structures.	Alternative 4: As Alternative 3, but also includes a vehicle turn-out area to facilitate viewing of the Panamint Daisy population.
Vegetation			
Riparian and desert habitats could sustain direct and repeated short-term minor to major adverse impacts due to unplanned emergency road repairs. These impacts could be site-specific or local and could result in potentially long-term indirect adverse impacts.	Repairs under this Alternative would delay road deterioration but not protect the road long-term. Although there would be short-term benefits, long-term effects from this Alternative related to vegetation are as for the No Action Alternative but delayed 10 to 20 years.	Repairs under this Alternative would provide long-term protection to the road and minimize the need for emergency repairs providing a long-term beneficial effect to vegetation. Construction would cause a short-term site specific minor impact to vegetation.	Analysis of this alternative is as for Alternative 3.
Wildlife			
Wildlife could sustain direct and repeated short-term minor to moderate adverse impacts due to unplanned emergency road repairs. These impacts could be site-specific or local and could result in potentially long-term indirect adverse impacts.	Repairs under this Alternative would delay road deterioration but not protect the road long-term. Although there would be short-term benefits, long-term effects from this Alternative related to wildlife are as for the No Action Alternative but delayed 10 to 20 years.	Repairs under this Alternative would provide long-term protection to the road and minimize the need for emergency repairs providing a long-term beneficial effect to wildlife. Construction would cause a short-term site specific minor impact to wildlife.	Analysis of this alternative is as for Alternative 3.
Threatened and Endangered Species			
Threatened and endangered species, especially desert tortoise, could sustain direct and repeated short-term minor to moderate adverse impacts due to unplanned emergency road repairs. These impacts would be site-specific and could result in potentially long-term indirect adverse impacts.	Repairs under this Alternative would delay road deterioration but not protect the road long-term. Although there would be short-term benefits, long-term effects from this Alternative related to Threatened and Endangered Species are as for the No Action Alternative but delayed 10 to 20 years.	Repairs under this Alternative would provide long-term protection to the road and minimize the need for emergency repairs providing a long-term beneficial effect to threatened and endangered species, especially desert tortoise. Construction would cause short-term site-specific impacts to threatened and endangered species.	Analysis of this alternative is as for Alternative 3.
Watershed Processes and Springs			
This Alternative would perpetuate the existing unsafe condition of the roadway. It would also do nothing to protect the roadway from damage from the spring nor to damage associated with low-intensity	Repairs under this Alternative would delay road deterioration but not protect the road long-term. Although there would be short-term benefits, long-term effects from this Alternative related to watershed processes and	Repairs under this Alternative would provide long-term protection to the road and minimize the need for emergency repairs. This Alternative includes measures to contain flow to the sides of the road, and when necessary,	Analysis of this alternative is as for Alternative 3.

Alternative 1: No Action Alternative	Alternative 2: Maintain the current road alignment and repave the entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary. Includes minor roadside drainage improvements.	Alternative 3: Maintain the current road alignment and repave the entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary. Modify the road in several locations to improve drainage. Includes some road reinforcement structures.	Alternative 4: As Alternative 3, but also includes a vehicle turn-out area to facilitate viewing of the Panamint Daisy population.
seasonal flooding. The roadway would continue to deteriorate, requiring significant emergency repair work following any storm events.	springs are as for the No Action Alternative but delayed 10 to 20 years.	direct flow under or over the road. This Alternative also includes measures for road reinforcement. These measures alter the natural hydrologic and sedimentologic regime, but no more than the No Action Alternative. While no road protection measures will protect against damage from large floods, this Alternative will require less maintenance, and almost certainly reduce the potential for damage to the roadway during a large flood, minimizing the need for future repair and maintenance. In addition, the diversion of the spring discharge point will alleviate frequent road repair at this location and improve spring water quality.	
Transportation and Visitor Experience			
The Alternative could result in repeated short-term direct minor to major adverse impacts to transportation and visitor experience due to emergency road repairs, and detours and because of the potential to close the road for an indefinite period of time.	Repairs under this Alternative would delay road deterioration but not protect the road long-term. Although there would be short-term benefits, long-term effects from this Alternative related to transportation and visitor experience are as for the No Action Alternative but delayed 10 to 20 years.	Repairs under this Alternative would provide protection to the road and minimize the need for emergency repairs providing a long-term beneficial impact to transportation and visitor experience.	Analysis of this alternative is as for Alternative 3. Visitor experience would benefit due to the addition of off-road parking for visitors viewing the Panamint Daisy.
Cultural and Historic Resources			
Cultural and historic resources could sustain indirect and repeated short-term minor to moderate adverse impacts due to repeated unplanned emergency road repairs, and could result in major adverse impacts to sites through loss of site integrity.	Repairs under this Alternative would delay road deterioration but not protect the road long-term. Although there would be short-term benefits, long-term effects from this Alternative related to cultural and historic resources are as for the No Action Alternative but delayed 10 to 20 years. . Impacts to cultural resources would be minor	Repairs under this Alternative would provide protection to the road and minimize the need for emergency repairs providing a long-term beneficial effect for the preservation for cultural and historic resources. Impacts to cultural resources would be minor and include widening of a historic road, chipping of a rock face in a narrow area, and construction of drainage	Analysis of this alternative is as for Alternative 3.

Alternative 1: No Action Alternative	Alternative 2: Maintain the current road alignment and repave the entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary. Includes minor roadside drainage improvements.	Alternative 3: Maintain the current road alignment and repave the entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary. Modify the road in several locations to improve drainage. Includes some road reinforcement structures.	Alternative 4: As Alternative 3, but also includes a vehicle turn-out area to facilitate viewing of the Panamint Daisy population.
	and include widening of a historic road, chipping of a rock face in a narrow area, and construction of drainage features that were not historically present.	features that were not historically present.	

3.0 Affected Environment and Environmental Consequences

This chapter describes the Affected Environment and the Environmental Consequences associated with the proposed Lower Wildrose Road Rehabilitation Project. NEPA requires that environmental documents disclose the environmental impacts of a proposed federal action, reasonable alternatives to that action, and any adverse environmental effects that cannot be avoided should the proposed action be implemented. The affected environment described in this chapter encompasses the geographical area affected by all of the alternatives. This is followed by a discussion of the environmental consequences to that resource that would occur as a result of implementation of each alternative beginning with Alternative 1 (the No Action Alternative) and followed by Alternatives 2, 3, and 4 (the action alternatives). This analysis provides the basis for comparing the beneficial and adverse effects of the alternatives.

3.1 Methods

3.1.1 Context

The physical context of the environmental analysis undertaken in the document is the local project area (Lower Wildrose Road between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary). The Wildrose/Emigrant Canyon area is also considered in the analysis because Lower Wildrose Road provides access to those areas. NEPA and the *Death Valley National Park General Management Plan* provide the environmental and social context for this analysis.

3.1.2 Impact Definitions

Impacts were assessed in terms of type, duration, context, and intensity.

- **Type**
 - **Direct impact** - an effect that is caused by an action and occurs in the same place. No intermediate outcomes occur between the cause and effect. For example, installation of a well may destroy a small plant population during the course of construction.
 - **Indirect impact** - an effect that is caused by an action, and occurs in the same place, or in a different place. Intermediate outcomes may occur between cause and effect. For example, installment of a well may cause a change in water level, which results in riparian vegetation loss. Indirectly, bird nesting habitat may be reduced.
 - **Beneficial impact** - a positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.
 - **Adverse impact** - in the context of most resources, an adverse impact refers to a change that moves the resource away from a desired condition or detracts from its appearance or condition.

- **Duration**
 - *Short-term impact* - an effect that results in a resource being returned to its pre-disturbance condition or appearance within five years.
 - *Long-term impact* - an effect that does not result in a resource returning to pre-disturbance condition or appearance, within approximately five years, and is therefore considered permanent.
- **Context**
 - *Site-specific impact* - effects that occur within a Park unit boundary only.
 - *Local impact* - effects within a Park unit boundary and adjacent lands (sharing a boundary) to a Park unit.
 - *Regional impact* - effects that occur within the Park, as well as on adjacent lands, and in the surrounding communities.
- **Intensity**
 - Because definitions of intensity (negligible, minor, moderate, or major) vary by resource, intensity definitions are provided separately for each (Tables 3-6). Unless otherwise noted, impact definitions apply to the intensity of the impact, which could be either adverse or beneficial.

Table 3
Intensity Definition: Vegetation—
non-Threatened, Endangered, or Sensitive (non-TES)

Impact Intensity	Intensity Definition
Negligible	There would be no observable or measurable impacts to native, non-TES species, their habitats, or the natural processes sustaining them. Impacts would be well within natural fluctuations.
Minor	Impacts would be detectable, but they would not be expected to be outside the natural range of variability. Mitigation measures, if needed to offset adverse effects, would be simple and successful.
Moderate	Individuals of native, non-TES species may be affected, or reproductive success may change; mortality or interference with activities necessary for survival can be expected on an occasional basis, and sizable portion of a population may be affected, but the impact is not expected to threaten the continued existence of the species in the Park unit. Impacts to native species, their habitats, or the natural processes sustaining them would be detectable. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.
Major	Impacts to native non-TES species, their habitats, or the natural processes sustaining them would be detectable. Loss of habitat or mortality might affect the viability of at least some native species. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed.

Table 4
Intensity Definition: Wildlife—
non-Threatened, Endangered, or Sensitive (non-TES)

Impact Intensity	Intensity Definition
Negligible	There would be no observable or measurable impacts to native, non-TES wildlife species, their habitats, or the natural processes sustaining them. Impacts would be well within natural fluctuations.
Minor	Impacts would be detectable, but they would not be expected to be outside the natural range of variability. Mitigation measures, if needed to offset adverse effects, would be simple and successful.
Moderate	Individuals of native, non-TES wildlife species may be affected, or reproductive success may change; mortality or interference with activities necessary for survival can be expected on an occasional basis, and sizable portion of a population may be affected, but the impact is not expected to threaten the continued existence of the species in the Park unit. Impacts to native species, their habitats, or the natural processes sustaining them would be detectable. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.
Major	Impacts to native non-TES wildlife species, their habitats, or the natural processes sustaining them would be detectable. Loss of habitat or mortality might affect the viability of at least some native species. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed.

Table 5
Intensity Definition, Vegetation and Wildlife—
Threatened, Endangered, and Sensitive (TES)

Impact Intensity	Intensity Definition
Negligible	The action could result in a change to a population or individuals of a TES species or designated critical habitat, but the change would be so small that it would not be of any measurable or perceptible consequence and would be well within natural variability. This impact intensity equates to U.S. Fish and Wildlife Service “may affect, not likely to adversely affect” or “No Effect” determinations.
Minor	The action could result in a change to a population or individuals of a TES species or designated critical habitat. The change would be measurable, but small and localized and of little consequence. Mitigation measures, if needed to offset the adverse effects, would be simple and successful. This impact intensity equates to a U.S. Fish and Wildlife Service “may affect, not likely to adversely affect” determination.
Moderate	Impacts to TES species, their habitats, or the natural processes sustaining them would be detectable and occur over a large area. Mitigation measures, if needed to offset adverse effects, would be extensive and likely to be successful. This impact intensity equates to the U.S. Fish and Wildlife Service determination, “may affect, likely to adversely affect.”
Major	The action would result in a noticeable effect to the viability of a population or individuals of a species or resource or designated critical habitat. Impacts to a TES species, critical habitat, or the natural processes sustaining them would be detectable both in and out of the Park. Loss of habitat or mortality might affect the viability of at least some TES species. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed. This impact intensity equates to the U.S. Fish and Wildlife Service determination, “may affect, likely to jeopardize the continued existence of a species or adversely modify the critical habitat for a species.”

Table 6
Intensity Definition, Watershed Processes and Springs

Impact Intensity	Intensity Definition
Negligible	Impacts would be so small that it would not be of any measurable or perceptible consequence. Impacts would not be detectable to the visitor.
Minor	Impacts would be slightly detectable, though not expected to have an overall effect on the visitor experience. Impact is slight but would be small and localized and of little consequence.
Moderate	Impacts would be clearly detectable and could have an appreciable effect on the visitor experience. The impact is readily apparent, would be measurable and consequential, but more localized.
Major	Impacts would have a substantial, highly noticeable influence on the wilderness experience, such as the permanent closure of a campground. The impact is severely adverse or exceptionally beneficial. The change would be measurable and the consequences could be permanent.

Table 7
Intensity Definition, Transportation and Visitor Experience

Impact Intensity	Intensity Definition
Negligible	Impacts would be so small that it would not be of any measurable or perceptible consequence. Impacts would not be detectable to the visitor.
Minor	Impacts would be slightly detectable, though not expected to have an overall effect on the visitor experience. Impact is slight but would be small and localized and of little consequence.
Moderate	Impacts would be clearly detectable and could have an appreciable effect on the visitor experience. The impact is readily apparent, would be measurable and consequential, but more localized.
Major	Impacts would have a substantial, highly noticeable influence on the wilderness experience, such as the permanent closure of a campground. The impact is severely adverse or exceptionally beneficial. The change would be measurable and the consequences could be permanent.

Table 8
Intensity Definition, Cultural and Historic Resources

Impact Intensity	Impact Type	Intensity Definition
Negligible	Adverse or Beneficial	Impact is at the lowest levels of detection with neither adverse nor beneficial consequences. The determination of effect for section 106 would be "no adverse effect".
Minor	Adverse	Disturbance of a site results in little, if any loss of integrity. The determination of effect for section 106 would be "no adverse effect".
	Beneficial	Maintenance and preservation of a site. The determination of effect for section 106 would be "no adverse effect".
Moderate	Adverse	Disturbance of a site results in loss of integrity. The determination of effect for section 106 would be "adverse effect". A memorandum of agreement is executed among the National Park Service and applicable state or tribal historic preservation officer and, if necessary, the Advisory Council on Historic Preservation in accordance with 36 CFR 800.6(b). Measures identified in the memorandum of agreement to minimize or mitigate adverse impacts reduce the intensity of impact under NEPA from major to moderate.
	Beneficial	Stabilization of a site. The determination of effect for section 106 would be "no adverse effect".
Major	Adverse	Disturbance of a site results in loss of integrity. The determination of effect for section 106 would be "adverse effect". Measures to minimize or mitigate adverse impacts cannot be agreed upon and the National Park Service and applicable state or tribal historic preservation officer and/or advisory council are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b).
	Beneficial	Active intervention to preserve a site. The determination of effect for section 106 would be "no adverse effect".

3.1.3 Cumulative Impacts

The Council on Environmental Quality (CEQ) describes a cumulative impact as follows (Regulation 1508.7):

"....a "Cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

General guidance and methodologies for the cumulative impacts analysis in this document generally follow those published by the CEQ (CEQ 1997). The cumulative projects addressed in this analysis include past actions, present actions, as well as any planning or development activity currently being implemented or planned for implementation in the reasonably foreseeable future. Cumulative actions are evaluated in conjunction with the impacts of an alternative to determine if they have any additive effects on a particular resource. Because some of the cumulative projects are in the early planning stages, the evaluation of cumulative impacts was based on a general description of the project.

There are two projects by the Park in the Wildrose area, one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. Ladder fuels and dead or dying pinion and juniper were removed in the spring of 2010. The project area is located within habitat for migratory birds and least Bell's vireo; therefore work is occurring outside of the breeding season (approximately mid-April through mid-August).

Additionally, the Park is considering plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years.

Cumulative effects to resources outlined below are based on analysis of past, present, and reasonably foreseeable future actions in Death Valley in combination with potential effects of each alternative considered.

3.1.4 *Impairment*

Impairment is an impact that, in the professional judgment of the responsible NPS Manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. The need to analyze and disclose impairment impacts originates from the NPS Organic Act (NPS 1916). The Organic Act established the NPS with a mandate "to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

An impact would be less likely to constitute impairment if it is an unavoidable result, which cannot reasonably be further mitigated, of an action necessary to preserve or restore the integrity of park resources or values. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park
- Identified as a goal in the park's *General Management Plan* or other relevant NPS planning documents

The evaluation of impairment of Park resources was based on the type and intensity of impacts and the types of resources affected. Overall, beneficial impacts would not constitute impairment. With respect to the intensity of impacts, negligible and minor, adverse impacts are not of sufficient magnitude to constitute impairment. Moderate and major adverse impacts may constitute impairment but do not automatically do so. Rather, these impacts must be analyzed with respect to the three bulleted criteria above. Impairment is considered for cultural and natural resource topics (in this EA, Vegetation, Wildlife, Threatened and Endangered Species,

Watershed Processes and Springs, and Cultural Resources). Impairment is addressed in the conclusions sections of these impact topics for each alternative.

3.1.5 Unacceptable Impacts

An unacceptable impact, as defined in the NPS' *Management Policies 2006*, is an impact which falls short of impairment, but is still not acceptable within the context of a particular park's environment. NPS' *Management Policies 2006* provides the following thresholds for determining if an impact is unacceptable. Unacceptable impacts are impacts that, individually or cumulatively, would

- be inconsistent with a park's purposes or values, or
- impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process, or
- create an unsafe or unhealthful environment for visitors or employees, or
- diminish opportunities for current or future generations to enjoy, learn about, or be inspired by park resources or values, or
 - unreasonably interfere with park programs or activities, or
 - an appropriate use, or
 - the atmosphere of peace and tranquility, or the natural soundscape maintained in wilderness and natural, historic, or commemorative locations within the park.
 - NPS concessioner or contractor operations or services.

Each alternative was evaluated against these criteria to determine if they might individually or cumulatively cause unacceptable impacts in the Park. Unacceptable impacts are addressed in the conclusion section of each impact topic under each alternative.

3.2 Mitigation Measures Common to All Action Alternatives

The NPS places a strong emphasis on avoidance, minimization, and mitigation of impacts. To help ensure that field activities associated with the Lower Wildrose Road Project avoid environmental impact where possible and minimize environmental impact as necessary, mitigation measures have been developed that are common to all action alternatives. Mitigation measures that would be employed prior to, during, and after construction is presented below.

3.2.1 Prior to Construction

- A construction work schedule shall be prepared by the Construction Contractor for the project that minimizes effects on wildlife in adjacent habitats, peaks in visitation, and noise levels near the Wildrose campground and volunteer trailer areas. The work schedule shall be submitted for park review and approval prior to construction.
- Supervisory construction personnel shall attend an Environmental Protection briefing provided by the park prior to working on site. This briefing is designed to familiarize workers with statutory and contractual environmental requirements and the recognition of

and protection measures for archeological sites, sensitive habitats, water resources, and wildlife habitats.

- The NPS will review and approve an employee education program prior to the initiation of work. The program may consist of a class or video presented by a qualified biologist. All employees will participate in the desert tortoise education program prior to initiation of activities. New employees will participate in the education program prior to working on-site. The program will cover the following topics at a minimum:
 - distribution of the desert tortoise,
 - general behavior and ecology of the desert tortoise,
 - sensitivity to human activities,
 - legal protection,
 - penalties for violations of State or Federal laws,
 - reporting requirements, and
 - project protective measures.
- In areas of riparian habitats, construction staging and activities shall be confined to the roadway and a two-foot wide strip on either side of the roadway. Outside of the riparian habitat areas, construction staging and activities shall be confined to the roadway and a 10-foot wide strip on either side of the roadway. Protective barriers shall be placed around areas adjacent to the project area that require special attention as identified by the park, such as specified staging areas, trees, plants, root zones, river edges, aquatic habitats, wetlands, sensitive wildlife habitats, cultural resource features, and infrastructure. Barriers shall be installed prior to construction and field inspected by natural and cultural resource personnel to verify proper placement.
- Preconstruction surveys shall be conducted by a qualified biologist to identify the number, type and location of special status bird, bat and aquatic species within the project area. Structures and habitats that provide hibernacula, nursery colonies, or roosting habitat are to remain and other protective measures shall be identified during surveys.

3.2.2 *During Construction*

- The Construction Contractor shall implement and comply with all operational compliance required by the Storm Water Pollution Prevention Plan (SWPPP) issued for the project.
- Construction waste shall be separated into recyclable materials, green waste, and other debris that shall be placed in refuse containers daily and disposed of weekly. Recycled, toxic-free, and environmentally sensitive materials, equipment, and products shall be utilized whenever possible. Burning or burying of waste is strictly prohibited.
- Wastewater contaminated with silt, grout, or other by-products from construction activities shall be contained in a holding or settling tank to prevent contaminated material from entering watercourses or wetlands.

- Hazardous or flammable chemicals shall be prohibited from storage in the staging area, except for those substances identified in the Oil and Hazardous Materials Spill Prevention, Control, and Countermeasure Plan. Hazardous waste materials shall be immediately removed from project site in approved containers.
- Machinery and equipment shall be parked over containment pads designed to trap any leaking oil, fuel or hydraulic fluids and inspected daily.
- Secondary containment shall be required for all fuel storage. Routine oiling, lubrication, and refueling shall be conducted with secondary containment and is prohibited in the River Protection Overlay, water courses or wetlands at any time.
- Spill response materials including absorbent pads, booms, and other materials to contain hazardous material spills shall be maintained on the project site to ensure rapid response to spills.
- The Park Project Manager shall be immediately notified of all spills or releases of hazardous materials. Any spill release shall be digitally photographed or videotaped as part of response activities.
- The Construction Contractor shall implement and comply with the Exotic Species Management Plan prepared by the park for the project.
- All construction tools and equipment entering the park shall be cleaned by means of pressure washing and/or steam cleaning to arrive on-site free of mud or seed-bearing material. Each piece of equipment shall undergo inspections immediately prior to entry of the park.
- Clearing of vegetation and ground disturbance shall be minimized to the greatest extent possible.
- Vegetation salvage, seed collection and revegetation shall be implemented to the extent possible in accordance with recommendations of the Park Botanist.
- Topsoil shall be salvaged, segregated during storage, and reused in the proper location and depth. Wetland soils shall be salvaged and reused as fill in wetland areas. Stockpiles of soils infected with fungal pathogens (root rot) must not be moved and reused in non-infected areas of the park. Equipment buckets, tires and hand tools used in areas containing root rot shall be cleaned prior to removal.
- Stationary noise sources shall be located as far as possible from residential housing and visitor lodging and camping areas. Construction equipment shall not be left running while standing by. All on-site work that generates noise levels above 76db at the site boundary in the vicinity of residential housing and visitor lodging and camping areas shall be done between 8am and 5pm.

