

# Environmental Assessment

**Pinto Basin Road Rehabilitation  
and Reconstruction: Phase I and Phase II  
June 2011**

National Park Service  
U.S. Department  
of the Interior

Joshua Tree National Park  
California





## SUMMARY

The National Park Service is considering the rehabilitation and reconstruction of approximately 23.5 miles of Pinto Basin Road at Joshua Tree National Park. The proposed action includes widening, realigning, and modifying the existing road to improve road conditions and sight distance. The purpose of the proposed action would be to provide improved visitor access within the project area and to implement these improvements in a way that minimizes impacts to park natural and cultural resources. The proposed action would address the need to rehabilitate aging and deteriorated pavements and drainage structures. The proposed action would also address the need to remedy safety hazards related to poor sight distance, poor alignment along hills or steep slopes, inadequate drainage, periodic flooding, and soft, sandy shoulders along the roadway. The proposed action is part of a phased effort to rehabilitate many of the park's primary roadways in accordance with the park's 1995 *General Management Plan*.

This environmental assessment examines two alternatives: the No-action Alternative and the park's Preferred Alternative. The Preferred Alternative would involve rehabilitating, widening, and realigning a 23.5-mile section of Pinto Basin Road. This segment of Pinto Basin Road would be modified to a 24-foot-wide road with a design speed ranging from 25 to 45 miles per hour, depending on the location. The Preferred Alternative would realign the road to improve the sight distance at the Cholla Cactus Garden, the Porcupine Wash area, the Pinkham Canyon Road intersection, and south of the Cottonwood Visitor Center. These realignment sections are considered "spot safety improvements" (Federal Highway Administration [FHWA] 2010). The remainder of the proposed roadway work would be within the existing road bench. Within the roadway bench, curves, dips, and rises would be reconstructed to improve superelevation (or cross slope) and ride quality. Low water crossings would be reinforced with properly designed crossings. All existing wayside pullouts and designated parking areas would be formalized for safety. Informal pullouts and parking areas would be obliterated and would be restored using live plantings and mulching. The proposed plan is to pulverize the existing roadway and overlay with new pavement. Mitigation measures are incorporated into the Preferred Alternative to reduce project-related impacts.

The Preferred Alternative would have no or negligible impacts to the following: geohazard / natural hazards, soundscapes, air quality, water quality / quantity, streamflow characteristics, floodplains, wetlands and riparian habitats, land use, ethnographic resources, museum objects / collections, historic structures, socioeconomics, environmental justice, Indian trust assets, and wilderness.

Implementing the Preferred Alternative would contribute short- and long-term, moderate, adverse impacts to soils and vegetation. The Preferred Alternative would contribute short-term, moderate, adverse impacts to wildlife and visitor use / experience and visitor safety. The Preferred Alternative would also contribute short- and long-term, minor, and adverse impacts to park management / operations.

Implementing the Preferred Alternative would result in a "may affect, but not likely to adversely affect" determination for the federally listed threatened Mojave population of the desert tortoise (*Gopherus agassizii*) and would adversely affect park-determined critical habitat. The Preferred Alternative would also result in short- and long-term, moderate, and adverse impacts to species of special concern.

The Preferred Alternative would contribute long-term, negligible, adverse impacts to cultural landscapes and minor, adverse impacts to archeological resources.

The Preferred Alternative would contribute short- and long-term, minor, beneficial impacts to soils and vegetation. The Preferred Alternative would also contribute long-term, moderate, beneficial impacts to visitor use / experience and visitor safety, and long-term, minor, beneficial impacts to park management / operations.

## **PUBLIC COMMENT**

If you wish to comment on the environmental assessment, you may mail comments to the name and address below or post comments online at <http://parkplanning.nps.gov/jotr>. This environmental assessment will be on public review for 30 days. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we would be able to do so. We would make all submissions from organizations, businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses available for public inspections in their entirety.

Please address written comments to:

Superintendent  
Attn: Pinto Basin Road Rehab Comments  
Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, CA 92277-3597

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## PURPOSE AND NEED

### PURPOSE OF AND NEED FOR THE PROPOSED ACTION

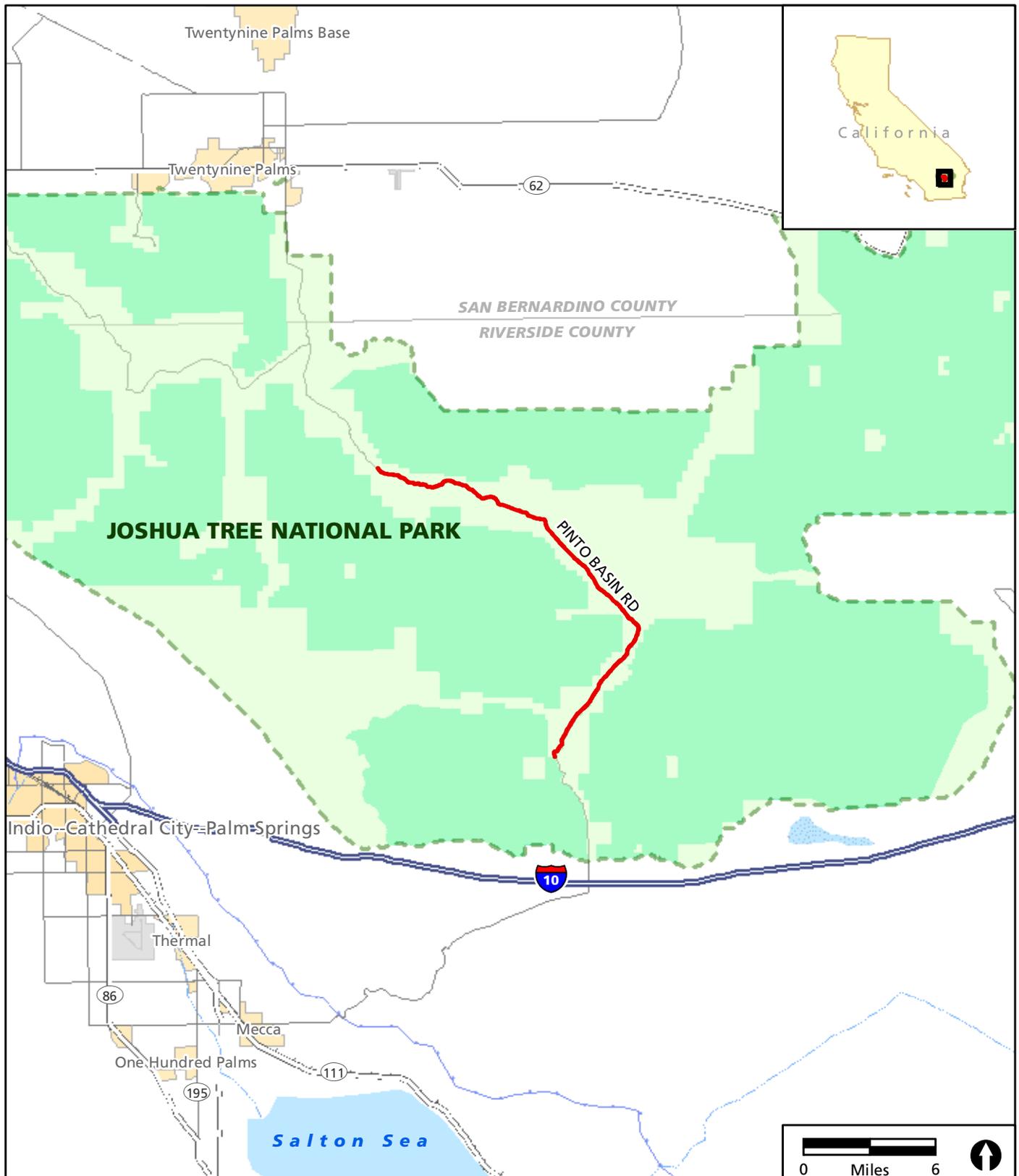
The National Park Service (NPS), in cooperation with the FHWA / Central Federal Lands Highway Division, is considering the rehabilitation and reconstruction of approximately 23.5 miles of Pinto Basin Road at Joshua Tree National Park (the park), which lies within Riverside and San Bernardino counties, California (Figure 1).

The pavement in the project area is thin (1 to 2 inches) and inadequate for the heavy traffic the park is now experiencing. Soil on the road shoulders is very soft. Inattentive drivers can drift into soft shoulders, where they frequently get stuck and on rare occasion are involved in rollovers. Pinto Basin Road has many abrupt hills, steep slopes, and curves that result in poor sight distance. The poor alignment along hills or steep slopes, inadequate drainage, and periodic flooding also can create hazards for motorists. Thirty-three personal property accidents, 19 auto accidents, and 2 fatalities can be directly attributed to these road conditions. There were also three government-employee accidents that resulted in property damage (FHWA 2010).

Additionally, the park's 1995 *General Management Plan* identified the need to rehabilitate aging and deteriorated pavements, many of which are 30 or more years old and have effectively reached the end of their service lives.

The purpose of the proposed action would be to improve road safety conditions, to provide improved visitor access within the project area, and to implement the improvements in a way that minimizes impacts to park natural and cultural resources. The proposed action includes widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road. Depending on the area and road conditions, the existing design speed ranges from 35 miles per hour to 45 miles per hour throughout the majority of the roadway. The design speeds would be modified from 35 or 45 miles per hour in areas where the roadway would be reconstructed, depending on the location along the roadway. The proposed action would also realign the road to improve sight distance at Cholla Cactus Garden, the Porcupine Wash area, the Pinkham Canyon Road intersection, and south of the Cottonwood Visitor Center. The proposed action is part of a phased effort to rehabilitate many of the park's primary roadways in accordance with the park's 1995 *General Management Plan*. The north and south segments of Pinto Basin Road were previously rehabilitated in 1986.

This environmental assessment (EA) is intended to analyze the Preferred Alternative and the No-action Alternative and their impacts on the environment. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and implementing regulations, Council of Environmental Quality (CEQ) regulations 40 Code of Federal Regulations (CFR) Parts 1500-1508; and NPS Director's Order #12 and Handbook, Conservation Planning, Environmental Impact Analysis, and Decision-making. Separate documentation (in the form of an archaeological inventory) has been prepared to comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966 as amended, and implementing regulations, 36 CFR Part 800.



— Project Area

**FIGURE 1 - Project Area Region**

Joshua Tree National Park

United States Department of the Interior / National Park Service

June 2011

## PURPOSE AND SIGNIFICANCE OF THE PARK

Under the authority of the 1906 Antiquities Act, Joshua Tree National Monument was established as a unit of the national park system by Presidential Proclamation No. 2193 on August 10, 1936 (50 Stat. 1760) because its “lands contain historic and prehistoric structures and have situated thereon various objects of historic and scientific interest . . . it appears that it would be in the public interest to reserve such lands as a national monument, to be known as the Joshua Tree National Monument.” While the language in the presidential proclamation indicates a strong cultural resource emphasis, the legislative history reveals that another major reason for the establishment of the monument was the preservation of the natural resources of the Colorado and Mojave deserts. The natural resource preservation emphasis was so strong that the original name contemplated for the monument was Desert Plants National Park (NPS 1995).

In 1950, Public Law 81-837, 64 Stat. 1033 reduced the size of Joshua Tree National Monument from approximately 860,000 acres to 560,000 acres, and revised the boundaries. Public Law 103-433 added 234,000 acres to Joshua Tree National Monument and changed its status from national monument to national park in 1994. The land that was added by the legislation comprises primarily backcountry and wilderness areas. In 1995, NPS adopted a general management plan to administer the developed zone of the former national monument.

Of the park’s 794,000 acres, 593,490 acres are legislated wilderness—set aside for the preservation of natural, cultural, historic, and scenic resources. The compressed ecosystem transition zone between the Mojave and Colorado deserts makes it possible to cross from one desert to the other within less than 65 miles. The park contains all or portions of numerous mountain ranges, including the San Bernardino, Cottonwood, Hexie, Pinto, Coxcomb, and Eagle ranges. The eastern portion averages 2,000 feet above sea level, while the western half is mostly above 4,000 feet. Extremes in elevation range from 1,000 feet at Pinto Well to 5,900 feet at Quail Mountain. Major valleys include the Pinto Basin, Juniper Flats, Covington Flats, Pleasant, Queen, and Lost Horse.

Through the NPS Organic Act (1916), Congress set forth the purpose of the national park system, which is “to conserve the scenery and the natural and historic objects and wildlife therein and to provide for the enjoyment of the same in such manner and such means as will leave them unimpaired for the enjoyment of future generations” (16 United States Code [USC] Sec.1). Management of the wilderness sections of the park must comply with the Wilderness Act of 1964 and NPS wilderness management policies. NPS *Management Policies* state that “Wherever a wilderness area is designated within a park, the preservation of wilderness character and resources becomes an additional statutory purpose of the park” (2006).

Based on enabling and wilderness legislation, legislation of October 1994, and biosphere reserve status, the purposes of the park are to:

- protect and interpret areas, sites, structures, and various artifacts associated with occupations by prehistoric, historic, and contemporary Native American groups, historic miners, and subsistence cattle ranchers
- protect and interpret the biologically diverse examples of the Mojave and Colorado desert ecosystems
- serve as a natural laboratory for understanding and managing the Mojave and Colorado desert ecosystems

- preserve the character and values of wilderness in the park
- provide visitors with opportunities to experience and enjoy natural and cultural resources through compatible recreational activities

## PROJECT BACKGROUND

Pinto Basin Road is the main access route to the southern portion of Joshua Tree National Park from Interstate 10 (see Figure 1). Pinto Basin Road is 36 miles in length from the southern park boundary to the Pinto-Wye intersection. Pinto Basin Road is a 20- to 22-foot-wide 2-lane roadway.

Park visitation was nearly 1.4 million in 2008 (NPS 2008a). Pinto Basin Road is traveled by approximately 70 percent of visitors to the park. The annual average daily traffic is 387 vehicles on Pinto Basin Road. Much of the existing paved road system at the park is in poor condition. The asphalt surface along the 36 miles of Pinto Basin Road received an average pavement condition rating of 63 in the 2006 FHWA Road Inventory Program, which is only fair condition. The pavement is thin (1 to 2 inches) and inadequate for the heavy traffic the park is now experiencing. Soil on the road shoulders is very soft. Inattentive drivers can drift into soft shoulders where they frequently get stuck and on rare occasion are involved in rollovers. The existing road alignment has numerous sharp curves, dips, and humps, as well as restricted sight distances. These road conditions can further increase chances of visitors losing control of their vehicles and possibly striking wildlife, pedestrians, bicycles, or vehicles on the roadside. Thirty-three personal property accidents, 19 auto accidents, and two fatalities can be directly attributed to these road conditions. There were also three government-employee accidents that resulted in property damage.

## Previous Planning

**Joshua Tree National Park General Management Plan.** A park's general management plan provides a vision and policy guidance for the preservation of park resources, visitor use and experience, the types and general intensities of development, visitor carrying capacities, and opportunities to address management issues internal and external to the park. It also identifies connections among various park programs and provides a policy framework for more site-specific planning.

Park road reconstruction guidelines and improvements were discussed in the 1995 *General Management Plan*. The plan identified all major park roads for reconstruction consisting of replacement of the road surface, base, and subgrade. Pinto Basin Road is one of the major paved roads identified in the plan for reconstruction. As per the plan:

[A]ll roads would be reconstructed on current alignments except when safety hazards would result or when resource protection opportunities are present. Exceptions would include correcting horizontal and vertical curves that severely limit sight distance and improving hazardous intersections. Sensitive resources would be avoided. (NPS 1995)

Additional details on environmental design criteria and traffic management and safety strategies are also included in the plan. The park is currently in the process of updating the 1995 *General Management Plan*.

## Scoping

Scoping is a process to identify the resources that may be affected by a project proposal and to explore possible alternative ways of achieving the proposal while minimizing adverse impacts. The park conducted internal scoping at park headquarters on November 30 and December 1, 2009, to discuss proposed improvements for a 24-mile stretch of Pinto Basin Road (FHWA 2010). The meeting was attended by NPS/Pacific West Region, NPS/Denver Service Center, NPS/Joshua Tree National Park, and FHWA/Central Federal Lands Highway Division. Proposed improvements discussed included those related to safety, utilities, permits, environment, survey, right-of-way, geotechnical, pavements, hydrology / hydraulics, and highway design.

The park conducted an additional internal scoping meeting on October 26 and 27, 2010, to discuss the 50 percent design; purpose and need for the project; possible alternatives; potential environmental impacts; past, present, and reasonably foreseeable future projects that may have cumulative effects; and possible mitigation measures. The meeting was attended by NPS/Pacific West Region, NPS/Denver Service Center, NPS/Joshua Tree National Park, and FHWA/Central Federal Lands Highway Division. Park staff also held internal meetings to discuss and review conditions along the roadway.

Additionally, the park initiated public scoping by issuing a press release on January 10, 2011, describing the proposed action and inviting the public to participate in the planning process. The press release was issued widely, including local and regional newspapers, radio and television stations, and local government offices. The park encouraged the public to submit questions or comments regarding the proposed action no later than February 11, 2011.

All public scoping comments received by the park have been considered in the scoping stage of the planning process.

Information on agency and tribal consultation may be found in the Consultation and Coordination section of this EA.

## ISSUES / IMPACT TOPICS

Based on input from internal and public scoping, NPS selected specific issues (also called “impact topics”) for further analysis and eliminated others from evaluation. Issues selected for analysis in the EA were determined through internal scoping with the park and the FHWA / Central Federal Lands Highway Division staff, as described above.

### Impact Topics Included in this Document

Specific impact topics were developed for discussion focus and to allow comparison of the environmental consequences of each alternative. These impact topics were identified based on federal laws, regulations, and Executive Orders; 2001 NPS *Management Policies*; and NPS knowledge of limited or easily impacted resources. A brief rationale for the selection of each impact topic is given below.

**Geological Resources – Soils.** The proposed action would include widening, realigning, and rehabilitation of the roadway. These activities would cause disturbance outside the existing roadway limits. Because the proposed action involves ground-disturbing activities on previously undisturbed areas, geological resources / soils are addressed as an impact topic in this EA.

**Vegetation.** The proposed action would likely affect vegetation resources within and adjacent to the project area through vegetation removal, relocation, and revegetation. Vegetation resources affected would include rare and unusual vegetation, as well as the potential spread of non-native plant species; therefore, vegetation is addressed as an impact topic in this EA.

**Wildlife.** The proposed action has the potential to affect wildlife or wildlife habitat within and adjacent to the project area through habitat-disturbing activities and incidental death or injury; therefore, wildlife is addressed as an impact topic in this EA.

**Federally Listed Species and Species of Special Concern.** The proposed action may affect a federally listed species as well as species of special concern found within and adjacent to the project area. The Endangered Species Act (ESA) of 1973, as amended, requires an analysis of impacts on all federally listed threatened and endangered species. In compliance with the ESA Section 7, the U.S. Fish and Wildlife Service (USFWS) has been consulted. One federally listed species is known to occur within the project area, the desert tortoise (*Gopherus agassizii*; Mojave population). This species and its critical habitat, as well as species of special concern, are likely to be affected by construction of the proposed action; therefore, federally listed species, critical habitat, and species of special concern are addressed as an impact topic in this EA.

**Visitor Use / Experience, Visitor Safety.** Visitor experience and recreation opportunities may be affected during the proposed action construction period, including parking pullouts, and hiking and wildlife / bird-watching from the road. Visitor center parking areas would be affected during construction, reducing the number of parking spaces available and limiting access to some areas; therefore, visitor use / experience and visitor safety are addressed as an impact topic in this EA. Noise impacts on visitor use of wilderness are described in the Wilderness section below.

**Archeological Resources.** The proposed action may affect archeological resources. There are archeological sites near the roadway. Because there would be ground-disturbing activities with the potential to affect these sites, archeological resources are addressed as an impact topic in this EA. Consultation with the State Historic Preservation Officer and federally recognized tribes is ongoing in compliance with NHPA and NEPA.

**Cultural Landscapes.** The proposed action has the potential to affect the Hexie Mountain Mining Historic District, which is located near the center of the park. The potential exists for construction activities to affect two contributing features of the cultural landscape; therefore, cultural landscapes are addressed as an impact topic in this EA.

**Park Management / Operations.** The proposed action would likely have a noticeable effect on park management / operations. Because construction activities would affect the roadway and wayside areas and the road rehabilitation would affect maintenance requirements along the roadway, park management / operations are addressed as an impact topic in this EA.

### **Impacts Dismissed from Further Analysis**

The following issues have been considered but dismissed from detailed analysis. Issues dismissed from detailed analysis are not addressed further in this EA. A brief rationale for dismissing specific topics from further consideration is provided for each impact topic.

**Geohazards / Natural Hazards.** The high level of seismic activity in the park is because of the many fault zones in the vicinity, including the San Andreas to the west; however, the proposed action is not

likely to impact seismic activity in the park. Geohazards / natural hazards have therefore been dismissed as an impact topic in this EA.

**Soundscapes.** Noise is defined as unwanted sound. Construction activities related to roadway rehabilitation involve the use of noise-generating vehicles and equipment. Natural soundscapes in the area would be impacted by construction activities over the length of the proposed action; however, these impacts would be temporary and not expected to be more than minor. Noise impacts would not be frequent enough to substantially interfere with human activities in the area, or with wildlife behavior. Noise impacts to federally listed species and species of special concern and wilderness are discussed under those impact topics. Impacts of noise on wilderness are described in the Wilderness section. The temporary nature of construction activity would not result in a chronic impact to the solitude and tranquility associated with the park. Therefore, soundscapes have been eliminated from further analysis in this EA.

**Air Quality.** Both the Clean Air Act of 1977 and NPS *Management Policies* (2006) require NPS to consider air quality impacts from their projects. The park is designated as a Federal Class I Airshed under the Clean Air Act. Air quality is monitored near the park headquarters, and no exceedances of National Ambient Air Quality Standards have been documented within the park. Very small amounts of air pollutants are generated in the park and are primarily from automobiles and dust. Vehicle traffic on the dirt roads is very light and does not contribute significantly to reduced visibility. Automobile exhaust and the emissions from diesel generators contribute only minor amounts of pollutants and greenhouse gas (GHG) emissions.

The NPS has formed a partnership with the EPA to collaborate on controlling GHGs and climate change. This program is called the Climate Friendly Parks Program, which provides management tools and resources to address climate change. The program approach involves measuring existing emissions, developing strategies to mitigate emissions and adapt to impacts, sharing information, and educating the public about measures they can use to lessen their effect on climate change.

Climate change refers to the shifts in Earth's long-term (decades to millennia) weather patterns as a result of changes to the concentrations of GHGs in Earth's atmosphere. A GHG is a gas that traps heat when emitted into Earth's atmosphere. Although climatologists are unsure about the long-term results of global climate change, it is clear that the planet is experiencing a warming trend that affects ocean currents, sea levels, polar sea ice, and global weather patterns. Although these changes will likely affect winter precipitation patterns and amounts in the park, it would be speculative to predict localized changes in temperature, precipitation, or other weather changes, in part because there are many variables that are not fully understood and there may be variables not currently defined.

GHGs emitted from the project area consist of truck and equipment exhaust. Construction within the park associated with the proposed action would result in short-term, minor impacts to air quality, and mitigation measures described below would further reduce impacts; therefore, air quality has been dismissed as an impact topic in this EA.

**Water Quality / Quantity.** Water Quality: Ground and surface water appears to be unaffected by water use outside the park, since the majority of land is at a higher elevation than its surroundings and no water flows into the park from outside sources. There have been documented increases in metal contaminants in ephemeral pools created by seasonal rainfall. This is probably due to an increase in airborne pollutants.

There are over 120 known water sources in the park, including springs, wells, seeps, and one short perennial stream. Flows from springs and seeps range from seasonal dampness to about seven gallons

per minute. The majority of the springs flow from fractures and joints in the igneous and metamorphic basement complex, and appear to be supported by local aquifers. Past monitoring indicates that discharge at some springs is decreasing. Compared to historic accounts, surface water has decreased significantly from 50 years ago. The cause is uncertain and may be attributable to climate changes, changes in vegetation, sampling error, water pumping and use, or natural variation.