- Excavation sites must be monitored or covered to avoid trapping wildlife and routes of escape should be maintained. The construction site shall be inspected daily for appropriate covering and flagging of excavation sites. Each morning the project area shall be inspected for wildlife trapped in excavation pits. A qualified biologist will be available to inspect all excavations before refilling occurs.
- Except on paved roads, vehicle speed will not exceed 15 miles per hour through desert tortoise habitat.
- If a desert tortoise is discovered on the road, traffic will be stopped until the desert tortoise moves off the roadway of its own volition.
- In desert tortoise habitat, workers will inspect for desert tortoises under the vehicle prior to moving the vehicle. If a desert tortoise is under the vehicle, the vehicle must not be moved until the animal leaves of its own volition. The worker will not handle the desert tortoise.
- No pets are allowed within the project site.
- All trash and food items will be promptly contained within closed, raven-proof containers. These containers will be removed at the end of the work day from the project site to reduce the attractiveness of the area to common ravens (*Corvus corax*) and other desert tortoise predators.
- The area of disturbance will be confined to the smallest practical area, considering topography, placement of facilities, location of burrows, public health and safety, and other limiting factors. Work area boundaries will be delimited with flagging or other marking to minimize surface disturbance associated with vehicle straying. Special habitat features, such as burrows and drinking sites, will be avoided to the extent possible. To the extent possible, previously disturbed areas adjacent to the site will be used.
- A Construction Contractor representative shall be designated to monitor the worksite daily for proper disposal of waste, wrappers, and food packaging.
- Site watering and slow truck speeds shall be managed as appropriate to control dust. When hauling dry materials, truck beds will be securely covered to prevent blowing dust or loss of debris.
- Appropriate signage shall be located and sequenced during construction activities to ensure safe and efficient traffic and pedestrian circulation. Information about traffic detours and recreational closures shall be provided to visitors as they enter the park at each entrance station.
- Construction will occur outside of migratory bird breeding and rearing season, which is March 15 to August 15.

- A cultural resources monitor will be present during construction in archeological sites to monitor ground disturbing activities taking place with construction efforts occurring at Wildrose Station. The monitor shall meet the Secretary of the Interior's Standards for archaeologists (NPS 1983).
- In the event that cultural resources are exposed during project implementation, the monitor/archaeologist shall be empowered to temporarily halt construction activities in the immediate vicinity of the discovery while it is evaluated for significance in consultation with an NPS or Park archaeologist.
- If cultural resources are discovered while the monitor/archaeologist is not present, work in the immediate area must be halted and the Park archaeologist notified immediately to evaluate the resource(s) encountered. If any cultural resources discovery proves to be significant, additional work, such as data recovery excavation, may be warranted and would be discussed in consultation with an NPS or Park archaeologist.
- In the unlikely event of discovery of human remains, all work in the immediate vicinity of the discovery shall cease, and any necessary steps to insure the integrity of the immediate area shall be taken. The NPS archaeologist would be immediately notified. The NPS, as managing agency, shall be responsible for compliance with the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA). NPS shall initiate consultation with the State Historic Preservation Officer (SHPO) and Tribal Historic Preservation Officer (THPO) to resolve potential adverse effects as per the Park's Inadvertent Discovery Plan.

3.2.3 *Post-Construction*

- All tools, equipment, barricades, signs, surplus materials, debris, and rubbish shall be removed by the Construction Contractor from the project work limits upon project completion.
- The Park will monitor the success of revegetation efforts. Plant materials used for revegetation shall remain alive and in a healthy, vigorous condition for a period of one year after final acceptance of planting. The project site shall be monitored by the Park Botanist. All plants determined to be in unhealthy condition shall be replaced.
- The Park will monitor and remove invasive species from the project area for a period of four years post construction in accordance with recommendation of the Park Botanist.
- During internal and public scoping, concern was raised regarding the potential for resource damage to occur from drawing additional attention to the rare Panamint Daisy. A mitigation common to all alternatives will avoid the installation of any road sign identifying the Panamint Daisy or its habitat. This mitigation would enable Alternative 4, the Park's preferred alternative, to provide a safe place for visitors to explore and self-discover Panamint Daisy habitat with negligible impact to an established population of this rare plant.

- Two permanent signs, one at each entrance to Wildrose Canyon, shall be erected warning Park visitors of the potential for flash flooding to occur during precipitation events.

3.3 Existing Conditions

3.3.1 Regional Setting

Death Valley is a 156-mile long valley bounded by the Amargosa Range to the east and Panamint Range to the west. The Great Basin Desert is to the north, while the Sonoran Desert is south of the Park. The vast majority of parklands are located within the Mojave Desert. Minor mountain ranges within the Park include the Owlshead Mountains, Black Mountains, Funeral Mountains, Cottonwood Mountains, and Grapevine Mountains. The Park is roughly bounded by the Inyo Mountains to the north, the Amargosa Desert to the east, open Mojave Desert and lands associated with the China Lake Naval Weapons Center to the south, and Panamint Valley and the Inyo Mountains to the west.

3.4 Environmental Analysis

3.4.1 Vegetation and Habitat Types

3.4.1.1 Affected Environment

The vegetation in Death Valley reflects the range of elevations from lower desert scrub habitats to higher elevation forests. Desert shrubland is the most extensive vegetation type in Death Valley, covering the lower elevations. It dominates about three-fourths of the Park landscape and includes the alkali sink, and shrublands dominated by creosote bush (*Larrea tridentata*), saltbush (*Atriplex* sp.), or other species. At higher elevations, sagebrush (*Artemisia* sp.) is dominant. Bitterbrush (*Purshia* sp.), blackbrush (*Coleogyne ramosissima*), and greenfire (*Menodora spinescens*) are also common.

Although most of the Park is arid and dry some perennial streams do exit in the Park including the upper portion of Wildrose Wash next to the project area. This area supports riparian vegetation communities.

Five plant and/or wetland communities were observed within and adjacent to the Project area during the field surveys (depicted on Figures 3a through 3f). The communities present on site include Mojave riparian forest, Mojave desert wash scrub, emergent wetland, desert saltbush scrub, and Mojave creosote bush scrub. Each plant community observed within the project area is described below.

Mojave Riparian Forest

Within the Lower Wildrose Road project site, much of the Mojave riparian forest (Holland 1986) (Element Code 61700) is dominated by narrowleaf willow (*Salix exigua*) with Fremont cottonwood along the perennial flowing water. The understory is sparse in the areas under the cottonwoods and willows, becoming denser in the open canopy areas. The understory is mainly

comprised of scale-broom (*Lepidospartum squamatum*), with intermittent rubber rabbitbrush (*Chrysothamnus nauseosus* ssp. *mohavensis*), Emory baccharis (*Baccharis emoryi*), and bractscale and four-wing saltbush (*Atriplex serenana*, *A. canescens*, respectively). The Mojave riparian forest provides potentially suitable habitat for southwestern willow flycatcher, western yellow-billed cuckoo, and least Bell's vireo. The Mohave riparian forest located at the upper end of the project area near the junction with Emigrant Canyon Road and Charcoal Kilns Road supports a small closed canopy and open understory.

Several small additional areas of Mojave riparian forest were mapped within the project area toward the west, along the north and south sides of the road, two additional areas on the north side of the road in Wildrose Wash exhibit perennial flow. Small springs in the middle of the road are the source for emergent wetlands features along the roadsides outside of the channel. The springs flow from the middle of the road toward the south side of the road and continue along the southern edge of the road until drying out toward the west. The understory in these areas includes rushes (*Juncus* spp.), sedges (*Scirpus* spp.), rabbitfoot grass (*Polypogon monspeliensis*), and intermittent areas of cattail (*Typha* sp.). An area of emergent wetlands was observed and mapped along the north side of the road as well, associated with an area of Mojave riparian forest.

Mojave Desert Wash Scrub

Within the Lower Wildrose Road project site, much of the Mojave Desert wash scrub (Element Code 63700) (Holland 1986) is comprised of scale-broom (*Lepidospartum squamatum*), rubber rabbitbrush (*Chrysothamnus nauseosus* ssp. *mohavensis*), Emory baccharis (*Baccharis emoryi*), and bractscale and four-wing saltbush (*Atriplex serenana*, *A. canescens*, respectively), among others. Areas of alluvium fan were observed in the larger, drier channels to the west, and included such species as: bractscale, cheesebush (*Hymenoclea salsola*), brittlebush (*Encelia farinosa*), and desert straw (*Stephanomeria pauciflora*), among others. The open nature of this community along with the softer alluvial soils and wash banks provide suitable habitat for desert tortoise for burrowing, feeding, escape from the sun, and for movement throughout the Wildrose Wash area.

Transmontane Freshwater Marsh

Within the Lower Wildrose Road project site, the transmontane freshwater marsh (Element Code 52430) (Holland 1986) areas include rushes (*Juncus* spp.), sedges (*Scirpus* spp.), rabbitfoot grass (*Polypogon monspeliensis*), and intermittent areas of cattail (*Typha latifolia*). Small springs in the middle of the road are the source for emergent wetlands features along the roadsides outside of the channel. The springs flow from the middle of the road toward the south side of the road and continue along the southern edge of the road until petering out toward the west. The understory in these areas includes rushes (*Juncus* spp.), sedges (*Scirpus* spp.), rabbitfoot grass (*Polypogon monspeliensis*), and intermittent areas of cattail (*Typha* sp.). An area of emergent wetlands was observed and mapped along the north side of the road as well, associated with an area of Mojave riparian forest.

This community is found only in areas with flowing water. This community does not form closed canopies along Lower Wildrose Road and was observed to form linear community patches within the project area, following the flowing braids of Wildrose Wash. The only large area of

transmontane freshwater marsh is located at the upper end of the project site approximately one mile southwest of the junction with Emigrant Canyon Road and Charcoal Kilns Road. At this location it forms some understory to the Mojave riparian forest community. Although small in size the fresh water in this community provides an important open water resource for all the wildlife in the area and provides supplemental growth of thicker vegetation at some locations that enhances the local habitat for least Bell's vireo, southwestern willow flycatcher and western yellow-billed cuckoo.

Desert Saltbush Scrub

Within the Lower Wildrose Road project site, the desert saltbush scrub (Element Code 36110) (Holland 1986) is comprised of bractscale, four-wing saltbush (*Atriplex serenana*, *A. canescens*), rubber rabbitbrush (*Chrysothamnus nauseosus* ssp. *mohavensis*), Emory baccharis (*Baccharis emoryi*), Mormon tea (*Ephedra* spp.), buckwheats (*Eriogonum fasciculatum* var. *polifolium*, *E. deflexum* var. *deflexum*), and Panamint plume (*Stanleya pinnata* var. *pinnata*), with intermittent black-banded rabbitbrush (*Chrysothamnus paniculatus*) and creosote bush (*Larrea tridentata*), among others. Large sections of this area include ephemeral drainages comprised of a series of low gradient channels and braided channel networks carrying the seasonal flow. This community provides suitable desert tortoise habitat. This habitat would also provide burrow sites, such as under creosote bush other scrubs with windblown sands or small hummocks, pallet sites, forage, and mating sites.

Mojave Creosote Bush Scrub

The Mojave creosote bush scrub (Element Code 34100) (Holland 1986) within the Lower Wildrose Project area is co-dominated by creosote bush (*Larrea tridentata*) and white bur-sage (*Ambrosia dumosa*), with numerous other annual forb and grass species in the understory and areas of bare ground. This habitat is located in the more western and southern portions of the site, transitioning from desert saltbush scrub. Large sections of this area include ephemeral drainages comprised of a series of low gradient channels and braided channel networks carrying the seasonal flow. This community provides suitable desert tortoise habitat. This habitat would also provide burrow sites, such as under creosote bush other scrubs with windblown sands or small hummocks, pallet sites, forage, and mating sites.

3.4.1.2 Environmental Consequences

Alternative No. 1 (No Action):

The No Action Alternative maintains the status quo along Lower Wildrose Road, as described in the Affected Environment/Existing Conditions section above. These existing conditions provide a baseline from which to compare the action alternatives, to evaluate the magnitude of proposed changes, and to measure the environmental effects of those changes.

Analysis

Under Alternative 1, the roadway would continue to deteriorate and eventually portions of the road could fail. Current maintenance and safety issues would continue to occur and most likely increase in intensity. Road failure could occur suddenly as the result of a single event or over the course of years; both scenarios present a potential danger to Park visitors. Emergency road

repairs would have the potential to cause impacts to vegetation along the road including emergent wetlands and riparian habitats, and potentially affecting mature trees. These potential impacts could occur because emergency work could not be undertaken with the benefit pre-planning and the associated implementation of resource avoidance measures.

Continued degradation and eventual failure of the road is expected to occur under Alternative 1. Overall, this alternative would result in site specific, repeated short-term direct adverse impacts to vegetation due to the potential for repeated repair activities that would result in long-term, direct minor to major adverse impacts on vegetation.

Cumulative Impacts

Cumulative impacts to vegetation are based on analysis of past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two projects by the Park in the Wildrose area, one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. Neither of these projects is expected to contribute to impacts to vegetation within or around the area of the proposed action.

Alternative 1 and the cumulative project have the potential to result in site-specific long-term, minor to major adverse impacts on vegetation due to the potential for repeated emergency repair actions.

Impairment

The No Action Alternative has the potential to result in site specific, direct, adverse impacts to riparian and other vegetation habitats that could result in a fundamental change to the landscape along Wildrose Road to vegetation. These impacts would be limited to the area immediately adjacent to Wildrose Road; they would not extend regionally. Although the potential impacts are adverse, because the potential impacts are confined to just the Lower Wildrose area these impacts would not impair these resources of the Park for future generations.

Unacceptable Impacts

The No Action Alternative would not result in unacceptable impacts to vegetation and habitat types. Allowing the roadway to continue to deteriorate would have the effect of minimizing visitor access through Wildrose Canyon, which would minimize human disturbance for vegetation and habitat types within the canyon. This would constitute an overall benefit for vegetation and habitats within the canyon.

Alternative No. 2

This alternative would maintain the current road alignment while repaving the entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary. This alternative would also include implementation of minor roadside drainage improvements.

Analysis

Road repair under this alternative would have construction-related direct, short-term, adverse impacts to vegetation, especially to desert saltbush scrub and Mojave desert wash habitats along the lower portion of the project area. Short-term direct temporary impacts include removal of or disturbance to a total of 12.96 acres of plant communities, including:

- 2.55 acres of desert saltbush scrub
- 9.64 acres of Mojave desert wash scrub
- 0.63 acres of Mojave creosote bush scrub
- 0.08 acres of Mojave riparian forest and
- 0.05 acres of fresh water marsh

The 12.96 acres of plant communities identified would be temporarily impacted as a result of repaving activities. Impacts to Mojave riparian forest and fresh water marsh were calculated by assuming that in areas of riparian habitats, construction staging and activities would be limited to the roadway and a two-foot wide strip on either side of the roadway. The two-foot strip was allowed because within this strip the riparian vegetation is broadly interspersed with weedy roadside-disturbance-loving species. Beyond the two-foot strip the disturbance from the road itself becomes less evident, riparian vegetation becomes more noticeably dense, and the potential for adverse impacts to true riparian habitat and potentially occurring sensitive plant species more likely. Outside of the riparian habitat areas, a 10 foot construction impact zone was calculated on each side of the road.

Construction activities would take place within a delineated area and would utilize the application of best management practices, such as erosion and sediment control measures (see Section 3.2, above).

Alternative 2 would delay but not eliminate the more extensive adverse effects described under Alternative 1 including those resulting from an uncontrolled road failure and emergency road repair. It is anticipated that repaving would delay the effect by up to 20 years. This alternative would provide a temporary beneficial impact to vegetation because Lower Wildrose Road would be stable for some years, but would still be susceptible to failure in a heavy flow event. The improved drainage features would reduce the potential for erosion, but undermining would remain a possibility in heavy flow event. Site restoration including revegetation would further reduce the potential for erosion and undermining by providing a stable top soil along the pavement/dirt interface.

Alternative 2 would have a direct, site specific, short-term, moderate adverse impact on vegetation due to construction. Because of the planned improvements under this Alternative there would be the potential for direct long term adverse minor to major impacts from eventual deterioration from erosion and undermining. However, these impacts could occur 10 to 20 years into the future.

Cumulative Impacts

The cumulative impact analysis for vegetation under Alternative 2 is the same as described under the No Action Alternative. The road improvements contemplated under Alternative 2 are anticipated to create negligible to minor cumulative adverse impacts to vegetation.

Impairment

Alternative 2 has the potential to result in site specific, direct, adverse impacts to 12.96 acres of plant communities that could result in a fundamental change to the landscape along Wildrose Road during construction. This impact would be limited to the area immediately adjacent to Wildrose Road; it would not extend regionally. Although the potential impact is adverse, because it is confined to just the Lower Wildrose area, and because it is short-term in duration, it would not impair these resources of the Park for future generations.

Unacceptable Impacts

Alternative 2 would not result in unacceptable impacts to vegetation and habitat types. Implementation of Alternative 2 would impact 12.96 acres of plant communities along Wildrose Road; however, this impact would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*. Since this impact is localized and short-term, it would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process

Therefore, this impact is not an unacceptable impact.

Alternative No. 3

This alternative would maintain the current road alignment and modify the road in several locations to allow drainage to cross over the road. In these locations, road reinforcement will also be provided to support the road during rain events. These different types of drainage features (e.g., culverts, Arizona crossings), and road reinforcements (e.g., gabion baskets, buried k-rails, concrete subbase) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary, would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains.

Analysis

Alternative 3 would eliminate the more extensive adverse effects described under Alternative 1 including those resulting from a road failure due to high flow events and emergency road repair.

The improved drainage features and road reinforcements would reduce the potential for erosion and undermining. Site restoration including revegetation would further reduce the potential for erosion and undermining by providing a stable top soil along the pavement/dirt interface.

Road repair under this alternative would have direct, site-specific short-term, construction-related moderate adverse impacts to vegetation in the lower portion of the project area. Short-term direct temporary impacts include removal of or disturbance to a total of 12.96 acres of plant communities, including:

- 2.55 acres of desert saltbush scrub
- 9.64 acres of Mojave desert wash scrub
- 0.63 acres of Mojave creosote bush scrub
- 0.08 acres of Mojave riparian forest and
- 0.05 acres of fresh water marsh

The 12.96 acres of plant communities identified would be temporarily impacted as a result of repaving activities. Impacts to Mojave riparian forest and fresh water marsh were calculated by assuming that in areas of riparian habitats, construction staging and activities would be limited to the roadway and a two-foot wide strip on either side of the roadway. The two-foot strip was allowed because within this strip the riparian vegetation is broadly interspersed with weedy roadside-disturbance-loving species. Beyond the two-foot strip the disturbance from the road itself becomes less evident, riparian vegetation becomes more noticeably profligate, and the potential for adverse impacts to true riparian habitat and potentially occurring sensitive plant species more likely. Outside of the riparian habitat areas, a 10-foot construction impact zone was calculated on each side of the road.

Construction activities would take place within a delineated area and would utilize the application of best management practices, such as erosion and sediment control measures (see Section 3.2, above). With restoration of the temporary disturbance areas, Alternative 3 would result in long-term site-specific beneficial impacts to vegetation.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions associated with Alternative 3 would result in a long-term, beneficial cumulative impact to vegetation.

Impairment

Alternative 3 has the potential to result in site specific, direct, adverse impacts to 12.96 acres of plant communities that could result in a fundamental change to the landscape along Wildrose Road during construction. This impact would be limited to the area immediately adjacent to Wildrose Road; it would not extend regionally. Although the potential impact is adverse, because it is confined to just the Lower Wildrose area, and because it is short-term in duration, it would not impair these resources of the Park for future generations.

Unacceptable Impacts

Alternative 3 would not result in unacceptable impacts to vegetation and habitat types. Implementation of Alternative 3 would impact 12.96 acres of plant communities along Wildrose

Road; however, this impact would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*. Since this impact is localized and short-term, it would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process

Therefore, this impact is not an unacceptable impact.

Alternative No. 4

This alternative would consist of maintaining the current road alignment with modifications in several locations to allow drainage to cross over the road. Road reinforcement will also be provided at some locations to support the road during rain events (e.g., culverts, Arizona crossings), and road reinforcement (e.g., gabion baskets, buried k-rails, concrete subbase) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary, would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains. This alternative would also include construction of a 10 foot wide by 60 feet long vehicle turn-out area at the location of the Panamint Daisy population to facilitate public observation of this protected wildflower.

Analysis

The analysis for this alternative for vegetation is the same as described for Alternative 3 above, except that this alternative would include a parking area for visitors at the Panamint Daisy viewing area. Approximately 1,800 square feet of primarily disturbed roadway shoulder and adjacent vegetation would be permanently lost for the construction of the Panamint Daisy Parking area.

Cumulative Impacts

The cumulative impact analysis for vegetation under Alternative 4 is the same as described under Alternative 3.

Impairment

Alternative 4 has the potential to result in site specific, direct, adverse impacts to 12.96 acres of plant communities that could result in a fundamental change to the landscape along Wildrose Road during construction. This impact would be limited to the area immediately adjacent to Wildrose Road; it would not extend regionally. Although the potential impact is adverse, because it is confined to just the Lower Wildrose area, and because it is short-term in duration, it would not impair these resources of the Park for future generations.

Unacceptable Impacts

Alternative 4 would not result in unacceptable impacts to vegetation and habitat types. Implementation of Alternative 4 would impact 12.96 acres of plant communities along Wildrose

Road; however, this impact would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*. Since this impact is localized and short-term, it would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process

Therefore, this impact is not an unacceptable impact.

3.4.2 Wildlife

3.4.2.1 Affected Environment

Death Valley supports a wide variety of wildlife including more than 346 species of birds, 61 species of native mammals, 41 species of reptiles, and 6 species of amphibians. The variety of wildlife reflects the range and diversity of habitat types and elevation present in Death Valley. Recently two federally-listed species have been observed in the vicinity of the project area, least Bell's vireo (*Vireo bellii pusillus*), and desert tortoise (*Gopherus agassizii*). Least Bell's vireo has reportedly been observed within the Park seven times (NPS 2009), including one observation of a migratory, singing male in the Wildrose area of the Park. Least Bell's vireo is not known to nest in the Park although suitable habitat exists. Desert tortoise has been known from the project area for many years confirmed by museum records. There is no designated Critical Habitat within the Park for either species.

The Lower Wildrose Road Project area consists of a linear succession of habitats that provide available resources for many wildlife species. The riparian habitats transition to desert scrub along its outside edges and also completely transitions to desert scrub and desert wash habitats at the lower elevations when the water from Wildrose Wash becomes subsurface, after about the first 1.5 miles from the upper portion of the project area. This sharp transition also provides edge habitat along the upper portion of the project area, and so adds additional habitat diversity to the project area. The riparian habitats provides foraging habitat, nesting and denning habitat for many species of wildlife, such as road runners, chukar, Bewick's wren, Audubon's warbler, song sparrow, deer mouse, Yuma bats, Audubon's cottontail, and mule deer. The perennial flows of Wildrose Wash are important for wildlife use in the arid desert and provide habitat for an unidentified species of spring snail known to occur in Wildrose Wash. The saltbush scrub and desert wash scrub communities are more open and provide habitat for desert iguanas, zebra-tailed lizards, desert spiny lizards, western coachwhip snake, mourning dove, canyon wren, pocket mice, kangaroo rats, badgers, and coyotes. Many of these common species will use all the available habitats. A list of observed wildlife is provided in Appendix B, *List of Plants and Wildlife Observed*.

3.4.2.2 Environmental Consequences

Alternative No. 1 (No Action):

The No Action Alternative maintains the status quo along Lower Wildrose Road, as described in the Affected Environment/Existing Conditions section above. These existing conditions provide a baseline from which to compare the action alternatives, to evaluate the magnitude of proposed changes, and to measure the environmental effects of those changes.

Analysis

Under Alternative 1, the roadway would continue to deteriorate and eventually portions of the road could fail as a result of flooding and continued visitor traffic. Current maintenance and safety problems would continue to occur and most likely increase in intensity. Road failure could occur suddenly as the result of a single event or over the course of years potentially endangering Park visitors. Emergency road repairs would have the potential to cause impacts to wildlife habitats including emergent wetlands, riparian habitats, and desert scrub. These impacts could disrupt or destroy nests and nesting migratory birds during nesting season, and destroy mammal dens and nests. These activities could also result in a disruption of migratory patterns and also in the direct loss of individuals. Emergency work could also have a negative affect to water quality in Wildrose Wash affecting a yet unidentified species of spring snail known to be found in Wildrose Wash. These potential impacts could occur because emergency work could not be undertaken with pre-planning and resource avoidance measures. Alternative 1 has the potential to result in site specific, direct short and long term minor adverse impacts to wildlife as a result of potential repeated emergency repairs.

Cumulative Impacts

Cumulative impacts to wildlife are based on analysis of past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two projects by the Park in the Wildrose area, one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. Neither of these projects is expected to contribute to impacts to wildlife within or around the area of the proposed action.

Alternative 1 and the cumulative project have the potential to result in site specific, direct short term and long term minor adverse impacts to wildlife as a result of the potential for repeated emergency road repairs.

Impairment

The No Action Alternative has the potential to result in direct adverse impacts to wildlife including disruption of mating and migratory habits, and direct loss of individuals. Because these impacts are site specific they would not cause an impairment of wildlife resources for future generations.

Unacceptable Impacts

The No Action Alternative would not result in unacceptable impacts to wildlife. Allowing the roadway to continue to deteriorate would have the effect of minimizing visitor access through Wildrose Canyon, which would minimize human disturbance for wildlife utilizing the canyon. This would constitute an overall benefit for wildlife resources in Wildrose Canyon.

Alternative No. 2

This alternative would maintain the current road alignment while repaving the entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary. This alternative would also include implementation of minor roadside drainage improvements.

Analysis

Road repair under this alternative would have site specific, direct, short-term, moderate impacts to wildlife due to construction-related activities. Direct impacts would include removal of habitat, and disruption of normal life behaviors due to construction noise, vibration, and dust. Indirect impacts from noise and dust and equipment activity could also affect wildlife some distance from the project area. Removal of habitat would be temporary, impacted areas not subject to paving will be revegetated. Noise and dust and equipment activity would also be temporary in nature. Road repair activities would take place within a delineated area with the application of best management practices and protection measures (see Section 3.2, above). Following the repairs and restoration there would be a beneficial impact.

Alternative 2 has the potential to result in site specific, direct short term minor adverse impacts to wildlife as a result of construction activities, and could also result in short term indirect impacts due to dust and noise generation on wildlife during construction. Because this alternative does not provide drainage enhancement, Lower Wildrose Road will be stable for a number of years, but will eventually return to its present state and worse over a period of 10 to 20 years, leading to the need for emergency repairs and continued adverse impacts to wildlife.

Cumulative Impacts

Cumulative impacts to wildlife are based on analysis of past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two projects by the Park in the Wildrose area, one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. Neither of these projects is expected to contribute to impacts to wildlife within or around the area of the proposed action.

Alternative 2 and the cumulative projects have the potential to result in site specific, direct short term moderate impacts and also site-specific long term minor to moderate adverse impacts to wildlife as a result of the potential for repeated emergency road repairs.

Impairment

Alternative 2 would result in short-term adverse impacts on wildlife and has the potential to result in long term adverse impacts. Because the impacts are localized, this alternative would not impair these park resources for future generations.

Unacceptable Impacts

Alternative 2 would not result in unacceptable impacts to wildlife. Implementation of Alternative 2 would result in direct, short-term impacts associated with road construction activities; however, these impacts would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*. Since impacts are localized and short-term, they would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process.

Therefore, this impact is not an unacceptable impact.

Alternative No. 3

This alternative would maintain the current road alignment and modify the road in several locations to allow drainage to cross over the road. In these locations, road reinforcement will also be provided to support the road during rain events. These different types of drainage features (e.g., culverts, Arizona crossings), and road reinforcements (e.g., gabion baskets, buried k-rails, concrete subbase) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary, would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains.

Analysis

Road repair under this alternative would have the same affects on wildlife as those discussed for Alternative 2 above, except that the long term impacts would be beneficial because of the road side drainage improvements and road reinforcement measures.

Cumulative Impacts

The cumulative impact analysis for wildlife under Alternative 3 is the same as described under the No Action Alternative. See the discussion of cumulative effects under Alternative 2, except that the long term impacts would be beneficial.

Impairment

Alternative 3 would result in long-term, negligible, beneficial effects on wildlife. Therefore, this alternative would not impair these park resources for future generations.

Unacceptable Impacts

Alternative 3 would not result in unacceptable impacts to wildlife. Implementation of Alternative 3 would result in direct, short-term impacts associated with road construction activities; however, these impacts would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*. Since impacts are localized and short-term, they would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process.

Therefore, this impact is not an unacceptable impact.

Alternative No. 4

This alternative would consist of maintaining the current road alignment with modifications in several locations to allow drainage to cross over the road. Road reinforcement will also be provided at some locations to support the road during rain events (e.g., culverts, Arizona crossings), and road reinforcement (e.g., gabion baskets, buried k-rails, concrete subbase) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary, would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains. This alternative would also include construction of a 10 foot wide by 60 feet long vehicle turn-out area at the location of the Panamint Daisy population to facilitate public observation of this protected wildflower.

Analysis

The analysis for this alternative for wildlife is the same as described for Alternative 3 above, except that this alternative would include a parking area for visitors at the Panamint Daisy viewing area. This would result in an additional 1,800 square feet of permanent impacts.

Cumulative Impacts

The cumulative impact analysis for wildlife under Alternative 4 is the same as described under Alternative 3.

Impairment

Alternative 4 would result in long-term, negligible, beneficial effects on wildlife. Therefore, this alternative would not impair these park resources for future generations.

Unacceptable Impacts

Alternative 4 would not result in unacceptable impacts to wildlife. Implementation of Alternative 4 would result in direct, short-term impacts associated with road construction activities; however, these impacts would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*. Since impacts are localized and short-term, they would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process.

Therefore, this impact is not an unacceptable impact.

3.4.3 *Threatened, Endangered and Sensitive Species*

3.4.3.1 *Affected Environment*

No plant species were identified as threatened, endangered, or sensitive (TES) pursuant to the federal Endangered Species Act for the project area and so none are analyzed for this project.

Four wildlife species listed as TES were identified by literature review and consultation with the Park and US Fish and Wildlife Service (USFWS) as having a potential to be present in the project area. These species include:

- desert tortoise (*Gopherus agassizii*);
- least Bell's vireo (*Vireo bellii pusillus*);
- southwestern willow flycatcher (*Empidonax traillii extimus*); and
- yellow-billed cuckoo (*Coccyzus americanus occidentalis*).

Desert Tortoise

The desert tortoise is most common in desert scrub, creosote bush scrub, Mojave-saltscale scrub, desert wash, Joshua tree habitats and flat desert having sandy or gravelly soil, but occurs in almost every desert habitat except on the most precipitous slopes. They inhabit river washes, desert alluvial fans, canyon bottoms, rocky hillsides, and flat desert. Tortoises require friable soils for burrow construction and grasses or other low growing vegetation (wildflowers) for food. Major topographical features used by tortoises include flats, valleys, bajadas, and rolling hills. They typically avoid plateaus, playas, sand dunes, steep slopes and areas with many obstacles to free movement. They prefer surfaces covered with sand and fine gravel versus coarse gravel, pebbles, and desert pavement. Creosote bush, burrobrush, saltbush, Joshua tree, Mojave yucca and cacti are often present in the habitat along with other shrubs, grasses, and wildflowers. Tortoises are herbivores, eating annual forbs and grasses, and prefer green vegetation over dry.

Desert tortoises may be active at any time of the year, but most activity takes place between March and June and to a lesser extent in late summer in areas with summer rains. In early spring, tortoises may be active all day, foraging on tender grasses, broad-leafed annuals, and new shoots of perennials. By October, most tortoises have begun their winter hibernation.

The tortoises dig their burrows in dry gravelly soil beneath large bushes in open desert, or in the banks of sandy loam soils of washes. A typical burrow entrance is approximately 9" wide by 6" high and the entrances are half-moon shaped. On occasion, a tortoise will take cover under a bush or any natural shelter. The burrows are often crucial to survival, especially in hot weather when the direct rays of the sun can kill a tortoise in an hour or less.

In California, desert tortoises occur in northeastern Los Angeles, eastern Kern, and southeastern Inyo counties, and over most of San Bernardino, Riverside, and Imperial counties. In California, the tortoise is naturally absent from most areas west of the Salton Sea. Tortoises, however, are found naturally along the northern, eastern and western rim of the Coachella Valley in the foothills of the Little San Bernardino Mountains, the Painted and Whitewater Hills (in the latter they are common), and the San Jacinto and northern Santa Rosa Mountains.

There are no records of known occurrences of desert tortoise in the CNDDDB for the project area. The Park has historic records of observations of this species from Wildrose Canyon including:

- 1954 stated as Wildrose Canyon
- 1963 at 7,300 feet in elevation on Wildrose Canyon Road
- 2001 stated as Wildrose
- 2005 at 4,175 feet in elevation in Wildrose

The Park also has records from nearby locations including:

- 2004 in Panamint Valley on Panamint Valley Road 5-7 miles South of Hwy 190
- 2005 listed only as on Hwy 178
- 2006 On Panamint Valley Road South of Jct. with Wildrose Road
- 2006 Panamint Valley Road between Ballarat and Wildrose Road (4 individuals)

Least Bell's Vireo

Least Bell's vireo is a small grayish songbird that is most easily identified by its lack of the distinguishing marks that separate it from other vireos. In the field it is easily detected from some distance by its unique song, which is given repeatedly. This species is migratory and only occurs in this region during the breeding season. The males arrive sometime in late March to April and establish breeding territories and the females arrive shortly thereafter. Following a brief courtship period, nests are constructed (usually in willow trees) only about three to four feet off the ground where the female will lay typically 3-4 eggs. Least Bell's vireo usually return to their summer ground sometime in August to September. Preferred habitat is willow riparian woodland that supports a dense understory. This species has also been found in riparian habitats that support other types of vegetation, such as sycamore trees, and Mexican elderberry. Adjacent upland areas such as coastal sage scrub and chaparral habitats may be used for foraging (Federal Register 1994a).

The habitat in the project area is suitable for least Bell's vireo. There are no CNDDDB records for this species from the project area, however, there have been seven observations of least Bell's vireo in the Park (NPS 2009), including an observation of a singing male from the willow trees south of the ranger station in Wildrose Canyon, less than ½ mile from the project area. According to the records the male was determined to be a singing migrant. He was observed once in June of 2004 and not observed a second time. There are no records of more recent observations.

Southwestern willow flycatcher

The southwestern willow flycatcher is an average sized flycatcher with a brownish-olive back contrasting with a pale throat and breast. This species closely resembles other *Empidonax* species in California, but the slightly browner coloration, generally lighter appearance through the breast

and throat, and lack of an eye ring helps to distinguish it from other species. This species is also migratory, occurring in this region during the breeding season. The male arrives later in the spring than most migrants, usually in mid to late May or early June. Nests are constructed in thickets of trees and shrubs in a fork or horizontal branch between three and 15 feet above the ground. The southwestern willow flycatcher occurs in riparian habitats along rivers, streams, or other wetlands, where dense growths of willows, mulefat, arrowweed and other plants are present (Federal Register 1993). These riparian areas provide both nesting and foraging habitat.

The Southwestern willow flycatcher prefers dense riparian forests with flowing water. The project supports riparian forests, with a short area of flowing water. An important characteristic of the habitat appears to be the presence of dense vegetation, usually throughout all vegetation layers present, e.g., dense growths of willows, or other shrubs and medium-sized trees. There may be an overstory of cottonwood, tamarisk, or other large trees, but this is not always the case. The riparian forest present on site is open and thin with an open understory in most areas, but there is some dense undergrowth along part of the road where the springs are feeding flowing water. Although the habitat present is potentially suitable there are no recorded occurrences of this species from this portion of California. The CNDDDB contains only one record of a known occurrence of the southwestern willow flycatcher in Inyo County. This record is from the vicinity of Fish Slough along the eastern Sierra Nevada Mountains in Owens Valley over 100 miles away from the project site. There have been eleven known occurrences of the southwestern willow flycatcher in the Park, although none have been within the Wildrose area (NPS 2009).

Yellow-billed Cuckoo

The yellow-billed cuckoo is a candidate for listing under the federal Endangered Species Act and is listed as a state endangered species. The yellow-billed cuckoo is a rare visitor and breeder in California that inhabits open woods, orchards, and streamside willow thickets and alder groves. The yellow-billed cuckoo prefers large riparian gallery forests with thick overstory that extend for at least 7 acres or more. The project site supports riparian forests, but the overstory is not dense and the understory is thin and in places very sparse. In addition, the current records in the CNDDDB indicate that all known localities of this species in Inyo County occur along the eastern side of the Sierra Nevada Mountains over 100 miles distant from the project site.

Migratory Birds

A migratory bird is any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle. Migratory birds are federally protected by the Migratory Bird Treaty Act (MBTA), a federal act which makes it illegal for people to "take" migratory birds, their eggs, feathers or nests. Take is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof.

During field surveys conducted in November 2009, 11 bird species were observed:

- Chukar (*Alectoris chukar*)
- Mourning dove (*Zenaida macroura*)
- Common Raven (*Corvus corax*)
- Verdin (*Auriparus flaviceps*)

- Bewick's wren (*Thryomanes bewickii*)
- Rock Wren (*Salpinctes obsoletus*)
- Ruby-crowned kinglet (*Regulus calendula*)
- Swainson's thrush (*Catharus ustulatus*)
- Yellow-rumped warbler (*Dendroica coronata*)
- Song Sparrow (*Melospiza melodia*)
- House finch (*Carpodacus mexicanus*)

Each of these species but the chukar is protected by the MBTA.

Other Species

No federally-listed amphibian, mammal, or fish species were identified as having potential to occur in the project area. No critical habitat is present in the Lower Wildrose Road Project area.

A Biological Assessment (BA) was prepared to evaluate the potential occurrence of the above four species. The BA determined that there is no potential for yellow-billed cuckoo and very low potential for southwestern willow flycatcher to occur in the project area. There are several confirmed sightings of desert tortoise in Wildrose Canyon, and one sighting of a migrant male least Bell's vireo. The BA resulted in the determination that there is suitable habitat for desert tortoise. The presence of suitable habitat combined with local records resulted in a determination that desert tortoise have a potential to be present within the Lower Wildrose Project area. Although least Bell's vireo has been recorded from the Wildrose Wash riparian area, the record was a lone singing male. No other sightings have been reported in Wildrose Canyon, and therefore, it is determined that there is a low potential for least Bell's vireo to be present in project area. However, because of the suitability of the habitat it is determined that least Bell's vireo has a potential to occur in the Lower Wildrose Road project area. No other federally or state-listed threatened or endangered species have a potential to occur in the Lower Wildrose Road work area.

3.4.3.2 Environmental Consequences

Alternative No. 1 (No Action):

The No Action Alternative maintains the status quo along Lower Wildrose Road, as described in the Affected Environment/Existing Conditions section above. These existing conditions provide a baseline from which to compare the action alternatives, to evaluate the magnitude of proposed changes, and to measure the environmental effects of those changes.

Analysis

Under Alternative 1, the roadway would continue to deteriorate and eventually portions of the road could fail. Current maintenance and safety problems would continue to occur and most likely increase in intensity. Road failure could occur suddenly as the result of a single event or over the course of years potentially endangering Park visitors. Emergency road repairs would have the potential to cause site specific, direct, minor impacts to desert tortoise, least Bell's vireo, and migratory birds protected by the MBTA including the temporary removal of suitable habitat, destruction of burrows and nests, and the potential to take individuals. Berms placed

along portions of the road side have the potential to trap desert tortoises within the roadway until a gap in the berms can be found. These potential impacts could occur because emergency work could not be undertaken with pre-planning and resource avoidance measures. Therefore Alternative 1 has the potential to result in site-specific, direct short and long term minor adverse impacts to desert tortoise, least Bell's vireo, and migratory birds protected by the MBTA (during nesting season) as a result of potential repeated emergency repairs.

Cumulative Impacts

Cumulative impacts to threatened, endangered, and sensitive species are based on analysis of past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two projects by the Park in the Wildrose area, one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. Neither of these projects is expected to contribute to impacts to wildlife within or around the area of the proposed action. Alternative 1 and the cumulative projects have the potential to result in site-specific, direct short and long term minor adverse impacts to desert tortoise, least Bell's vireo, and migratory birds protected by the MBTA (during nesting season) as a result of potential repeated emergency repairs.

Impairment

The No Action Alternative has the potential to result in long term adverse changes to desert tortoise, least Bell's vireo, and migratory birds protected by the MBTA locally. Because these effects are localized they would not impair these resources of the park for future generations.

Unacceptable Impacts

The No Action Alternative would not result in unacceptable impacts to threatened, endangered, and sensitive species. Allowing the roadway to continue to deteriorate would have the effect of minimizing visitor access through Wildrose Canyon, which would minimize human disturbance for these species within the canyon. This would constitute an overall benefit for threatened, endangered, and sensitive species.

Alternative No. 2

This alternative would maintain the current road alignment while repaving the entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary. This alternative would also include implementation of minor roadside drainage improvements.

Analysis

With the implementation of mitigation measures described in Section 3.2, above, the road repair under this alternative would have site-specific, direct, short-term, negligible, adverse construction-related impacts to desert tortoise, least Bell's vireo, and migratory birds protected by the MBTA along the immediate Lower Wildrose Road Project corridor. Short-term temporary

impacts include disturbance from noise, removal of habitat, and potential disruption of normal life behaviors. Road repair activities would take place within a delineated area, and with the application of best management practices and mitigation measures described in Section 3.2.

Cumulative Impacts

Cumulative impacts to threatened, endangered, and sensitive species are based on analysis of past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two projects by the Park in the Wildrose area, one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. Alternative 2 and the cumulative projects would have the potential to result in site-specific, direct, short term, negligible, adverse impacts to desert tortoise, least Bell's vireo, and migratory birds protected by the MBTA (during nesting season).

Impairment

Alternative 2 would result in short-term impacts to suitable habitat for desert tortoise, least Bell's vireo, and migratory birds protected by the MBTA locally and therefore would not impair these resources of the Park for future generations.

Unacceptable Impacts

Alternative 2 would not result in unacceptable impacts to threatened, endangered, and sensitive species. Implementation of Alternative 2 would result in site-specific, direct, short-term, negligible, adverse construction-related impacts to desert tortoise, least Bell's vireo, and migratory birds protected by the MBTA along the immediate Lower Wildrose Road Project corridor. Short-term temporary impacts include disturbance from noise, removal of habitat, and potential disruption of normal life behaviors. Road repair activities would take place within a delineated area. With the application of best management practices and mitigation measures described in Section 3.2, these impacts would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*. Since impacts are localized and short-term, they would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process

Therefore, impacts associated with Alternative 2 are not unacceptable impacts.

Alternative No. 3

This alternative would maintain the current road alignment and modify the road in several locations to allow drainage to cross over the road. In these locations, road reinforcement will also be provided to support the road during rain events. These different types of drainage features (e.g., culverts, Arizona crossings), and road reinforcements (e.g., gabion baskets, buried k-rails, concrete subbase) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary, would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains.

Analysis

Road repair under this alternative would have the same short term affects on TES species as those discussed for Alternative 2 above. However, Alternative 3 would eliminate the more extensive long-term adverse effects described under Alternatives 1 and 2 including those resulting from an uncontrolled road failure due to high flow events and emergency road repair. Alternative 3 would result in a net beneficial impact to TES species because the greater road stabilization and protection measures would minimize the need for repeated and unplanned for emergency road repairs. Additionally, the reduction of the extent of roadside berms provides more areas for desert tortoise to move off the roadway.

Cumulative Impacts

Cumulative impacts to threatened, endangered, and sensitive species are based on analysis of past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two projects by the Park in the Wildrose area, one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. Alternative 3 and the cumulative projects would have the potential to result in site-specific, direct, short term, negligible, adverse impacts to desert tortoise, least Bell's vireo, and migratory birds protected by the MBTA (during nesting season).

Impairment

Alternative 3 would result in long-term, beneficial effect on desert tortoise, least Bell's vireo, and migratory birds protected by the MBTA because it would minimize the need for repeated and unplanned emergency road repairs. Therefore, this alternative would not impair these Park resources for future generations.

Unacceptable Impacts

Alternative 3 would not result in unacceptable impacts to threatened, endangered, and sensitive species. Implementation of Alternative 3 would result in site-specific, direct, short-term, negligible, adverse construction-related impacts to desert tortoise, least Bell's vireo, and migratory birds protected by the MBTA along the immediate Lower Wildrose Road Project

corridor. Short-term temporary impacts include disturbance from noise, removal of habitat, and potential disruption of normal life behaviors. Road repair activities would take place within a delineated area. With the application of best management practices and mitigation measures described in Section 3.2, these impacts would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*. Since impacts are localized and short-term, they would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process

Therefore, impacts associated with Alternative 3 are not unacceptable impacts.

Alternative No. 4

This alternative would consist of maintaining the current road alignment with modifications in several locations to allow drainage to cross over the road. Road reinforcement will also be provided at some locations to support the road during rain events (e.g., culverts, Arizona crossings), and road reinforcement (e.g., gabion baskets, buried k-rails, concrete subbase) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary, would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains. This alternative would also include construction of a 10 foot wide by 60 feet long vehicle turn-out area at the location of the Panamint Daisy population to facilitate public observation of this protected wildflower.