**Water Quantity:** Groundwater follows zones of least resistance along deeply fractured rock masses and deep loose gravel. There are very few known water tables near the surface. Rainfall is inadequate to recharge underground water. Surface water flows off without percolating back into the aquifer. The largest amount of groundwater is in Pinto Basin, one of the extensively alluvial valleys underlying the eastern portion of the park; it has been estimated by the U.S. Geological Survey that this basin could yield 300,000 acre-feet of water from the upper 100 feet of the saturated zone (NPS 1995).

Water for construction activities would be trucked to construction areas from an area near the southern boundary of the park from the Metropolitan Water District of California or from the City of Twentynine Palms outside the park boundaries. Water trucks would be used to suppress dust within construction areas. The amount of water to be used during construction would be negligible compared to the water available from these sources; therefore, water resources were dismissed as an impact topic in this EA.

**Streamflow Characteristics.** Construction activities related to the proposed action would not affect streamflow characteristics. Low water crossings would be reconstructed using rock gabions to stabilize roadway edges. The reconstructed roadway and reconstructed low water crossings would not result in a change to current streamflow characteristics or flow conveyance; therefore, streamflow characteristics were dismissed as an impact topic in this EA.

**Floodplains.** Executive Order 11988, Floodplain Management, requires all federal agencies to take action to reduce the risk of flood loss, to restore and preserve the natural beneficial values served by floodplains, and to minimize the impact of floods on human safety, health, and welfare. There have been no low water crossing issues related to the floodplain; low water crossing issues have been related to current roadway structure. The proposed action would not realign the roadway within the floodplains of several washes found within the project area; therefore, floodplains were dismissed as an impact topic in this EA.

**Wetlands and Riparian Habitats.** Unless washes are saturated with water or covered with water for part of the year every year, they do not meet the definition of wetlands. No wetlands occur within the project area; therefore, wetlands were dismissed as an impact topic in this EA.

**Land Use.** Pinto Basin Road is within the boundaries of the park and is completely surrounded by national park lands. Neither the No-action nor Preferred Alternative would affect current or future park or surrounding land use; therefore, land use was dismissed as an impact topic in this EA.

**Ethnographic Resources.** Ethnographic resources are the cultural and natural features of a park that are of traditional significance to traditionally associated peoples. Ethnographic resources are defined by NPS as a "site, substance, object landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it" (Director's Order [DO] 28). Executive Order 13007 directs federal land managing agencies to accommodate access to, and ceremonial use of, Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites. Specifically, federal agencies are directed to (1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, and (2) avoid adversely affecting the physical integrity of such

sacred sites. Where appropriate, agencies shall maintain the confidentiality of sacred sites. According to DO 28 and Executive Order 13007 on sacred sites, NPS should try to preserve and protect ethnographic resources. Because no known ethnographic resources were identified that would be affected by the proposed action, ethnographic resources were dismissed as an impact topic in this EA. Please refer to the Consultation and Coordination section of this EA regarding consultation on ethnographic resources.

**Museum Collections.** NPS requires the consideration of impacts on museum collections (historic artifacts, natural specimens, and archival and manuscript material), and provides further policy guidance, standards, and requirements for preserving, protecting, documenting, and providing access to, and use of, NPS museum collections. Impacts to museum collections would be negligible as a result of the proposed action; therefore, museum collections were dismissed as an impact topic in this EA.

**Historic Structures.** Historic structures consist of an evaluated inventory of all prehistoric and historic structures with historical or architectural significance. The park contains 95 structures, 87 of which are certified. These include elements of six sites representative of ranching and mining operations that are listed on the National Register. Since there are no historic structures within or adjacent to the project area, there would be no impacts as a result of the proposed action. Historic structures were therefore dismissed as an impact topic in this EA.

**Socioeconomics.** Construction activities and costs associated with the proposed action would provide a temporary stimulus to the local or regional economy. Wages, overhead expenses, material costs, and profits would last only as long as the construction period; therefore, impacts to local communities and socioeconomic resources would be temporary. Travel delays for visitors to the park would be limited to a 30-minute maximum in one direction during construction. Impacts would be negligible; therefore, socioeconomic was dismissed as an impact topic in this EA.

**Environmental Justice.** Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, requires all federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. The proposed action would not result in changes in the socioeconomic environment of the area and no impacts to minority or low-income populations or communities are anticipated. Environmental justice was therefore dismissed as an impact topic in this EA.

**Indian Trust Assets.** Indian trust assets are owned by Native Americans, but held in trust by the United States. Indian trust assets do not occur within the park, and are therefore not evaluated further in this EA.

**Wilderness.** Proposed action construction activities would not occur within designated wilderness, which is located as close to the project area as 100 feet (at the southern portion) and as far away as 1 mile. Wilderness designations do not lead to the creation of “buffer zones” around wilderness boundaries. Construction activities would not directly encroach upon any of the designated wilderness areas within the park. Sounds and noise from traffic on the existing road under the No-action Alternative would be heard in adjacent wilderness. Construction activities proposed under the Preferred Alternative (proposed action) would also be heard in adjacent wilderness.

The level of visitation in the wilderness adjacent to the project area is not as high as in other wilderness areas in the park. The majority of visits to wilderness adjacent to the project area are to mines located in wilderness which can be seen from the road (Michael Vamstad, pers. comm. 2011).

Visitors accessing the back-country at two locations in the project area would travel away from any construction noise on the way to their destination, and mine visitors would be accustomed to some traffic noise from the existing road. Therefore, the noise impacts to wilderness and wilderness visitors from the Preferred Alternative would be temporary and negligible, and wilderness was dismissed as an impact topic in this EA.

## ALTERNATIVES

This chapter describes the range of alternatives, including the No-action and Preferred alternatives, formulated to address the purpose of and need for the proposed action.

### ALTERNATIVE A: NO-ACTION ALTERNATIVE

The No-action Alternative represents the park's ongoing routine of continuing maintenance and repairs and implementing previously approved plans. In other words, the No-action Alternative describes the day-to-day operations of running the park as it relates to the Preferred Alternative in this document. It does not imply or direct discontinuing day-to-day maintenance and repairs or stopping previously approved plans. The No-action Alternative provides a basis for comparing present park operations with the action alternative and their anticipated environmental consequences. Should the No-action Alternative be selected, NPS would respond to future needs and conditions without major actions or changes in the present course.

Pinto Basin Road current consists of a 20- to 22-foot-wide paved road with a design speed of 35 to 45 miles per hour, depending on the location. Pinto Basin Road approaching the Cholla Cactus Garden parking area has sharp curves that contribute to poor sight distance, motorist hazards, and pedestrian hazards. In addition, the Cholla Cactus Garden has inadequate parking during the peak visitation seasons. Existing parking areas at Cholla Cactus Garden, Ocotillo, and Turkey Flats are unpaved, have no striping or traffic control, and present potential pedestrian hazards. The Cholla Cactus Garden parking area accommodates 15 to 20 vehicles. Ocotillo accommodates approximately 4 vehicles, while Turkey Flats accommodates approximately 10 vehicles. The current design speed approaching these waysides is 45 miles per hour.

The Desert Wash pullout is paved, but has no striping or traffic control. The remaining waysides along the roadway are unpaved or informal pullouts with no parking delineation or traffic control. Design speed for these waysides is 45 miles per hour. At Porcupine Wash, steep hills combined with sharp curves present poor sight distance along the roadway.

The Cottonwood Visitor Center is located at the southern end of the park. This visitor center includes a parking area, gift shop / pay station, natural history displays, restrooms, a picnic area, and offices. The current alignment from the south approaching the Cottonwood Visitor Center along Pinto Basin Road is an important safety concern. The curve along the roadway is very narrow and has poor sight distance for oncoming traffic in either direction. Several smaller curve areas along the roadway also have inadequate superelevation (or cross slope) and curve widening.

The edge of the roadway from approximately mile post 7.0 to approximately mile post 30.5 does not provide adequate shoulder width. In addition, the existing soil road shoulders are very soft, presenting a potential hazard to drivers pulling off the roadway (Figure 2). Low water crossings along the roadway have poor pavement conditions and roadway edge stabilization has deteriorated.



## FIGURE 2 - Current Roadway Condition

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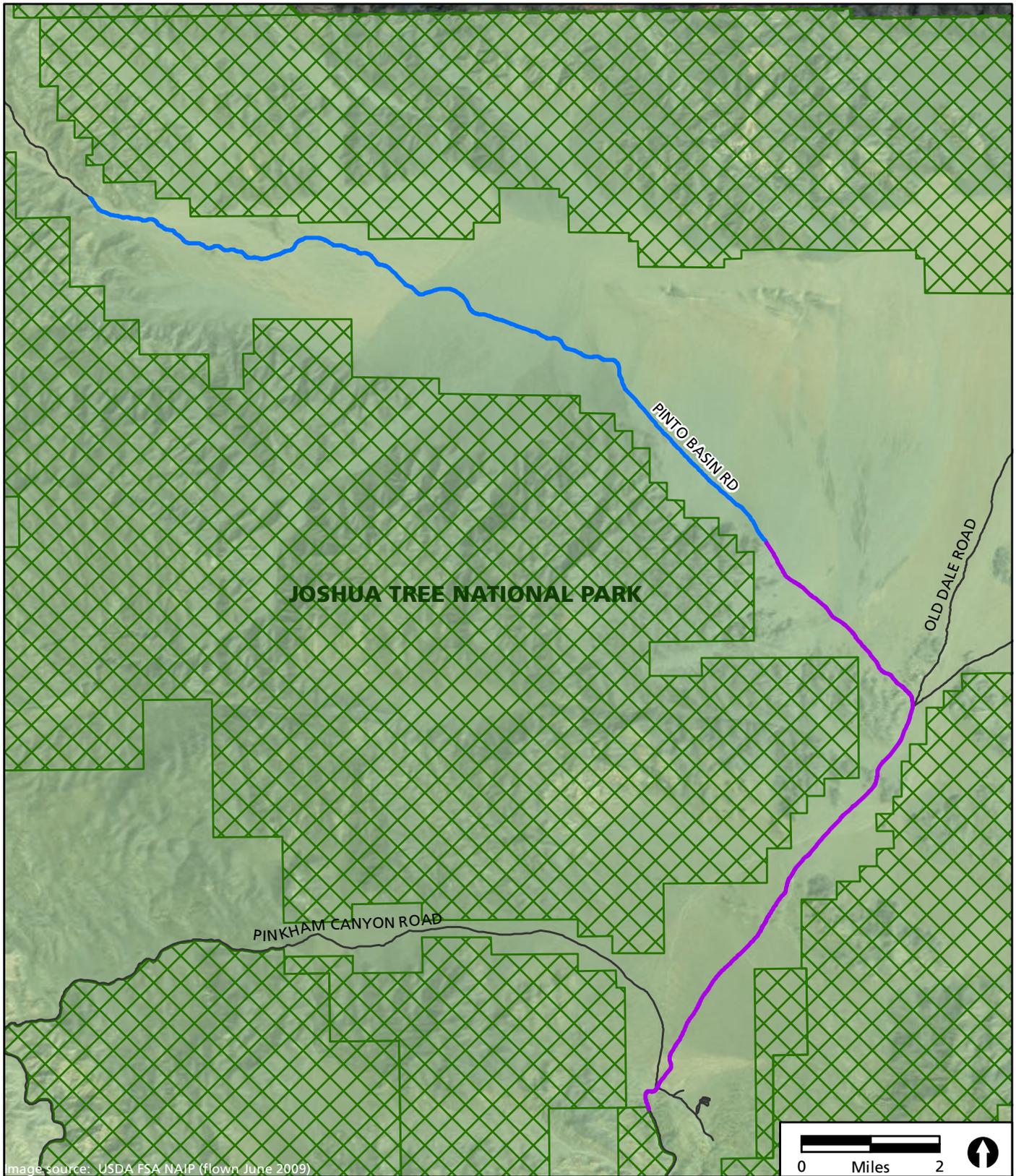
The No-action Alternative would mean the existing use and maintenance of Pinto Basin Road would continue and current structural and safety issues would remain. Travel lanes would remain at the current width; sight distance at Cholla Cactus Garden, the Porcupine Wash area, Pinkham Canyon Road intersection, and an area south of the Cottonwood Visitor Center would remain limited; sight distances along the roadway would also continue to be limited in some areas; existing wayside pullouts and designated parking areas would not be improved for safety; and informal pullouts and parking areas would remain.

## **ALTERNATIVE B: PREFERRED ALTERNATIVE**

In cooperation with the FHWA / Central Federal Lands Highway Division and the NPS Denver Service Center, the park is proposing to rehabilitate / reconstruct 23.5 miles of Pinto Basin Road, from approximately mile post 7.0 to approximately mile post 30.5. The project begins approximately 8 miles north of Interstate 10, just south of the Joshua Tree National Park Cottonwood Visitor Center. The project segment continues in a northerly direction and ends near Gold Point, approximately 1 mile north of Cholla Cactus Garden (approximately 6 miles south of the Pinto-Wye intersection). The north and south segments of Pinto Basin Road were previously rehabilitated in 1986.

The proposed action would involve rehabilitating, widening, and realigning the existing 23.5-mile section of Pinto Basin Road. The proposed action also includes modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road. The design speed of the modified roadway would range from 25 to 45 miles per hour, depending on the location. The majority of roadway rehabilitation under the proposed action would occur within the existing road bench. The proposed action would include realignment within four areas to improve the sight distance: the Cholla Cactus Garden, Porcupine Wash area, Pinkham Canyon Road intersection, and an area south of the Cottonwood Visitor Center. Within the roadway bench, curves, dips, and rises would be reconstructed to improve superelevation (or cross slope) and smooth out the ride. Low water crossings would be reinforced with properly designed crossings within the existing roadway bench. All existing wayside pullouts and designated parking areas would be formalized for safety. Informal pullouts and parking areas would be obliterated and would be restored using live plantings and mulching. The proposed plan is to pulverize the existing roadway and overlay with new pavement. The overall new and permanent disturbance associated with the Pinto Basin Road reconstruction project would be approximately 6.2 acres. This disturbance area includes reconstruction of curves including Cholla Cactus Garden, the Porcupine Wash area, Pinkham Canyon Road intersection, and an area south of the Cottonwood Visitor Center, as well as expansion of the Cholla Cactus Garden parking area. New disturbance areas are adjacent to the roadway, but outside the existing asphalt, shoulders, and berms and total 6.2 acres. Approximately 1 acre of previously disturbed areas (part of existing paved areas, shoulders, and berms) would be reclaimed / revegetated (returned to natural condition).

The proposed action would occur in two phases (Figure 3). Phase I would extend from the northern limits of the project area (approximately 1 mile north of Cholla Cactus Garden) south for approximately 12.25 miles. Phase II would extend approximately 11.25 miles from the terminus of Phase I to the southern end of the project area (south of the Cottonwood Visitor Center). Details of Phase I and Phase II of the proposed action are discussed below.



- Joshua Tree National Park Project Area
- Designated Wilderness
- Roads
- Phase 1
- Phase 2

**FIGURE 3 - Proposed Project  
Phase I and Phase II  
Joshua Tree National Park**

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## Phase I

**Parking Areas / Waysides.** Parking areas with wayside interpretive signage to be reconstructed under Phase I include Cholla Cactus Garden and Turkey Flats. Each of these parking areas / waysides would be paved and striped, and would include concrete curbing. The existing wayside signage would be relocated. The wayside parking areas would accommodate four to six vehicles.

The Cholla Cactus Garden wayside parking area would be expanded approximately 20 to 30 feet on the south side and paved. The expansion would result in less than 1 acre of overall disturbance (primarily cholla cactus). The expansion would increase vehicle parking to 20 to 30 spaces, including 2 to 3 spaces for large recreational vehicles. The expansion would also improve entrance and exit safety at the wayside. The parking area would be closed to visitors during construction. Cholla cactus removed for the roadway realignment would be salvaged to the extent feasible and transplanted to areas identified for revegetation within Cholla Cactus Garden.

**Pullouts.** Under Phase I, the following four existing gravel surface pullout areas would be formalized: Silver Bell Mine, Geology, Ocotillo, and Paleo. The standard pullout area would accommodate about four parked cars (Figure 4). Two of these pullouts would also accommodate a parked school bus. All pullouts would be paved and curbed. The concrete curbs would have a heavy broom finish and a curb cut every 100 feet for desert tortoise passage.

Boulders would be placed within (or surrounding) pullouts to control access and unauthorized parking. Interpretive signs at pullouts would be relocated as needed to allow for parking improvements. Aging existing signs would be replaced and new wayside signs may be added.

**Low Water Crossings.** Phase I of the proposed action would include up to 19 low water crossings. Gabion baskets would be used on the downstream side of some low water crossings (Figures 5a and 5b). Some low water crossings would have gabions on both the upstream and downstream sides. Sub-excavation for gabions would be minimal (less than 2 feet). Natural substrate would be placed on top of the gabions after construction. Low water crossings would be designed to maintain the existing drainage patterns.

Boulders would be placed along the low water crossings to prevent motorists from deliberately driving off the roadway into the wash. Boulders would be park/government provided. The locations of boulders would be determined based on visual examination of the roadway.

**Road Realignments.** Under Phase I, road realignment / reconstruction would occur within the Cholla Cactus Garden area. The reconstruction area extends from just east of the Cholla Cactus Garden wayside approximately 1.25 miles west. The realignment / reconstruction of this area is needed to improve sight distances and curve safety. Approximately 3 acres of clearing and grubbing of previously undisturbed areas (newly disturbed) along the realignment would be required. Portions of the existing roadway (approximately 0.5 acre) that would no longer be part of the alignment would be rehabilitated by removing all pavement material. These portions of the roadway would be revegetated with vertical mulching (planting dead plant material in the ground), direct seeding, and planting of salvaged and transplanted native plants.

**Road Intersections.** Pinto Basin Road intersects with Black Eagle Mine Road and Old Dale Road (both of these roadways intersect Pinto Basin Road at the same location). A paved apron would be added at this intersection under Phase I.

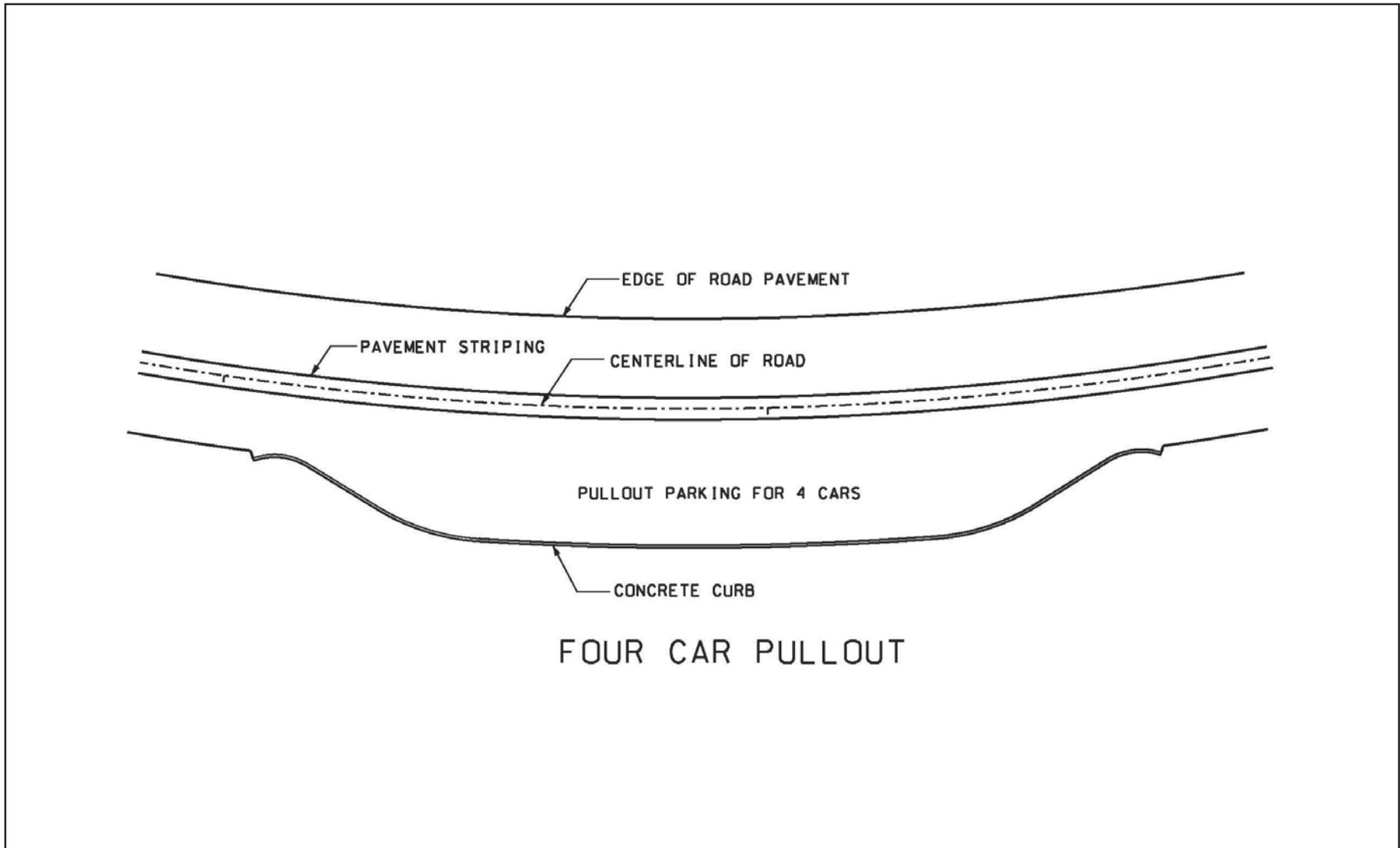
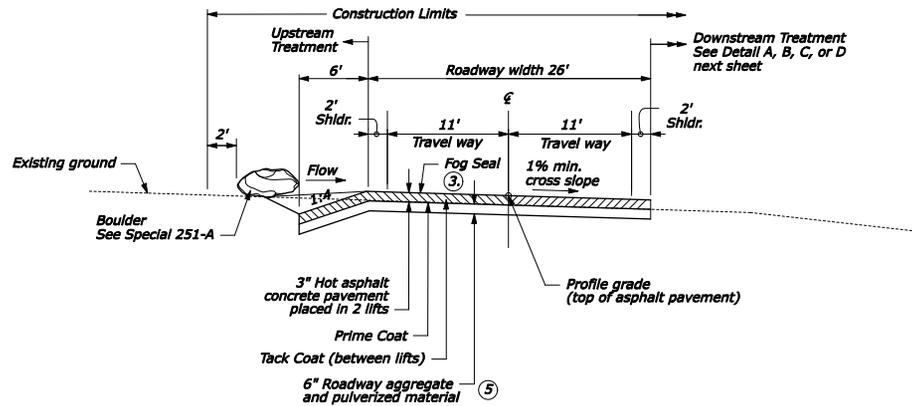


FIGURE 4 - Standard Pullout Area

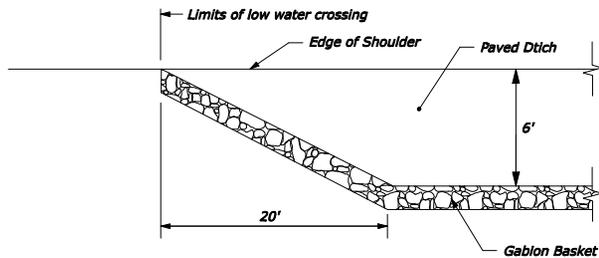
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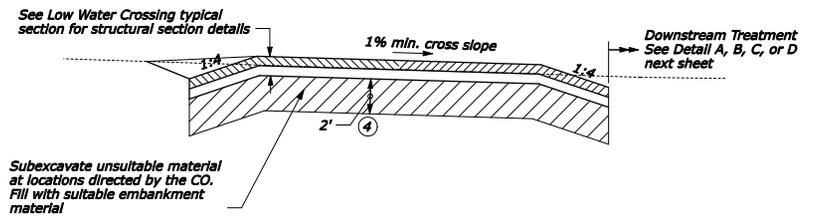
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**TYPICAL SECTION  
LOW WATER CROSSING**  
See Table



**LOW WATER CROSSING TAPER DETAIL**



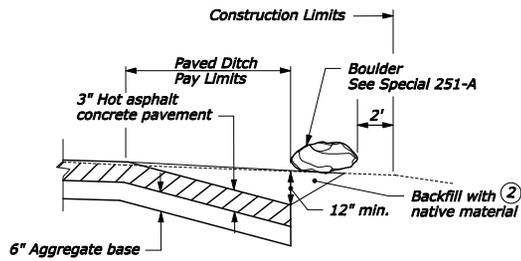
**SUBEXCAVATION DETAIL**

**FIGURE 5a - Low Water Crossing Detail**

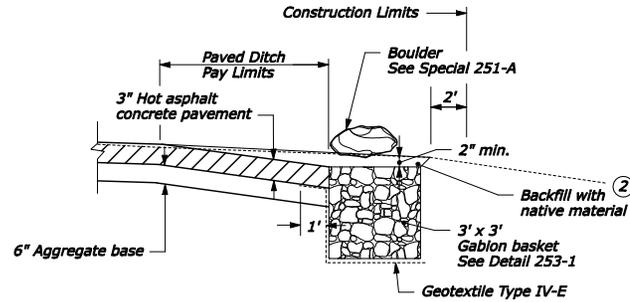
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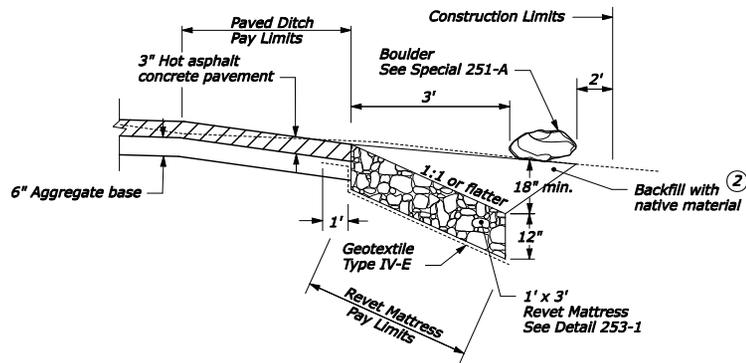
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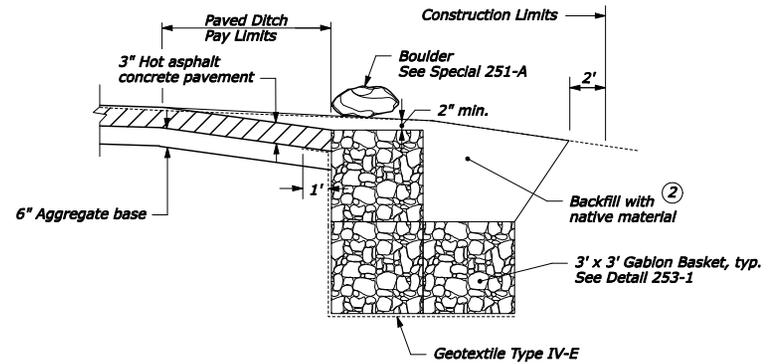
**DETAIL A  
PAVED DITCH**



**DETAIL C  
PAVED DITCH AND GABION BASKET**



**DETAIL B  
PAVED DITCH AND REVET MATTRESS**



**DETAIL D  
PAVED DITCH AND STACKED GABION BASKETS**

**FIGURE 5b - Low Water Crossing Detail**

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**Road Rehabilitation.** Road rehabilitation along all other portions of the project area not described above would consist of pulverizing the existing pavement and sub-base. Road rehabilitation would also consist of shaping, compacting, and finishing the roadbed to the required roadway template. The roadway would be repaved. All roadway rehabilitation work would occur within the existing roadway bench.

Upon completion of roadway rehabilitation and reconstruction, a fog seal would be laid down to lock in fines and fill surface voids to extend the life of the pavement surface. Fog seal is a commonly used sprayed liquid emulsion, usually a mixture of asphalt and water, which dries within several hours. Because fog seals are used to enrich pavement surfaces and hold stone in place, they are suitable for use on deteriorating and new pavement surfaces. The fog seal would be applied to one lane of the roadway at a time to allow for drying and allow one lane of traffic to remain open. The roadway areas undergoing treatment would be checked for presence of desert tortoise by a tortoise monitor prior to spraying.

**Slope Erosion Area.** Under Phase I, the 6-foot-by-10-foot culvert at the southern end of the project area would be recontoured and stabilized using erosion matting to reconstruct the slope and reduce future erosion. Significant erosion has occurred on the eastern side of the culvert along Pinto Basin Road due primarily to roadway drainage (Figure 6).

**Traffic Control and Access.** Construction vehicles would access the project area from either the southern park entrance along Pinto Basin Road or from the north entrance along National Park Drive to Pinto Basin Road.

The construction contractor would have a traffic plan in place prior to construction. Pilot cars would be used for one-way traffic control. Traffic delays up to 30 minutes would be expected.

**Staging Areas.** Staging Areas for Phase I would consist of the Turkey Flats wayside area and the Range Borrow Pit area (Figure 7). The Range Borrow Pit area is approximately 3 miles north of the northern end of the Pinto Basin Road project area. This area also has been used for construction staging for previous roadway projects. The Range Borrow Pit may be used as a staging area with limits and use determined by park staff prior to construction. The contractor would not have free access to the entire site.

The eastern half of the Turkey Flats pullout area would remain open to visitors during construction and staging. The western half would be used for staging and stockpile purposes as well as a disturbed area north of the wayside sign / kiosk. Limits and use of the Turkey Flats staging area would be determined by park staff prior to construction activities.

Existing pullouts may be used for staging during Phase I construction activities. The construction contractor would keep every other pullout open during construction to allow for visitor parking.

All staging areas would be chosen due to their proximity to the project area and their previously disturbed state or status. Temporary tortoise fencing would be installed at all staging areas.

## **Phase II**

**Parking Areas / Waysides.** The Porcupine Wash parking area with wayside interpretive signage would be reconstructed under Phase II. The Porcupine Wash wayside would be paved and striped, and would include concrete curbing. The parking area would accommodate four to six vehicles, and the existing interpretive signage would be relocated.

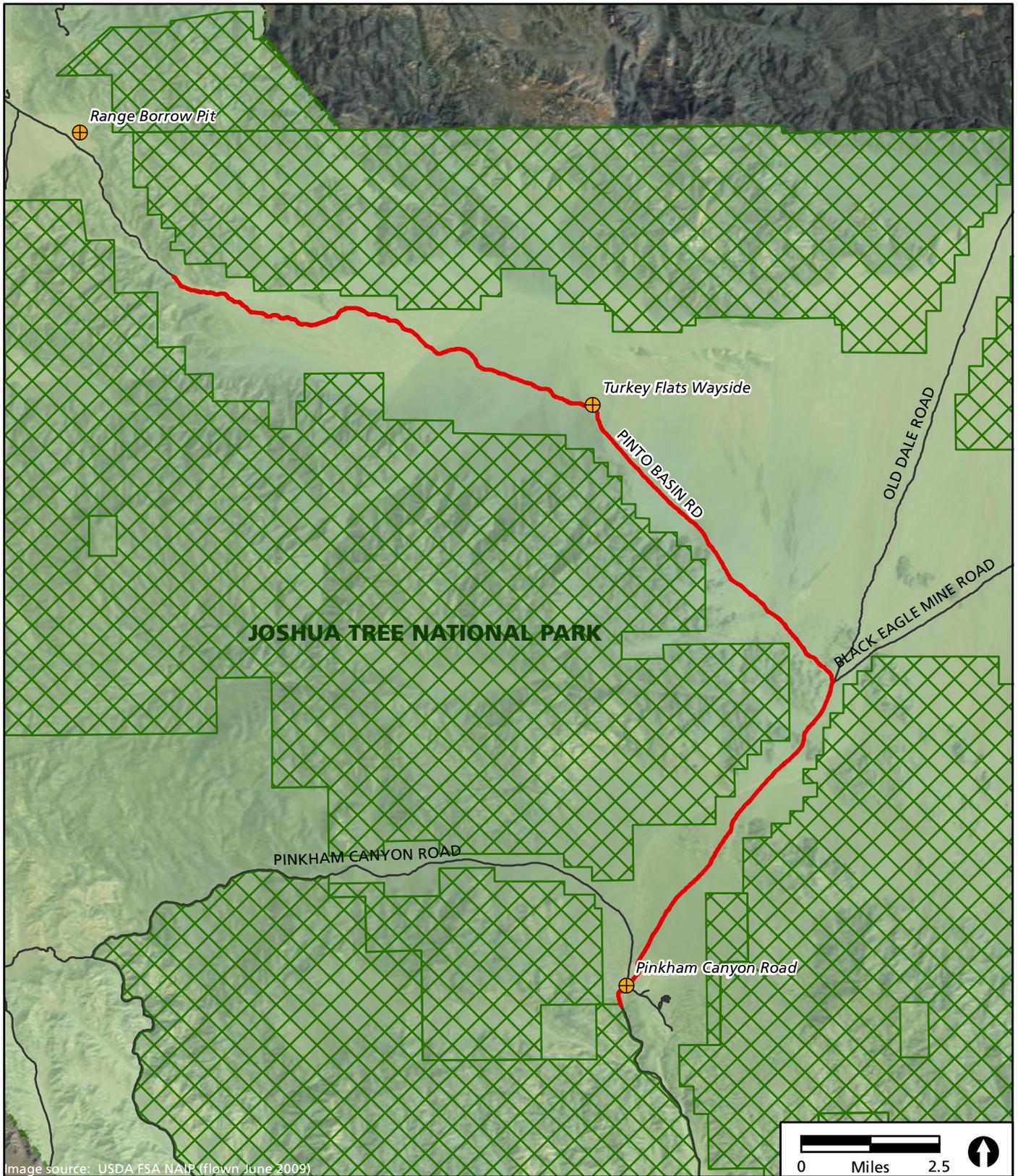


**FIGURE 6 - Culvert in Need  
of Stabilization**

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- Project Area
- ⊕ Proposed Staging Area
- Joshua Tree National Park
- Designated Wilderness
- Roads

**FIGURE 7 - Staging Areas for Phase I and Phase II**  
 Joshua Tree National Park

**Pullouts.** Under Phase II, three existing gravel surface pullout areas would be formalized to accommodate four cars, and impacted areas beyond the existing footprint would be reclaimed. These pullouts are Desert Governor, Only a Visitor, and Desert Wash. Each pullout would be paved and curbed (see Figure 4). The concrete curbs would have a heavy broom finish and a curb cut every 100 feet for desert tortoise passage. The Desert Governor pullout would accommodate a parked school bus and four parked cars and the Desert Wash pullout would accommodate a parked school bus and six parked cars. The Only a Visitor pullout would be a standard four-car pullout. There are also four existing pullouts that would be eliminated and reclaimed (or restored).

Boulders would be placed within (or surrounding) pullouts to control access and unauthorized parking. Interpretive signs at pullouts would be relocated as needed to allow for parking improvements. Aging existing signs would be replaced.

**Low Water Crossings.** Phase II of the proposed action would include up to six low water crossings. Gabion baskets would be used on the downstream side of some low water crossings (see Figure 5a and 5b). Some low water crossings would have gabions on both the upstream and downstream sides. Sub-excavation for gabions would be minimal (less than 2 feet). Low water crossings would be designed to maintain the existing drainage patterns.

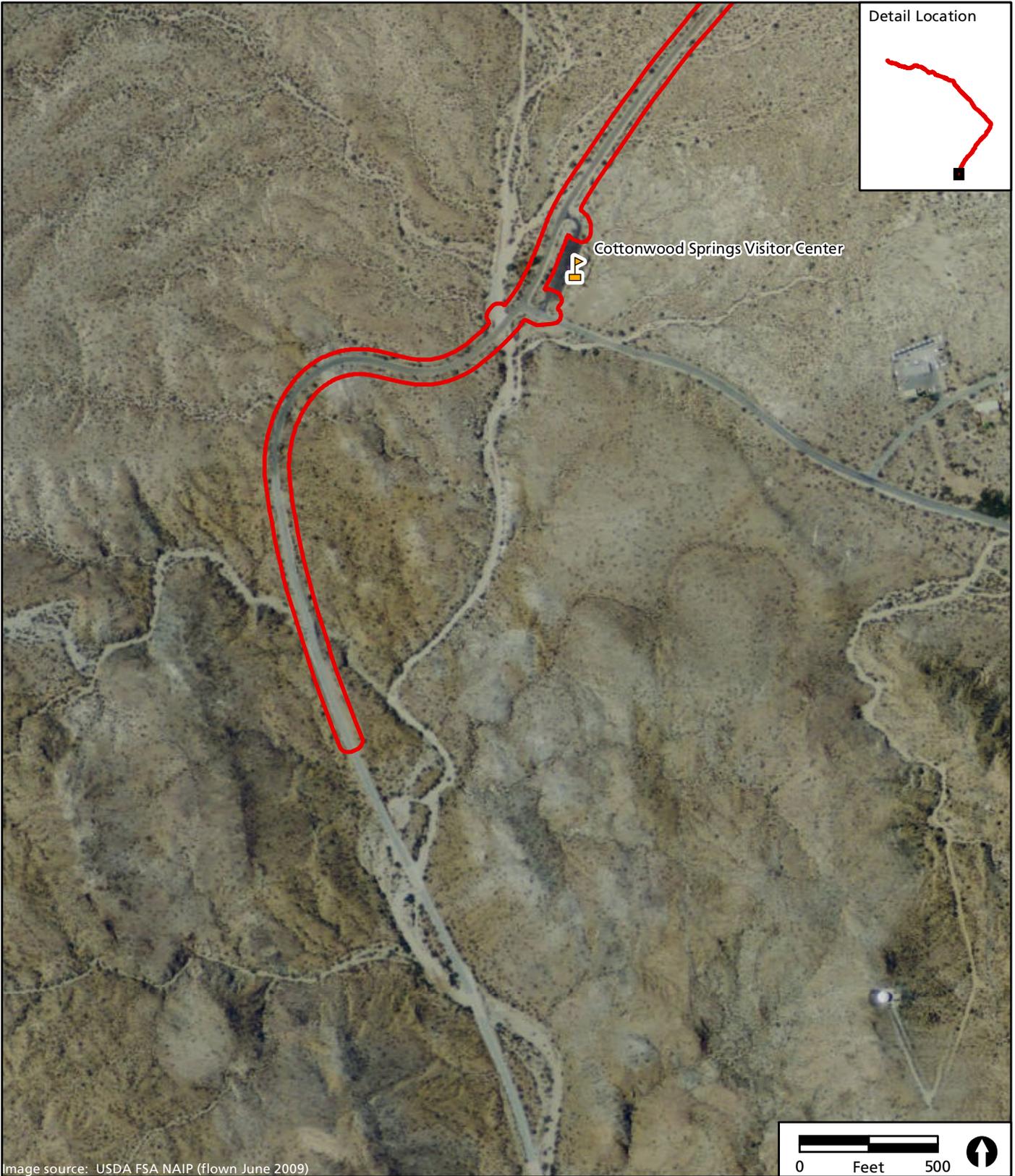
Boulders would be placed along the low water crossings in areas where vehicles could potentially drive off the roadway into the wash. The locations of boulders would be determined based on visual examination of the roadway.

**Road Realignments.** Phase II road realignments / reconstruction would occur at the Porcupine Wash area and an area south of the Cottonwood Visitor Center. The realignment / reconstruction of these areas are needed to improve sight distances and curve safety. The reconstruction area within the Porcupine Wash area would be approximately 0.5 mile (curves). Approximately 1.3 acres of clearing and grubbing of previously undisturbed areas along the realignment would be required. Portions of the existing roadway (approximately 0.3 acre) that would no longer be part of the alignment would be rehabilitated as described above for the Cholla Cactus Garden area.

The area south of the Cottonwood Visitor Center would require cut slope modifications to improve the roadway geometry, sight distances, and visitor safety. The roadway in this area would be widened to the inside of the curve and would cut into the existing hillside (Figure 8). An existing culvert within the curve area would be extended by approximately 10 feet along the west side of the roadway. The reconstruction area south of the Cottonwood Visitor Center would be less than 0.25 mile. Approximately 0.7 acre of clearing and grubbing of previously undisturbed areas along the realignment would be required.

Additionally, smaller curves and hills or steep slopes with limited or restricted sight distance along Pinto Basin Road would be reconstructed. These areas of realignment would require clearing and grubbing of about 2 acres of previously undisturbed areas. Approximately 0.2 acre would no longer be part of the alignment and would be rehabilitated / revegetated.

**Road Intersections.** Approximately 0.3 mile of the Pinto Basin Road and Cottonwood Springs Road intersection would be relocated (approximately 100 to 200 feet west of Cottonwood Springs Road / Cottonwood Visitor Center) to provide adequate sight distance. Current sight distance has proven inadequate.



- Project Area
- A Cottonwood Springs Visitor Center

**FIGURE 8 - Cottonwood Visitor Center Realignment and Reconstruction Area**

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The intersection of Pinto Basin Road and Pinkham Canyon Road has poor sight distance for vehicles coming from Pinkham Canyon Road on either side. To increase sight distance, Pinkham Canyon Road would be slightly realigned with a paved apron to intersect with Pinto Basin Road at a 90-degree angle. The Pinkham Canyon Road intersection also has a low water crossing which would be reconstructed with riprap placed on both sides of the roadway apron to improve water flow. These activities would occur within previously disturbed areas of the roadway.

**Cottonwood Visitor Center.** To prevent unauthorized or illegal parking along Pinto Basin Road west of the Cottonwood Visitor Center, concrete curbing would be added around the visitor center parking lot as well as the island (vegetated area) west of the visitor center. The existing curbs would be adjusted to allow for turning movements of large vehicles.

**Road Rehabilitation.** Road rehabilitation along all other portions of the project area not described above would consist of pulverizing the existing pavement and sub-base. Road rehabilitation would also consist of compacting and finishing the roadbed to the required roadway template. The roadway would be paved. All roadway rehabilitation work would occur within the existing roadway bench.

Upon completion of roadway rehabilitation and reconstruction, a fog seal would be laid down to lock in fines and fill surface voids to extend the life of the pavement surface. Fog seal is a sprayed liquid emulsion that typically dries within several hours. It would be applied to one lane of the roadway at a time to allow for drying and allow one lane of traffic to remain open. The roadway areas undergoing treatment would be checked for presence of desert tortoise by a tortoise monitor prior to spraying.

**Traffic Control and Access.** Construction vehicles would access the project area from either the southern park entrance along Pinto Basin Road or from the north entrance along Utah Trail Boulevard to Pinto Basin Road.

The construction contractor would have a traffic plan in place prior to construction. Pilot cars would be used for one-way traffic control. Traffic delays would be expected to be approximately 30 minutes.

**Staging Areas.** Staging Areas for Phase II may include the Turkey Flats wayside area, the Range Borrow Pit area, and Pinkham Canyon Road. Previously disturbed areas adjacent to Pinkham Canyon Road would also be used for construction staging. This area is currently being used for storage of roadway materials.

For Phase II, existing pullouts may be used for staging during construction activities. The construction contractor would keep every other pullout open during construction to allow for visitor parking.

All staging areas would be chosen due to their proximity to the project area and their previously disturbed state or status.

## **MITIGATION MEASURES OF THE ACTION ALTERNATIVES / MITIGATION AND MONITORING**

Mitigation measures are specific actions that, when implemented, reduce impacts and protect park resources and visitors. The following mitigation measures would be implemented under the proposed action and are assumed in the analysis of effects.

### **General Measures**

- The NPS and FHWA project managers would ensure that the project construction remains confined within the parameters established in the compliance documents and that mitigation measures are properly implemented.
- All protection measures would be clearly stated in the construction specifications and workers would be instructed to avoid conducting activities beyond the construction zone, as defined by the construction zone fencing. This does not exclude necessary temporary structures such as erosion control fencing.
- All tools, equipment, barricades, signs, and surplus materials would be removed from the project work limits upon project completion. Construction debris would be hauled from the park to an appropriate disposal location. Any asphalt surfaces damaged due to work on the project would be repaired to original condition. All demolition debris would be removed from the project site, including all visible concrete and metal pieces.
- Contractors would be required to properly maintain construction equipment (e.g., mufflers to minimize noise).
- A hazardous spill plan would be in place, stating what actions would be taken in the event of a spill and preventive measures to be implemented, such as placement of refueling facilities, storage, and handling of hazardous materials.
- All equipment on the project site would be maintained in a clean and well-functioning state to avoid or minimize contamination from mechanical fluids. All equipment would be checked daily.
- Material stockpiling, machinery storage, and vehicle parking would be permitted only in designated areas.
- Concrete and asphalt plants would be located outside the park at established FHWA-approved asphalt processing plants located within the region of the park. No overnight storage of these materials would be permitted.
- Traffic delays that result from construction activities would be limited to a 30-minute maximum in one direction through the project area.
- No lane closures would occur on the weekends from Friday 6:00 P.M. through Monday 6:00 A.M. No work would occur on recognized federal holidays.
- Work hours would be from dawn to dusk to avoid the increased potential for accidents after dark.

- Week-day lane closures using one-way traffic with pilot cars and flaggers and 30-minute maximum delays will allow the work to continue with minimal traffic safety concerns.
- Any project-related vehicle or equipment operating on unpaved roads would not exceed a speed limit of 25 miles per hour.
- Cross-country (off-road) travel would not be authorized, except under life-threatening / emergency situations.
- No pets or firearms would be permitted inside the project's construction boundaries or other associated work areas at any time.

### **Air Quality**

- Construction activities would be coupled with water sprinkling to reduce fugitive dust emissions. Water sprinkling would occur as needed on active work areas where soil or fine particles are exposed.
- Idling of construction vehicles would be limited to reduce construction equipment emissions. Unnecessary idling of all construction vehicles would be avoided throughout the construction period.

### **Geological Resources – Soils**

- Erosion and sediment control would be required. Topsoil would be removed from areas of construction and stored for later reclamation use.
- Best management practices for drainage and sediment control, as identified and used by the FHWA and the NPS, would be implemented to prevent or reduce non-point source pollution and minimize soil loss and sedimentation in drainage areas. Use of best management practices in the project area for drainage protection would include all or some of the following actions, depending on site-specific requirements:
  - Keep disturbed areas as small as practical to minimize exposed soil and the potential for erosion.
  - Locate waste and excess excavated materials outside of drainages to avoid sedimentation.
  - Install silt fences, temporary earthen berms, temporary water bars, sediment traps, stone check dams, or other equivalent measures (including installing erosion-control measures around the perimeter of stockpiled fill material) prior to construction.
  - Conduct regular site inspections during the construction period to ensure that erosion-control measures were properly installed and are functioning effectively.
  - Store, use, and dispose of chemicals, fuels, and other toxic materials in an appropriate manner.
  - Revegetate disturbed areas as soon as possible after construction is completed.

## Vegetation – Native and Non-native

- A variety of native plants would be removed, stored in temporary nurseries, and relocated to reclaimed areas, both during the project and following completion of the project.
- Revegetation work would use soil conserved along the corridor and native species from genetic stock originating in the park. Revegetation efforts would also attempt reconstruction of the natural spacing, abundance, and diversity of native plant species.
- The estimated 6.2 acres (for Phases I and II) of newly disturbed areas during construction would be mitigated through revegetation of approximately 1 acre of existing disturbed areas no longer needed as part of the roadway alignment. Revegetation would be accomplished through use of locally collected plant species (seeds and transplants). Control of non-native and invasive plant species would occur before and after construction activities.
- Vegetation disturbance would be minimized by replacement of topsoil in as near the original location as possible, scarification, mulching, and seeding / planting with species native to the immediate area.
- Reclaimed / revegetated areas would be monitored after construction to determine if efforts are successful or if additional remedial actions are necessary.
- Remedial actions could include installation of erosion-control structures, reseeding and / or replanting the area, and controlling non-native plant species.
- In an effort to avoid introduction of non-native / noxious plant species, no imported topsoil or hay bales would be used during revegetation. On a case-by-case basis, the following materials may be used for any erosion-control dams that may be necessary: certified weed-free rice straw, cereal grain straw that has been fumigated to kill weed seed, and wood excelsior bales.
- Undesirable plant species would be controlled in areas determined to be high-priority by park staff and other undesirable species would be monitored and controlled, as necessary. To prevent the introduction and minimize the spread of non-native vegetation and noxious weeds, the following measures would be implemented during construction:
  - Minimize soil disturbance.
  - Pressure wash and / or steam clean all construction equipment to ensure that all equipment, machinery, rocks, gravel, or other material are cleaned and weed free before entering the park.
  - Cover all haul trucks bringing asphalt or other materials from outside the park to prevent seed transport.
  - Limit vehicle parking to existing roadways, parking lots, or access routes.
  - Limit disturbance to roadsides and culvert areas, including limiting equipment to the roadbed area. No machinery or equipment should access areas outside the construction zone.