Analysis

The analysis for this alternative for TES is the same as described for Alternative 3 above, except that this alternative would include a parking area for visitors at the Panamint Daisy viewing area. Construction of the Panamint Daisy viewing area would result in an additional 600 square feet of permanent impacts.

Cumulative Impacts

The cumulative impact analysis for wildlife under Alternative 4 is the same as described under Alternative 3 above.

Impairment

Alternative 4 would result in long-term, beneficial effects on desert tortoise, least Bell's vireo, and migratory birds protected by the MBTA because it would minimize the need for repeated and unplanned emergency road repairs. Therefore, this alternative would not impair these Park resources for future generations.

Unacceptable Impacts

Alternative 4 would not result in unacceptable impacts to threatened, endangered, and sensitive species. Implementation of Alternative 4 would result in site-specific, direct, short-term, negligible, adverse construction-related impacts to desert tortoise, least Bell's vireo, and

migratory birds protected by the MBTA along the immediate Lower Wildrose Road Project corridor. Short-term temporary impacts include disturbance from noise, removal of habitat, and potential disruption of normal life behaviors. Road repair activities would take place within a delineated area. With the application of best management practices and mitigation measures described in Section 3.2, these impacts would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*. Since impacts are localized and short-term, they would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process

Therefore, impacts associated with Alternative 4 are not unacceptable impacts.

3.4.4 Watershed Processes and Springs

This section describes the watershed processes and springs potentially impacted by or impacting the project. The analysis describes the effects of the proposed action on the flow of water through Wildrose Canyon and on the transport of sediments and nutrients into those flows.

3.4.4.1 Affected Environment

The project is located on the steep western slope of the Panamint Mountains. Altitudes in the area range from 2,500 feet above mean sea level (msl) to over 9,900 feet msl at Rogers Peak. The project is located in a Wildrose Canyon, a narrow canyon in a desert environment. The climate is typical of California Desert with the majority of rainfall generally occurring during the winter months (November through March). The general wide-area winter storms that bring rain to the region tend to be relatively mild compared to summer storms. Summer storms (July through September) tend to be more intense, focusing a concentrated amount of rainfall in a localized area. These storms can result in flash flooding, particularly in a narrow canyon area like the project area. The majority of the Wildrose Canyon drainage generally receives an average of between 3.5 and 4.5 inches of precipitation annually. However, Wildrose Canyon also drains the 23.7 square-mile Upper Wildrose Basin, which receives runoff from precipitation on the Panamint Mountains to the east and southeast—the Panamint Mountains receive an average of 11 inches of precipitation annually, which is the highest rate of average annual precipitation in the Park.

Surface Water

Surface water flows through Wildrose Canyon in Wildrose Wash. Surface water in Wildrose Wash is ephemeral from runoff associated with precipitation events above the spring but becomes primarily perennial below the spring as a result of flow from both the springs and from runoff associated with precipitation events. Wildrose Canyon is known to be an area of flood hazard. Between October 1960 and September 1975, a gaging station was established and maintained by the US Geological Survey (USGS) along Wildrose Wash near Wildrose Station. The gaging station reported daily, weekly, and monthly peak flow data in Wildrose Wash. In the 15 years the gaging station recorded streamflow data, the majority of data indicated that “no flow” was the predominant characteristic in Wildrose Wash. However, peak streamflows were recorded of more than 100 cubic feet per second (cfs) and were reported by the USGS six times during the 15-year period (see Table 9, *Records of Peak Discharge in Wildrose Wash [October*

1960 – September 1975]), with the highest of those flows recorded on September 4, 1967 at 1,060 cfs (476,000 gallons per minute) (USGS 2010). In 1981, the USGS prepared a report estimating the degree of hazard probable related to flooding within Wildrose Canyon (USGS 1981). The report concluded that irregular flooding is a potential hazard within Wildrose Canyon and that flooding from a 25-year recurrence storm event is likely to inundate an area that would include a good portion of the project area, and a 50-year recurrence event is likely to inundate an area (USGS 1981) that would include most, if not all, of the roadway within the canyon.

Table 9
Records of Peak Discharge in Wildrose Wash (October 1960-September 1975)

DATE	PEAK DISCHARGE (cubic feet per second)
Aug. 5, 1961	330
Aug. 4, 1964	303
Aug. 1, 1966	600
Sept. 4, 1967	1,060
Feb. 25, 1969	204
Sept. 7, 1975	119

Groundwater

The majority of rock outcrops along the proposed road improvement are undivided metasedimentary rocks of mainly Paleozoic and Precambrian age, plutonic rocks of Precambrian, Mesozoic, and Cenozoic age, and subordinate meta-volcanic and meta-sedimentary rocks of Mesozoic age in the Panamint Range. The deposits along Wildrose Wash consist of alluvial wash deposits characterized by surfaces and wash channels that are active and have received alluvial deposits within the last few decades to a century. The alluvial wash sediments are generally composed of moderately to poorly sorted buff-colored silt, coarse and fine sand, gravel, cobbles, and rare boulders. The deposits are unconsolidated and prone to active flooding.

The groundwater that discharges from springs in the Wildrose Wash drainage area originates from precipitation and snowmelt in the upper mountainous area of the basin. The geology and hydrogeologic dynamics of the Death Valley Groundwater system is complex and not well understood in all areas. However, the springs that originate in some of the upper parts of the basin are generally caused by faults and/or changes in lithology that causes shallow groundwater to rise to the surface and discharge as a spring.

One of these springs surfaces in the roadway approximately ¼ mile beyond the junction of Emigrant Canyon Road and Charcoal Kilns Road, near the northeastern terminus of the project. The spring's water flows into the adjacent Wildrose Wash, which lies at this point along the north side of the roadway. The presence of the spring has exacerbated deterioration of the roadway caused by flash flooding in the late 1980s. The passage of vehicles over the spring has created a muddy area that is problematic for road maintenance.

3.4.4.2 Environmental Consequences

Alternative No. 1 (No Action):

The No Action Alternative maintains the status quo along Lower Wildrose Road, as described in the Affected Environment/Existing Conditions section above. These existing conditions provide a baseline from which to compare the action alternatives, to evaluate the magnitude of proposed changes, and to measure the environmental effects of those changes.

Analysis

Emergency road repairs would have the potential to cause site specific, direct, minor impacts to watershed processes and springs. The No Action Alternative would simply keep the road open, in its existing condition, without regard to future runoff events. Emergency road repairs would continue to be required to keep the road open. Each repair is in itself a watershed impact, and of the alternatives analyzed in this EA, the No-Action Alternative would require the highest number of repairs. Emergency road repairs may require grading, which oftentimes work against the natural movement of water and sediment. Furthermore, current maintenance efforts have resulted in the roadbed being below-grade through most of its length, which channels and focuses the energy of runoff, thereby increasing erosion potential by increasing sedimentation within spring water runoff during emergency maintenance operations. Therefore Alternative 1 has the potential to result in site-specific, direct short and long term minor adverse impacts to watershed processes and springs as a result of repeated emergency repairs.

While the canyon morphology is overwhelmingly dominated by natural processes, construction and maintenance of the roadway has perturbed the natural hydrology of the canyon. Due to the narrow canyon wash morphology, the canyon (and the roadway within it) can become inundated with flood water during precipitation events, resulting in the potential for erosion of the roadway and associated sedimentation. .

Cumulative Impacts

Cumulative impacts to watershed processes and springs are evaluated based on past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two Park projects in the Wildrose area—one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. Neither of these projects is expected to contribute to impacts to watershed processes and springs within or around the area of the proposed action, nor are they expected to alter the potential for flash-flooding within the project area during precipitation events. Neither of these projects is expected to contribute to impacts to watershed processes and springs within or around the area of the proposed action, nor are they expected to alter the potential for flash-flooding within the project area during precipitation events.

Impairment

The No Action Alternative has the potential to perpetuate the need for repeated emergency road repairs, which could result in site-specific, direct short and long term minor adverse impacts to the watershed. Each repair is in itself a watershed impact, and the No-Action Alternative will require the highest number of repairs. However, because these impacts are specifically associated with Wildrose Road, they would not constitute an impairment of watershed processes and springs of the park for future generations.

Unacceptable Impacts

The No Action Alternative would not result in unacceptable impacts to watershed processes and springs. Allowing the roadway to continue to deteriorate could potentially lead to closure of the roadway to protect visitor safety, which could in turn lead to reestablishment of natural flow patterns through Wildrose Canyon. This would constitute an overall benefit to watershed processes and springs.

Alternative No. 2

This alternative would maintain the current road alignment while repaving the entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary. This alternative would also include implementation of minor roadside drainage improvements.

Analysis

With the implementation of mitigation measures described in Section 3.2, above, the road repair as described in Alternative 2 would have site-specific, direct, short-term, negligible, adverse construction-related impacts to watershed processes and springs along the immediate Lower Wildrose Road Project corridor. Alternative 2 would also have site-specific, long-term impacts along the project corridor. Short-term temporary impacts include sedimentation associated with construction. Long-term impacts include minor alteration of existing flow patterns of Wildrose Wash to move surface flow off of the roadway and installation of minor drainage improvements (including installation of French drains) to divert spring flow currently surfacing in the roadway to the roadside drainage. Road repair activities would take place within a delineated area, and with the application of best management practices and mitigation measures described in Section 3.2.

While the canyon morphology is overwhelmingly dominated by natural processes, construction and maintenance of the roadway has perturbed the natural hydrology of the canyon. Due to the narrow canyon wash morphology, the canyon (and the roadway within it) can become inundated with flood water during precipitation events, resulting in the potential for erosion of the roadway and associated sedimentation. Alternative No.2 would entail repaving the entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and would also include minor roadside drainage improvements. This alternative would assist in stabilizing the roadway during low precipitation events, but would not obviate the need for maintenance including clearing of flood debris and filling of eroded areas during low-volume runoff events.

Repairs under this Alternative would delay road deterioration but not protect the road long-term. Although there would be short-term benefits, long-term effects from this Alternative related to watershed processes and springs are as for the No Action Alternative but delayed 10 to 20 years.

Cumulative Impacts

Cumulative impacts to watershed processes and springs are evaluated based on past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two Park projects in the Wildrose area—one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. Neither of these projects is expected to contribute to impacts to watershed processes and springs within or around the area of the proposed action, nor are they expected to alter the potential for flash-flooding within the project area during precipitation events.

Impairment

Alternative 2 would result in short-term and long-term impacts to watershed processes and springs within the project area. Short-term impacts are associated with construction and would not impair these resources of the Park for future generations. Long-term impacts include diverting spring-flow from the middle of the roadway and would also include improved drainage of the roadway, which would result in improved water quality, because the spring sources will no longer be driven through by traffic on the roadway (driving through spring flow creates elevated levels of sediment and turbidity in the water). These long-term impacts would result in a minor alteration of local watershed processes and springs, increasing quality and availability of water to roadside habitats. This would be a net benefit for those habitats and for future generations of Park visitors.

Unacceptable Impacts

Alternative 2 would not result in unacceptable impacts to watershed processes and springs. Implementation of Alternative 2 would have site-specific, direct, short-term, negligible, adverse construction-related impacts to watershed processes and springs along the immediate Lower Wildrose Road Project corridor. Alternative 2 would also have site-specific, long-term impacts along the project corridor. Short-term temporary impacts include increased potential for graded earth and construction debris to enter the streamflow. Long-term impacts include minor alteration of existing flow patterns of Wildrose Wash to move surface flow off of the roadway and installation of minor drainage improvements (including installation of French drains) to divert spring flow currently surfacing in the roadway to the roadside drainage. With the application of best management practices and mitigation measures described in Section 3.2, these impacts would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*. Since impacts are localized and short-term, they would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process

Therefore, impacts associated with Alternative 2 are not unacceptable impacts.

Alternative No. 3

This alternative would maintain the current road alignment and modify the road in several locations to allow drainage to cross over the road. In these locations, road reinforcement will also be provided to support the road during rain events. These different types of drainage features (e.g., culverts, Arizona crossings), and road reinforcements (e.g., gabion baskets, buried k-rails, concrete subbase) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary, would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains.

Analysis

Road repair under this alternative would have the same short term effects on watershed processes and springs as those discussed for Alternative 2 above. However, Alternative 3 would result in more extensive long-term impacts than those described for Alternative 2. Alternative No.3 would maintain the current alignment and require modifying the road in several locations to reinforce areas susceptible to erosion during moderate precipitation events. These modifications would include construction of drainage features (culverts, Arizona Crossings) and road reinforcements (including gabion baskets, buried k-rails, and concrete subbase). The work would also include repaving the entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road. This alternative would help stabilize the roadway during moderate precipitation events. In addition, the installation and operation of French drains beneath the road will cause the discharge from the spring to be moved approximately 20 feet from its current location but essentially in the same drainage. Since the diversion will help prevent deterioration of the road and minimize the need for continual road patching, surface water quality from the spring should improve due to lack of sediment-laden water running off of the deteriorated roadway and into Wildrose Wash. Alternative 3 specifically addresses runoff issues, and includes measures to contain flow to the sides of the road, and when necessary, direct flow under or over the road. This should result in a road that will withstand moderate runoff events. Barring a large flood, the watershed will be allowed to stabilize to the new, slightly altered runoff regime, with a reduction in the need for maintenance perturbations.

Alternative 3 would not prevent the need for maintenance including clearing of flood debris and filling of eroded areas during moderate runoff events. While not eliminating the need for maintenance (including clearing of flood debris and filling of eroded areas during moderate runoff events), the modifications and reinforcements associated with this Alternative would help prevent low volume runoff from damaging the main road and thus reduce required maintenance of the roadway following moderate precipitation events.

This Alternative would be constructed with application of best management practices and mitigation measures provided in Section 3.2, above.

Cumulative Impacts

Cumulative impacts to watershed processes and springs are evaluated based on past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two Park projects in the Wildrose area—one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. Neither of these projects is expected to contribute to impacts to watershed processes and springs within or around the area of the proposed action, nor are they expected to alter the potential for flash-flooding within the project area during precipitation events.

Impairment

Alternative 3 would result in short-term and long-term impacts to watershed processes and springs within the project area. Short-term impacts are associated with construction and would not impair these resources of the Park for future generations. Long-term impacts include drainage of spring-flow from the middle of the roadway to the adjacent roadside wash. These long-term impacts would both be due to the minor alteration of watershed processes and spring runoff. Spring water quality should improve because the spring will no longer be disturbed by vehicles driving through the spring source, which increases the turbidity of the flow. These long-term impacts would result in a minor alteration of local watershed processes and springs, increasing quality and availability of water to roadside habitats. This would be a net benefit for those habitats and for future generations of Park visitors. Therefore, this alternative would not impair these Park resources for future generations.

Unacceptable Impacts

Alternative 3 would not result in unacceptable impacts to watershed processes and springs. Implementation of Alternative 3 would have site-specific, direct, short-term, negligible, adverse construction-related impacts to watershed processes and springs along the immediate Lower Wildrose Road Project corridor. Alternative 3 would also have site-specific, long-term impacts along the project corridor. Short-term temporary impacts include potential increases in erosion and sedimentation associated with grading. Alternative No.3 would maintain the current alignment and require modifying the road in several locations to reinforce areas susceptible to erosion during low to medium precipitation events. These modifications would include construction of drainage features (culverts, Arizona Crossings) and road reinforcements (including gabion baskets, buried k-rails, and concrete subbase). The work would also include repaving the entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road. This Alternative would help stabilize the roadway during moderate precipitation events. While not eliminating the need for maintenance (including clearing of flood debris and filling of eroded areas during moderate runoff events), the modifications and reinforcements associated with this Alternative would help prevent low volume runoff from damaging the main road and thus reduce required maintenance of the roadway following moderate precipitation events.

With the application of best management practices and mitigation measures described in Section 3.2, these impacts would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*. Since impacts are localized and short-term, they would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process

Therefore, impacts associated with Alternative 3 are not unacceptable impacts.

Alternative No. 4

This alternative would consist of maintaining the current road alignment with modifications in several locations to allow drainage to cross over the road. Road reinforcement will also be provided at some locations to support the road during rain events (e.g., culverts, Arizona crossings), and road reinforcement (e.g., gabion baskets, buried k-rails, concrete subbase) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary, would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains. This alternative would also include construction of a 10 foot wide by 60 feet long vehicle turn-out area at the location of the Panamint Daisy population to facilitate public observation of this protected wildflower.

Analysis

Road repair under this alternative would have the same short term effects on watershed processes and springs as those discussed for Alternative 3 above. However, Alternative 4 would add construction of a 10 foot wide by 60 foot long vehicle turn-out. The addition of the 600 square foot turnout area (0.0000215 square miles) would reduce overall infiltration and potentially increase runoff during precipitation events. However, the resulting increase would be less than 9.08×10^{-7} percent of the total drainage area of Wildrose Wash. This increase in impermeable surface would be negligible and is considered insignificant.

This Alternative would be constructed with application of best management practices and mitigation measures provided in Section 3.2, above.

Cumulative Impacts

Cumulative impacts to watershed processes and springs are evaluated based on past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two Park projects in the Wildrose area—one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. Neither of these projects is expected to contribute to impacts to watershed processes and springs

within or around the area of the proposed action, nor are they expected to alter the potential for flash-flooding within the project area during precipitation events.

Impairment

As with Alternative 3, above, Alternative 4 would result in short-term and long-term impacts to watershed processes and springs within the project area. Short-term impacts are associated with construction and would not impair these resources of the Park for future generations. Long-term impacts include drainage of spring-flow from the middle of the roadway to the adjacent roadside wash. These long-term impacts would both be due to the minor alteration of watershed processes and spring runoff. Spring water quality should improve because the spring will no longer be disturbed by vehicles driving through the spring source, which increases the turbidity of the flow. These long-term impacts would result in a minor alteration of local watershed processes and springs, increasing quality and availability of water to roadside habitats. This would be a net benefit for those habitats and for future generations of Park visitors. Therefore, this alternative would not impair these Park resources for future generations.

Unacceptable Impacts

As with Alternative 3, Alternative 4 would not result in unacceptable impacts to watershed processes and springs. Implementation of Alternative 4 would have site-specific, direct, short-term, negligible, adverse construction-related impacts to watershed processes and springs along the immediate Lower Wildrose Road Project corridor. Alternative 4 would also have site-specific, long-term impacts along the project corridor. Short-term temporary impacts include potential increases in erosion and sedimentation associated with grading. Alternative 4 would maintain the current alignment and require modifying the road in several locations to reinforce areas susceptible to erosion during low to medium precipitation events. These modifications would include construction of drainage features (culverts, Arizona Crossings) and road reinforcements (including gabion baskets, buried k-rails, and concrete subbase). The work would also include repaving the entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road. This Alternative would help stabilize the roadway during moderate precipitation events. While not eliminating the need for maintenance (including clearing of flood debris and filling of eroded areas during moderate runoff events), the modifications and reinforcements associated with this Alternative would help prevent low volume runoff from damaging the main road and thus reduce required maintenance of the roadway following moderate precipitation events.

With the application of best management practices and mitigation measures described in Section 3.2, these impacts would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*. Since impacts are localized and short-term, they would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process

Therefore, impacts associated with Alternative 4 are not unacceptable impacts.

3.4.5 *Transportation and Visitor Experience*

3.4.5.1 *Affected Environment*

Transportation

The Park has a vast network of roads, ranging from highways to unmaintained four-wheel drive roads. Park staff manages a network of non-State roads, of which approximately 243 miles are paved and 805 are unpaved.

Visitors use a wide variety of access points to the Park, although the overwhelming majority of visitors enter the Park through Panamint Springs (36%) and Death Valley Junction (34%). Approximately 42% of visitors to the Park originated their trip in Las Vegas (NPS 1997). Highway 190 is the main route through the Park, and is maintained by the California Department of Transportation (Caltrans). Wildrose Road is a two lane road that provides an entry point for visitors coming to the Park from the Ridgecrest area and areas further south. Wildrose Road is approximately 56 miles northeast of the City of Ridgecrest via Hwy 178 and Panamint Valley Road. Wildrose Road represents the most direct route for visitors heading to the Wildrose area of the Park. Visitors can access the other portions of the Park from Wildrose Road via Emigrant Canyon Road to Hwy 190.

The majority of visitors to Death Valley travel by private vehicle (NPS 1997). Those who do travel to Death Valley as part of a tour group often visit the Park as part of a loop tour that includes Las Vegas, the Grand Canyon, and Yosemite National Park. Tour bus visitation has increased substantially from 342 buses in 1983 to 2,185 buses in 1995 (NPS 2000). Many day and overnight visitors make numerous trips within Death Valley. A variety of activity areas and features attract visitors for varying lengths of time. Visitors primarily circulate within Death Valley in private vehicles.

Table 8, *Death Valley Roadway Usage in Fiscal Year 2009*, provides traffic counts tabulated by the NPS. The table describes the percentage of use of Wildrose Road compared to total roadway utilization throughout the Park, and describes the average number of trips supported by Wildrose Road throughout the year.