- Obtain all fill or rock from the project area, if possible. If not possible, weed-free materials would be obtained from sources outside the park which would need to be approved by NPS.
- Monitor disturbed areas following construction to identify growth of noxious weeds or non-native vegetation. Treatment of non-native vegetation would be completed in accordance with NPS-13, *Integrated Pest Management Guidelines*.

### **Federally Listed Species and Species of Special Concern**

- Only authorized biologists would provide oversight of all activities within the roadway corridor. Authorized biologists are responsible for being aware of the most current USFWS protocols and guidelines for desert tortoise. NPS would submit the names and qualifications of proposed authorized biologists to the USFWS for review and approval at least 15 days prior to initiation of ground-disturbing events. No project-related activity would commence unless one or more authorized biologists have been selected.
- An individual would be designated the field contact representative to oversee project compliance and coordination. The field contact representative would be either the authorized biologist or a desert tortoise monitor—approved by the authorized biologist—who is on-site at the time. The field contact representative would coordinate with the USFWS and be authorized to halt any activity that may endanger desert tortoise.
- The field contact representative would be present during all monitoring / survey efforts and construction activities that may affect desert tortoise or desert tortoise habitat.
- Only the authorized biologist would be allowed to handle / relocate desert tortoise.
- Presence / absence surveys would be conducted prior to construction. Clearance surveys would be conducted one week prior to commencement of any construction / rehabilitation activities. All potential desert tortoise burrows within 100 feet of construction or staging areas would be examined. At the completion of construction activities, all materials used to mark or identify the tortoise burrows would be promptly removed.
- Any desert tortoise relocated or otherwise removed from areas undergoing reconstruction would be handled in accordance with the procedures described in *Guidelines for Handling Desert Tortoise During Construction Projects* (Desert Tortoise Council 1994). These tortoises would be translocated the minimum distance practicable, within appropriate habitat, to facilitate their safety and survival.
- Temporary tortoise-proof fencing would be established around all staging areas. Details of tortoise fencing requirements can be found in the biological assessment (NPS 2011). Fence placement and construction would be supervised and approved by the field contact representative. All tortoise fencing would be dismantled and transported from the site following project completion. Temporary fencing established around staging areas would be inspected at least weekly and corrective action taken to maintain the integrity of the tortoise barrier. Fenced staging areas would include a desert tortoise exclusion gate. This gate would remain closed at all times, except when vehicles are entering or leaving the staging area. If it is deemed necessary to leave the gate open for extended periods of time (e.g., during high traffic periods), the gate may be left open as long as a monitor is present. This monitor would report any tortoise activity to the authorized biologist who, in turn, would take appropriate remedial actions.

- Pullouts would be paved and curbed. The concrete curbs would have a heavy broom finish and a curb cut every 100 feet for desert tortoise passage.
- Construction vehicles parked overnight along the side of the road in pre-existing turnouts would be checked for the presence of desert tortoise prior to moving the vehicle in the morning. Construction crew members would visually survey under the vehicles, from all four directions, to assure that a tortoise did not move under the vehicle. If a tortoise is found, the authorized biologist would be contacted to remove the tortoise and place it outside the construction area.
- The contractor must prevent injury to the desert tortoise at sites with potential hazards (e.g., auger holes, steep-sided depressions) by installing exclusionary fencing around open pits or other hazardous sites.
- A desert tortoise education program would be presented by the field contact representative to all construction personnel prior to any construction activities. Following the onset of construction activities, any new employees would be required to formally complete the tortoise education program prior to working on-site. At a minimum, the tortoise education program would cover the following topics: (1) desert tortoise distribution / occurrence, (2) general behavior and ecology, (3) sensitivity of the species to human activities, (4) legal protection, (5) penalties for violation of state or federal laws, (6) reporting requirements, and (7) project protective mitigation measures.
- The field contact representative would maintain a complete record of all desert tortoise encounters. The record would include location, date, time, life stage, general condition, identification numbers, and action taken. Within 90 days following the completion of the project, a report of all field contact representative activities and actions would be submitted to the USFWS.
- A litter control program would be implemented during construction to eliminate the accumulation of trash to avoid attracting ravens that may prey on juvenile desert tortoise. All trash and food items would be promptly contained in raven- and coyote-proof containers provided by the contractor. These containers would be transported off park lands on a regular basis once filled.
- The Monitoring Program for desert tortoise would continue along Pinto Basin Road as well as other portions of the park. NPS provides funds to the USFWS to be part of the range-wide monitoring program.

### **Wildlife or Wildlife Habitat**

- Potential roadside habitat for small species consisting of naturally formed rock piles, would be replaced in coordination with contractor construction activities. These rock piles would be of varying sizes and placed in natural looking locations, as directed by the CO and coordinated with the NPS. The area of highest priority for rock placement by the NPS is at Old Dale / Black Eagle Mine Road.

### **Recreation Resources**

- Visitors and bus drivers would be advised in park announcements, programs, and publications that there would be temporary inconveniences from construction work on the road.
- In all cases, traffic control and safety shall be maintained.

- The construction contractor shall include proposed daytime work protocols in its Quality Control Plan and its Safety Plan to show how traffic monitoring and controls will be implemented.

### **Archeological Resources and Cultural Landscapes**

- Construction work in proximity to National Register-eligible sites or cultural landscapes would be subject to monitoring by a professional archeologist.
- Should unknown archeological resources be uncovered, or should a cultural landscape feature be discovered, during construction, work would be halted in the discovery area, the site secured, and park staff would be consulted according to 36 CFR 800.13 and 43 CFR 10.
- In compliance with the Native American Graves Protection and Repatriation Act of 1990, work would be halted and NPS would also notify and consult concerned American Indian tribal representatives for the proper treatment of human remains, funerary, and sacred objects should these be discovered during the project.
- Archeological specimens found within the construction area would be removed only by NPS archeologists who meet the Secretary of Interior’s Standards, or their designated representatives.

### **GENERAL CONSTRUCTION SCHEDULE AND COSTS**

Construction for each phase would take approximately 6 months. Work for Phase I is anticipated to commence sometime between January and March 2012. Phase II would likely commence in 2014-2015.

Construction of the project is estimated to cost between \$19 million and \$23 million between fiscal years 2012 and 2014.

### **THE ENVIRONMENTALLY PREFERRED ALTERNATIVE**

In accordance with DO-12, NPS is required to identify the “Environmentally Preferred Alternative” in all environmental documents, including EAs. According to CEQ guidelines, the Environmentally Preferable Alternative is the alternative that will promote the national environmental policy as expressed in Section 101 of NEPA, which considers:

1. fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations;
2. assuring for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;
3. attaining the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. preserving important historic, cultural and natural aspects of our national heritage and maintaining, wherever possible, an environment that supports diversity and variety of individual choice;

5. achieving a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
6. enhancing the quality of renewable resources and approaching the maximum attainable recycling of depletable resources (NEPA, section 101).

Alternative A, the No-action Alternative, only minimally meets three of the six criteria (1, 5, and 6) and does not meet the other criteria because it does not provide for safe visitor experiences.

Alternative B, the Preferred Alternative, including all mitigation measures outlined in this document, is the Environmentally Preferred Alternative because it best meets the evaluation criteria above. The Preferred Alternative protects public and employee health, safety, and welfare by addressing safety concerns associated with poor sight distance while selecting a design that minimizes impacts to desert tortoise and cholla cactus (criteria 2, 3, and 5); prevents damage to natural and cultural resources by providing larger formal turnouts in high use areas (criteria 1, 3, and 4); and improves park operational efficiency and sustainability by reducing the need for ongoing road maintenance and the consumption of depletable resources associated with such maintenance (criteria 1 and 6).

### **ALTERNATIVES CONSIDERED BUT DISMISSED**

FHWA analysis determined that rehabilitation was the most appropriate, cost-effective treatment for Pinto Basin Road. Therefore, a total reconstruction of the road was considered but dismissed (Alternative B).

Alternative designs and speeds at Cholla Cactus Garden were considered and dismissed, as they represented a duplication of another less environmentally damaging and less expensive alternative (Alternative B).

Alternatives that looked at different curving alignments were considered but were dismissed because of their inability to meet the project's purpose and need and their noncompliance with the park's *General Management Plan*.

### **ALTERNATIVES COMPARISON TABLE**

Table 1 summarizes the major components of Alternatives A and B, and compares the ability of these alternatives to meet the project objectives (the objectives for this project are identified in the Purpose and Need chapter). As shown in the following table, the Preferred Alternative meets each of the objectives identified for this project, while the No-action Alternative does not address the objectives. Table 2 below provides a summary comparison of impacts between the No-action Alternative and the Preferred Alternative.

**TABLE 1. SUMMARY OF ALTERNATIVES AND HOW EACH ALTERNATIVE MEETS PROJECT OBJECTIVES**

Alternative A – No-Action Alternative	Alternative B – Preferred Alternative
<p>The No-action Alternative would mean the existing use and maintenance of Pinto Basin Road would continue and current structural and safety issues would remain. Travel lanes would remain at the current width of 20 to 22 feet wide; the current design speeds of 35 to 45 miles per hour would remain the same; sight distance at Cholla Cactus Garden, the Porcupine Wash area, Pinkham Canyon Road intersection, and the area south of the Cottonwood Visitor Center would remain poor; sight distances of smaller curves along the roadway would also continue to be limited; existing wayside pullouts and designated parking areas would not be paved, striped or improved for safety; low-water crossing would continue to have poor pavement conditions and deteriorated edges; and informal pullouts and parking areas would remain unimproved.</p>	<p>The proposed action would involve rehabilitating, widening, and realigning the existing 23.5-mile section of Pinto Basin Road. The proposed action would also consist of modifying the existing 20 to 22-foot-wide paved road to a 24-foot-wide road. The design speed of the modified roadway would be 35 or 45 miles per hour, depending on the location. The proposed action would realign the road to improve the sight distance at the Cholla Cactus Garden, Porcupine Wash area, Pinkham Canyon Road intersection, and the area south of the Cottonwood Visitor Center. The remainder of the proposed roadway work would be within the existing road bench. Within the roadway bench, curves, dips, and rises would be reconstructed to improve superelevation (or cross slope) and ride quality. Low water crossings would be reinforced with properly designed crossings. All existing wayside pullouts and designated parking areas would be formalized for safety. Informal pullouts and parking areas would be obliterated, and would be restored, utilizing live plantings and mulching. The proposed plan is to pulverize the existing roadway and overlay with new pavement.</p>
Meets Project Objectives?	Meets Project Objectives?
<p>No. Continuing the existing conditions does not protect the safety of visitors or provide for a good visitor experience. The continued development of informal turnouts would not protect natural or cultural resources.</p>	<p>Yes. As discussed above, the proposed action would result in safety improvements at curves with limited sight distance and improve the overall roadway condition. The proposed action would protect the safety of visitors and improve the visitor experience.</p>

## SUMMARY OF ENVIRONMENTAL CONSEQUENCES / IMPACT COMPARISON MATRIX

**TABLE 2. SUMMARY COMPARISON OF ALTERNATIVES IMPACTS**

Impact Topic	Alternative A – No-Action Alternative	Alternative B – Preferred Alternative
Geological Resources – Soils	<p>Under the No-action Alternative, existing conditions would result in short- and long-term, minor, localized adverse impacts to soils in the vicinity of the roadway. Cumulative impacts, including the No-action Alternative, would be short- and long-term, minor, adverse and at a local scale. Implementation of this alternative is consistent with §1.4.7.1 of NPS <i>Management Policies</i> 2006.</p>	<p>Under the Preferred Alternative, impacts to soils would be readily detectable in the approximately 6.2 acres of newly disturbed area, would have measurable effects on physical disturbance and removal of soils, and result in soil erosion and compaction. These alterations would also result in the soils inability to sustain biota in the disturbed areas. Rehabilitation (revegetation and mulching) of approximately 1 acre along the roadway as well as mitigation measures incorporated into the proposed action would provide long-term and beneficial impacts to soils in the project area. The Preferred Alternative would result in impacts that would be localized within the project area, and would be short- and long-term, moderate adverse, and short- and long-term, minor beneficial, and at a local scale. Cumulative impacts, including the Preferred Alternative, would be short- and long-term moderate adverse, short- and long-term minor beneficial, and at a local scale. Implementation of this alternative is consistent with §1.4.7.1 of NPS <i>Management Policies</i> 2006.</p>
Vegetation	<p>Under the No-action Alternative, existing conditions constitute short- and long-term, negligible, adverse impacts to vegetation in the vicinity of the roadway. The overall cumulative impacts from past, present, and reasonably foreseeable future impacts, in combination with the No-action Alternative, would be short- and long-term, minor, and adverse. Implementation of this alternative is consistent with §1.4.7.1 of NPS <i>Management Policies</i> 2006.</p>	<p>Impacts to native vegetation would include crushing, trampling, transplanting, and removal, within an approximately 6.2-acre area. Rehabilitation (revegetation and mulching) of approximately 1 acre along the roadway and mitigation measures would provide beneficial effects to native vegetation in the project area. Under the Preferred Alternative, impacts to native vegetation would be short- and long-term, moderate adverse, and short- and long-term minor beneficial. Cumulative impacts, including the Preferred Alternative, would be short- and long-term, moderate, adverse, and short- and long-term, minor beneficial, at a local scale. Implementation of this alternative is consistent with §1.4.7.1 of NPS <i>Management Policies</i> 2006.</p>
Wildlife	<p>Under the No-action Alternative, existing conditions would constitute a long-term, minor, adverse impact to</p>	<p>Impacts to wildlife would include disturbance, harm, and removal of habitat within an approximately 6.2-</p>

Impact Topic	Alternative A – No-Action Alternative	Alternative B – Preferred Alternative
	<p>wildlife. Overall cumulative impacts from past, present, and reasonably foreseeable future actions, in conjunction with the No-action Alternative, would be short- and long-term, minor, and adverse. Implementation of this alternative is consistent with §1.4.7.1 of NPS <i>Management Policies</i> 2006.</p>	<p>acre area of new disturbance. Rehabilitation (revegetation and mulching) of approximately 1 acre along the roadway would provide long-term beneficial impacts to wildlife habitat in the project area. Under the Preferred Alternative, impacts to wildlife and wildlife habitat would primarily result in short-term, moderate, and adverse impacts and minor long-term minor beneficial effects on a local scale. Cumulative impacts, including the Preferred Alternative, would be short- and long-term, moderate, adverse, and long-term, minor beneficial effects at a local scale. Implementation of this alternative is consistent with §1.4.7.1 of NPS <i>Management Policies</i> 2006.</p>
<p>Federally Listed Species and Species of Special Concern</p>	<p>Under the No-action Alternative, existing conditions would result in short- and long-term, minor, adverse impacts to the desert tortoise and species of special concern. The overall cumulative impacts to the desert tortoise and species of special concern from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be short- and long-term, minor, adverse and at a local scale. Implementation of this alternative is consistent with §1.4.7.1 of NPS <i>Management Policies</i> 2006.</p>	<p>Implementing the Preferred Alternative would result in a may affect, but not likely to adversely affect determination for the desert tortoise and would adversely affect park-determined critical habitat. Under the Preferred Alternative, impacts to the desert tortoise and species of special concern would be short- and long-term, moderate, adverse, and short- and long-term, minor beneficial. The overall cumulative impacts to the desert tortoise and species of special concern from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be short- and long-term, moderate, adverse, and long-term, minor beneficial effects at a local scale. Implementation of this alternative is consistent with §1.4.7.1 of NPS <i>Management Policies</i> 2006.</p>
<p>Visitor Use / Experience, Visitor Safety</p>	<p>Under the No-action Alternative, existing conditions would result in short- and long-term, minor to moderate, adverse impacts to visitor use / experience and visitor safety. The overall cumulative effects of these past, present, and reasonably foreseeable future actions on visitor use / experience and visitor safety, in conjunction with the No-action Alternative, would have short-term, minor to moderate, adverse impacts. Implementation of this alternative is consistent with §1.4.7.1 of NPS <i>Management Policies</i> 2006.</p>	<p>Under the Preferred Alternative, rehabilitation and reconstruction of Pinto Basin Road would result in short-term, moderate, and adverse impacts during the construction period. Once construction was completed, improvements would result in long-term, moderate, beneficial impacts to visitor use / experience and visitor safety. The cumulative effects in conjunction with the Preferred Alternative would result in short-term, moderate, adverse impacts and long-term moderate, beneficial effects to visitor use / experience and visitor safety. Implementation of this alternative is consistent with §1.4.7.1 of NPS <i>Management Policies</i> 2006.</p>

Impact Topic	Alternative A – No-Action Alternative	Alternative B – Preferred Alternative
Archeological Resources	Impacts to archeological sites under the No-action Alternative would be minor, and adverse. The overall cumulative impacts to archeological from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be minor, adverse. Implementation of this alternative is consistent with §1.4.7.1 of NPS <i>Management Policies</i> 2006.	Impacts to archeological sites under the Preferred Alternative would be moderate and adverse. The overall cumulative impacts to archeological resources from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be minor and adverse. Implementation of this alternative is consistent with §1.4.7.1 of NPS <i>Management Policies</i> 2006.
Cultural Landscapes	Impacts to the Hexie Mountain Mining Historic District cultural landscape under the No-action Alternative would be negligible to minor and adverse. The overall cumulative impacts to the cultural landscape from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be minor and adverse. Implementation of this alternative is consistent with §1.4.7.1 of NPS <i>Management Policies</i> 2006.	Impacts to the Hexie Mountain Mining Historic District cultural landscape under the Preferred Alternative would be negligible and adverse. The overall cumulative impacts to the cultural landscape from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be minor and adverse. Implementation of this alternative is consistent with §1.4.7.1 of NPS <i>Management Policies</i> 2006.
Park Management / Operations	Under the No-action Alternative, impacts to park management / operations would be long-term, minor, and adverse. The overall cumulative effects of these past, present, and reasonably foreseeable future actions, in conjunction with the No-action Alternative, would have long-term, minor, adverse impacts and long-term, minor beneficial effects on park management / operations. Implementation of this alternative is consistent with §1.4.7.1 of NPS <i>Management Policies</i> 2006.	Under the Preferred Alternative, impacts to park management / operations would be short- and long-term, minor, and adverse and long-term minor, beneficial. The overall cumulative effects of these past, present, and reasonably foreseeable future actions, in conjunction with the Preferred Alternative, would have long-term, minor, adverse impacts and long-term, minor, beneficial effects on park management / operations. Implementation of this alternative is consistent with §1.4.7.1 of NPS <i>Management Policies</i> 2006.

## **AFFECTED ENVIRONMENT**

This chapter summarizes the existing environmental conditions of the natural and human environment that may be affected by the proposed action and alternatives under consideration. More detailed information on park resources may be found in the 1995 *General Management Plan*.

### **LOCATION AND GENERAL DESCRIPTION OF THE PARK**

Located in the Mojave and Colorado deserts of southern California, Joshua Tree National Park lies along the east-west transverse ranges of the Little San Bernardino Mountains. The south boundary follows the base of these mountains along the northern perimeter of the Coachella Valley; the north boundary is defined by the Morongo Basin. The park is in Riverside and San Bernardino counties.

Unusual desert plants and animals and spectacular geological features are all important. Although the name Joshua Tree implies that the park has a natural history focus, the area also has a rich and varied cultural history. From prehistoric times to the present, humans have been an integral component of this desert environment (NPS 1995).

The proximity of the park to the Los Angeles metropolitan area and to a large military base generates a steady flow of visitors. The recreational demands of the population of the Los Angeles region are enormous. For people who are subjected to increasing automobile congestion, air pollution, and disappearing open space, the desert offers much in the form of rest and relaxation, fresh air, clear skies, outdoor recreation, solitude, and contemplation. Many return frequently for specific recreational activities.

### **GEOLOGICAL RESOURCES – SOILS**

The landscape within the park consists of mountain ranges, desert basins, and rock piles. The park has low, generally east-west trending mountains interspersed with valleys. This setting is characteristic of much of the western Mojave region. It is dominated by a crystalline rock terrain, although the valleys are largely mantled by unconsolidated or poorly consolidated Quaternary surface deposits (NPS 1995).

Soil formation is related to erosional and depositional environments. Millions of years ago, the landscape had rolling hills covered with a soil mantle that had developed in a hot, semiarid to humid climate with 80 percent more precipitation and 30 percent less evaporation than are typical today. Changes in climate have resulted in present-day erosion rates that exceed the rates of soil formation.

Most soils in the park are poorly developed. The eastern half is mostly alluvial with no true soil structure. This granitic fill ranges from boulders to gravel and coarse sand. Soil along the majority of Pinto Basin Road shoulders is very soft and sandy, primarily in the lower basin. There are modern deposits consisting of fan gravel and other alluvium being deposited by drainage systems. There are no known rare or unique soils in the park (NPS 1995).

The prevailing winds of the Mojave Desert are from the west. Much of the wind-blown sand, picked up in the open expanses, is carried eastward and deposited in a few well-developed dune systems. Pinto Basin has extensive sand deposits, but few well-developed dune systems (NPS 1995).

In general, the topography within the project area is relatively flat. The upland topography between the washes is relatively flat, with sparse vegetation and varying degrees of desert pavement on the surface.

Four soil series — Calvista rock outcrop trigger, Carrizo rositas gunsight, cherioni hyder cyperiano, and rositas carsitas dune land — are mapped within the project area (National Resources Conservation Service 2006). The Calvista series consists of shallow, well drained soils that formed in material from granitic rock that has seams of calcite. Calvista soils are on mountains ridges on slopes of 2 to 30 percent slopes. The Carrizo series consists of very deep, excessively drained soils formed in mixed alluvium. Carrizo soils are on flood plains, alluvial fans, fan piedmonts, and bolson floors. Slope ranges from 0 to 15 percent. The Cherioni series consists of very shallow and shallow to a hardpan and bedrock, somewhat excessively drained soils that formed in slope alluvium on volcanic bedrock. Cherioni soils are on fan terraces or hills and have slopes of 0 to 70 percent. The Rositas series consists of very deep, somewhat excessively drained soils formed in sandy eolian material. Rositas soils are on dunes and sand sheets. Slope ranges from 0 to 30 percent with hummocky or dune micro relief.

## VEGETATION

The Pinto Basin Road project area ranges in elevation from about 1,760 to 3,130 feet above sea level and contains several vegetation communities. Based on the park's draft vegetation map (2010a), the project area contains the following vegetation associations: Arizona upland Sonoran desert scrub; lower bajada and fan Mojavean-Sonoran desert scrub; Mojavean semi-desert wash scrub; North American warm desert bedrock cliff and pavement; Mojavean upper desert scrub; and Sonoran-Coloradan semi-desert wash woodland / scrub (Figures 9a and 9b). A natural resources survey was also conducted to determine vegetation communities within the project area. More detailed information on the communities identified can be found in the natural resources survey report (RECON 2011).

The creosote shrub community, found within the Sonoran Desert and Mojave Desert scrub biotic communities, is the most widespread throughout the park. There are two subdivisions of the creosote community: the creosote-white bursage association and the white bursage-mixed shrub association. The white bursage-mixed shrub association is dominant within the flat portions of the park, in particular the eastern half and including almost all of the Pinto Basin.