Table 10
Death Valley Roadway Usage in Fiscal Year 2009

FY 2009		Big Pine Vehicles	Daylight Vehicles	Grapevine Vehicles	Ryan Vehicles	Wildrose Vehicles	Ashford Vehicles	Townes Vehicles	Saline Valley Vehicles	Furnace Creek Ranch Visitors	TOTAL
October	2009	33	0	565	10507	131	943	10410	0	11126	33715
September		11	0	647	11332	466	1294	12220	0	13258	39228
August		108	0	320	15646	463	1377	14348	0	16874	49136
July		7	0	241	4118	666	883	12566	0	14395	32876
June		90	0	284	13815	626	5723	9206	0	10168	39912
May		33	0	293	7224	890	1053	9133	0	9563	28189
April		15	0	745	7640	1386	31	10871	0	17132	37820
March		65	0	2132	13296	1366	123	11271	0	18259	46512
February		18	0	362	6780	1055	125	5937	0	11382	25659
January		43	0	309	8208	528	327	5521	0	8438	23374
December	2008	65	0	343	1020	943	89	6521	0	10503	19484
November		56	0	398	7000	1330	0	7206	0	9974	25964
October		123	0	777	10507	1323	80	10920	0	11561	35291
TOTALS		667	0	7416	117093	11173	12048	126130	0	162633	437160
PERCENTAGE OF TOTAL PARK TRAFFIC		0.15%	0.00%	1.70%	26.78%	2.56%	2.76%	28.85%	0.00%	37.20%	
Average per Month		66.70	0.00	741.60	11709.30	1117.30	1204.80	12613.00	0.00	16263.30	

The Road Inventory of Death Valley National Park (DEVA – 8130), Cycle 4 (2006) characterizes the condition of all of the roadway miles and paved parking lots within the Park. Condition assessments assign a quantitative description of qualitative data observed over each mile of road surface. The assigned condition assessments include a Surface Condition Rating (SCR) and a Pavement Condition Rating (PCR). For both SCR and PCR, the scale goes from 0 to 100, with 100 being a roadway in “perfect” condition (newly repaved, with no surface variations or faults). The condition ranges for both SCR and PCR are as follows:

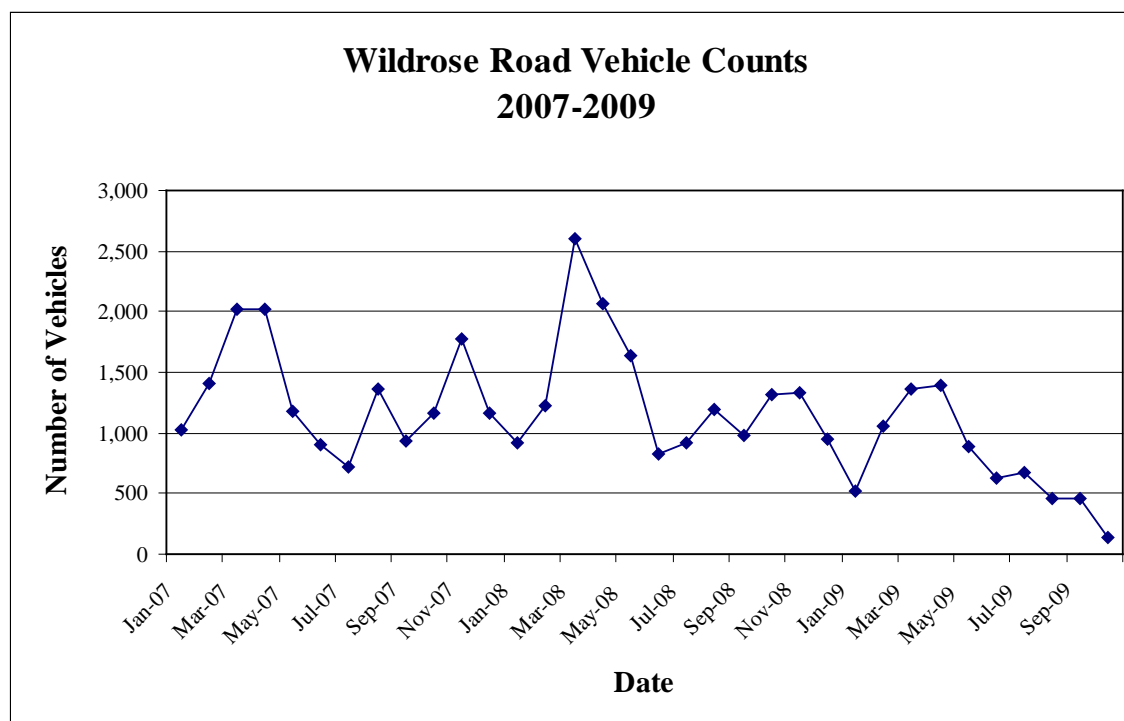
- 95-100 Excellent
- 85-94 Good
- 61-84 Fair
- ≤ 60 Poor

Based on the data provided in *The Road Inventory for Death Valley National Park*, the SCR for this portion of Lower Wildrose Road is 27.6. The PCR is 38.6. Both numbers are substantially below the threshold for a characterization of “Poor,” indicating a need for road rehabilitation and repair to enable safe vehicular transit of the roadway in question. Current maps indicate that Wildrose Road is rough.

Because of the size of the Park and because the primary method of visitors enjoying the park is through their vehicles, the condition of the roads and hence access to Park features makes transportation an important aspect of visitor experience at the Park. Death Valley visitors spend the majority of their visit on paved roads throughout the park (NPS 2000). Time driving is generally split between sightseeing and visiting the park's major attractions. A visitor survey conducted in September 1996 found that 94% of visitors to the park entered the park on their own, using personal vehicles, while 6% visited the park as part of a guided tour (NPS 1997). The locations where visitors were most likely to enter the park were Panamint Springs, Death Valley Junction, Scotty's Castle/Scotty's Junction, Shoshone, and Beatty, in that order (NPS 1997). Most visitors choose to visit only the more developed areas of the park, such as the Furnace Creek area.

Over the past two years visitors using Lower Wildrose Road has declined by nearly 50%. (Figure 5, *Wildrose Road Vehicle Counts 2007-2009*). The Park has received complaints about the condition of Lower Wildrose Road, and so the current road conditions are already having a negative effect on visitors to the Park. Additionally, Lower Wildrose Road is not currently wide enough for larger vehicles such as RVs.

Figure 5
Wildrose Road Vehicle Counts 2007-2009



Visitor Experience

The scarcity of vegetation and near-limitless visibility create a sense of space and openness that is one of the most remarkable features of the Park. Within this dry, vast settings are distinctive geologic features such as the fields of salt deposits on the valley floor and vividly colored rocks

of Mustard Canyon. Those who visit the Park experience a unique landscape that appears amplified when viewed in the intense heat for which the Park is also renowned. The Park is generally a very quiet place. Common natural sounds include wind, birds, and insects. Less common natural sounds include 'booming' sand dunes, rockslides, running water, and thunder. Common artificial sources of noise in the Park include passenger and recreational vehicles, busses, and aircraft. Vehicle noise in the Park is generally not an issue. Low speed limits in developed areas reduce vehicle noise where most visitors congregate, and due to the Park's size, most other areas are well away from traffic and noise. Noise is further reduced through limits on the use of generators in campgrounds.

The National Park Service manages the Park in accordance with the 1916 Organic Act. The Organic Act provides the primary purpose of management of the national park system, and states that this purpose is:

"...to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such a manner and by such a means as will leave them unimpaired for the enjoyment of future generations."

In addition to this guidance, the Park also falls under the jurisdiction of the California Desert Protection Act. The act identified unique and special elements of Wilderness, National Parks and public land in the California desert that were subject to pressures that threatened to "impair, dilute, and destroy their public and natural values." In doing so, Congress identified the "umbrella" purposes for Wilderness and national park lands in the California desert (California Desert Protection Act, Sec. 2bl). A key component of this guidance is the "provision of opportunities for compatible outdoor public recreation, protection and interpretation of ecological and geological features and historic, paleontological, and archeological sites, maintenance of Wilderness resource values, and promotion of public understanding and appreciation for the California desert."

Together, the Organic Act and the California Desert Protection Act provide the basis for achieving a balance between resource protection and maintaining the quality and diversity of the visitor experience in the Park. Park visitation has historically occurred during the cooler months of fall, winter, and spring; although more recent visitation data indicates that summer month visitation has increased substantially (NPS 2000).

The Park offers a wide variety of recreational opportunities in developed and Wilderness areas, including sightseeing, photography, hiking, visiting historic sites, camping, and horseback riding, and bicycling. However, the types and quality of activities vary considerably between developed and Wilderness areas. Given the diversity of terrain throughout the park, the availability of one or more of these opportunities varies by location. According to a study of park visitors, 92% of visitor groups reported sightseeing as an activity their parties participated in while in the park (NPS 1997), which was the most popular activity found in the survey. The Visitor Survey also found that 42% of visitors day hiked in the park for periods of time less than 2 hours, and 7% day hiked for over 2 hours (NPS 2000).

The Wildrose Canyon area offers a number of the above mentioned diverse recreational activities including camping at three campgrounds: Wildrose, Thorndike, and Mahogany Flats. In addition

Wildrose Canyon via Lower Wildrose Road provides access to wilderness areas via Wildrose Peak and Telescope Peak Trail heads. Wildrose Road also provides access to the Charcoal Kilns, the Harrisburg Town Site and the Skidoo Town Site. Each of these activities offers the visitor a different experience within the park. These sites provide day-use and overnight camping opportunities as well as access to some of the Park's wilderness areas. Wilderness areas offer an escape from human-made structures, crowds, artificial light, and noise (with the exception of planes overhead), and allows visitors to experience solitude, natural quiet, and backcountry scenery. The vast Wilderness also allows visitors to explore and discover the many natural geologic features and species of plants and animals. Many visitors find that they can hike for considerable lengths of time and over vast distances without encountering other people.

3.4.5.2 Environmental Consequences

Alternative No. 1 (No Action):

The No Action Alternative maintains the status quo along Lower Wildrose Road, as described in the Affected Environment/Existing Conditions section above. These existing conditions provide a baseline from which to compare the action alternatives, to evaluate the magnitude of proposed changes, and to measure the environmental effects of those changes.

Analysis

Transportation: Although no action regarding planned reconstruction would be taken under Alternative 1, the NPS would continue to make annual emergency repairs resulting in unplanned closures of Lower Wildrose Road, or constrained access with delays into the Wildrose area during repair activities.

Because no management action would be taken to reconstruct Lower Wildrose Road under Alternative 1, eventual failure of the road is expected. Failure could be sudden or could occur over a course of years. The timing and manner of failure cannot be accurately predicted but results of a massive road failure would cause serious repercussions to access to the Wildrose area. Massive road failure would also require an immediate emergency response and repairs. In the event of massive road failure it is expected that the roadway would be closed for an undetermined period of time, or perhaps indefinitely. This would require visitors from the Ridgecrest area to be rerouted up to Hwy 190.

Visitor Experience: Under Alternative 1 travelers using Lower Wildrose Road to access the Park would continue to experience moderate impacts to visitor experience due to the degraded and unsafe driving conditions that characterize portion of the existing road. Continued deterioration and eventual failure of the road would adversely affect visitors entering from the Ridgecrest-Trona area from accessing the recreational opportunities in the Wildrose area. Visitors would be required to drive north on Panamint Valley Road to Hwy 190 and take Hwy 190 to Emigrant Canyon Road, and take Emigrant Canyon Road to the Wildrose area. This detour is a total of approximately 46 miles and as additional 1.5 hours of travel time. The ability of visitors to view Panamint Daisy and the Wildrose Station site would be adversely affected or prohibited depending on the condition of Lower Wildrose Road.

Although no action would be taken under Alternative 1, the NPS would continue to make minor to major repairs to the roadway and supporting structures. Maintenance-related activities conducted to maintain the road in working condition would result in temporary increases in traffic and associated roadside noise levels. Maintenance activities would be conducted using best management practices to reduce noise impacts.

Because no management action would be taken to reconstruct the roadway under Alternative 1, eventual uncontrolled failure of the roadway would occur either suddenly or over the course of years. Upon road failure, the NPS would use heavy-duty equipment to repair the road increasing noise levels in the project vicinity. Operation of heavy-duty equipment during reconstruction activities could generate substantial amounts of noise and could occur within close proximity to visitors utilizing the Wildrose area.

The specific mix of equipment to be used in road reconstruction is unknown, but could include the use of cranes, excavators, backhoes, skid steer loaders, and trucks. Noise levels would decrease by about 6 dBA with each doubling of distance from the noise source (e.g., noise levels from crane use would be in the range of 83 to 88 dBA at 100 feet from the site, and about 77 to 82 dBA at 200 feet from the site). However, over the long term, the acoustical environment in the project vicinity would be shaped largely by natural sources of sound (i.e., rushing water and wind) punctuated by human-caused sources of noise, such as motor vehicles and aircraft.

The No Action Alternative provides a baseline from which to compare the action alternatives to evaluate the magnitude of proposed changes and to measure the environmental effects of those changes. Under the No Action Alternative, the road surface would continue to deteriorate. The road's continued deterioration would likely occur during normal visitor usage with a high likelihood of damage occurring during or following a moderate to severe precipitation event causing high flows in Wildrose Wash. This type of road damage could be sudden and severe and pose a serious threat to Park visitors travelling the road. Overall, noise associated with repeated emergency repair would result in site-specific, short-term, negligible to moderate impacts associated with noise due to the need for repeated repairs, perhaps more than one per year.

Continued degradation and eventual closure of the road is expected to occur under Alternative 1. Overall, this Alternative would result in site specific, long -term, moderate to high, adverse impacts on transportation and visitor experience.

Cumulative Impacts

Cumulative impacts to transportation and visitor experience are based on analysis of past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two projects by the Park in the Wildrose area, one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. Neither of these projects is expected to contribute to impacts to transportation within or around the area of the proposed action. Alternative 1 and the cumulative projects would have the same impacts as described above.

Unacceptable Impacts

The No Action Alternative would result in unacceptable impacts to transportation and visitor experience. Allowing the roadway to continue to deteriorate would have the effect of minimizing visitor access through Wildrose Canyon, which would result in unacceptable impacts to established visitor access and use patterns for the Park. Allowing the roadway to continue to deteriorate would approach two thresholds for unacceptable impacts defined by NPS' *Management Policies 2006*:

- create an unsafe or unhealthful environment for visitors or employees, or
- diminish opportunities for current or future generations to enjoy, learn about, or be inspired by park resources or values

In its current condition, the roadway is already considered unsafe for transit by passenger vehicles, although such transit is not impossible. Allowing an unsafe condition for Park visitors to persist would constitute an unacceptable impact. Continued deterioration of the roadway will eventually render the roadway impassable by passenger vehicles, which would prevent the majority of Park visitors from being able to access and enjoy the natural and cultural resources available in Wildrose Canyon. Diminishing opportunities for current and future generations to enjoy, learn about, or be inspired by Park resources or values constitutes an unacceptable impact.

Alternative No. 2

This alternative would maintain the current road alignment while repaving the entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary. This alternative would also include implementation of minor roadside drainage improvements.

Analysis

Alternative 2 would consist of repairing Lower Wildrose minimally. The road would be closed during active construction. Construction activities are expected to occur over a period of 6 months and would be timed during the fall and winter when visitor levels are lowest. During this time the public would be required to detour up to Hwy 190 and enter the Wildrose area through Emigrant Canyon. However, within only minor roadside drainage improvements, the condition of Wildrose Road would be expected to begin deteriorating and eventually revert to its present condition in 10 to 20 years.

Alternative 2 would result in site specific, short-term, moderate adverse impacts to transportation and visitor experience. Alternative 2 would also provide a long term net beneficial impact because of the improved road condition following the reconstruction. However, because this alternative does not provide for long term protection of the road from undermining and erosion, deterioration of the roadway is anticipated to become an issue again in 10 to 20 years resulting in conditions similar to the current road condition.

Cumulative Impacts

Cumulative impacts to transportation and visitor experience are based on analysis of past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two projects by the Park in the Wildrose area, one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. Neither of these projects is expected to contribute to impacts to transportation and visitor experience within or around the area of the proposed action. Alternative 2 and the cumulative projects would have the same impacts as described above.

Unacceptable Impacts

Alternative 2 would not result in unacceptable impacts to transportation and visitor experience. Implementation of Alternative 2 would result in site-specific, short-term adverse impacts associated with road improvement activities. However, these impacts would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*. Since these impacts are localized and short-term, they would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process

Further, implementation of Alternative 2 would have a long-term benefit for transportation and visitor experience, since rehabilitation of the roadway would provide a safer roadway and a more pleasant experience for visitors to Wildrose Canyon. Additionally, widening the roadway would allow larger vehicles, such as RVs to reach the Wildrose area. Therefore, these impacts are not unacceptable impacts.

Alternative No. 3

This alternative would maintain the current road alignment and modify the road in several locations to allow drainage to cross over the road. In these locations, road reinforcement will also be provided to support the road during rain events. These different types of drainage features (e.g., culverts, Arizona crossings), and road reinforcements (e.g., gabion baskets, buried k-rails, concrete subbase) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary, would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains.

Analysis

Alternative 3 would repair Lower Wildrose road and reinforce the road with drainage features and engineered structures that will protect the road from erosion and wash outs in high flow events. The road would be closed during active construction. Construction activities are expected to occur over a period of 6 months and would be timed during the fall and winter when visitor

levels are lowest. During this time the public would be required to detour up to Hwy 190 and enter the Wildrose area through Emigrant Canyon. Alternative 3 would eliminate the more extensive adverse effects described under Alternative 1 including those resulting from an uncontrolled road failure due to high flow events and emergency road repair. The improved drainage features and road reinforcements would reduce the potential for erosion and undermining. Site restoration including revegetation would further reduce the potential for erosion and undermining by providing a stable top soil along the pavement/dirt interface. Alternative 3 would have site specific, short-term, moderate impacts on transportation and visitor experience, but have a long term beneficial effect on transportation and visitor experience.

Cumulative Impacts

Cumulative impacts to transportation and visitor experience are based on analysis of past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two projects by the Park in the Wildrose area, one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. Neither of these projects is expected to contribute to impacts to transportation and visitor experience within or around the area of the proposed action. Alternative 3 and the cumulative project would have the same impacts as described above.

Unacceptable Impacts

Alternative 3 would not result in unacceptable impacts to transportation and visitor experience. Implementation of Alternative 3 would result in site-specific, short-term adverse impacts associated with road improvement activities. However, these impacts would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*. Since these impacts are localized and short-term, they would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process

Further, implementation of Alternative 3 would have a long-term benefit for transportation and visitor experience, since rehabilitation of the roadway would provide a safer roadway and a more pleasant experience for visitors to Wildrose Canyon. Additionally, widening the roadway would allow larger vehicles, such as RVs to reach the Wildrose area. Therefore, these impacts are not unacceptable impacts.

Alternative No. 4

This alternative would consist of maintaining the current road alignment with modifications in several locations to allow drainage to cross over the road. Road reinforcement will also be provided at some locations to support the road during rain events (e.g., culverts, Arizona crossings), and road reinforcement (e.g., gabion baskets, buried k-rails, concrete subbase) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary, would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains. This alternative would also include construction of a 10 foot wide by 60 feet long vehicle turn-out area at the location of the Panamint Daisy population to facilitate public observation of this protected wildflower.

Analysis

The analysis for Alternative 4 is the same as for Alternative 3 above.

Cumulative Impacts

Cumulative impacts to transportation and visitor experience are based on analysis of past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two projects by the Park in the Wildrose area, one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. Neither of these projects is expected to contribute to impacts to transportation and visitor experience within or around the area of the proposed action. Alternative 4 and the cumulative project would have the same impacts as described above.

Unacceptable Impacts

Alternative 4 would not result in unacceptable impacts to transportation and visitor experience. Implementation of Alternative 4 would result in site-specific, short-term adverse impacts associated with road improvement activities. However, these impacts would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*. Since these impacts are localized and short-term, they would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process

Further, implementation of Alternative 4 would have a long-term benefit for transportation and visitor experience, since rehabilitation of the roadway would provide a safer roadway and a more pleasant experience for visitors to Wildrose Canyon. Additionally, widening the roadway would allow larger vehicles, such as RVs to reach the Wildrose area. Therefore, these impacts are not unacceptable impacts.

3.4.6 Cultural and Historic Resources

3.4.6.1 Affected Environment

Historic and Prehistoric Resources

Approximately 3000 archeological sites have been documented in the Park, including prehistoric, historic, and ethnohistoric (historic period Native American) sites. Less than five percent of the Park has been surveyed, meaning there are tens of thousands of unrecorded sites in the Park. Archeological sites are found at all elevations and environments in the Park.

Prehistoric sites date from as early as 10,000 B.C., and represent a variety of cultural groups. Examples of prehistoric sites include artifact scatters comprised of chipped stone flakes, projectile points, pottery, and other tools, quarries, middens, hunting blinds, rock art (petroglyphs and pictographs), rock alignments, rock cairns, roasting pits, and many other equally significant features. Many of these sites were used up into the ethnohistoric period, and some mesquite and pinyon nut gathering areas are still used by Timbisha Shoshone today.

Historic archeological sites are representative of human activity and are greater than 50 years of age. Some of the earliest historic sites are rock engravings from the "49ers," who were the first euro-American visitors to spend a length of time in the Park in 1849. A majority of historic sites in the Park are related to mining, dating from the late 1800s to the 1950s. Examples of mining resources include features such as borax "haystacks" on the playa, mill sites, claim markers, aerial tramways, mine shafts, and even town sites. During the Great Depression years, the Civilian Conservation Corps constructed roads, trails, campgrounds, and structures, many of which are treated as historic archeological sites or landscapes today. Other types of historic sites present in the Park from a variety of eras include aircraft wreckage, abandoned roads, cabins (some still in use), rock walls, fences, gravesites, graffiti, survey markers, bearing trees, and many other things.

The NPS does not normally divulge the location of prehistoric or historic resources, to reduce the likelihood of looting, and to address the concerns and wishes of Native Americans.

National Register of Historic Places

Death Valley contains six sites listed on the National Register of Historic Places:

- Eagle Borax
- Death Valley Scotty Historic District
- Harmony Borax
- Leadfield
- Skidoo
- Saline Valley Salt Tram

Fourteen sites around the park are in the process of being nominated to the National register of Historic Places. The California State Historic Preservation Office has concurred with the park's eligibility finding, and the park is in the process of forwarding the nominations to the Keeper.

The sites are being nominated as one Multiple Property Listing; the "Historic Mining Properties in Death Valley National Park." The properties include:

- Chloride Cliff Historic District
- Corduroy Road
- Garibaldi Mine
- Greenwater Historic District
- Harrisburg Historic District
- Johnson Canyon Arrastras
- Journigan's Mill
- Keane Wonder Mine Historic District
- Panamint City Historic District
- Schwab Townsite
- Queen of Sheba Mine Historic District
- Ubehebe Historic Mining District
- Warm Spring Canyon Gold and Talc Mining Historic District
- Wildrose Charcoal Kilns

Other sites have been determined eligible for the Register, including Cow Creek Historic District and Wildrose Historic District.

Cultural Landscapes

A cultural landscape is a geographic area, including both cultural and natural resources that are associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. There are four general kinds of cultural landscapes, not mutually exclusive:

- Historic Designed Landscapes
- Historic Vernacular Landscapes
- Historic Sites
- Ethnographic Landscapes.

Cultural Landscape Studies have taken place at Cow Creek Historic District, Scotty's Castle, Lower Vine Ranch, Barker Ranch, Hungry Bill's Ranch (Swiss Ranch) Historic District, and CCC Camp Wildrose Historic District. Wildrose Historic District was found to not be eligible as a cultural landscape. New Cultural Landscapes are being developed as part of the "Historic Mining Properties in Death Valley National Park" Multiple Property Listing.

A cultural resources survey of the Wildrose area was conducted by Cogstone Resource Management Inc and included a records search, Native American Sacred Lands file search, intensive pedestrian survey of the entire linear 3.8-mile corridor, and a preliminary eligibility assessment of previously known and newly identified cultural resources within the project's area of potential effects (APE). The record search was completed on November 10, 2009 at the Eastern Information Center. A 131-foot corridor on either side of Lower Wildrose Road was intensively surveyed on November 16 through 18, 2009, as feasible between the walls of Wildrose Canyon.

The record search indicated there are 6 previously recorded archaeological sites (5 historic-era and 1 prehistoric) and one prior study within the APE. The Native American Heritage Commission stated that there are no known sacred lands in the project vicinity. Responses received indicate Native American representatives have no additional knowledge of sacred places or traditional cultural properties in the vicinity of the APE.

The pedestrian survey located six historic-era archaeological sites and identified eight cultural resources. The APE is considered highly sensitive for the discovery of historic-era resources and largely low to moderate sensitivity for the discovery of prehistoric or ethnohistoric resources, with one highly sensitive area.

3.4.6.2 Environmental Consequences

Alternative No. 1 (No Action):

The No Action Alternative maintains the status quo along Lower Wildrose Road, as described in the Affected Environment/Existing Conditions section above. These existing conditions provide a baseline from which to compare the action alternatives, to evaluate the magnitude of proposed changes, and to measure the environmental effects of those changes.

Analysis

Under Alternative 1, the roadway would continue to deteriorate and eventually fail. Current maintenance and safety problems would continue to occur and most likely increase in intensity. Road failure could occur suddenly as the result of a single event or over the course of years. Emergency road repairs would have the potential to incur unanticipated and unavoidable impacts to cultural and historic resources. Overall, this alternative would result in site specific, direct, long term, minor to moderate adverse impacts to cultural and historic resources, specifically, Wildrose Road and Wildrose Station. As the road fails, it would eventually result in the historic road looking radically different from its historic construction, and the impacts to the road would in turn impact the road alignment running through historic Wildrose Station.

Cumulative Impacts

Cumulative impacts to cultural and historic are based on analysis of past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two projects by the Park in the Wildrose area, one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. The fuels reduction project did not impact cultural resources and the building rehabilitation is not expected to contribute to impacts to cultural and historic resources within or around the area of the proposed action. Alternative 1 and the cumulative project would have the same impacts as described above.

Impairment

As described above, Alternative 1 has the potential to result in adverse changes to cultural and historic resources; therefore, this alternative has the potential to impair these park resources for future generations.

Unacceptable Impacts

The No Action Alternative would result in unacceptable impacts to cultural and historic resources. Allowing the roadway to continue to deteriorate and become unusable would be an unacceptable impact because the roadway is a major historical park entry point. Allowing the roadway to continue to deteriorate would have the effect of minimizing visitor access through Wildrose Canyon, which would minimize the potential for human disturbance of these resources within the canyon. This would constitute a benefit for cultural and historic resources.

Alternative No. 2

This alternative would maintain the current road alignment while repaving the entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary. This alternative would also include implementation of minor roadside drainage improvements.

Analysis

With the implementation of mitigation measures described in Section 3.2, above, the road repair under this Alternative would have site-specific, short-term, construction-related impacts and long-term impacts to cultural and historic resources.

Cumulative Impacts

Cumulative impacts to cultural and historic are based on analysis of past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two projects by the Park in the Wildrose area, one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. The fuels reduction project did not impact cultural resources and the building rehabilitation is not expected to contribute to impacts to cultural and historic resources within or around the area of the proposed action.. Alternative 2 and the cumulative project would have the same impacts as described above.

Impairment

Alternative 2 would widen the existing alignment in one area through chipping away a rock face, and would add new drainage improvements. Under Alternative 2 the road alignment would remain in the same location, and the construction of minor roadside drainage improvements would help to preserve the roadway in its largely historic alignment. The roadway section through Wildrose Station would be preserved, which would be a beneficial impact to Wildrose Station. Additionally, no new improvements, such as drainages, would be constructed in the

Wildrose Station site. Alternative 2 would not result in adverse changes to cultural and historic resources; therefore, this alternative would not impair these park resources for future generations.

Unacceptable Impacts

Alternative 2 would not result in unacceptable impacts to cultural and historic resources. Implementation of Alternative 2 would result in site-specific, short-term construction impacts associated with road improvement activities. Alternative 2 would also widen the existing alignment in one area through chipping away a rock face, and would add new drainage improvements, which would result in a long-term modification to the road, but would not result in unacceptable impacts. However, these impacts would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*. Since these impacts would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process

Implementation of Alternative 2 would support continued access for visitors to the Wildrose Area of the Park. Therefore, these impacts are not unacceptable impacts.

Alternative No. 3

This alternative would maintain the current road alignment and modify the road in several locations to allow drainage to cross over the road. In these locations, road reinforcement will also be provided to support the road during rain events. These different types of drainage features (e.g., culverts, Arizona crossings), and road reinforcements (e.g., gabion baskets, buried k-rails, concrete subbase) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary, would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains.

Analysis

With the implementation of mitigation measures described in Section 3.2, above, the road repair under this Alternative would have site specific, short-term, construction-related impacts and long-term impacts to cultural and historic resources.

Cumulative Impacts

Cumulative impacts to cultural and historic are based on analysis of past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two projects by the Park in the Wildrose area, one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. The fuels reduction project did not impact cultural resources and the building rehabilitation is not expected to contribute to impacts to cultural and historic resources within or around the area of

the proposed action. Alternative 3 and the cumulative project would have the same impacts as described above.

Impairment

Alternative 3 would widen the existing alignment in one area through chipping away a rock face, and would add new drainage improvements. Under Alternative 3 the road alignment would remain in the same location, and the construction of minor roadside drainage improvements and road reinforcements would help to preserve the roadway in its largely historic alignment. The roadway section through Wildrose Station would be preserved, which would be a beneficial impact to Wildrose Station. Construction of low water crossings will help preserve the road and its historic undulating nature. Additionally, no new improvements, such as drainages, would be constructed in the Wildrose Station site. Alternative 3 would not result in adverse changes to cultural and historic resources; therefore, this alternative would not impair these park resources for future generations.

Unacceptable Impacts

Alternative 3 would not result in unacceptable impacts to cultural and historic resources. Implementation of Alternative 3 would result in site-specific, short-term construction impacts associated with road improvement activities. Alternative 3 would widen the existing alignment in one area through chipping away a rock face, would add new drainage improvements and new road reinforcements, which would result in a long-term modification to the road. However, these impacts would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*. Since these impacts would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process

Implementation of Alternative 3 would support continued access for visitors to the Wildrose Area of the Park. Therefore, these impacts are not unacceptable impacts.

Alternative No. 4

This alternative would consist of maintaining the current road alignment with modifications in several locations to allow drainage to cross over the road. Road reinforcement will also be provided at some locations to support the road during rain events (e.g., culverts, Arizona crossings), and road reinforcement (e.g., gabion baskets, buried k-rails, concrete subbase) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between the junction with Emigrant Canyon Road and Charcoal Kilns Road and the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary, would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains. This alternative would also include construction of a 10 foot wide by 60 feet long vehicle turn-out area at the location of the Panamint Daisy population to facilitate public observation of this protected wildflower.

Analysis

With the implementation of mitigation measures described in Section 3.2, above, the road repair under this Alternative would have site specific, no adverse, construction-related impacts and no adverse long-term impacts to cultural and historic resources.

Cumulative Impacts

Cumulative impacts to cultural and historic are based on analysis of past, present, and reasonably foreseeable future actions in the Wildrose area in combination with potential effects of this alternative. There are two projects by the Park in the Wildrose area, one has been completed and the second is planned. The first project involved mechanical fuels reduction of 2 acres near the Wildrose Administrative Site. The second involves plans for asbestos abatement and, potentially, for rehabilitation of the Wildrose Administrative Site buildings. The Park is planning to fix the building foundations and rodent-proof the structures in the next few years. The fuels reduction project did not impact cultural resources and the building rehabilitation is not expected to contribute to impacts to cultural and historic resources within or around the area of the proposed action. Alternative 4 and the cumulative project would have the same impacts as described above.

Impairment

Alternative 4 would widen the existing alignment in one area through chipping away a rock face, and would add new drainage improvements. Under Alternative 4 the road alignment would remain in the same location, and the construction of minor roadside drainage improvements and road reinforcements would help to preserve the roadway in its largely historic alignment. The roadway section through Wildrose Station would be preserved, which would be a beneficial impact to Wildrose Station. Construction of low water crossings will help preserve the road and its historic undulating nature. Additionally, no new improvements, such as drainages, would be constructed in the Wildrose Station site. The vehicle turn-out area for public observation of the Panamint Daisy population would impact the historic road alignment. Alternative 4 would not result in adverse changes to cultural and historic resources; therefore, this alternative would not impair these park resources for future generations.

Unacceptable Impacts

Alternative 4 would not result in unacceptable impacts to cultural and historic resources. Implementation of Alternative 4 would result in site-specific, short-term construction impacts associated with road improvement activities. Alternative 4 would also result in widening the existing alignment in one area through chipping away a rock face, would add new drainage improvements and new road reinforcements and construct a vehicle turn-out area for public observation of the Panamint Daisy. The improvements would all result in a long-term modification to the road. However, these impacts would not rise to the level of unacceptability as defined by NPS' *Management Policies 2006*, since these impacts would not

- Impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process

Implementation of Alternative 4 would support continued access for visitors to the Wildrose Area of the Park. Therefore, these impacts are not unacceptable impacts.

4.0 Consultation and Coordination

4.1 Scoping Process

A letter describing the proposed Project, Alternatives to the proposed Project, and requesting scoping input to the proposed Project was made available on the Park web site and sent to interested parties on March 22, 2010. NPS received responses from thirteen individuals, and one response from Inyo County's Department of Planning. All who commented were in favor of implementation of an action alternative for this project, with most expressing approval for Alternative 3 or Alternative 4. Two individuals specifically supported the idea of a safe, paved parking area for observing Panamint Daisies, and two individuals were concerned that calling additional attention to these rare plants could adversely affect their population. These diverse comments, along with input from the Park Botanist, led to the mitigation measure of avoiding the installation of any road sign calling attention to the Panamint Daisy or its habitat. This mitigation would enable Alternative 4, the Park's preferred alternative, to provide a safe place for visitors to explore and self-discover Panamint Daisy habitat with negligible impact to an established population of this rare plant.

Issues and concerns generated through public scoping that were not within the scope of this project, and thereby were not addressed in the environmental assessment, include the following item:

- Creation of a paved bicycle path along the right-of-way of all paved Park roadways

All comments received during the scoping period have been duly considered and are now part of the administrative record for this project.

4.2 Agency Coordination

4.2.1 US Fish and Wildlife Service

NPS (via its consultant, Psomas) contacted the USFWS' Ventura Field Office on November 10, 2009 via electronic mail asking for the USFWS's input regarding federally listed species that may be affected by the project. The USFWS provided a letter of response via electronic mail on December 31, 2009. The letter stated that the USFWS requested analysis of three federally listed species (least Bell's vireo, southwestern willow flycatcher, and yellow-billed cuckoo) and the project's potential affect on migratory birds be addressed. The request letter and response are both included as Appendix C, *Agency Coordination*.

The NPS sent a letter to the USFWS Ventura Field Office on September 10, 2010, confirming that potential impacts to the three federally listed species (least Bell's vireo, southwestern willow flycatcher, and yellow-billed cuckoo) were being analyzed and that potential impacts to the desert tortoise were also being analyzed. The September 10, 2010 letter 1) requested USFWS confirmation that the four species are those which USFWS desired to see included in the project analysis, 2) invited USFWS to amend the species list, and 3) requested USFWS confirmation

that NPS, as federal Lead Agency for the proposed project, was fulfilling its responsibility to review the proposed project and determine whether any listed species may be affected. The USFWS Ventura Field Office replied by letter October 12, 2010 1) confirming that potential impacts to the four species should be analyzed, 2) that no other federally listed, proposed or candidate species, or critical habitat are known to occur in the project vicinity, and 3) recommending that potential impacts to migratory birds also be analyzed. NPS has analyzed potential impacts to least Bell's vireo, southwestern willow flycatcher, yellow-billed cuckoo, desert tortoise and migratory birds in this EA.

4.2.2 *US Army Corps of Engineers*

The NPS contacted the US Army Corps of Engineers (Mr. Bruce Henderson) in December of 2009 concerning the jurisdiction of Wildrose Wash. The Corps requested a memorandum documenting the drainage path and characterizing the nature of Wildrose Wash. NPS sent such a memo in April 23, 2010 to the US Army Corps. To date NPS has not received any comments from the Corps on the proposed action.

4.2.3 *State Historic Preservation Officer*

The NPS sent a letter to the California State Historic Preservation Officer on September 10, 2010, outlining the proposed project and to notify the Office of Historic Preservation that the project is being contemplated, that NPS is reviewing the project for impacts to cultural resources, and that NPS intends to fulfill its obligations under the NEPA and other pertinent resource protection laws and regulations, including the NHPA, Section 106. A response was not received.

The NPS discussed the project with the California SHPO office on February 8, 2011, and discussed the prospect of going forward with the no adverse effect finding. Consultation with the California SHPO is ongoing.

4.2.4 *Tribal Historic Preservation Officer*

The NPS sent a letter to the Timbisha-Shoshone Tribe Tribal Historic Preservation Officer on September 10, 2010, outlining the proposed project and to notify the Office of Historic Preservation that the project is being contemplated, that NPS is reviewing the project for impacts to cultural resources, and that NPS intends to fulfill its obligations under NEPA and other pertinent resource protection laws and regulations, including the NHPA, Section 106. While the NPS has not received a formal response, NPS' archaeological contractor has received an email from the THPO stating that while the area is sacred, the THPO has no concerns with the project area.

5.0 List of Preparers

The following individuals aided in the preparation of this EA.

5.1 *National Park Service - Death Valley National Park*

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5.2 *Psomas*

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5.3 *Cogstone*

Sherri Gust

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APPENDICES

Appendix A

Site Photographs



Lower Wildrose Road at Mile Post 24, the pipe gate entrance to the Park, looking northeast along the road alignment. This is the southwestern terminus of the project.



Lower Wildrose Road between Mile Post 24 and 23. Note pavement condition.



Mojave creosote brush habitat along Lower Wildrose Road.



Existing berm along southern side of Lower Wildrose Road.



Turnout for Panamint Daisy viewing area.



Riparian habitat at Wildrose Station.



Jutting sedimentary rock to be chipped back (on opposite side of road from the pictured parked car).



Riparian habitat northeast of Wildrose Station.



Channel crossing of Lower Wildrose Road.



Lower Wildrose Road. Note roadway surface condition.



Spring flow in roadbed of Lower Wildrose Road.



Damp roadway near spring flow across Lower Wildrose Road.



Spring flow across Lower Wildrose Road near intersection with Emigrant Canyon Road.



Signage near Mile Post 20, terminus of project alignment.

Appendix B
List of Plants and Wildlife Observed

Appendix B

List of Plant and Wildlife Species Observed

Plant Species Observed During the Field Surveys

A complete list of plant species observed within the Wildrose Road Project area during the field surveys November 16, and 17, 2009, is provided in the Table 1, *Plant Species Observed during Field Surveys*.

Table 1
Plant Species Observed During Field Surveys

Scientific Name	Common Name
Angiosperm Dicots	
Amaranthaceae	Amaranth, Pigweed Family
<i>Tidestromia oblongifolia</i>	honey sweet, Arizona honeysweet
Asteraceae	Sunflower Family
<i>Ambrosia dumosa</i>	white bursage, burro weed
<i>Artemisia dracunculus</i>	tarragon
<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>	mountain sagebrush
<i>Baccharis sergiloides</i>	desert Baccharis, squaw waterweed
<i>Encelia farinosa</i>	brittlebush (incienso)
<i>Enceliopsis covillei</i>	Panamint daisy
<i>Ericameria nauseosus</i> (=Chrysothamnus <i>nauseosus</i>)	rubber rabbitbrush
<i>Ericameria paniculata</i> (=Chrysothamnus <i>paniculatus</i>)	Mojave rabbitbrush
<i>Geraea canescens</i>	desert sunflower
<i>Gutierrezia microcephala</i>	matchweed
<i>Hymenoclea salsola</i>	cheesebush
<i>Lepidospartum squamatum</i>	scale-broom
<i>Peucephyllum schottii</i>	pygmy-cedar
<i>Stephanomeria parryi</i>	Parry's stephanomeria
<i>Stephanomeria pauciflora</i>	wire lettuce, desert straw
<i>Sonchus asper</i> *	prickly sow-thistle
<i>Tetradymia axillaris</i> var. <i>longispina</i>	cotton-thorn
Brassicaceae	Mustard Family
<i>Arabis pulchra</i>	beautiful rockcress
<i>Brassica nigra</i> *	black mustard
<i>Lepidium</i> sp.	pepperweed
<i>Stanleya elata</i>	Panamint plume
<i>Stanleya pinnata</i>	Prince's plume
Cactaceae	Cactus Family
<i>Ferocactus cylindraceus</i> var. <i>cylindraceus</i>	California barrel cactus

Scientific Name	Common Name
<i>Opuntia basilaris</i> var. <i>basilaris</i>	beavertail cactus
Chenopodiaceae	Goosefoot Family
<i>Atriplex canescens</i>	fourwing saltbush
<i>Atriplex hymenelytra</i>	desert holly
<i>Atriplex serenana</i>	bracted saltbush
<i>Grayia spinosa</i>	hopsage
<i>Salsola paulsenii</i> *	barbwire Russian thistle
Cuscutaceae	Dodder Family
<i>Cuscuta californica</i>	dodder (California witch's hair)
Ephedraceae	Ephedra Family
<i>Ephedra funerea</i>	Death Valley ephedra
<i>Ephedra nevadensis</i>	Nevada ephedra
Euphorbiaceae	Spurge Family
<i>Euphorbia albomarginata</i> (= <i>Chamaesyce albomarginata</i>)	rattlesnake spurge (rattlesnake weed)
Fabaceae	Legume Family
<i>Acacia greggii</i>	cat claw acacia
<i>Melilotus albus</i> *	white sweet clover
<i>Psoralethamnus arborescens</i>	Mojave indigobush
<i>Psoralethamnus fremontii</i>	Fremont indigobush
Hydrophyllaceae	Waterleaf Family
<i>Phacelia crenulata</i>	notch-leaved phacelia
<i>Phacelia</i> sp.	phacelia
Lamiaceae	Mint Family
<i>Monardella exilis</i>	Mojave monardella
<i>Salvia columbariae</i>	chia
Loasaceae	Loasa Family
<i>Mentzelia involucreata</i>	sand blazing star
Malvaceae	Mallow Family
<i>Shaeralea ambigua</i>	desert mallow
Papaveraceae	Poppy Family
<i>Arctomecon merriamii</i>	desert poppy
Plantaginaceae	Plantain Family
<i>Plantago ovata</i>	woolly plantain
Polemoniaceae	Phlox Family
<i>Eriastrum sparsiflorum</i>	Great Basin woollystar
<i>Gilia latifolia</i>	broad leaf gilia
Polygonaceae	Buckwheat Family
<i>Eriogonum brachypodum</i>	Parry's buckwheat
<i>Eriogonum deflexum</i> var. <i>deflexum</i>	flat topped buckwheat, skeleton weed
<i>Eriogonum fasciculatum</i> var. <i>polifolium</i>	California buckwheat
<i>Eriogonum inflatum</i> var. <i>inflatum</i>	desert trumpet
<i>Eriogonum rixfordii</i>	Rixford's buckwheat, pagoda buckwheat

Scientific Name	Common Name
<i>Rumex crispus</i> *	curly dock
Salicaceae	Willow Family
<i>Populus fremontii</i>	Fremont cottonwood
<i>Salix exigua</i>	narrow-leaved willow (sandbar willow)
<i>Salix lasiolepis</i>	arroyo willow
Scrophulariaceae	Figwort Family
<i>Penstemon fruticiformis</i> var. <i>amargosae</i>	Death Valley beard-tongue
Tamaricaceae	Tamarisk Family
<i>Tamarix gallica</i> *	Salt cedar
<i>Tamarix ramosissima</i> *	Mediterranean tamarisk
Zygophyllaceae	Caltrop Family
creosote bush	<i>Larrea tridentata</i>
ANGIOSPERM MONOCOTS	
Iridaceae	Iris Family
<i>Sisyrinchium bellum</i>	blue eyed grass
Poaceae	Grass Family
<i>Aristida purpurea</i>	purple three awn
<i>Bromus madritensis</i> ssp. <i>rubens</i> *	red brome(foxtail chess)
<i>Bromus tectorum</i> *	cheatgrass (downy brome)
<i>Distichlis spicata</i>	salt grass
<i>Elymus elymoides</i>	squirrel tail grass
<i>Pleuraphis rigida</i>	Galletta grass
<i>Polypogon monspeliensis</i> *	rabbitfoot grass (annual beard grass)
Typhaceae	Cattail Family
<i>Typha domingensis</i>	narrow-leaved cattail
Legend	
* exotic plant species	

Wildlife Species Observed During the Field Surveys

A list of wildlife species observed within the Wildrose Road Project area during field surveys November 16, and 17, 2009, is provided in the Table 2, *Wildlife Species Observed during Field Surveys*.

Table 2
Plant Species Observed During Field Surveys

Scientific Name	Common Name
<i>Aspidoscelis tigris</i>	Western whiptail lizard
<i>Sceloporus occidentalis</i>	Western fence lizard
<i>Alectoris chukar</i>	Chuckar
<i>Zenaida macroura</i>	Mourning dove
<i>Corvus corax</i>	Common Raven
<i>Auriparus flaviceps</i>	Verdin
<i>Thryomanes bewickii</i>	Bewick's wren
<i>Salpinctes obsoletus</i>	Rock Wren
<i>Regulus calendula</i>	Ruby-crowned kinglet
<i>Catharus ustulatus</i>	Swanson's thrush
<i>Dendroica coronata</i>	Yellow-rumped warbler
<i>Melospiza melodia</i>	Song Sparrow
<i>Carpodacus mexicanus</i>	House finch

In addition, one unidentified species was observed. Thought to be a spring snail, a specimen was sent to Desert Research Institute (Dr. Don Sada) for identification.

Two empty burrows were also observed:

- Unknown kangaroo rat burrow (*Dipodomys* sp.)
- Unknown burrow (potentially American badger)

Appendix C

Agency Coordination

US Fish and Wildlife Service

NPS (via its consultant, Psomas) contacted the US Fish and Wildlife Service (USFWS) Ventura Field Office on November 10, 2009 via electronic mail asking for the USFWS's input regarding federally listed species that may be affected by the project.

E-mail dated 11/10/09 from Psomas to US Fish and Wildlife Service requesting species information for Lower Wildrose Road Project.