Below 3,000 feet within the park, the Colorado Desert (or low desert as it is sometimes called) is generally dominated by creosote bush (*Larrea tridentate*), mesquite (*Prosopis* spp.), yucca (*Yucca* spp.), ocotillo (*Fouquieria splendens*), and several species of cactus. Whenever moisture conditions are favorable, cat's claw (*Acacia greggi*), palo verde (*Parkinsonia* spp.), and desert willow (*Chilopsis* spp.) may also appear. In Pinto Basin, creosote bush, burroweed (*Ambrosia* spp.), several species of grass, and many species of cactus grow. Open areas of creosote shrub, which is commonly found in the Pinto Basin, can be dominated by non-native annual grasses, such as *Schismus* spp. (NPS 2005).

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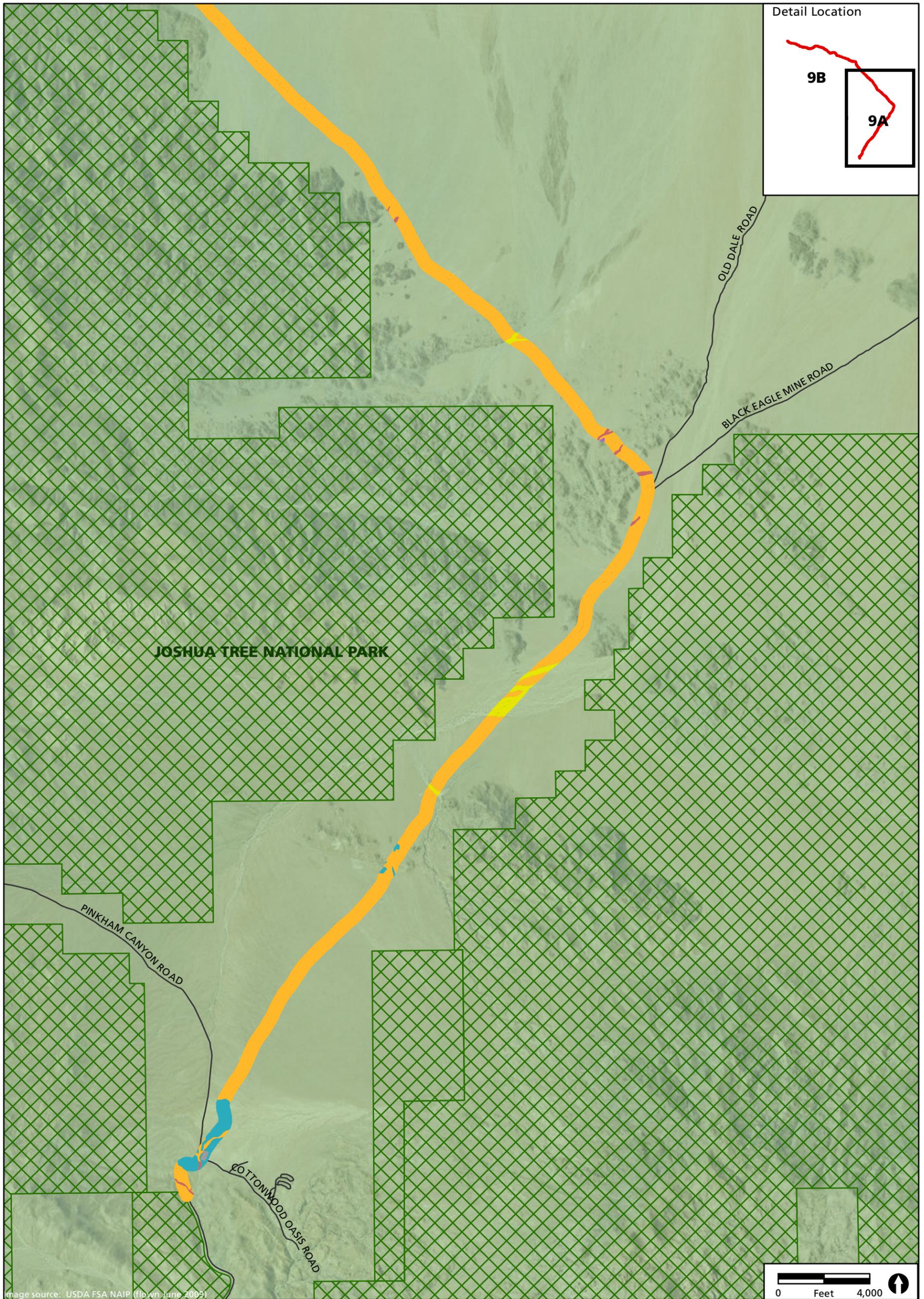


Image source: USDA FSA NAIP (flown June 2009)

**Vegetation within 300 feet of Project**

- Arizonan Upland Sonoran Desert Scrub
- Lower Bajada and Fan Mojavean-Sonoran Desert Scrub
- Mojavean Semi-desert Wash Scrub
- Mojavean Upper Desert Scrub
- Sonoran-Coloradan Semi-desert Wash Woodland/Scrub
- Developed

- Joshua Tree National Park
- Designated Wilderness
- Roads

**FIGURE 9A - Vegetation Community Associations within the Project Area**

Joshua Tree National Park

United States Department of the Interior / National Park Service

June 2011

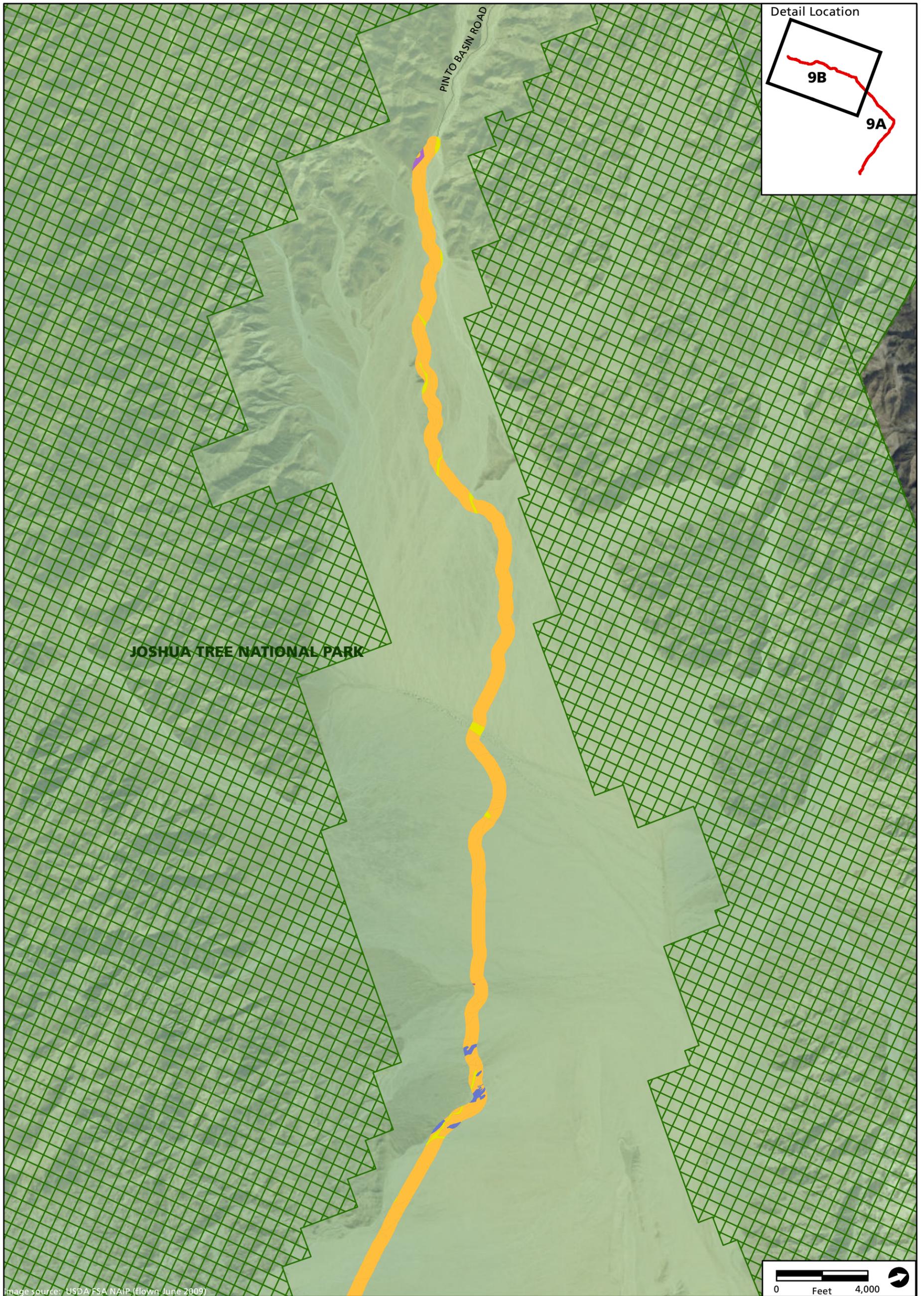


Image source: USDA FSA NAIP (flown June 2009)

**Vegetation within 300 feet of Project**

- Arizonan Upland Sonoran Desert Scrub
- Lower Bajada and Fan Mojavean-Sonoran Desert Scrub
- Mojavean Semi-desert Wash Scrub
- North American Warm Desert Bedrock Cliff and Pavement
- Sonoran-Coloradan Semi-desert Wash Woodland/Scrub
- Developed

- Joshua Tree National Park
- Designated Wilderness
- Roads

**FIGURE 9B - Vegetation Community Associations within the Project Area**

Joshua Tree National Park

United States Department of the Interior / National Park Service

June 2011

The transition zones between the Mojave and Colorado deserts provide for increased biodiversity. They are typically dominated by common shrubs such as desert senna (*Senna armata*), bladder pod (*Isomeris arborea*), jojoba (*Simmondsia chinensis*), desert mallow (*Sphaeralcea ambigua*), paper bag bush (*Salazaria mexicana*), encelia (*Encelia* spp.), vigueria (*Vigueria* spp.), white ratany (*Krameria grayi*), and four o'clock (*Mirabilis multiflora* Var. *pubescens*). Other shrubs found in these areas include jimsonweed (*Datura stramonium*) and coyote melon (*Cucurbita palmate*). After adequate rainfall, the deserts can be transformed by colorful wildflower displays, including extensive areas of Bigelow coreopsis (*Coreopsis bigelovii*), sand verbena (*Abronia villosa*), phacelia, evening primrose (*Oenothera macrocarpa*), blazing star (*Mentzelia involucrate*), pincushion (*Chaenactis stevioides*), chia (*Salvia columbarie*), and others (NPS 2005).

### **Non-native Vegetation**

Several non-native invasive species occur throughout the park, primarily along roadways and trails. Many of these species migrate along the roadway through motorized and non-motorized seed dispersal. Non-native invasive species found in the park include Russian thistle (*Salsola tragus*), mustards (*Brassica* spp.), and several grasses, such as cheatgrass (*Bromus tectorum*) and red brome (*Bromus madritensis* ssp. *rubens*). Red brome, Sahara mustard (*Brassica tournefortii*), Mediterranean grass (*Schismus barbata*), and redstem filaree (*Erodium cicutarium*) were observed during the natural resources survey conducted from January 10 to January 14, 2011 (RECON 2011). During moist years in the past, non-native grasses increased significantly. Non-native vegetation, particularly grasses, carry fire more rapidly, create larger fires, and allow fires to spread more widely than native species. The majority of native desert plants are not adapted to fire, plant seeds do not require fire to break dormancy, nor do many of these plants resprout after a fire. Non-native plants have changed the fire regime within the park and threatened native plant communities.

### **WILDLIFE**

Large mammals known to occur within or adjacent to the project area include the desert bighorn sheep (Nelson's; *Ovis canadensis nelsoni*), mule deer (*Odocoileus hemionus fuliginatus*), and mountain lion (*Felis concolor californica*). Coyote (*Canis latrans mearnsi*) and bobcats (*Lynx rufus baileyi*) are also known to occur in the vicinity of the project area. Small mammals known to occur within or adjacent to the project area are shown in Table 3 below.

**TABLE 3. SMALL MAMMALS KNOWN TO OCCUR WITHIN OR ADJACENT TO THE PROJECT AREA**

Scientific Name	Common Name
<i>Chaetodipus fallax pallidus</i>	pallid pocket mouse
<i>Chaetodipus formosus mohavensis</i>	Mojave long-tailed pocket mouse
<i>Chaetodipus penicillatus angustirostris</i>	narrow-nosed pocket mouse
<i>Chaetodipus spinatus spinatus</i>	eastern spiny mouse
<i>Dipodomys deserti deserti</i>	desert kangaroo rat
<i>Dipodomys merriami merriami</i>	Merriam's kangaroo rat
<i>Perognathus longimembris longimembris</i>	Mojave little pocket mouse
<i>Neotoma lepida lepida</i>	desert wood rat
<i>Onychomys torridus pulcher</i>	desert grasshopper mouse
<i>Peromyscus crinitus stephensi</i>	desert canyon mouse
<i>Peromyscus eremicus eremicus</i>	cactus mouse
<i>Peromyscus maniculatus sonoriensis</i>	Sonoran deer mouse
<i>Mus musculus domesticus</i>	house mouse
<i>Ammospermophilus leucurus leucurus</i>	white-tailed antelope squirrel
<i>Spermophilus beecheyi parvulus</i>	western Mojave ground squirrel
<i>Spermophilus tereticaudus tereticaudus</i>	Mojave round-tailed ground squirrel
<i>Tamias obscurus davisii</i>	dusky chipmunk
<i>Thomomys bottae rupestris</i>	Coachella Valley pocket gopher
<i>Spilogale gracilis gracilis</i>	western spotted skunk
<i>Taxidea taxus berlandieri</i>	desert badger
<i>Sylvilagus audubonii arizonae</i>	southern desert cottontail
<i>Lepus californicus deserticola</i>	desert black-tailed jackrabbit
<i>Vulpes macrotis arsipus</i>	desert kit fox
<i>Urocyon cinereogenteus scottii</i>	desert gray fox

Source: De Lisle 2000

Presence of desert black-tailed jackrabbit, desert cottontail, round-tailed ground squirrel, and coyote was detected during the natural resources survey area conducted from January 10 to January 14, 2011 (RECON 2011).

Approximately a dozen species of bats inhabit the park (NPS 1995). Bat species known to occur in the vicinity of the project area include pallid bat (*Antrozous pallidus minor*), desert big brown bat (*Eptesicus fuscus pallidus*), western yellow bat (*Lasiurus xanthinus*), California desert bat (*Myotis californicus stephensi*), western pipistrelle (*Pipistrellus hesperus hesperus*), and western mastiff bat (*Eumops perotis californicus*; De Lisle 2003).

Reptile species known to occur within the Pinto Basin portion of the park are shown in Table 4 below.

**TABLE 4. REPTILES KNOWN TO OCCUR WITHIN THE PINTO BASIN AREA OF THE PARK**

Scientific Name	Common Name
<i>Coleonyx variegates variegates</i>	desert banded gecko
<i>Dipsosaurus dorsalis dorsalis</i>	desert iguana
<i>Crotaphytus bicinctores</i>	Great Basin collared lizard
<i>Gambelia wislizenii wislizenii</i>	long-nosed leopard lizard
<i>Sauromalus obesus obesus</i>	western chuckwalla
<i>Callisaurus draconoides rhodostictus</i>	Mojave zebra-tailed lizard
<i>Phrynosoma platyrhinos calidiarum</i>	southern desert horned lizard
<i>Sceloporus magister uniformis</i>	yellow-backed spiny lizard
<i>Uma scoparia</i>	Mojave fringe-toed lizard
<i>Urosaurus graciosus graciosus</i>	western brush lizard
<i>Uta stansburiana elegans</i>	California side-blotched lizard
<i>Xantusia vigilis vigilis</i>	desert night lizard
<i>Cnemidophorus tigris tigris</i>	Great Basin whiptail
<i>Leptotyphlops humilis cahuilae</i>	desert blind snake
<i>Lichanura trivirgata gracia</i>	desert rosy boa
<i>Arizona occidentalis candida</i>	Mojave glossy snake
<i>Arizona occidentalis eburnata</i>	desert glossy snake
<i>Chionactis occipitalis occipitalis</i>	Mojave shovel-nosed snake
<i>Hypsiglena torquata deserticola</i>	desert night snake
<i>Lampropeltis getula californiae</i>	California kingsnake
<i>Masticophis flagellum piceus</i>	red coachwhip
<i>Phyllorhynchus decurtatus perkinsi</i>	western leaf-nosed snake
<i>Pituophis catenifer affinis</i>	Sonoran gopher snake
<i>Pituophis catenifer deserticola</i>	Great Basin gopher snake
<i>Rhinocheilus lecontei lecontei</i>	western long-nosed snake
<i>Salvadora hexalepis hexalepis</i>	desert patch-nosed snake
<i>Salvadora hexalepis mojavensis</i>	Mojave patch-nosed snake
<i>Trimorphodon biscutatus vandenburghi</i>	California lyre snake
<i>Crotalus atrox</i>	western diamondback rattlesnake
<i>Crotalus cerastes cerastes</i>	Mojave Desert sidewinder
<i>Crotalus mitchelli pyrrhus</i>	southwestern speckled rattlesnake

Source: De Lisle 2000

Three reptile species observed during the natural resources survey: the Great Basin fence lizard (*Sceloporus occidentalis longipes*), yellow-backed spiny lizard, and desert side-blotched lizard (*Uta stansburiana stejnegeri*; RECON 2011).

According to the bird checklist for the park, approximately 239 species of birds have been reported (U.S. Geological Survey 2006). Many of these species occur within the palm oases and near springs and human-made water impoundments. Species likely to occur within the project area include, but are not limited to, various hawks, vultures, falcons, quail, doves, owls, hummingbirds, woodpeckers, flycatchers, ravens, wrens, and sparrows.

Birds observed during the natural resources survey included Anna's hummingbird (*Calypte anna*), Say's phoebe (*Sayornis saya*), loggerhead shrike (*Lanius ludovicianus*), verdin (*Auriparus flaviceps acaciarius*), sage sparrow (*Amphispiza belli nevadensis*), and black throated sparrow (*Amphispiza bilineata deserticola*).

The project area also contains suitable habitat for a wide variety of invertebrates. Colonies of harvester ant (*Pogonomyrmex* spp.) and common or checkered white (*Pontia protodice*) butterflies were observed within the project area. More detailed information on the wildlife observed can be found in the natural resources survey report (RECON 2011).

## FEDERALLY LISTED SPECIES AND SPECIES OF SPECIAL CONCERN

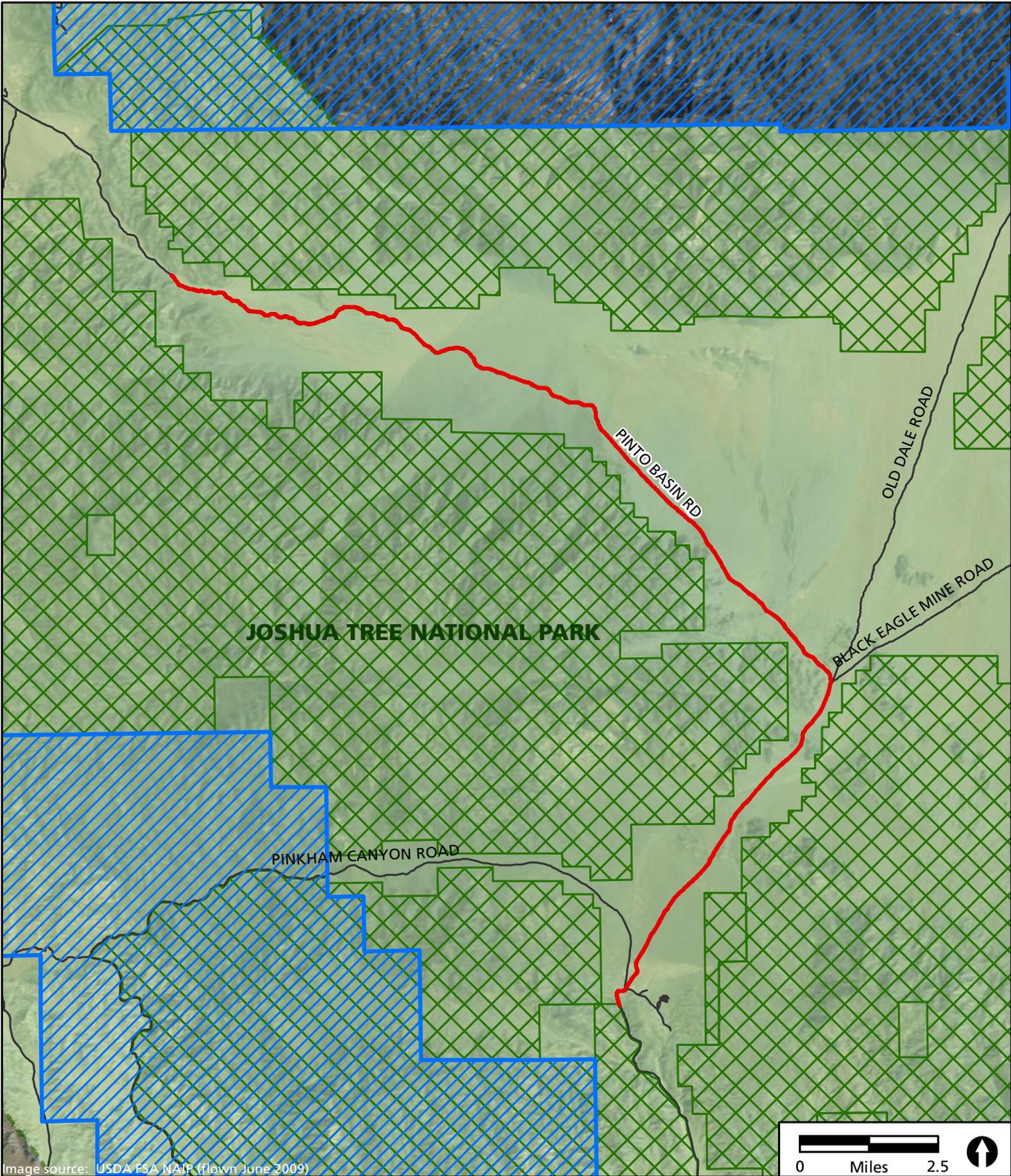
### Federally Listed Species

Under the ESA of 1973, as amended, an endangered species is defined as any species in danger of extinction throughout all or a significant portion of its range. A threatened species is defined as any species likely to become an endangered species in the foreseeable future throughout all or a significant portion of its range.

Section 7 of the ESA directs all federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with the USFWS, to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. A biological assessment was developed as part of the formal consultation process (NPS 2011).

Six federally listed species are known to occur within the park (NPS 2010b). These include the Mojave population of the desert tortoise, least Bell's vireo (*Vireo bellii pusillus*), Southwestern willow flycatcher (*Empidonax traillii extimus*), Parish's daisy (*Erigeron parishii*), triple-ribbed milk-vetch (*Astragalus tricarinatus*), and Coachella Valley milk-vetch (*Astragalus lentiginosus coachellae*). Only the desert tortoise is known to occur within the project area. The remaining five federally listed species known to occur within the park are not expected to occur within the project area due to lack of suitable habitat. Habitat and distribution requirements for these federally listed species and reasons for exclusion from further analysis are presented in Table 5 below.

Critical habitat has been designated for the desert tortoise within the park. Designated critical habitat for this species occurs within 2 miles of the project area (Figure 10). Park lands acquired from the Bureau of Land Management (BLM) in 1994 (under the Desert Protection Act) were previously designated as critical habitat for desert tortoise while under BLM management. Park lands managed prior to 1994 (e.g., Pinto Basin Road area) were not designated as critical habitat because of the USFWS' determination that these areas were already sufficiently protected due to NPS policies, mandates, and the Organic Act. The entire park was designated as a Desert Wildlife Management Area, and all suitable habitats for the desert tortoise in the park should be considered critical habitat (pers. comm. with Michael Vamstad 2010). The entire road project slated for reconstruction is located within moderate to high quality desert tortoise habitat (Nusser et al. 2009).