Carl,

Psomas is working with the National Park Service-Death Valley National Park. I would like to request a list of federally-listed species of concern to the U.S. Fish and Wildlife Service for a project the National Park Service is undertaking along Wildrose Road within Death Valley National Park. The project will entail repairing 5 miles of Wildrose road starting at milepost 20 to Milepost 24. The road is at the western entry point to the Park. There is a riparian area along approximately 1/2 mile of this road within the project area and Wildrose wash runs parallel to the road within the project area. There is a spring which has surfaced in the road near the riparian area. The project is located primarily within the Emigrant Pass 7.5 quadrangle. Please contact me with any questions.

Thanks

Brad

Brad R. Blood, Ph.D.
Psomas-Natural Resources
714-481-8019 - direct phone
714-514-7338 - cell phone

The USFWS provided a letter of response via electronic mail on December 31, 2009. The letter stated that the USFWS requested analysis of three federally listed species (least Bell's vireo, southwestern willow flycatcher, and yellow-billed cuckoo) and the project's potential affect on migratory birds be addressed.

In Reply, Please Refer To:
2020-SL-0069

Dear Mr. Blood:

We received your electronic request, dated November 10, 2009, for information on federally listed species that may be present in the Emigrant Pass quadrangle where the subject project is proposed to occur.

The federally endangered southwestern willow flycatcher (*Empidonax traillii extimus*) and least Bell's vireo (*Vireo bellii pusillus*) and the federal candidate yellow-billed cuckoo (*Coccyzus americanus*) may occur in the riparian and spring portions of the project area. The proposed project is not within critical habitat of either of the listed species.

This email fulfills the requirements of the U.S. Fish and Wildlife Service under section 7(c) of the Endangered Species Act of 1973, as amended (Act). Your email indicates that the project will be carried out by the National Park Service; therefore the National Park Service would assume responsibility for the proposed project under section 7 of the Act. The National Park Service, as the lead Federal agency for the project, has the responsibility to review its proposed activities and determine whether any listed species may be affected. If the project is a construction¹ project which may require an environmental impact statement, the National Park Service has the responsibility to prepare a biological assessment to make a determination of the effects of the action on the listed species or critical habitat. If the National Park Service determines that a listed species or critical habitat is likely to be adversely affected, it should request, in writing through our office, formal consultation pursuant to section 7 of the Act. Informal consultation may be used to exchange information and resolve conflicts with respect to threatened or endangered species or their critical habitat prior to a written request for formal consultation. During this review process, the National Park Service may engage in planning efforts but may not make any irreversible commitment of resources. Such a commitment could constitute a violation of section 7(d) of the Act.

Only listed species receive protection under the Act. However, sensitive species should be considered in the planning process in the event they become listed or proposed for listing prior to project completion. We recommend that you review information in the California Department of Fish and Game's Natural Diversity Data Base. You can contact the California Department of Fish and Game at (916) 324-3812 for information on other sensitive species that may occur in this area.

In addition, we note that the proposed project may adversely affect migratory birds in the area. For this reason, we recommend that any land clearing or other surface disturbance associated with proposed actions within the project area be timed to avoid potential destruction of active bird nests or young. Such destruction may be in violation of the Migratory Bird Treaty Act (16 U.S.C. 703:712; MBTA). The MBTA prohibits taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. If avoiding impacts is not feasible, we recommend a qualified biologist survey the area prior to land clearing. If nests are located or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a

protective buffer (the size depending on the habitat requirements of the species) should be delineated and the entire area avoided to prevent destruction or disturbance to nests until they are no longer active.

We will enter this email into our files along with the request.

If you have any questions regarding this matter, please contact Ashleigh Blackford at (805) 644-1766, extension 234.

Sincerely,

Raymond Bransfield
Senior Biologist

¹ “ Construction project” means any major Federal action which significantly affects the quality of the human environment designed primarily to result in the building of structures such as dams, buildings, roads, pipelines, and channels. This includes Federal actions such as permits, grants, licenses, or other forms of Federal authorizations or approval which may result in construction.

The NPS sent a letter to the USFWS Ventura Field Office on September 10, 2010, confirming that potential impacts to the three federally listed species (least Bell’s vireo, southwestern willow flycatcher, and yellow-billed cuckoo) were being analyzed and that potential impacts to the desert tortoise were also being analyzed. The September 10, 2010 letter 1) requested USFWS confirmation that the four species are those which USFWS desired to see included in the project analysis, 2) invited USFWS to amend the species list, and 3) requested USFWS confirmation that NPS, as federal Lead Agency for the proposed project, was fulfilling its responsibility to review the proposed project and determine whether any listed species may be affected.



United States Department of the Interior NATIONAL PARK SERVICE

Death Valley National Park
PO Box 579
Death Valley, California 92328



In Reply Refer To:

L7619
17

September 10, 2010

Mr. Carl Benz
Section 7 Program Coordinator
US Fish and Wildlife Service
2493 Portola Road, Suite B
Ventura, CA 93003

Reference: Regarding: 2020-SL-0069
Lower Wildrose Canyon Road Rehabilitation Project

The National Park Service (NPS) has initiated the NEPA process to analyze potential impacts associated with the proposed rehabilitation of 4.5 miles of Lower Wildrose Road, located within Death Valley National Park. A Biological Assessment/Biological Evaluation (BA/BE) and Environmental Assessment (EA) are currently in preparation. The general scoping period closed April 14, 2010.

As part of the project analysis, NPS (through our consultant, Psomas) informally requested a list of species of concern to the USFWS specifically related to the proposed project. Mr. Ray Bransfield of your office replied, citing three species that have the potential to occur within the riparian and spring portions of the project area:

- federally endangered southwestern willow flycatcher (*Empidonax traillii extimus*)
- federally endangered least Bell's vireo (*Vireo bellii pusillus*)
- federal candidate yellow-billed cuckoo (*Coccyzus americanus*)

In addition to these species, DEVA has included the following species in its analysis of species having the potential to occur within or adjacent to the area of the proposed project:

- desert tortoise (*Gopherus agassizii*)

The purpose of this letter is threefold. First, NPS requests confirmation from the USFWS that the species identified herein are those species which USFWS desires to see included in the project analysis and Biological Assessment. Second, NPS invites USFWS to amend this species list should a need for such amendment be determined. Third and finally, NPS seeks to affirm to the USFWS that NPS, as Federal Lead agency for the proposed project, is acting to fulfill its responsibility to review the proposed project and determine whether any listed species may be affected. A Biological Assessment/Biological

is in process, as is an Environmental Assessment. No impacts to federally listed endangered or threatened species resulting from implementation of the proposed project or alternatives are indicated thus far in the analysis. Should impacts to federally listed endangered or threatened species be indicated upon completion of the EA/BA, NPS will initiate formal consultation with USFWS pursuant to Section 7 of the Endangered Species Act (1973), as amended.

A brief description of the purpose and need for the proposed action and a description of alternatives are provided below.

Purpose and Need for Action

Lower Wildrose Road serves as an access point for the western boundary of the Park and is the most direct route of travel for visitors coming from Ridgecrest, CA. It provides access to the Wildrose area of the Park, which is home to the historic Charcoal Kilns, Telescope Peak Trail, and several backcountry campgrounds. The area is culturally significant because it supported several thousand years of use by the Timbisha Shoshone tribe, and also because a California Conservation Corps (CCC) encampment is present in the area. The road alignment itself is historic, and was an important travel corridor associated with various significant mining properties in the Park. The area also supports federally protected plant and wildlife species.

A flash flood in the late 1980's caused significant damage to the road. Since then, the road has continued to experience flooding episodes and thus continues to degrade. The resulting road is partially paved and is a safety concern for those traveling by vehicle.

The need for this project is evidenced by the fact that the existing road surface is in poor condition ranging from smooth pavement to rough dirt road—in many sections, the road surface is a combination of broken worn pavement and dirt roadbed. The poor conditions are due to the seasonal overflow of Wildrose Wash, which runs parallel to and sometimes runs within and crosses Lower Wildrose Road. In addition, a spring/seep that surfaces near the alignment of the roadway is causing water to flow over the road surface and is undermining the roadbed. In its current state, Lower Wildrose Road presents visitor safety and resource impact concerns.

In addition, the roadway needs to be improved to provide for visitor safety during the perennial blooming of the Panamint daisy (*Enciliposis covillei*) which often draws large numbers of visitors to the area.

Alternatives Under Consideration

Three alternatives (other than a No Action Alternative) have been developed for consideration. The NPS has not yet selected a preferred alternative, pending further evaluation of these alternatives. The alternatives under consideration at this time are briefly described below. These alternatives are considered feasible from an engineering standpoint, and are consistent with the guidelines for maintaining current levels of resource protection, resource access, and visitor experience within the Park.

Alternative 1: No Action

This alternative would consist of maintaining the roadway in its current condition. The existing road was once paved, but several flooding episodes have caused significant damage to the road. In addition, minimal repair or rehabilitation has occurred on the road so it continues to degrade. There are several sections of the road where there is limited or no pavement.

For this alternative, no repair or rehabilitation measures would be taken. No roadside drainage improvements would be contemplated or implemented to protect road surface. The roadway would continue to deteriorate over time until it eventually would be passable only by four-wheel-drive vehicles, forcing visitors in two-wheel-drive vehicles coming from the Ridgecrest, CA, area to drive north to Hwy 190 to access the Park.

Alternative 2: Repave Lower Wildrose Road and Widen Existing Road between Mile Marker 21 and 22.

This alternative would consist of maintaining the current road alignment and repaving the entire length of the roadway between MP 20 and MP 24. Minor roadside drainage improvements would also be implemented, including but not limited to French drains.

The new road would be two lanes, with each lane being 9-feet wide. A 1-foot wide shoulder would be constructed on both sides of the road for a total road width of 20 feet. The one location where the road does not meet the 20-foot minimum width is just northeast of the old convenience store site, where a rock outcropping and a drainage channel limit the road width to 18 feet. At this location the rock outcropping would be chipped-back to allow for a 20-foot road width.

Alternative 3: Repave and Widen Lower Wildrose Road, and Provide Drainage Features and Road Reinforcement at Drainage Crossings.

This alternative would consist of maintaining the current road alignment, but modifying the road in several locations to allow drainage to cross over the road. In these locations, road reinforcement will also be provided to support the road during rain events. These different types of drainage features (e.g. culverts, Arizona crossings), and road reinforcements (e.g. gabion baskets, buried k-rails, concrete sub base) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between MP 20 and MP 24 would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains.

The new road would be two lanes, with each lane being 9-feet wide. A 1-foot wide shoulder would be constructed on both sides of the road for a total road width of 20 feet. The one location where the road does not meet the 20-foot minimum width is just northeast of the old convenience store site, where a rock outcropping and a drainage channel limit the road width to 18 feet. At this location the rock would be chipped-back to allow for a 20-foot road width.

Alternative 4: Repave and Widen Lower Wildrose Road, Provide Drainage Features and Road Reinforcement at Drainage Crossings, and Provide Turn-Out Parking Area for Observing Panamint Daisy Blooming Area

This alternative would consist of maintaining the current road alignment, but modifying the road in several locations to allow drainage to cross over the road. In these locations, road reinforcement will also be provided to support the road during rain events. These different types of drainage features (e.g.

culverts, Arizona crossings), and road reinforcement (e.g. gabion baskets, buried k-rails, concrete sub base) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between MP 20 and MP 24 would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains.

The new road would be two lanes, with each lane being 9-feet wide. A 1-foot wide shoulder would be constructed on both sides of the road for a total road width of 20 feet. The one location where the road does not meet the 20-foot minimum width is just northeast of the old convenience store site, where a rock outcropping and a drainage channel limit the road width to 18 feet. At this location the rock would be chipped-back to allow for a 20-foot road width.

This alternative would also include construction of a vehicle turn-out area at the location of the Panamint Daisy population to facilitate public observation of this protected wildflower, which is known from a small area in Wildrose Canyon. The turn-out would provide safe visitor parking for viewing the Panamint Daisy during blooming season. The paved vehicle turn-out area would consist of a turn-out up to 10 feet wide and long enough to allow parallel parking for up to 3 (three) passenger vehicles (approximately 60 feet long). Signage and other road features will be implemented in accordance with local and federal requirements.

We look forward to working with you and your staff. If you have any questions regarding the project, please call Linda Manning, Wildlife Biologist, at (760) 786-3252.

Sincerely,



Sarah Craighead
Park Superintendent

cc: Victoria Wilkins
Linda Manning
Central Files

The USFWS Ventura Field Office replied by letter October 12, 2010 1) confirming that potential impacts to the four species should be analyzed, 2) that no other federally listed, proposed or candidate species, or critical habitat are known to occur in the project vicinity, and 3) recommending that potential impacts to migratory birds also be analyzed.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003



IN REPLY REFER TO:
81440-2010-SL-0440

October 12, 2010

Memorandum

To: Superintendent, Death Valley National Park, National Park Service, Death Valley, California

From: Senior Biologist, Ventura Fish and Wildlife Office, Ventura, California
Barbara B. Bunker

Subject: Lower Wildrose Canyon Road Rehabilitation Project, Death Valley National Park, Death Valley, California (L7619)

On November 10, 2009, we received your request for a list of endangered and threatened species that may occur within the vicinity of the subject project. Our response, dated December 31, 2009, included the federally endangered southwestern willow flycatcher (*Empidonax traillii extimus*) and least Bell's vireo (*Vireo bellii pusillus*), and the candidate yellow-billed cuckoo (*Coccyzus americanus*) and described the National Park Service's (NPS) responsibilities under the Endangered Species Act of 1973, as amended.

By letter dated September 10, 2010, you requested confirmation that the species we included in our December 31, 2009, response should be included in the NPS's biological assessment for the proposed action; you also notified us that you intended to include the threatened desert tortoise (*Gopherus agassizii*) in your analysis.

The NPS proposes to improve lower Wildrose Canyon Road, which has been damaged by past flooding events. The NPS has not yet selected a preferred alternative from among four being considered.

We agree that the species identified in our original response may occur within the vicinity of the proposed project and, therefore, should be analyzed in the biological assessment. We also agree that the desert tortoise should be included in the biological assessment because work vehicles traveling to the site would traverse its habitat. To the best of our present knowledge, no other federally listed, proposed, or candidate species, or critical habitat occurs within the vicinity of the subject project.

TAKE PRIDE[®]
IN AMERICA 

Because the proposed project may result in the removal of riparian vegetation, we also recommend that the NPS analyze its potential impacts on migratory birds. Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712), which prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. We cannot authorize the incidental take of birds under the auspices of the Migratory Bird Treaty Act; therefore, we recommend that any land clearing or other surface disturbance associated with the proposed project be timed to avoid potential destruction of bird nests or young. If this measure is not feasible, we recommend a qualified biologist survey the area prior to land clearing. If nests are located, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) should be delineated and the area within the buffer avoided to prevent destruction or disturbance to nests until they are no longer active.

If you have any questions regarding this matter, please contact Erin Shapiro of the Ventura Fish and Wildlife Office at (805) 644-1766, extension 369.

US Army Corps of Engineers

The NPS contacted USACOE (Mr. Bruce Henderson) in December of 2009 concerning the jurisdiction of Wildrose Wash. The Corps requested a memorandum documenting the drainage path and characterizing the nature of Wildrose Wash. NPS sent such a memo in April 23, 2010. To date NPS has not received any comments from the USACOE on the proposed action.



United States Department of the Interior

NATIONAL PARK SERVICE

Death Valley National Park

PO Box 579

Death Valley, California 92328



IN REPLY REFER TO

L7619

April 23, 2010

Bruce Henderson
U.S. Army Corp of Engineers
Los Angeles District
915 Wilshire Blvd., Suite 980
Los Angeles, CA 90017

Dear Mr. Henderson:

This letter transmits to the U.S. Army Corps of Engineers (USACOE) the results of a site visit conducted by Psomas (Dr. Brad Blood and Ms. Cathleen Weigand) on November 16, and 17, 2009 in support of the Lower Wildrose Road Repair Project. The purpose of the site visit was to survey for sensitive biological resources within the project area and to assess the potential for Wildrose Wash to fall under the jurisdiction of the U.S. Army Corps of Engineers (ACOE).

Introduction and Background

The Lower Wildrose Road Repair Project site is located in the Wildrose Section of Death Valley National Park, in the southwestern portion of the park approximately 60 miles northeast of the city of Ridgecrest, California. The Wildrose Canyon runs from an elevation of approximately 4,000 feet above mean sea level to an elevation of approximately 2,500 feet above mean sea level. (Attachment No. 1, *Project Area Map*).

The 5-mile section of Lower Wildrose Road under consideration for rehabilitation serves as an access point for the western boundary of the park and is the most direct route of travel for visitors entering the park from Ridgecrest. Lower Wildrose Road provides access to the Wildrose area of the park which is home to the historic Charcoal Kilns, Telescope Peak Trail and several backcountry campgrounds. The area is known for historic Civilian Conservation Corp (CCC) camp, several thousand years of use by the Timbisha Shoshone, and also hosts federally listed plant and wildlife species. The road alignment itself is historic and was an important travel corridor associated with various early Death Valley mining properties.

A flash flood in the late 1980s caused major damage to the road. Initially the park decided to not replace the lost pavement sections; however, visitor traffic over this route has significantly increased over the years and the road has continued to degrade due to increased traffic and multiple flooding episodes. The resulting roadway is partially paved and is a safety concern for those traveling by vehicle. The park has been unable to make a determination on the most suitable treatment for this road due to a multitude of issues. Known issues impacting decisions regarding this road include natural spring flow under and over the road, endemic plants, federally listed species, as well as historic sites.

The purpose of this project is to repair, rehabilitate, and improve the condition of Lower Wildrose Road. All actions proposed in this project are located within the boundaries of Death Valley National Park. No changes to vehicular or pedestrian circulation patterns are proposed and no changes will be made to existing vehicular speed limits. One new roadway widening (outside of the original road prism width of 22 feet) is proposed to provide to safe visitor parking at a site known for blooming of the Panamint daisy (*Enceliopsis covillei*).

The need for this project is evidenced by the fact that the existing road surface is in poor condition ranging from smooth pavement to rough dirt road and many sections of the road surface is a combination of broken worn pavement and dirt roadbed. The poor conditions are due to the seasonal overflow of the Wildrose Wash which runs parallel to and often runs within and crosses Lower Wildrose Road. Lower Wildrose Road presents visitor safety and resource impact concerns.

Results and Conclusions

During the site visit on November 16, and 17, 2009, Psomas assessed the proposed project area for ACOE jurisdictional boundaries. Psomas assessed connectivity of Wildrose Wash through on-site visits and by review of the Emigrant Canyon and Jail Canyon 7.5 minute topographic maps for the area and aerial photographs.

Vegetation along Lower Wildrose Road includes Mojave riparian forest along Wildrose Wash in the more eastern portion of the wash in the upper elevations; and transitions to Mojave Desert wash scrub toward the west in the lower elevations, with intermittent areas of transmontane freshwater marsh. The adjacent, more upland habitat is dominated by desert saltbush scrub, transitioning to Mojave creosote bush scrub toward the southern and western areas of the proposed project. Wildrose Wash is perennial in the eastern upper elevations for approximately the first mile of the project area, and then flow becomes subsurface for most of the remainder of the project area, day-lighting again in several small additional sections along the road.

Wildrose Wash provides the drainage for Wildrose Canyon through which several unnamed drainages run and come together to form Wildrose Wash. Wildrose Canyon is surrounded by peaks at 5,000 feet and above and is therefore a separate drainage from Death Valley, which lies just east of the Canyon on the other side of Wildrose Peak. After flowing through Wildrose Canyon, Wildrose Wash discharges into Panamint Valley just south of where Wildrose Road intersects with Panamint Valley Road. At this point the wash joins other washes and discharges into Alkali Flat near Ballarat. There is no connection to an extant water body, or lake, or to another river or drainage (Attachment 2, *Wildrose Wash*).

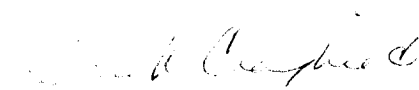
Wildrose represents an isolated drainage and riparian area originating from Wildrose Canyon supplemented by subterranean springs and groundwater. Ground water in this area is shallow and surfaces in the more eastern portion of the canyon, eventually submerging back into the groundwater table toward the west. The low gradient channel is more or less well defined; becoming a larger, wider dry wash toward the west, meandering back and forth across the road, with areas of single channel and larger areas of braided ephemeral channel features. Perennial water flows in the easternmost portion of the project area, particularly where the riparian area occurs, eventually petering out toward the west. Two smaller riparian areas were observed along Lower Wildrose Road; within each area water was flowing on the surface, then again eventually petering out as the flows headed toward the west.

This area does not have connectivity into any navigable, jurisdictional, or waters of the U.S., however it does serve as a natural drainage for the Wildrose Canyon Watershed.

As a result of the assessment by Psomas, the National Park Service requests the concurrence of the U.S. Army Corps of Engineers that Wildrose Wash is an isolated waters, and is therefore not under USACOE regulatory jurisdiction, and no USACOE permitting is necessary for implementation of the repair project.

Should there be any questions concerning the information contained in this memorandum, please contact Victoria Wilkins, Environmental Protection Specialist, at (760) 786-3227.

Sincerely yours,



Sarah Craighead
Superintendent

Enclosures

PSOMAS;VWILKINS:mko\LowerWildroseRoad_USCOE_Letter_4.13.2010

bc: central files
 MGT: VWilkins, Env Prot Spec
 RM: KFuhrmann, Chief of Resources
 RM: BDavenport, Supv, Cultural Resources
 RM: LBonstead, Archaeologist
 MTC: WBadder, Chief Maintenance
 MTC: AHoleso, Roads Supv
 MTC: CShandor, Fac Mgmt Spec

State Historic Preservation Officer

The NPS sent a letter to the California State Historic Preservation Officer on September 10, 2010, outlining the proposed project and to notify the Office of Historic Preservation that the project is being contemplated, that NPS is reviewing the project for impacts to cultural resources, and that NPS intends to fulfill its obligations under the National Environmental Policy Act (NEPA) and other pertinent resource protection laws and regulations, including the National Historic Preservation Act (NHPA), Section 106. A response was not received.



United States Department of the Interior

NATIONAL PARK SERVICE

Death Valley National Park
PO Box 579
Death Valley, California 92328



In Reply Refer To:

L7619

17

September 10, 2010

Milford Wayne Donaldson
California State Historic Preservation Officer
Office of Historic Preservation, Department of Parks and Recreation
P.O. Box 942896
Sacramento, CA 94296-0001

Reference: Death Valley National Park Lower Wildrose Canyon Road Rehabilitation Project

Dear Mr. Donaldson:

The National Park Service (NPS) is proposing to rehabilitate five miles of the Emigrant Canyon Road, commonly referred to as Lower Wildrose Road, from the MP20 to MP24 in Death Valley National Park (Park). This section of Lower Wildrose Road has deteriorated over the years due to flash flooding and presents a hazard to safe vehicular travel to and from the Park. NPS serves as federal Lead Agency for the proposed project, and as such, is required to comply with the National Environmental Policy Act (NEPA) and other pertinent resource protection laws and regulations, including the National Historic Preservation Act (NHPA), Section 106.