- Project Area
- Mojave Desert Tortoise Critical Habitat
- Joshua Tree National Park
- Designated Wilderness
- Roads

**FIGURE 10 - Desert Tortoise Critical Habitat within Joshua Tree National Park**

Joshua Tree National Park

United States Department of the Interior / National Park Service

June 2011

**TABLE 5. USFWS FEDERALLY LISTED SPECIES EXCLUDED FROM FURTHER ANALYSIS**

Common Name	Scientific Name	Status	Habitat / Distribution	Reason for Exclusion
Least Bell's vireo	<i>Vireo bellii pusillus</i>	Endangered	Dense shrubs and small trees along rivers and streams	No suitable habitat within project area.
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Endangered	For nesting, requires dense riparian habitats with saturated soils, standing water, or nearby streams, pools, or cienegas. Southwestern willow flycatcher is a summer breeder within its range in the United States.	No suitable habitat within project area.
Parish's daisy	<i>Erigeron parishii</i>	Threatened	Found in dry calcareous (primarily limestone) slopes of the San Bernardino Mountains and in the Little San Bernardino Mountains.	No suitable habitat within project area.
Triple-ribbed milk-vetch	<i>Astragalus tricarinatus</i>	Endangered	Known from eight locations in Riverside and San Bernardino counties, including in the vicinity of Big Morongo, Whitewater, and Agua Alta canyons. Triple-ribbed milk-vetch occurs in Joshua tree woodland and Sonoran desert scrub between 1,500 feet and 2,800 feet.	No suitable habitat within project area.
Coachella Valley milk-vetch	<i>Astragalus lentiginosus coachellae</i>	Endangered	This variety of the highly variable freckled milk-vetch is endemic to Riverside County, where it occurs in creosote scrub in the Coachella Valley, growing on loose blown sands in flats or dunes.	No suitable habitat within project area.

Sources: Bureau of Land Management 2010, California Native Plant Society 2010a, USFWS 1998 and 2011

Records of occurrence for the project area are based on NPS file documents and field notes, published literature sources, technical reports, USFWS records (Appendix A), and the California Natural Diversity Database (State of California 2010).

**Mojave population of the desert tortoise.** The desert tortoise was federally listed as threatened in 1990 (USFWS). Critical habitat was designated on February 8, 1994. A final recovery plan was completed by the USFWS in 1994, and a draft revised recovery plan was released in 2008 (USFWS 2008). The park adopted the management recommendations for Desert Wildlife Management Areas found within the recovery plan, except for fencing (NPS 2000). Joshua Tree National Park is within the Colorado Desert Recovery Unit (Figure 8; USFWS 2008). As shown in Figure 8, designated critical habitat is approximately 2 miles southwest of the southern end of the project area and 2.5 miles northwest of the northern end of the project area. The entire park was designated as a Desert Wildlife Management Area and all suitable habitats for the desert tortoise in the park should be considered critical habitat (pers. comm. with Michael Vamstad 2010).

The desert tortoise is widely distributed throughout the Mojave, Sonoran, and Colorado deserts (Stebbins 1985). In the Mojave region, desert tortoises are primarily associated with flats and bajadas with soils ranging from sand to sandy gravel, but firm enough for the tortoise to construct burrows (USFWS 1994b). The desert tortoise is most commonly found in association with creosote bush scrub with intershrub space for growth of herbaceous plants. However, it may also occur in saltbush scrub, desert wash, desert scrub, and Joshua tree woodlands. The most favorable habitats occur at elevations of approximately 1,000 to 3,000 feet (USFWS 1994b).

The desert tortoise is a large, herbivorous terrestrial reptile. Tortoises feed on a wide variety of herbaceous plants, including cacti, grasses, and annual flowering plants (USFWS 1994b). The bulk of their diet consists of annual wildflowers, annual and perennial grasses, perennial shrubs, and cacti (USFWS 2010a). The adult desert tortoise is active from mid-March or April until about November. During the winter months, tortoises are dormant in underground burrows (USFWS 2008). During the active period, desert tortoises may establish home ranges of approximately 1 square mile (Woodbury and Hardy 1948, as cited in USFWS 2008).

The decline in the desert tortoise population is attributed primarily to habitat loss, degradation, and fragmentation resulting from increased human population and urbanization in the desert and arid regions of the southwestern United States. Another reason for the decline of the desert tortoise is the introduction of an upper respiratory tract disease into many of the wild populations. This disease was thought to have been introduced through the illegal release of captive desert tortoises into the wild (USFWS 1994a). Another threat that has come to the forefront is the increased frequency of wildfire due to the invasion of desert habitats by non-native plant species. Changes in plant communities caused by non-native plants and recurrent fire can negatively affect the desert tortoise by altering habitat structure and species available as food plants (Brooks 1995 and Avert 1998, as cited in USFWS 2008).

### **Joshua Tree National Park Survey Data**

The desert tortoise is known to occur within the park, and the population was estimated at approximately 12,700 in 1988 (Karl 1988, as cited in NPS 2000). Tortoise densities within the park were estimated to be 2.8 per square kilometer (USFWS 2010b). Most areas of the park contain desert tortoise (NPS 2000).

### **Phase I Project Area Survey Data**

A 100 percent presence/absence survey was conducted for the desert tortoise for Phase I of the proposed Pinto Basin Road project in 2010. The linear area surveyed included all areas to be affected directly or indirectly. The survey area included the entire area extending 30 feet out from the edge of the road for the 12.25 miles. All tortoise sightings, including those from the park's observation database that fell within or close to the project area, were mapped by park staff. Based on survey results of this area, the construction would infringe upon habitat occupied by the desert tortoise (NPS 2010d).

The 2010 Phase I survey identified 13 desert tortoise burrows, but no live adult tortoises were found during the survey. None of the burrows were classified as active or recently used. Seven bone fragments were located during the survey, of which six were large enough to be easily identified as desert tortoise. A juvenile tortoise carcass was found approximately 28 feet from the edge of the road (NPS 2010d).

Anecdotal information from the park's wildlife observation records indicates that there were 23 observations of desert tortoise on the roadway on or near the Phase I project area between 2008 and 2010. There were also 10 observations on the roadway within the survey area and 4 observations within 3 miles of either end of the proposed project area (NPS 2010d).

## Line Distance Sampling (2001-2010)

The park has participated in the USFWS’ range-wide monitoring for the desert tortoise since 2001. Results of the line distance sampling conducted within the park are presented in Table 6 below.

**TABLE 6. USFWS LINE DISTANCE SAMPLING RESULTS FOR JOSHUA TREE NATIONAL PARK, CALIFORNIA**

Year	Area (square kilometers)	Number of Transects	Transect Length (kilometers)	Number of Tortoise Observed
2001	1,035	77	123	17 live, 28 dead
2002	332	47	196	11 live, 33 dead
2003	332	50	200	19 live, 34 dead
2004	1,313	23	278	12 live, 57 dead
2005	1,714	50	601	22 live, 60 dead
2007	1,655	12	135	4 (report did not state if alive or dead)
2008	1,567	10	102	4 (report did not state if alive or dead)
2009	1,567	25	244.4	4 (report did not state if alive or dead)
2010	1,567	25	227	6 (report did not state if alive or dead)

Source: USFWS 2010b

## Federal Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act Species

The Migratory Bird Treaty Act (16 USC 703-712) protects migratory birds, and their nests, eggs, young, and parts from possession, sale, purchase, barter, transport, import, and export, and take. For purposes of the Migratory Bird Treaty Act, “take” is defined as “to pursue, hunt, shoot, would, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, would, kill, trap, capture, or collect” (50 CFR § 10.12). It is a strict liability statute wherein proof of intent is not an element of a taking violation. The Migratory Bird Treaty Act applies to migratory birds that are identified in 50 CFR § 10.13 (defined hereafter as migratory birds). Generally speaking, the Migratory Bird Treaty Act protects all birds occurring in the United States except for house (English) sparrows (*Passer domesticus*), European starlings (*Sturnus vulgaris*), rock doves (pigeons; *Columba livia*), any recently listed unprotected species in the Federal Register and non-migratory upland game birds. Many migratory birds, including raptor species, are sensitive to disturbance when nesting and roosting. Should disturbance result in the wounding or killing of adult birds, checks, or eggs, including abandonment of a nest with eggs or young, the activity causing the disturbance would violate the Migratory Bird Treaty Act, thus necessitating additional measures be incorporated into the activities in question to avoid take.

Under the authority of the Bald and Golden Eagle Protection Act (16 USC 668-668d), bald eagles and golden eagles are afforded additional legal protection. “Take” under this statute is defined as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, or molest or disturb.” 50 CFR § 22.3. “Disturb,” is defined as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior.” If a proposed project or action would occur in areas where nesting, feeding, or roosting eagles occur, then project proponents may need to incorporate additional conservation measures into projects to achieve compliance with the Bald and Golden Eagle Protection Act.

## Species of Special Concern

NPS *Management Policies 2006* mandates that state and locally listed species would be managed in the same manner as federally listed species, where feasible. Species of special concern are those species, subspecies, or distinct populations native to California listed by the California Department of Fish and Game. Species of special concern also include plants and animals considered to be sensitive by the park and plants listed by the California Native Plant Society as rare plants. The following 15 species of special concern are known to occur within two miles of the proposed Pinto Basin Road project area based on data obtained from the California Department of Fish and Game RareFind database, park staff, and a natural resources survey within portions of the project area.

**Bendire's thrasher (*Toxostoma bendirei*).** Bendire's thrasher is listed as a California Species of Special Concern. This species is a very local spring and summer resident and breeder found within flat areas of desert succulent shrub and Joshua tree habitats of the Mojave Desert area. Bendire's thrasher is a migrant known to occur in San Bernardino County and western Kern County in California primarily from February to around August, although they can be present year round. This thrasher frequents flat desert areas with scattered stands of thorny shrubs and cactus for cover, foraging, and nesting. Potentially serious threats to this species include harvesting of Joshua tree (*Yucca brevifolia*) and other yuccas, grazing by domestic livestock, urbanization, and off-road vehicle activity within its limited breeding range (California Department of Fish and Game 2005a).

**Le Conte's thrasher (*Toxostoma lecontei*).** Le Conte's thrasher is listed as a California Species of Special Concern. This species is an uncommon to rare local resident in southern California deserts from southern Mono County south to the Mexican border, and in western and southern San Joaquin Valley. Le Conte's thrasher occurs primarily in open desert washes, desert scrub, alkali desert scrub, and desert succulent shrub habitats. It is also known to occur in Joshua tree habitat with scattered shrubs. This thrasher species commonly nests in a dense, spiny shrub or densely branched cactus in desert wash areas (California Department of Fish and Game 2005b). Due to their large home ranges, Le Conte's thrashers are sensitive to habitat fragmentation, degradation, and conversion stemming from a variety of disturbances, including development (urban, agricultural or industrial), heavy off-highway vehicle use, and fire (Great Basin Bird Observatory 2011).

**Loggerhead Shrike (*Lanius ludovicianus*).** The loggerhead shrike is listed as a California Species of Special Concern and is a year-round resident in the park. This species inhabits most of the continental United States and Mexico and is a year-round resident of southern California. The loggerhead shrike prefers open habitat with perches for hunting and fairly dense shrubs for nesting (Yosef 1996). In southern California, loggerhead shrikes inhabit grasslands, agricultural fields, chaparral, and desert scrub (Unitt 2004). Their breeding season is from March to August. Loggerhead shrikes are highly territorial and usually live in pairs in permanent territories (Yosef 1996). Loggerhead shrikes feed on small reptiles, mammals, amphibians, and insects that they often impale on sticks or thorns before eating. Loggerhead shrike populations are declining, likely due to urbanization and loss of habitat and, to a lesser degree, pesticide use (Yosef 1996). Loggerhead shrikes were observed in desert-willow and ocotillo during the natural resources survey conducted from January 10 to January 14, 2011 (RECON 2011).

**Yellow warbler (*Dendroica petechia*).** The yellow warbler is listed as a California Species of Special Concern. This species is known to breed in several southern California mountain ranges and throughout most of San Diego County. Small numbers of yellow warblers regularly overwinter in southern California lowlands and valleys. This warbler is subject to predation by small mammals, accipiters, ravens, and snakes (California Department of Fish and Game 2005c).

**Pallid bat (*Antrozous pallidus*).** The pallid bat is listed as a California Species of Special Concern. This species is locally common at low elevations in California where it occurs throughout the state except for higher elevations. Pallid bats occupy a wide variety of habitats including grasslands, shrublands, woodlands, and forests from sea level to mixed conifer forests. This species is most common in open, dry habitats with rocky areas for roosting with access to open habitats for foraging. Pallid bats are very sensitive to disturbance of roosting sites (California Department of Fish and Game 2005d).

**Western mastiff bat (*Eumops perotis californicus*).** The western mastiff bat is listed as a California Species of Special Concern. This species is known to occur in various portions of California, including southern California. It occurs in many open, semi-arid to arid habitats, including coniferous and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban areas. Suitable habitat consists of extensive open areas with abundant roost locations provided by crevices in rock outcroppings and buildings (California Department of Fish and Game 2005e).

**Pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*).** The pallid San Diego pocket mouse is listed as a California Species of Special Concern. This species is known to occur in Imperial, Riverside, San Bernardino, and San Diego counties in southern California. The preferred habitat for this pocket mouse is chaparral, but they can also be found in open, sandy areas. This pocket mouse prefers moderate canopy coverage of chaparral or arid shrubland areas on or near rocky slopes and sandy areas (California Department of Fish and Game 2005f).

**Nelson's bighorn sheep (*Ovis Canadensis nelsoni*).** Nelson's bighorn sheep are one of three subspecies of bighorn sheep in California. Nelson's bighorn sheep are listed as BLM sensitive species in California, primarily due to their low numbers and sensitivity to human disturbance. This subspecies occurs in desert mountain ranges from the White Mountains of Mono and Inyo counties south to the San Bernardino Mountains, and southeastward to the United States–Mexico border. Bighorn sheep prefer open areas of low-growing vegetation for feeding, with close proximity to steep, rugged terrain for escape, lambing, and bedding, and adequate source of water, and travel routes linking these areas (California Department of Fish and Game 2005g).

**Rosy boa (*Charina trivirgata*).** The rosy boa is listed as a BLM sensitive species in California. It is widely but sparsely distributed in desert and chaparral habitats throughout southern California, south of Los Angeles, from the coast to the Mojave and Colorado deserts. This snake typically occupies habitats with a mixture of a brushy cover and rocky soil such as coastal canyons and hillsides, desert canyons, washes, and mountains (California Department of Fish and Game 2005h).

**Alverson's foxtail cactus (*Coryphantha alversonii*).** The Alverson's foxtail cactus is listed by the California Native Plant Society as a rare plant with a 4.3 ranking (uncommon; not very endangered in California). This species is found in Imperial, Riverside, and San Bernardino counties. Alverson's foxtail cacti are primarily found in sandy or rocky (usually granitic) habitats of Mojavean and Sonoran desert scrub. The California ranking for this species is vulnerable and threatened (California Native Plant Society 2010b). Three Alverson's foxtail cacti were observed during the natural resources survey conducted from January 10 to January 14, 2011 (RECON 2011).

**Coves' cassia (*Senna covesii*).** Coves' cassia is listed by the California Native Plant Society as a rare plant with a 2.2 ranking (rare, threatened, or endangered in California, but more common elsewhere; fairly endangered in California). This species is found in Imperial, Riverside, San Bernardino, and San Diego counties. Coves' cassia is found in Sonoran desert scrub habitat, primarily in sandy areas. The California ranking for this species is critically imperiled and is threatened by vehicles (California Native Plant Society 2010b).

**Hall's tetracoccus (*Tetracoccus hallii*).** Hall's tetracoccus is listed by the California Native Plant Society as a rare plant with a 4.3 ranking (uncommon; not very endangered in California). This species is found in Imperial, Riverside, and San Bernardino counties. Hall's tetracoccus is found in Mojavean and Sonoran desert scrub habitat. The California ranking for this species is vulnerable with no current threats known (California Native Plant Society 2010b). A total of 27 individuals were observed during the natural resources survey conducted January 10 to January 14, 2011 (RECON 2011).

**Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*).** Harwood's milk-vetch is listed by the California Native Plant Society as a rare plant with a 2.2 ranking (rare, threatened, or endangered in California, but more common elsewhere; fairly endangered in California). This species is found in Imperial, Riverside, San Bernardino, and San Diego counties. Harwood's milk-vetch is found in desert dunes and Mojavean desert scrub habitat, primarily in sandy or gravelly areas. This species is potentially threatened by vehicles and development. The California ranking for this species is imperiled and threatened (California Native Plant Society 2010b).

**Las Animas colubrina (*Colubrina californica*).** Las Animas colubrina is listed by the California Native Plant Society as a rare plant with a 2.3 ranking (rare, threatened, or endangered in California, but more common elsewhere; not very endangered in California). This species is found in Imperial, Riverside, and San Diego counties. Las Animas colubrina is found in Mojavean and Sonoran desert scrub habitat. This species is possibly threatened by development. The California ranking for this species is imperiled and vulnerable (California Native Plant Society 2010b).

**Little San Bernardino Mountains linanthus (*Linanthus maculatus*).** Little San Bernardino Mountains linanthus is listed by the California Native Plant Society as a rare plant with a 1B.2 ranking (rare, threatened, or endangered in California; fairly endangered in California). This species is found in Riverside, San Bernardino, and San Diego counties. Little San Bernardino Mountains linanthus is found in Mojavean and Sonoran desert scrub, desert dunes, and Joshua tree woodland habitats. This species is threatened by development, vehicles, and dumping. The California ranking for this species is imperiled (California Native Plant Society 2010b).

**Spear-leaf matelea (*Matelea parvifolia*).** Spear-leaf matelea is listed by the California Native Plant Society as a rare plant with a 2.3 ranking (rare, threatened, or endangered in California, but more common elsewhere; not very endangered in California). This species is found in Imperial, Riverside, San Bernardino, and San Diego counties. Spear-leaf matelea is found in Mojavean and Sonoran desert scrub, primarily in rocky areas. This species is possibly threatened by recreational vehicles. The California ranking for this species is imperiled and threatened (California Native Plant Society 2010b).

**Thorny milkwort (*Polygala acanthoclada*).** Thorny milkwort is listed by the California Native Plant Society as a rare plant with a 2.3 ranking (rare, threatened, or endangered in California, but more common elsewhere; not very endangered in California). This species is found in Riverside and San Bernardino counties. Thorny milkwort is found in chenopod scrub, Joshua tree woodland, and piñon and juniper woodland areas. The California ranking for this species is critically imperiled (California Native Plant Society 2010b). Three thorny milkwort plants were observed during the natural resources survey conducted January 10 to January 14, 2011 (RECON 2011).

## **VISITOR USE / EXPERIENCE, VISITOR SAFETY**

Joshua Tree National Park is a high-profile national park with visitors from all over the world. Located 140 miles east of Los Angeles and just north of Palm Springs, the park follows visitation

patterns associated with those of an urban park. Visitors come to the park to bird-watch, backpack, hike, camp, horseback ride, and rock climb. During wet years, the park offers a vivid display of wildflowers, attracting a higher numbers of visitors (NPS 2001). Park visitation was approximately 1.4 million in 2008. About half the annual visitation takes place between February and May. The locations visited by the majority of visitors to the park include Cholla Cactus Garden and Cottonwood Springs.

The most recent park visitor survey (April 2004) found that 76 percent of those polled lived in California. International visitors, comprising 8 percent of the total visitation, were from Canada (29 percent), Germany (21 percent), England (19 percent), Switzerland (11 percent), and 14 other countries. Eighty-five percent of visitor groups' primary reason for traveling to the area was to visit the park. The most common activities were sightseeing, visiting visitor centers, and dayhiking (NPS 2004). From Pinto Basin Road, visitors have access to relatively unspoiled scenic desert vistas.

Approximately half of all visits are for more than one day, and just less than half for less than one day. The most used visitor services and facilities were directional road signs inside the park, restrooms, and paved roads (NPS 2004).

During the visitor survey, visitor groups were asked how safe they felt from crime against their persons during this visit. Those who reported feeling "somewhat unsafe" or "very unsafe" cited reasons including cars driving at high speeds, lack of marked bicycle lanes, and pull-offs that were too small.

Access to the park is from two major east-west transcontinental arteries. Visitors enter directly from Interstate 10 through the Cottonwood entrance by using the freeway interchange 26 miles east of Indio and travel north 1 mile to reach the south boundary. Travelers from the west on Interstate 10 leave the freeway at the State Route 62 interchange, 16 miles east of Banning, and travel north and east to Joshua Tree, Indian Cove, and Twentynine Palms.

Circulation through the park for public use is over 252 miles of roads; 80 miles of paved and 172 miles of unimproved dirt roads lead the visitor away from developed areas into the desert. With the exception of about five miles in the Indian Cove, Black Rock Canyon, and the Forty-nine Palms area on the north edge of the park, all paved roads in the park are connected.

Increased visitation and inadequate visitor control has had a number of consequences. Roadside damage has resulted from illegal parking. Desert vegetation has been destroyed at campgrounds, around parking areas, and along social trails. The visitor experience has been compromised by conflicting use and overcrowding. Parking in designated parking areas and along road shoulders in the heavily used areas far exceeds capacity during heavy use periods.

Poor road conditions around Cholla Cactus Garden and Porcupine Wash have contributed to approximately 33 personal property accidents, 19 auto accidents, and 2 fatalities. Seven personal property accidents, with 1 resulting in personal injuries within the past five years, can be directly attributed to limited sight distance at or around Cottonwood Visitor Center. According to accident history, run-off-road type accidents seem to be prevalent along Pinto Basin Road (FHWA 2010).

The road around the Cholla Cactus Garden parking area has sharp curves that contribute to poor sight distance, driver hazards, and pedestrian hazards. At the Porcupine Wash area, steep hills combined with sharp curves present limited sight distance. Potentially hazardous steep slopes, hills, and curves are also present just north of the Cottonwood Springs Visitor Center. This visitor center is often

bypassed due to inadequate advance notification and poor roadway geometry and sight distance (FHWA 2010).

The edge of the roadway for a majority of Pinto Basin Road does not provide adequate shoulder width. Also, the existing unpaved road shoulders are very soft in many areas (FHWA 2010). There are no guardrails or other roadside / median barriers along Pinto Basin Road. Parking areas at Cholla Cactus Garden, Ocotillo, and Turkey Flats waysides have no delineation or traffic control and present potential pedestrian hazards (FHWA 2010).

## **ARCHEOLOGICAL RESOURCES**

The park lies at the convergence of two desert systems, the Mojave Desert and the Colorado Desert. The cultural history for these desert systems is described separately below.

### **Mojave Desert**

The Mojave Desert cultural sequence has been divided into five major periods: Lake Mojave, Pinto, Gypsum, Saratoga Springs, and Shoshonean / Protohistoric periods (Warren 1984, Warren and Crabtree 1986). The Lake Mojave period, from 10000 to 7000 B.P., is defined “a generalized hunting and gathering subsistence system” (Warren 1984). The Pinto Period, dating approximately from 7000 to 4000 B.P., is defined by its characteristic Pinto-style projectile point and other tools that suggest a dependence on hunting and gathering. By 4000 B.P., Humboldt Concave Base, Gypsum Cave, Elko Eared, and Elko Corner-notched projectile points appear. Ground stone tools from this time suggest a shift toward an economy based on processing hard seed goods. There are also indications of long-range trade or travel (Warren 1984). The introduction of the Rose Spring and Eastgate projectile points through much of the desert region, as well as brownware and buffware ceramics, reflects the Saratoga Springs Period. Dating from A.D. 500 to 1200, this period is characterized by “more complex settlement-subsistence system with large permanent villages” and increased long-distance networks. Artifact types associated with the Saratoga Springs Period see continued use through the Shoshonean / Protohistoric time period up to the historic period (Warren 1984).

Sutton (1996) presents a slightly altered chronology for the Mojave Desert region, with the first clearly definable period of occupation occurring during the Paleoindian Period (12000 to 10000 B.P.). This period is characterized by Clovis, or Clovis-style, fluted points, which have been associated with the Big Game Hunting Tradition. Sutton’s Rose Springs Period, dating from A.D. 500 to 1000, follows the Gypsum Period and is characterized by Rose Springs and Eastgate projectile points, suggesting more intensive use of desert resources. Sutton’s Late Prehistoric Period, from A.D. 1000 to contact, is characterized by projectile point forms and the introduction of Cottonwood Triangular and Desert Side-notched points, as well as ceramics.

Like others, Hall (2000) suggests a five-stage chronology. Hall begins with the Lake Mojave Period (approximately 10000 B.P. to 7500 B.P.), during which time the Mojave Desert region was occupied by small bands of hunters and gatherers. Great Basin stemmed points and flaked stone crescents mark this period (Hall 2000). Ground stone tools of the Pinto Period (approximately 7500 B.P. to 4500 B.P.) suggest more intensive use of desert resources. The presence of *Olivella* sp. spire-lopped beads suggests long-range travel or trade during this period. Hall (2000) describes the Newberry Period (4000 B.P. to A.D. 500) as one which has “geographically expansive land-use pattern[s] . . . involving small residential groups moving between select localities.” Defining artifact types from this period include Elko and Gypsum contracting stem points and split oval beads. Hall adds a Tecopa Period (A.D. 1200 to contact) as defining the last 1500 years of cultural development. Anasazi grayware ceramics and Rose Springs and Eastgate projectile points are characteristic artifact types for the

period. The Tecopa Period sees a continuation of similar patterns noted during the Saratoga Springs Period, and Cottonwood Triangular and Desert Side-notched projectile points appear, as do buff and brownwares, beads of steatite, glass, and *Olivella* sp., including Thin Lipped, Tiny Saucer, Cupped, and Cylinder styles.

## **Colorado Desert**

Schaefer (1994) presents a four-period cultural sequence for the Colorado Desert: Paleoindian, Early Archaic, Late Archaic, and Late Prehistoric (also termed Patayan and subdivided). The Paleoindian Period (approximately 10000 B.P. to 8000 B.P.) is characterized by settlements atop mesas and terraces by small, mobile bands of hunters and gatherers. Key indicators of this period include cleared circular areas in the desert gravels, gravel pictographs of both the rock alignment and intaglio type (Rogers 1939), and very simple stone tools.

The Early Archaic Period (8000 B.P. to 4000 B.P.) and Late Archaic Period (4000 B.P. to A.D. 500) appear to have been thinly populated with a population decline beginning in the Early Archaic. Group sizes in both periods were flexible and their settlement patterns were based on seasonally available food sources. Ground stone tool production and use greatly expands during this period. Characteristic artifact types of the Late Archaic include large spear and dart points, basketry, nets, traps, split-twig figurines, and other perishable items (Altschul 1994).

Schaefer's last cultural phase, the Late Prehistoric or Patayan, features ceramic technology, cremation funerary patterns, and an extensive trail system. During Patayan I (A.D. 800 to 1050), people organized in small mobile groups along the Lower Colorado River and used a Hohokam-style tool kit. The Patayan II Period (A.D. 1050 to 1500) is notable for the infilling of Lake Cahuilla, which encouraged population shifts towards the floodplain and along the western and eastern regions of the desert. Ceramic production also shifted from the Lower Colorado River towards a more local manufacture. Patayan III (approximately A.D. 1500 to historic times) is marked by the drying out of Lake Cahuilla and the return of small mobile bands subsisting on seasonal hunting and gathering as well as on small-scale agriculture. Contact with European explorers is made during this period.

## **Ethnohistory**

**Prehistoric Period.** During the late prehistoric period, the Cahuilla used the area south and west of the park, establishing a boundary running through the Little San Bernardino Mountains and across the Cottonwood and Eagle mountains. The Chemehuevi used the eastern portion of the park in their travels. Beginning at a junction with the Cahuilla boundary near Hayfield dry lake, the border between the Chemehuevi on the east and the Serrano to the west runs northerly, crossing the Eagle Mountains, through the Pinto Basin, and across the Pinto Mountains. The Serrano used areas of the park north of the Cahuilla's northern boundary and west of the Chemehuevi's western boundary (Kroeber 1925; King 1975; Bean 1978; Bean and Smith 1978).

The Cahuilla are a Takic-speaking group. Their territorial range encompassed much of the geographic center of southern California, from the Colorado Desert north of the Chocolate Mountains and across to Borrego Springs, westerly along Palomar Mountain, northerly to the Santa Ana River near Riverside, then easterly along the San Bernardino Mountains to Orocopia Mountain, and the San Jacinto and Santa Rosa mountains (Bean 1978). The Cahuilla men hunted game using nets, blinds, drives, bow and arrow, snares, traps, and clubs. Women collected acorns, mesquite, screw beans, piñon nuts, a variety of seeds, wild fruits, roots, tubers, and berries (Bean 1978). Lawton and Bean (1968) noted that the Cahuilla also harvested "corn, beans, squashes, and melons of the types used by the neighboring Colorado River tribes . . ." Due to their location, the Cahuilla generally remained

outside Spanish and other Euro-American forays into southern California (Bean 1978) until development of *asistencias* in San Bernardino, Santa Ysabel, and Pala in the early 1800s.

The Chemehuevi, who are considered a subgroup of the Southern Paiute, occupied territory west of and along the Colorado River (Kelly and Fowler 1986). King (1975) notes that Chemehuevi presence within the park is “obscure” and appears to be sporadic and possibly as late as 1867 following an attack on the Mojave (Miller and Miller 1967). Southern Paiute, and by extension Chemehuevi social organization, was based on the “band” concept, with groupings of bands forming one of the 16 larger subgroups (Kelly and Fowler 1986). The Chemehuevi traveled widely and maintained relationships with the Kawaiisu, Serrano, Vanyume, Cahuilla, and Diegueño (Kelly and Fowler 1986), providing opportunities for trade. By the time of contact with European explorers and settlers, the Chemehuevi had established floodplain farming adopted from their Mojave neighbors (Kelly and Fowler 1986). Once the reservation system was established during the latter half of the nineteenth century, many Chemehuevi groups were removed to the Colorado River Reservation, although many others preferred to remain within their historic territories near Blythe, Needles, Beaver Lake, and Chemehuevi Valley (Kelly and Fowler 1986).

The Serrano (Spanish for “mountaineer” or “highlander”), also a Takic-speaking group (Bean and Smith 1978), established “village-hamlets” which were most frequently found in the foothills of the Upper Sonoran life-zone. Others could be found near permanent water sources along the desert floor (Bean and Smith 1978). Serrano women were gatherers of acorns, piñon nuts, honey, mesquite, and cacti fruits, while the men were hunters and fishers, taking deer, mountain sheep, rabbits, rodents, birds, and fish when available (Bean and Smith 1978). Serrano lifeways were severely interrupted when the mission *asistencia* was established near Redlands in 1819. Between that time and mission secularization in 1834, most western Serrano had been removed from their traditional territories. Northeast of the San Gorgonio Pass, however, the Serrano population was numerous and strong, maintaining their cultural patterns (Bean and Smith 1978).

**Historic Period.** In 1772, a Spanish army officer and commander of California’s Spanish force named Pedro Fages was likely the first European to breach the hostile desert barrier as he chased after a band of runaways from the presidio at San Diego and into San Bernardino Valley, crossing over to the high desert near Cajon Pass, and entering the Mojave Desert before proceeding on to the south end of San Joaquin Valley, and then on to Monterey (Greene 1983). Between 1774 and 1776, Captain Juan Bautista de Anza and Father Garcés were tasked with establishing an overland route from Sonora, Mexico, and a colony in San Francisco. During the 1775 trip, de Anza split off from the main group at Yuma. He then traveled along the Colorado trail up to the Mohave nation near present-day Needles, and crossed the width of the Mojave Desert via the Mojave Indian Trail, becoming the first European to do so (Greene 1983).

By the 1820s, the Spanish government realized the need to establish a safe and fast route between their settlement at Tucson and the California coastal missions as means of strengthening their hold on California (Greene 1983). The Romero expedition of 1823, led by Captain Jose Romero, was to establish “a road over which colonists and soldiers carrying mail and supplies could travel” as a replacement to the Anza Road, which had been abandoned more than 40 years earlier (Greene 1983). The expedition followed the Cocomaricopa Trail, which the Coco-Maricopa Indians used to travel to and from the Colorado River, traveling from San Bernardino east through the San Gorgonio Pass, Cabazon, and Palm Springs to Dos Palmas. After skirting along the southern margins of the Eagle Mountains, and having reached the mouth of the Pinto Wash, Romero decided that he was lost, and returned to San Gabriel Mission. After a second expedition failed, Romero concluded that the Cocomaricopa trail was unsuitable for the task of transporting mail and supplies (Greene 1983).

Between the beginning of Mexican rule in 1824 and the onset of the Gold Rush era, only a few non-Indian people traveled through the area, and those that did—such as Jedediah S. Smith (1826 and 1827), John C. Fremont and Kit Carson (1844), and the Mormon Battalion (1846)—used the Mojave Indian Trail, well away from the park. It was not until the gold strike of 1849 that there was an effort to more fully explore the Mojave and Colorado deserts (Greene 1983).

Although gold and other precious and not so precious metals have been found throughout California before the Gold Rush of 1849-1850, it was not until the 1870s that prospecting began in earnest within the bounds of the park (Greene 1983). The area in and around the park supported numerous mining districts, including Twentynine Palms, Washington, Gold Park, Piñon, Cottonwood, Eagle Mountain, Monte Negras, Rattler, and Dale (Greene 1983). By the 1890s, haul roads were developed, linking the remote mining districts with towns such as Indio and Mecca. Teamsters, using as many as 16 horses pulling double wagons, as well as a feed wagon, were hauling in supplies and bringing out ore by the tons for miners located all over the park (Greene 1983).

Following the decline of major mining operations, many of the haul roads served as corridors for the desert homesteaders and enthusiasts that moved to or visited the desert, particularly around the oasis in Twentynine Palms. Greene notes several names for the routes listed on various maps that eventually would become Pinto Basin Road. These include “Eldorado Mine from Mecca Via Cottonwood Spring”, “Mecca to Cottonwood Spring, Iron Chief Mine, Dale, Eldorado Mine, Pinyon Well, and Indio”, “Cottonwood Spring to Eldorado Mine and Pinyon Well”, and “Eldorado Mine to Twenty-Nine Palms by way of White Tank” (Greene 1983).

Despite the distance between service areas and the shifting nature of the road system within the desert, people still visited the area to see its wonders. Others came to extract the park’s resources, such as its namesake trees and its array of cacti. Sensing peril for this landscape, Minerva Hamilton Hoyt organized the International Deserts Conservation League and began to push for the establishment of a National Park. By 1936, the area was federally recognized and set aside as the Joshua Tree National Monument (Greene 1983). Early efforts to improve the road network to accommodate automobile travel were stymied by legal issues within the monument. The federal government would not allow the expenditure of funds to improve roads whereby inholders would realize a profit through the improvement, but Congress also would not authorize sufficient funds to buy out these property holders. By 1940, it was recognized that the monument’s road system was not robust enough to handle the increased automobile traffic, and planning was begun to improve the roadways. Only roads that were preferred to become the principal routes through the monument were scheduled for improvement in 1941. By 1945, it was recognized that the oil-base covering and existing road alignments were insufficient, and more durable surfaces were laid on less hazardous alignments (Greene 1983).

The period from the 1940s through the 1970s witnessed the development of the park’s recreational and camping facilities. Numerous campgrounds were established and improved, leading to increased visitation (Greene). In 1994, President Bill Clinton signed The California Desert Protection Act, changing the status of Joshua Tree National Monument to a National Park, and added some 234,000 acres to its administration. In 2010, the park hosted some 1,425,430 visitors, its second highest total (NPS 2010c).

## **Archeological Surveys and Historical Studies**

**Records Search and Survey.** A cultural resources survey pursuant to Section 106 (16 USC 470) was conducted in the fall of 2010. Based on a records search provided by the park, there were 64 isolates and 10 sites previously recorded within the search boundary. During the survey, archeologists recorded 135 new isolates and 40 new sites within the proposed project area. An area of potential effect (APE) was established as a 50-meter-wide corridor on either side of the center line of the

proposed road alignment. The APE was widened to 100 meters on both sides of the center line at the following project area locations: Cottonwood Visitor Center, Pinkham Intersection; Porcupine Wash; Fried Liver Wash/Turkey Flat; and Cholla Cactus Garden.

Of the previously recorded isolates, 33 were collected during previous field efforts. The remaining 31 isolates were non-collectable. Attempts were made to revisit all sites identified in the records search, using both mapped locations on site forms and park geographic information system (GIS) data. Three sites were found to be outside the APE. One site appears to have been destroyed by development, as previously documented.

**Types of Sites.** Survey efforts revealed 34 previously unidentified prehistoric deposits. These are comprised of 14 sparse lithic scatters, 11 artifact scatters, 3 large artifact scatters, 3 lithic reduction stations, 1 pot drop, and 2 sparse artifact scatters spatially associated with 2 historic-period sites.

Survey efforts also revealed eight previously unidentified historic and multi-component sites and one previously recorded historic-period site. These comprise four trash scatters, two trash scatters with spatially associated sparse artifact scatters, two prospects, and one mining complex.

A total of 135 new isolates were identified within the APE, and 8 other isolates had been previously identified. Among the recorded isolates are 17 survey monuments; 17 road segments or cuts; 6 water control features; 41 instances of debitage; 28 ceramics; 17 tools including retouched flakes, cores, core fragments, assayed cobbles, manos, and metates; 9 bifaces or projectile points; and 8 combined artifact classes.

In addition, there is a class of artifact—*ejecta*—that was identified but not documented as it is not considered significant. *Ejecta* are isolated, mass-produced items that may have been thrown out a car window, fallen off a passing vehicle, or deposited by a person traveling along the road, but without establishing a campsite. These are frequently seen on the margin of a roadway in urban settings. *Ejecta* are not likely to retain sufficient situational information to help identify events or persons that may have made significant contributions to the broad patterns of history, nor do singular items generally possess sufficient information to help our understanding of history.

**National Register Status.** The proposed action is an undertaking as defined in 36 CFR 800.16 [y]. Section 106 of the NHPA, as implemented (36 CFR Part 800), requires federal agencies to take into account the effects of their undertakings on historic properties. Separate documentation has been prepared to comply with Section 106 and 36 CFR Part 800.

Under the Section 106 process, NPS is obliged to identify cultural resources within the proposed project's APE, to assess impacts to resources listed in, or eligible for listing in, the National Register, and to mitigate adverse effects to such resources. A resource must qualify under one or more criteria (discussed below) to be considered eligible for National Register listing.

A property that qualifies for the National Register is considered significant in terms of the planning process under the NHPA, NEPA, and other federal mandates. The National Register Criteria for Evaluation (36 CFR 60.4) provides guidance in determining a property's eligibility for listing on the National Register. This states that the quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. is associated with events that have made a significant contribution to the broad patterns of our history; or

- B. is associated with the lives of persons significant in our past; or
- C. embodies the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction; or
- D. has yielded, or may be likely to yield, information important in prehistory or history [36 CFR 60.4].

To be eligible, sites must also have integrity. For Criteria A, B, and C, integrity means that the property must evoke the resource's period of significance to a non-historian or non-archeologist. If site materials have been removed or vandalized to the extent that an ordinary citizen can no longer envision or grasp the historic activities that took place there, the site is said to lack integrity. Typically, archeological sites qualify for eligibility under Criterion D, research potential, so integrity in this case means that the deposits are intact and undisturbed enough to make a meaningful data contribution to regional research issues.

In most cases, an archeological testing and evaluation phase investigation is needed to determine eligibility. This usually involves instrument mapping with a global positioning system unit and excavation and ancillary studies such as radiocarbon dating, pollen analysis, macrobotanical analysis, lithic analysis, faunal analysis, and so on. However, at the survey level, one can make provisional recommendations based on site attributes noted on the site surface. A formal testing and evaluation program would be necessary to definitively document the presence or absence of subsurface deposits and the specific research potential of each site.

Of the 47 sites (7 previously recorded and 40 newly recorded) within the project APE, 23 sites have been recommended, but not formally determined, eligible for the NRHP; 22 sites have not been recommended eligible for the NRHP, one site has been previously determined eligible, and one site could not be determined, because it was not relocated.

Cultural isolates are not considered significant, because they generally lack qualities that would qualify them for listing in the National Register. The 143 isolates identified during the survey are not considered eligible for listing on the National Register.

## **CULTURAL LANDSCAPES**

In the broadest sense, a cultural landscape is a reflection of human adaptation and use of natural resources. A cultural landscape is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. Natural features such as landforms, soils, and vegetation not only form part of the cultural landscape, but also provide the framework within which it evolves. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions (NPS 2008b). The project area contains one recognized cultural landscape, the Hexie Mountain Mining Historic District, which is described in more detail below.

### **Hexie Mountain Mining Historic District**

The Hexie Mountain Mining Historic District was found eligible for inclusion on the National Register under Criterion A by NPS and the California State Historic Preservation Officer in 2008. Located near the center of the park, it comprises 3,277 acres, and is defined as "a cluster of Depression-era mine sites bound by geographic proximity and similar mining technologies" (NPS

2008b). The period of significance for the Hexie Mountain Mining Historic District is defined as being between 1934 and 1942.

There are 12 contributing mine sites located within the Hexie Mountain Mining Historic District. Each of these mining sites contain elements such as roads, footpaths, rock walls, shafts, adits, and standing and collapsed buildings and structures that contribute to the cultural landscape. Of the 12 contributing sites, 4 sites—Gold Point Mine Site, Unknown Mine Site #1, Sunshine Lode Mining Claim Site, and Golden Bee Mine Site—are within the APE of the proposed project. The Gold Point Mine Site is located on the western margin of Pinto Basin Road. Unknown Mine Site #1 overlooks Pinto Basin Road to the south. The Sunshine Lode Mining Claim Site is approximately one-half mile southwest of Pinto Basin Road, while the Golden Bee Mine Site is approximately 1.4 miles south of the road.

There are numerous individual elements within each contributing site, but not all are found within the APE. Access road segments of the Gold Point Mine and the Golden Bee Mine sites are close to the existing road alignment. An access road segment at Gold Point Mine Site is situated next to an existing informal pullout along Pinto Basin Road and an access road segment leading to the Golden Bee Mine Site is adjacent to the roadway alignment. The access roads to the Unknown Mining Site #1 and the Sunshine Load Mining Claim Site are situated immediately adjacent to Pinto Basin Road.

## **PARK MANAGEMENT / OPERATIONS**

Facility operations are activities required to manage and operate the park's infrastructure on a daily basis. Buildings, roads, trails, utilities, and campgrounds require a range of operational activities from basic sanitation to snow plowing to water testing.

Facility operations refers to the quality and effectiveness of the infrastructure, and the ability to maintain the infrastructure used in the operation of the parks in order to adequately protect and preserve vital resources and provide for a positive visitor experience.

Parking areas / waysides within the project area include Cholla Cactus Garden, Ocotillo, Turkey Flats, Desert Governor, Silver Bell Mine, Geology, Desert Wash, and Porcupine Wash. Most of the waysides include exhibits and trailheads. The majority are unpaved and require occasional maintenance.

Pinto Basin Road, within the project area, requires regular maintenance to repair cracks, potholes, roadway edges, and soft shoulders. The project area also includes 15 low-water crossings that require routine maintenance (sand and debris removal from roadway, repair of crossing edges), particularly after rain events.

## ENVIRONMENTAL CONSEQUENCES

### METHODOLOGY

This section analyzes the potential environmental consequences that would occur as a result of implementing Alternative A (No-action Alternative) or Alternative B (Preferred Alternative). Potential impacts are described in terms of type, context, duration, and intensity. General definitions are defined as below, whereas more specific impact thresholds are given for each resource at the beginning of each resource section.

This section also includes the framework for the impact analysis, including key assumptions, parameters or measures of impact, and analytical techniques or approaches. Overall, NPS based these impact analyses and conclusions on the review of existing literature and park studies, information provided by experts within the park and other agencies, professional judgments, park staff insights, consultation with the state historic preservation office and interested local Tribes, and public input.

#### Type

Impacts can be beneficial or adverse. Beneficial impacts would improve resource conditions; adverse impacts would deplete or negatively alter resources.

#### Context

Context is the affected environment within which an impact may occur, such as local, parkwide, regional, global, affected interests, society as a whole, or any combination of these. Context is variable and depends on the circumstances involved with each impact topic. The CEQ requires that impact analyses include discussions of context.

#### Impact Intensity

Impact intensity is the degree to which a resource would be beneficially or adversely affected. The criteria that were used to rate the intensity of the impacts for each resource topic is presented later in this section under each topic heading.

#### Duration

The duration of an impact is the time period for which the impact is evident and is expressed as short term or long term. A short-term impact would be temporary in duration and would be associated with road construction activities. Depending on the resource, impacts may last as long as construction takes place, a single year, a growing season, or longer. The duration for each resource topic is presented later in this section under each resource topic heading.

#### Direct and Indirect Impacts

Both direct and indirect impacts are analyzed, consistent with CEQ regulations (40 CFR 1502.16) and DO-12. The following definitions of direct and indirect impacts are used but not specifically identified in the environmental analysis:

*direct* – an effect that is caused by an action and occurs at the same time and place

*indirect* – an effect that is caused by an action but is later in time or farther removed in distance, but still reasonably foreseeable

## **CUMULATIVE EFFECTS**

The CEQ regulations, which implement NEPA, require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as “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 actions” (40 CFR 1508.7). Cumulative impacts are considered for both Alternative A (No-action Alternative) and Alternative B (Preferred Alternative).

### **Projects that Make Up the Cumulative Impact Scenario**

Cumulative impacts were determined by combining the impacts of either Alternative A (No-action Alternative) and Alternative B (Preferred Alternative) with other past, present, and reasonably foreseeable future actions. Given this, the following actions were identified for the purpose of conducting the cumulative effects analysis.

**Past Actions.** Past projects include: the rehabilitation and reconstruction of Keys View Road from the Park Boulevard intersection (Route 12 near Cap Rock) to Keys View Overlook; chip seal of Indian Cove and Black Rock roads; chip seal of Pinto Basin Road from approximately mile post 31 to mile post 37; development of the Cottonwood Springs Visitor Center; Joshua Tree National Park *Fire Management Plan*; Joshua Tree National Park *Backcountry and Wilderness Management Plan*; Rehabilitation of Park Boulevard (Route 12) from Quail Springs picnic area to Cap Rock intersection; and Rehabilitation of Park Boulevard (Route 12) from the Cap Rock intersection to Geology Tour Road.

**Present and Future Actions.** Present actions include: maintenance of Pinto Basin Road (e.g., pothole repair, shoulder grading, shoulder edge repair); archeological and biological resource surveys along Pinto Basin Road; recreational activities, including camping, hiking, wildlife viewing, and use of paved and unpaved roads by visitors; and maintenance of visitor facilities (e.g., wayside signs, restrooms, parking areas and pullouts); implementation of the Joshua Tree National Park *Fire Management Plan* (2005); and implementation of the Joshua Tree National Park *Backcountry and Wilderness Management Plan* (2000). Future actions include: mine closures (abandoned mine lands to be closed); update of the 1995 *General Management Plan*; rehabilitation and chip seal of other park roads; and installation of new wayside exhibits. Private and public lands adjacent to the park are currently and will likely continue to be subjected to increased development and urbanization.

## **IMPAIRMENT OF PARK RESOURCES OR VALUES**

In addition to determining the environmental consequences of implementing the preferred and other alternatives, NPS *Management Policies 2006* (section 1.4) requires analysis of potential effects to determine whether or not proposed actions would impair a park’s resources and values.

The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid or minimize to the greatest degree practicable adverse impacts on park and monument resources and values. However, the laws do give NPS management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected

resources and values. Although Congress has given NPS management discretion to allow certain impacts within parks, that discretion is limited by statutory requirement that NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise.

The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including opportunities that otherwise would be present for the enjoyment of those resources or values. An impact to any park resource or value may constitute impairment. However, an impact would more likely 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; or
- identified as a goal in the park's master plan or general management plan or other relevant NPS planning documents.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated.

Impairment may result from visitor activities; NPS administrative activities; or activities undertaken by concessioners, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park.