This letter is sent to your agency for the following purposes:

- To advise your agency of the proposed project;
- To notify you that the National Park Service is reviewing the project for impacts to cultural resources and intends to fulfill our obligations under Section 106 of the National Historic Preservation Act.

A brief description of the purpose and need for the proposed action and a description of alternatives are provided below.

Purpose and Need for Action

Lower Wildrose Road serves as an access point for the western boundary of the Park and is the most direct route of travel for visitors coming from Ridgecrest, CA. It provides access to the Wildrose area of the Park, which is home to the historic Charcoal Kilns, Telescope Peak Trail, and several backcountry campgrounds. The area is culturally significant because it supported several thousand years of use by the Timbisha Shoshone tribe, and also because a California Conservation Corps (CCC) encampment is

present in the area. The road alignment itself is historic, and was an important travel corridor associated with various significant mining properties in the Park. The area also supports federally protected plant and wildlife species.

A flash flood in the late 1980's caused significant damage to the road. Since then, the road has continued to experience flooding episodes and thus continues to degrade. The resulting road is partially paved and is a safety concern for those traveling by vehicle.

The need for this project is evidenced by the fact that the existing road surface is in poor condition ranging from smooth pavement to rough dirt road—in many sections, the road surface is a combination of broken worn pavement and dirt roadbed. The poor conditions are due to the seasonal overflow of Wildrose Wash, which runs parallel to and sometimes runs within and crosses Lower Wildrose Road. In addition, a spring/seep that surfaces near the alignment of the roadway is causing water to flow over the road surface and is undermining the roadbed. In its current state, Lower Wildrose Road presents visitor safety and resource impact concerns.

In addition, the roadway needs to be improved to provide for visitor safety during the perennial blooming of the Panamint daisy (*Enciliposis covillei*) which often draws large numbers of visitors to the area.

Alternatives Under Consideration

Three alternatives (other than a No Action Alternative) have been developed for consideration. The NPS has not yet selected a preferred alternative, pending further evaluation of these alternatives. The alternatives under consideration at this time are briefly described below. These alternatives are considered feasible from an engineering standpoint, and are consistent with the guidelines for maintaining current levels of resource protection, resource access, and visitor experience within the Park.

Alternative 1: No Action

This alternative would consist of maintaining the roadway in its current condition. The existing road was once paved, but several flooding episodes have caused significant damage to the road. In addition, minimal repair or rehabilitation has occurred on the road so it continues to degrade. There are several sections of the road where there is limited or no pavement.

For this alternative, no repair or rehabilitation measures would be taken. No roadside drainage improvements would be contemplated or implemented to protect road surface. The roadway would continue to deteriorate over time until it eventually would be passable only by four-wheel-drive vehicles, forcing visitors in two-wheel-drive vehicles coming from the Ridgecrest, CA, area to drive north to Hwy 190 to access the Park.

Alternative 2: Repave Lower Wildrose Road and Widen Existing Road between Mile Marker 21 and 22.

This alternative would consist of maintaining the current road alignment and repaving the entire length of the roadway between MP 20 and MP 24. Minor roadside drainage improvements would also be implemented, including but not limited to French drains.

The new road would be two lanes, with each lane being 9-feet wide. A 1-foot wide shoulder would be constructed on both sides of the road for a total road width of 20 feet. The one location where the road does not meet the 20-foot minimum width is just northeast of the old convenience store site, where a rock outcropping and a drainage channel limit the road width to 18 feet. At this location the rock outcropping would be chipped-back to allow for a 20-foot road width.

Alternative 3: Repave and Widen Lower Wildrose Road, and Provide Drainage Features and Road Reinforcement at Drainage Crossings.

This alternative would consist of maintaining the current road alignment, but modifying the road in several locations to allow drainage to cross over the road. In these locations, road reinforcement will also be provided to support the road during rain events. These different types of drainage features (e.g. culverts, Arizona crossings), and road reinforcements (e.g. gabion baskets, buried k-rails, concrete sub base) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between MP 20 and MP 24 would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains.

The new road would be two lanes, with each lane being 9-feet wide. A 1-foot wide shoulder would be constructed on both sides of the road for a total road width of 20 feet. The one location where the road does not meet the 20-foot minimum width is just northeast of the old convenience store site, where a rock outcropping and a drainage channel limit the road width to 18 feet. At this location the rock would be chipped-back to allow for a 20-foot road width.

Alternative 4: Repave and Widen Lower Wildrose Road, Provide Drainage Features and Road Reinforcement at Drainage Crossings, and Provide Turn-Out Parking Area for Observing Panamint Daisy Blooming Area

This alternative would consist of maintaining the current road alignment, but modifying the road in several locations to allow drainage to cross over the road. In these locations, road reinforcement will also be provided to support the road during rain events. These different types of drainage features (e.g. culverts, Arizona crossings), and road reinforcement (e.g. gabion baskets, buried k-rails, concrete sub base) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between MP 20 and MP 24 would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains.

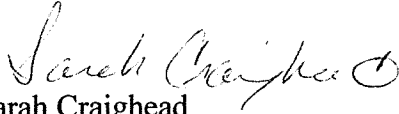
The new road would be two lanes, with each lane being 9-feet wide. A 1-foot wide shoulder would be constructed on both sides of the road for a total road width of 20 feet. The one location where the road does not meet the 20-foot minimum width is just northeast of the old convenience store site, where a rock outcropping and a drainage channel limit the road width to 18 feet. At this location the rock would be chipped-back to allow for a 20-foot road width.

This alternative would also include construction of a vehicle turn-out area at the location of the Panamint Daisy population to facilitate public observation of this protected wildflower, which is known from a small area in Wildrose Canyon. The turn-out would provide safe visitor parking for viewing the Panamint Daisy during blooming season. The paved vehicle turn-out area would consist of a turn-out up to 10 feet wide and long enough to allow parallel parking for up to 3 (three) passenger vehicles

(approximately 60 feet long). Signage and other road features will be implemented in accordance with local and federal requirements.

If you have any questions regarding the project, please contact Leah Bonstead, Park Archeologist, at (760) 786-3232.

Sincerely,

A handwritten signature in cursive script, reading "Sarah Craighead". The signature is written in dark ink and includes a large, stylized loop at the end.

Sarah Craighead
Park Superintendent

cc: Leah Bonstead
Victoria Wilkins
Central Files

Tribal Historic Preservation Officer

The NPS sent a letter to the Timbisha-Shoshone Tribe Tribal Historic Preservation Officer on September 10, 2010, outlining the proposed project and to notify the Office of Historic Preservation that the project is being contemplated, that NPS is reviewing the project for impacts to cultural resources, and that NPS intends to fulfill its obligations under the National Environmental Policy Act (NEPA) and other pertinent resource protection laws and regulations, including the National Historic Preservation Act (NHPA), Section 106. A response was not received.



United States Department of the Interior
NATIONAL PARK SERVICE

Death Valley National Park
PO Box 579
Death Valley, California 92328



In Reply Refer To:

L7619

17

September 10, 2010

Barbara Durham
Tribal Historic Preservation Officer
Timbisha-Shoshone Tribe
P.O. Box 206
900 Indian Village Road
Death Valley, California 92328

Reference: Death Valley National Park Lower Wildrose Canyon Road Rehabilitation Project

Dear Ms. Durham:

The National Park Service (NPS) is proposing to rehabilitate five miles of the Emigrant Canyon Road, commonly referred to as Lower Wildrose Road, from the MP20 to MP24 in Death Valley National Park (Park). This section of Lower Wildrose Road has deteriorated over the years due to flash flooding and presents a hazard to safe vehicular travel to and from the Park. NPS serves as federal Lead Agency for the proposed project, and as such, is required to comply with the National Environmental Policy Act (NEPA) and other pertinent resource protection laws and regulations, including the National Historic Preservation Act (NHPA), Section 106.

The Timbisha-Shoshone Tribe was invited to provide comments, suggestions, and input to the proposed action and alternatives, particularly pertaining to potential impacts on prehistoric and historic resources during the public comment period in March 2010. The purpose of this letter is to inform you that as part of the environmental assessment process we are identifying historic and cultural properties in the area that could be potentially affected and that the NPS intends to meet its obligations with the tribe under Section 106 of the National Historic Preservation Act.

A brief description of the purpose and need for the proposed action and a description of alternatives are provided below.

Purpose and Need for Action

Lower Wildrose Road serves as an access point for the western boundary of the Park and is the most direct route of travel for visitors coming from Ridgecrest, CA. It provides access to the Wildrose area of the Park, which is home to the historic Charcoal Kilns, Telescope Peak Trail, and several backcountry campgrounds. The area is culturally significant because it supported several thousand years of use by

the Timbisha Shoshone tribe, and also because a California Conservation Corps (CCC) encampment is present in the area. The road alignment itself is historic, and was an important travel corridor associated with various significant mining properties in the Park. The area also supports federally protected plant and wildlife species.

A flash flood in the late 1980s caused significant damage to the road. Since then, the road has continued to experience flooding episodes and thus continues to degrade. The resulting road is partially paved and is a safety concern for those traveling by vehicle.

The need for this project is evidenced by the fact that the existing road surface is in poor condition ranging from smooth pavement to rough dirt road—in many sections, the road surface is a combination of broken worn pavement and dirt roadbed. The poor conditions are due to the seasonal overflow of Wildrose Wash, which runs parallel to and sometimes runs within and crosses Lower Wildrose Road. In addition, a spring/seep that surfaces near the alignment of the roadway is causing water to flow over the road surface and is undermining the roadbed. In its current state, Lower Wildrose Road presents visitor safety and resource impact concerns.

In addition, the roadway needs to be improved to provide for visitor safety during the perennial blooming of the Panamint daisy (*Enciliposis covillei*) which often draws large numbers of visitors to the area.

Alternatives Under Consideration

Three alternatives (other than a No Action Alternative) have been developed for consideration. The NPS has not yet selected a preferred alternative, pending further evaluation of these alternatives. The alternatives under consideration at this time are briefly described below. These alternatives are considered feasible from an engineering standpoint, and are consistent with the guidelines for maintaining current levels of resource protection, resource access, and visitor experience within the Park.

Alternative 1: No Action

This alternative would consist of maintaining the roadway in its current condition. The existing road was once paved, but several flooding episodes have caused significant damage to the road. In addition, minimal repair or rehabilitation has occurred on the road so it continues to degrade. There are several sections of the road where there is limited or no pavement.

For this alternative, no repair or rehabilitation measures would be taken. No roadside drainage improvements would be contemplated or implemented to protect road surface. The roadway would continue to deteriorate over time until it eventually would be passable only by four-wheel-drive vehicles, forcing visitors in two-wheel-drive vehicles coming from the Ridgecrest, CA, area to drive north to Hwy 190 to access the Park.

Alternative 2: Repave Lower Wildrose Road and Widen Existing Road between Mile Marker 21 and 22.

This alternative would consist of maintaining the current road alignment and repaving the entire length of the roadway between MP 20 and MP 24. Minor roadside drainage improvements would also be implemented, including but not limited to French drains.

The new road would be two lanes, with each lane being 9-feet wide. A 1-foot wide shoulder would be constructed on both sides of the road for a total road width of 20 feet. The one location where the road does not meet the 20-foot minimum width is just northeast of the old convenience store site, where a rock outcropping and a drainage channel limit the road width to 18 feet. At this location the rock outcropping would be chipped-back to allow for a 20-foot road width.

Alternative 3: Repave and Widen Lower Wildrose Road, and Provide Drainage Features and Road Reinforcement at Drainage Crossings.

This alternative would consist of maintaining the current road alignment, but modifying the road in several locations to allow drainage to cross over the road. In these locations, road reinforcement will also be provided to support the road during rain events. These different types of drainage features (e.g. culverts, Arizona crossings), and road reinforcements (e.g. gabion baskets, buried k-rails, concrete sub base) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between MP 20 and MP 24 would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains.

The new road would be two lanes, with each lane being 9-feet wide. A 1-foot wide shoulder would be constructed on both sides of the road for a total road width of 20 feet. The one location where the road does not meet the 20-foot minimum width is just northeast of the old convenience store site, where a rock outcropping and a drainage channel limit the road width to 18 feet. At this location the rock would be chipped-back to allow for a 20-foot road width.

Alternative 4: Repave and Widen Lower Wildrose Road, Provide Drainage Features and Road Reinforcement at Drainage Crossings, and Provide Turn-Out Parking Area for Observing Panamint Daisy Blooming Area

This alternative would consist of maintaining the current road alignment, but modifying the road in several locations to allow drainage to cross over the road. In these locations, road reinforcement will also be provided to support the road during rain events. These different types of drainage features (e.g. culverts, Arizona crossings), and road reinforcement (e.g. gabion baskets, buried k-rails, concrete sub base) will be evaluated to determine the impacts on the surrounding area. The entire length of the roadway between MP 20 and MP 24 would also be repaved. Minor roadside drainage improvements would also be implemented, including but not limited to French drains.

The new road would be two lanes, with each lane being 9-feet wide. A 1-foot wide shoulder would be constructed on both sides of the road for a total road width of 20 feet. The one location where the road does not meet the 20-foot minimum width is just northeast of the old convenience store site, where a rock outcropping and a drainage channel limit the road width to 18 feet. At this location the rock would be chipped-back to allow for a 20-foot road width.

This alternative would also include construction of a vehicle turn-out area at the location of the Panamint Daisy population to facilitate public observation of this protected wildflower, which is known from a small area in Wildrose Canyon. The turn-out would provide safe visitor parking for viewing the Panamint Daisy during blooming season. The paved vehicle turn-out area would consist of a turn-out up to 10 feet wide and long enough to allow parallel parking for up to 3 (three) passenger vehicles (approximately 60 feet long). Signage and other road features will be implemented in accordance with local and federal requirements.

If you have any questions regarding the project, please Leah Bonstead, Park Archeologist, at (760) 786-3232.

Sincerely,

A handwritten signature in cursive script, appearing to read "Sarah Craighead".

Sarah Craighead
Park Superintendent

cc: Leah Bonstead
Victoria Wilkins
Central Files

APPENDIX D—FLOODPLAIN STATEMENT OF FINDINGS

Lower Wildrose Road, Rehabilitation and Repair Project
Environmental Assessment
Death Valley National Park
California

Recommended: _____
Superintendent, Death Valley National Park Date

Concurred: _____
Chief, Water Resources Division Date

Concurred: _____
Regional Safety Officer, Pacific West Region Date

Approved: _____
Director, Pacific West Region Date

The above signatures certify that this document is technically adequate and consistent with NPS policy.

Executive Order (EO) 11988 (“Floodplain Management”) requires the National Park Service (NPS) and other agencies to evaluate the likely impacts of actions in floodplains.

It is NPS policy to preserve floodplain values and minimize potentially hazardous conditions associated with flooding. If a proposed action is in an applicable regulatory floodplain, then flood conditions and associated hazards must be quantified, and a formal Statement of Findings (SOF) must be prepared. The NPS *Procedural Manual* #77-2, *Floodplain Management* provides direction for the preparation of a floodplain SOF. This SOF has been prepared to comply with EO 11988 and with *Procedural Manual* #77-2.

Proposed Action

The National Park Service (NPS) is proposing to rehabilitate 4.8 miles of the Emigrant Canyon Road, commonly referred to as Lower Wildrose Road, from mile-post (MP) 20 to MP 24.8 (starting at the junction with Emigrant Canyon Road and Charcoal Kilns Road and ending at the pipe gate at the old National Monument boundary, approximately 1 mile east of the current National Park boundary). The Lower Wildrose Road Rehabilitation Project (referred to herein as “the project”) is located entirely within Death Valley National Park (referred to herein as “Death Valley” or “the Park”). This section of Lower Wildrose Road has deteriorated over the years due to flash flooding and is hazardous for vehicular travel. The Action Alternatives 3 and 4 in the project’s environmental assessment provide measures that will help restore and preserve floodplain function while reinforcing the road against flood damage. The environmental assessment identifies Alternative 4 as the agency’s preferred alternative, and determines Alternative 4 to be the environmentally preferred alternative.

Site Description

The Wildrose area of Death Valley, which includes Wildrose Canyon, is located in the southwestern portion of the Park, approximately 56 miles northeast of the City of Ridgecrest. Wildrose Canyon descends from an elevation of approximately 4,100 feet above mean sea level (msl) to approximately 3,000 feet above msl at the western Park boundary. Lower Wildrose Road traverses the floor of Wildrose Canyon from the junction with Emigrant Canyon Road and Charcoal Kilns Road and to the National Park boundary. A flash flood in the late 1980s caused significant damage to the roadway. Since then, the roadway has continued to degrade from flood events. The road is currently only partially paved and is a safety concern.

Floodplains

The project is located in a narrow canyon in a desert environment, which averages between 3.5 and 4.5 inches of precipitation annually. However, Wildrose Canyon also drains the 23.7 square-mile Upper Wildrose Basin, which receives runoff from the Panamint Mountains to the east and southeast. The highest elevations of the Panamint Mountains receive an average of 11 inches of precipitation annually, which is the highest rate of precipitation in the Park. Precipitation in the watershed generally occurs during

the winter months (November through March). The winter storms are generally low-intensity when compared to localized summer (July through September) thunderstorms. Summer thunderstorms are responsible for the most damaging Death Valley flooding.

Justification for Use of the Floodplains

Lower Wildrose Road serves as an access point to the Park from the southwest, and is the most direct route of travel for visitors entering the Park from Ridgecrest, CA. It provides access to Charcoal Kilns, Wildrose Peak Trail, Telescope Peak Trail, and several campgrounds. The road alignment itself is historic, and was an important travel corridor associated with various significant mining operations in the Park.

Wildrose Canyon is a viable route because of the landscape dynamics and geomorphic processes caused by episodic flooding. Flooding has eroded the canyon, and the dynamic alternation between erosion and deposition in the wash has created a suitable slope for a roadway. If a road is to be maintained in Wildrose Canyon the floodplain cannot be avoided. This project seeks to accommodate a more natural hydrologic and sedimentologic regime by creating drainage features that will result in a roadway that can withstand moderate flooding events.

Investigation of Alternative Sites

There are no other alternative sites for this project.

Hydrologic Risk

Water flows through Wildrose Canyon in Wildrose Wash, which is an ephemeral stream (flows in response to precipitation events). Wildrose Canyon is known to be an area of flood hazard. Between October 1960 and September 1975, a gaging station was maintained by the US Geological Survey (USGS) along Wildrose Wash near Wildrose Station. The USGS National Water Information System reports daily, weekly, and monthly peak flow data in Wildrose Wash. During the 15 years of continuous record, peak event flows of more than 100 cubic feet per second (44,900 gallons per minute) were recorded six times, with the highest of those flows recorded on September 4, 1967 at 1,060 cfs (480,000 gallons per minute). In 1981, the USGS prepared a report estimating the degree of hazard probable related to flooding within Wildrose Canyon (*Potential Hazards from Floodflows in Wildrose Canyon*, by John R. Crippen, USGS 1981). The report concluded that irregular flooding is a potential hazard within Wildrose Canyon. Flooding from a 25-year storm event is likely to inundate a good portion of the roadway identified for rehabilitation as part of the project, and a 50-year event is likely to inundate most, if not all, of the roadway within the canyon.

Project construction will be suspended and evacuated during times of storm runoff or intense precipitation. The floodplain could be slightly negatively impacted during construction, but will be improved in the long term.

During moderate flood events, the proposed action will result in less water on the road, less road damage, and improved energy dissipation of runoff. This is likely to result in a decrease in threats to visitor safety.

Mitigation Measures

Mitigation will include sustainable design principles, appropriate elevations for the finished road, and Best Management Practices during and after construction. Specifically, these mitigation measures will modify the proposed road alignment in several locations to allow drainage to cross the road. In these locations, road reinforcement will also be provided to support the road during rain events. These different types of drainage features (e.g., culverts, Arizona crossings), and road reinforcement (e.g., gabion baskets, buried k-rails, concrete subbase) will provide long-term protection to the road and minimize the need for emergency repairs. Minor roadside drainage improvements will also be implemented, including French drains. These mitigation measures will contain flow to the sides of the road, and in a flood event, direct flow under or over the road, minimizing the adverse environmental impacts on natural floodplain function and lessening the risk of flood damage to the road.

By directing flow under and over the road during a flood event with these sustainable design features, the project's mitigation will reduce the alteration of the natural and beneficial floodplain values and maintain the floodplain environment as close to its natural state as practicably possible. Although there will be some reworking of the floodplain alluvium, there will be no fill emplacement. Free natural drainage and natural contours will be preserved to the extent practicable. Two permanent signs, one at each entrance to Wildrose Canyon, will be installed warning Park visitors of the potential for flash flooding to occur during precipitation events. These mitigation measures are in accordance with the NPS floodplain guidelines and with EO 11988 ("Floodplain Management").

Compliance

Section 404 of the Clean Water Act requires a permit for any activity which may result in any discharge into the navigable waters of the United States. The NPS contacted the US Army Corps of Engineers (Mr. Bruce Henderson) in December of 2009 concerning the jurisdiction of Wildrose Wash. The Corps requested a memorandum documenting the drainage path and characterizing the nature of Wildrose Wash. NPS sent such a memo in April 23, 2010 to the US Army Corps. Based on the content of this memo and the record of communication, the proposed project would not result in any discharge into the navigable waters of the United States. Therefore, Section 401 and 404 permits are not required for this project.

The Environmental Assessment, this SOF for EO 11988 and Procedural Manual #77-2, and the finding of no significant impact (FONSI), when signed, would complete the requirements for the NEPA for this project.

Conclusion

The action Alternatives 3 & 4 (Alternative 4 being the environmentally preferred and the agency's preferred alternative) in the Lower Wildrose Road, Rehabilitation and Repair Project Environmental Assessment specifically address runoff issues. These Alternatives include measures to contain flow to the sides of the road, and when necessary, direct flow under or over the road. This should result in a road that can withstand moderate runoff events. Barring a large flood, the floodplain will stabilize to the slightly altered runoff regime, resulting in a floodplain that will more effectively dissipate the energy of flooding. The No Action Alternative simply keeps the road open by grading the road, which has resulted in piles of sediment blocking distributary channels, and a channelized below-grade roadway. The proposed action will improve visitor safety, and help restore more natural downslope delivery of water, sediment, and nutrients. The National Park Service finds the proposed action to be consistent with EO 11988.