Impairment findings are not necessary for visitor experience, socioeconomic, public health and safety, environmental justice, land use, and park operations, because impairment findings relate back to park resources and values. The determination of impairment for the preferred alternative is found in Appendix B.

## **IMPACT ANALYSIS**

### **Geological Resources – Soils**

**Thresholds.** Analyses of the potential intensity of impacts to soils were derived from the available soils information and park staff's past observations of the effects on soils from both visitor use and construction activities, and professional judgment. The thresholds of change for the intensity of impacts to soils are defined below.

***Negligible Impacts.*** Impacts that are at the lowest levels of detection and cause very little or no physical disturbance / removal, compaction, or unnatural erosion when compared with current conditions are negligible impacts. Alteration to geology and / or soils would be so slight that it would not affect the soils ability to sustain biota, water quality, and hydrology. Geology and soils would be consistent with historical or baseline conditions.

***Minor Impacts.*** Impacts that are slight but detectable in some areas, with few perceptible effects of physical disturbance / removal, compaction, or unnatural erosion of soils are minor impacts. Alteration to geology and / or soils would affect its ability to sustain biota, water quality, and

hydrology. Slight alterations in geology and soils would be consistent with historical or baseline conditions. Mitigation measures, if needed to offset adverse impacts, would be simple and successful.

***Moderate Impacts.*** Impacts that are readily apparent in some areas and have measurable effects of physical disturbance / removal, compaction, or unnatural erosion of soils are moderate impacts. Alteration to geology and / or soils would affect its ability to sustain biota, water quality, and hydrology. Alterations to geology and soils may occur. Mitigation measures, if needed to offset adverse impacts, could be extensive but would likely be successful.

***Major Impacts.*** Impacts that are readily apparent in several areas and have severe effects of physical disturbance / removal, compaction, or unnatural erosion of soils are major impacts. Alteration to geology and / or soils would have a lasting impact on its ability to sustain biota, water quality, and hydrology. Extensive mitigation measures would be needed to offset any adverse impacts and their success could not be guaranteed.

***Short-term Impact.*** Short-term impacts recover in less than three years.

***Long-term Impact.*** Long-term impacts take three or more years to recover.

***Alternative A: No-action Alternative.*** Selection of the No-action Alternative would represent a continuation of current conditions. As no action would be taken in this alternative, Pinto Basin Road would not be rehabilitated or reconstructed. Surface soils would continue to be susceptible to erosion from wind and water. Impacts to soils may occur when vehicles inadvertently leave the roadway (i.e., not within designated areas), potentially causing disturbance and compaction of soils along the roadway edge. Additionally, periodic park maintenance of the roadway would include grading, potentially disturbing soils adjacent to roadway shoulders. These impacts may be slightly detectable in some areas and result in soil erosion and compaction. These alterations may also result in the soils inability to sustain biota in the disturbed areas. The soils impacts would be localized along the length of the roadway and would be consistent with historical or baseline conditions. Based on the intensity definitions, impacts to soils from the No-action Alternative would be short- and long-term, minor adverse impacts to soils in the vicinity of the roadway.

***Cumulative Impacts.*** Past, present, and reasonably foreseeable future actions with the potential to affect soil resources include past roadway improvement projects and ongoing road maintenance activities. These activities include rehabilitation and reconstruction of roadways, pothole repair, chip sealing, shoulder grading, shoulder edge repair, and recreational development (such as kiosks, trailheads, visitor centers, and waysides). These roadway maintenance and recreational development activities would continue and may increase due to continued deterioration of the roadway and visitor use. Future activities would also likely include rehabilitation and reconstruction of other roadways within the park. Reconstruction, rehabilitation, development, and maintenance actions have the potential to affect soil resources by disturbance, compaction, and increased erosion of soils. These impacts may also result in the inability of disturbed soils to sustain biota. The overall cumulative impacts to soils from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative, would be short- and long-term, minor adverse, and at a local scale.

***Conclusion.*** Under the No-action Alternative, existing conditions would result in short- and long-term, minor, localized adverse impacts to soils in the vicinity of the roadway. Cumulative impacts, including the No-action Alternative, would be short- and long-term, minor, adverse and at a local scale. Implementation of this alternative is consistent with §1.4.7.1 of NPS *Management Policies* 2006.

**Alternative B: Preferred Alternative.** Under the Preferred Alternative, Phases I and II of the project would include road realignment and reconstruction within the Cholla Cactus Garden area, Porcupine Wash area, and an area south of the Cottonwood Visitor Center. Smaller curves and hills or steep slopes with limited or restricted sight distance along Pinto Basin Road would also be reconstructed. Rehabilitation along other portions of Pinto Basin Road would occur within the existing roadway bench. Paving of parking areas and waysides would also occur. Staging for construction activities would occur within previously disturbed areas. Total new soil disturbance would be approximately 6.2 acres. These impacts would be readily detectable in the disturbed areas, would have measurable effects on physical disturbance and removal of soils, and result in soil erosion and compaction. These alterations would also result in the inability of the soils to sustain biota in the disturbed areas. The soils impacts would be localized to the approximately 6.2-acre disturbance area.

Although surface soils would continue to be susceptible to erosion from wind and water, paving of the parking areas and waysides would reduce soil erosion and thus provide long-term and beneficial impacts. Rehabilitation (revegetation and mulching) of approximately 1 acre along the roadway would also provide long-term and beneficial impacts to soils in the project area. In addition, mitigation measures for soil impacts under the Preferred Alternative would reduce impacts and protect park resources. The Preferred Alternative would result in impacts that would be localized within the project area, short- and long-term, moderate adverse, and minor beneficial.

**Cumulative Impacts.** Past, present, and reasonably foreseeable future actions with the potential to affect soil resources include past roadway improvement projects and ongoing road maintenance activities which include rehabilitation and reconstruction of roadways, pothole repair, chip sealing, shoulder grading, and shoulder edge repair. These roadway maintenance activities would continue and may increase due to continued deterioration of the roadway. Future activities would also likely include rehabilitation and reconstruction of other roadways within the park. Reconstruction, rehabilitation, and maintenance actions have the potential to affect soil resources by disturbance, compaction, and increasing erosion of soils. These impacts may also result in the inability of disturbed soils to sustain biota. Ground disturbance associated with construction activities such as roadway reconstruction, and recreational development within the park would have localized effects, but the soil character over a large area would not change. Rehabilitation efforts conducted under some past, present, and future actions, including rehabilitation of 1 acre of disturbed areas and mitigation measures under the Preferred Alternative, would result in beneficial effects to soil resources. The overall cumulative impacts to soils from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be short- and long-term, moderate adverse, minor beneficial, and at a local scale.

**Conclusion.** Under the Preferred Alternative, impacts to soils would be readily detectable in the approximately 6.2 acres of newly disturbed area, would have measurable effects on physical disturbance and removal of soils, and result in soil erosion and compaction. These alterations would also result in the soils inability to sustain biota in the disturbed areas. Rehabilitation (revegetation and mulching) of approximately 1 acre along the roadway as well as mitigation measures incorporated into the proposed action would provide long-term and beneficial impacts to soils in the project area. The Preferred Alternative would result in impacts that would be localized within the project area, and would be short- and long-term, moderate adverse, and short- and long-term, minor beneficial, and at a local scale. Cumulative impacts, including the Preferred Alternative, would be short- and long-term moderate adverse, short- and long-term minor beneficial, and at a local scale. Implementation of this alternative is consistent with §1.4.7.1 of NPS *Management Policies* 2006.

## Vegetation

**Thresholds.** Impacts to vegetation resources were determined based on the following impact definitions and thresholds.

***Negligible Impacts.*** No native vegetation would be affected or some individual native plants could be affected as a result of the alternative, but there would be no effect on native species populations.

***Minor Impacts.*** Direct effects would occur to some individual native plants as a result of the alternative. Alternative would: affect a relatively small portion of the species' population; result in short-term changes in plant species composition and / or structure consistent with expected successional pathways of a given plant community from a natural disturbance event; or result in an increase in invasive species in limited locations. Mitigation to offset adverse effects could be required and would be effective.

***Moderate Impacts.*** The alternative would result in effects on some individual native plants along with sizable segment of the species population; changes in plant species composition and / or structure consistent with expected successional pathways of a given plant community from a natural disturbance event; and increases in invasive species that do not jeopardize the overall native plant communities. Mitigation to offset adverse effects could be extensive, but would likely be successful.

***Major Impacts.*** The alternative would result in considerable direct effects on native plant populations; would affect populations inside and outside the park; or would result in widespread increase in invasive species that jeopardizes native plant communities. Mitigation measures to offset the adverse effects would be required, extensive, and success of the mitigation measures would not be guaranteed.

***Short-term Impact.*** Short-term impacts recover in less than three years.

***Long-term Impact.*** Long-term impacts take three or more years to recover.

**Alternative A: No-action Alternative.** Selection of the No-action Alternative would represent a continuation of current conditions. Native vegetation could continue to be affected if vehicles inadvertently leave the roadway. Vegetation may be trampled, crushed, and could be destroyed should vehicles leave the roadway in non-designated areas. Individual native plants would be impacted, but large numbers of the population would likely not be affected. The roadway would likely continue as a corridor of dispersal for non-native invasive plants, but would not likely result in an increase in invasive species overall. The No-action Alternative would result in impacts to individual native plant species (a relatively small portion of species populations), but there would be no effect on native species populations as a whole. Under No-action Alternative, existing conditions would constitute short- and long-term, minor, adverse impacts to vegetation.

***Cumulative Impacts.*** Past, present, and reasonably foreseeable future actions with the potential to affect vegetation resources include past roadway improvement projects and ongoing road maintenance activities. These activities include rehabilitation and reconstruction of roadways, pothole repair, chip sealing, shoulder grading, shoulder edge repair, and recreational development (such as kiosks, trailheads, visitor centers, and waysides). These roadway maintenance and recreational development activities would continue and may increase due to continued deterioration of the roadway and visitor use. Future activities would also likely include rehabilitation and reconstruction of other roadways within the park. Reconstruction, rehabilitation, development, and maintenance actions have the potential to affect vegetation resources by disturbance and mortality of native plant species as well as an increase in the spread of invasive species. The overall cumulative impacts to vegetation resources

from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be short- and long-term, minor, adverse, and at a local scale.

**Conclusion.** Under the No-action Alternative, existing conditions constitute short- and long-term, negligible, adverse impacts to vegetation in the vicinity of the roadway. The overall cumulative impacts from past, present, and reasonably foreseeable future impacts, in combination with the No-action Alternative, would be short- and long-term, minor, and adverse. Implementation of this alternative is consistent with §1.4.7.1 of NPS *Management Policies* 2006.

**Alternative B: Preferred Alternative.** Under the Preferred Alternative, Phases I and II of the project would include road realignment and reconstruction within the Cholla Cactus Garden area, Porcupine Wash area, and an area south of the Cottonwood Visitor Center. Smaller curves and hills or steep slopes with limited or restricted sight distance along Pinto Basin Road would also be reconstructed. Rehabilitation along other portions of Pinto Basin Road would occur within the existing roadway bench. Paving of parking areas and waysides would also occur. Staging for construction activities would occur within previously disturbed areas. Total new soil disturbance would be approximately 6.2 acres. Areas disturbed during construction may be more susceptible to invasion by non-native invasive plant species. The roadway would continue to serve as a corridor for dispersal of non-native invasive plants, some of which could potentially out-compete native plants for limited water resources.

The Preferred Alternative would likely affect a relatively small portion of species populations, result in short-term changes in plant species composition and / or structure consistent with expected successional pathways of a given plant community from a natural disturbance event, and result in an increase in invasive species in limited locations. Any cholla cactus removed for the roadway realignment would be transplanted to areas identified for revegetation within the Cholla Cactus Garden. Rehabilitation (revegetation) of approximately 1 acre along the roadway would provide beneficial impacts to native vegetation in the project area. While cholla cactus and ocotillo salvage/transplant easily, other species do not transplant as easily. For those species, seed would be collected and grown in the park greenhouse for planting the following season. The species that would be used for revegetation are site specific. Prior to disturbance, each site would be inventoried for species specific to that site. The park would only collect seeds of native species within a 5-mile buffer of the site to ensure genotype. The seeds would then be grown in the park greenhouse and planted in disturbed sites within that 5-mile buffer. The park would water revegetated areas for up to two summers after planting to best ensure survival.

In addition, mitigation measures for vegetation impacts under the Preferred Alternative would reduce impacts and protect park resources. Under the Preferred Alternative, impacts to native vegetation would be short- and long-term, moderate adverse, and short- and long-term minor beneficial.

**Cumulative Impacts.** For analysis of cumulative impacts to vegetation, past, present, and reasonably foreseeable future projects within or adjacent to the park are the same as those outlined above for the No-action Alternative. Ground disturbance associated with construction activities such as roadway rehabilitation and reconstruction, and recreational development would have localized effects, but native species populations over a large area would not change. Reconstruction, rehabilitation, development, and maintenance actions have the potential to affect vegetation resources by disturbance and mortality of native plant species as well as an increase in the spread of invasive species. Rehabilitation (revegetation and mulching) of approximately 1 acre and mitigation measures for vegetation impacts under the Preferred Alternative would reduce impacts, protect park resources, and result in beneficial effects to vegetation resources. The overall cumulative impacts to vegetation resources from past, present, and reasonably foreseeable future projects in combination with the

Preferred Alternative would be short- and long-term, moderate, adverse, and short- and long-term, minor beneficial, at a local scale.

**Conclusion.** Impacts to native vegetation would include crushing, trampling, transplanting, and removal within an approximately 6.2-acre area. Rehabilitation (revegetation and mulching) of approximately 1 acre along the roadway and mitigation measures would provide beneficial effects to native vegetation in the project area. Under the Preferred Alternative, impacts to native vegetation would be short- and long-term, moderate adverse, and short- and long-term minor beneficial. Cumulative impacts, including the Preferred Alternative, would be short- and long-term, moderate, adverse, and short- and long-term, minor beneficial, at a local scale. Implementation of this alternative is consistent with §1.4.7.1 of NPS *Management Policies* 2006.

## **Wildlife**

**Thresholds.** Impacts on wildlife were determined based on the following impact definitions and thresholds.

**Negligible Impacts.** Impacts to native species, their habitats, or the natural processes sustaining them would not be observable or would be barely perceptible. Impacts would be within natural fluctuations.

**Minor Impacts.** Impacts would be detectable and would not be expected to be outside the natural range of variability of native species' populations, their habitats, or the natural processes sustaining them. Ecosystem processes and community structure would be retained at the local level.

**Moderate Impacts.** Impacts would be readily apparent and outside the natural range of variability. Breeding animals of concern would be present, animals would be present during vulnerable life stages, and mortality or interference with activities necessary for survival would be expected on an occasional basis but would not be expected to threaten the continued existence of the species in the park. Key ecosystem processes and community structure would be retained at the landscape (regional) level.

**Major Impacts.** Impacts on native species, their habitats, or the natural processes sustaining them would be severely adverse or exceptionally beneficial and would be expected to be outside the natural range of variability. Key ecosystem processes and community structure might be disrupted. Loss of habitat might affect the viability of at least some native species. Habitat for native species may be rendered nonfunctional at the landscape level.

**Short-term Impact.** Recovers in less than one year or within one breeding season.

**Long-term Impact.** Recovers in more than one year or more than one breeding season.

**Alternative A: No-action Alternative.** Selection of the No-action Alternative would represent a continuation of current conditions. Vegetation tends to be thicker closer to the roadway edge in certain areas due to increased water availability related to roadside runoff or low water crossings, attracting a variety of small mammals, birds, and reptiles. The use of this roadside vegetation by wildlife increases the likelihood of road crossing and increased injury or death by vehicles and exposure to predators through lack of cover on the road surface. Such injury or death would be well within the natural fluctuations of the species and would not affect the viability of any species. Impacts to wildlife under the No-action Alternative would be detectable, but would not be expected to be outside the natural range of variability of native species' populations, their habitats, or the natural processes sustaining them. The ecosystem processes and community structure would be retained at the local level under

this alternative. The No-action Alternative would result in long-term, minor, adverse impacts to wildlife.

**Cumulative Impacts.** Past, present, and reasonably foreseeable future actions with the potential to affect wildlife resources include past roadway improvement projects and ongoing road maintenance activities. These activities include rehabilitation and reconstruction of roadways, pothole repair, chip sealing, shoulder grading, shoulder edge repair, and recreational development (such as kiosks, trailheads, visitor centers, and waysides). These roadway maintenance and recreational development activities would continue and may increase due to continued deterioration of the roadway and visitor use. Future activities would also likely include rehabilitation and reconstruction of other roadways within the park. Reconstruction, rehabilitation, development, and maintenance actions have the potential to affect wildlife resources by disturbance and mortality of individual species. Past, present, and reasonably foreseeable future projects within the park and the surrounding region would contribute to habitat loss affecting the abundance and diversity of some wildlife species by changing the capacity of habitat to provide necessary food, shelter, and reproduction sites. The overall cumulative impacts to wildlife resources from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be short- and long-term, minor, adverse, and at a local scale.

**Conclusion.** Under the No-action Alternative, existing conditions would constitute a long-term, minor, adverse impact to wildlife. Overall cumulative impacts from past, present, and reasonably foreseeable future actions, in conjunction with the No-action Alternative, would be short- and long-term, minor, and adverse. Implementation of this alternative is consistent with §1.4.7.1 of NPS *Management Policies* 2006.

**Alternative B: Preferred Alternative.** Under the Preferred Alternative, Phases I and II of the project would be implemented. Total new soil disturbance would be approximately 6.2 acres. Rehabilitation (revegetation and mulching) of approximately 1 acre along the roadway would provide long-term, minor, and beneficial impacts to wildlife in the project area.

Implementation of the Preferred Alternative would likely result in disturbance and harm to some wildlife species. Impacts may include: harm during clearing, grading, and trenching activities; disruption of behavior during construction activities; disturbance by noise or vibrations from heavy equipment; loss of habitat by the project footprint in areas where reconstruction of the roadway is necessary (Cholla Cactus Garden and other curve areas with limited sight distance); incidental death of unseen wildlife along roads, beneath crushed vegetation, or in undetected burrows; entrapment of wildlife in pits or trenches; fugitive dust; and toxins from exhaust (Olson et al. 1992, EG&G 1993, and Olson 1996 as referenced in Boarman 2002). Wildlife may be temporarily displaced during construction activities; however, activities within any given area would be short in duration. Most species would likely return to disturbed areas once construction activities are complete.

Impacts under the Preferred Alternative would be apparent and outside the natural range of variability. Breeding animals of concern may be present, animals would be present during vulnerable life stages, and mortality or interference with activities necessary for survival would be expected on an occasional basis, but would not be expected to threaten the continued existence of the wildlife species in the park. Key ecosystem processes and community structure would be retained at the regional level. Rehabilitation (revegetation and mulching) of approximately 1 acre along the roadway would provide beneficial impacts to wildlife in the project area. Mitigation measures under the Preferred Alternative would reduce impacts to wildlife and protect park resources. Under the Preferred Alternative, impacts to wildlife and wildlife habitat would primarily result in short-term, moderate, and adverse impacts and minor long-term, minor beneficial effects on a local scale.

**Cumulative Impacts.** For analysis of cumulative impacts to wildlife, past, present, and reasonably foreseeable future projects within or adjacent to the park are the same as those outlined above for the No-action Alternative. Ground disturbance associated with construction activities such as roadway reconstruction and recreational development would have localized effects, but wildlife species populations over a large area would not change. Rehabilitation efforts under some past, present, and future actions, including rehabilitation of 1 acre of disturbed areas and mitigation measures under the Preferred Alternative, would result in beneficial effects to wildlife. The overall cumulative impacts to wildlife resources from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be short- and long-term, moderate, adverse, and long-term, minor beneficial effects at a local scale.

**Conclusion.** Impacts to wildlife would include disturbance, harm, and removal of habitat within an approximately 6.2-acre area of new disturbance. Rehabilitation (revegetation and mulching) of approximately 1 acre along the roadway would provide long-term beneficial impacts to wildlife habitat in the project area. Under the Preferred Alternative, impacts to wildlife and wildlife habitat would primarily result in short-term, moderate, and adverse impacts and minor long-term minor beneficial effects on a local scale. Cumulative impacts, including the Preferred Alternative, would be short- and long-term, moderate, adverse, and long-term, minor beneficial effects at a local scale. Implementation of this alternative is consistent with §1.4.7.1 of NPS *Management Policies* 2006.

## **Federally Listed Species and Species of Special Concern**

**Thresholds.** Impacts to federally listed threatened and endangered species and species of special concern were determined based on the following impact definitions and thresholds.

**Negligible Impacts.** There would be absolutely no effects to the species or its critical habitat, either positive or negative. In the case of federally listed species, this impact intensity would equate to a USFWS determination of “no effect.”

**Minor Impacts.** The action would result in a change to a population or individuals of species of special concern. The change could be measurable, but small and localized and not outside the range of natural variability. Mitigation measures, if needed, would be simple and successful. In the case of federally listed species, this impact intensity would equate to a USFWS determination of “may affect, not likely to adversely affect.”

**Moderate Impacts.** Impacts on species of special concern, their habitats, or the natural processes sustaining them would be detectable and occur over a large area. Breeding animals of concern would be present, and animals would be present during vulnerable life stages. Mortality or interference with activities necessary for survival would be expected on an occasional basis but would not be expected to threaten the continued existence of the species in the park. Mitigation measures would be extensive and likely successful. In the case of federally listed species, this impact intensity would equate to a USFWS determination of “may affect, likely to adversely affect.”

**Major Impacts.** The action would result in noticeable effects to the viability of the population or individuals of a species. Impacts on species of special concern or the natural processes sustaining them would be detectable, both inside and outside of the park. Loss of habitat might affect the viability of at least some special status species. Extensive mitigation measures would be needed to offset any adverse effects, and their success could not be guaranteed. In the case of federally listed species, the impact intensity would equate to a USFWS determination of “may affect, likely to jeopardize the continued existence of a species.”

**Short-term Impact.** Recovers in less than one year or within one breeding season.

**Long-term Impact.** Recovers in more than one year or within more than one breeding season.

**Alternative A: No-action Alternative.** Selection of the No-action Alternative would represent a continuation of current conditions. The federally listed desert tortoise and several species of special concern are known to occur along Pinto Basin Road. There would continue to be potential for vehicles traveling along the roadway to impact desert tortoise and other wildlife species of special concern crossing the road, resulting in injury or death. In addition, desert tortoise and other wildlife species of special concern would be vulnerable to attack by predators during any road crossings. Plant species of special concern may be impacted if vehicles leave the roadway in non-designated areas, resulting in damage or death of these plants. The No-action Alternative would likely continue to result in disturbance or mortality of individual desert tortoise and other species of special concern. This change would likely continue to be small and localized, and not outside the range of natural variability. Under the No-action Alternative, existing conditions would result in short- and long-term, minor, adverse impacts to the desert tortoise and species of special concern.

**Cumulative Impacts.** Past, present, and reasonably foreseeable future actions with the potential to affect the desert tortoise and species of special concern include past roadway improvement projects and ongoing road maintenance activities. These activities include rehabilitation and reconstruction of roadways, pothole repair, chip sealing, shoulder grading, shoulder edge repair, and recreational development (such as kiosks, trailheads, visitor centers, and waysides). These roadway maintenance and recreational development activities would continue and may increase due to continued deterioration of the roadway and visitor use. Future activities would also likely include rehabilitation and reconstruction of other roadways within the park. Reconstruction, rehabilitation, development, and maintenance actions have the potential to affect the desert tortoise and species of special concern by disturbance and mortality of individual species. Past, present, and reasonably foreseeable future projects within the park and the surrounding region would contribute to habitat loss affecting the abundance and diversity of some of these species by changing the capacity of habitat to provide necessary food, shelter, and reproduction sites.

The cumulative impacts to the desert tortoise and species of special concern could result in detectable changes to these species, but such changes would be small and localized. The overall cumulative impacts to the desert tortoise and species of special concern from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be short- and long-term, minor, adverse, and at a local scale.

**Conclusion.** Under the No-action Alternative, existing conditions would result in short- and long-term, minor, adverse impacts to the desert tortoise and species of special concern. The overall cumulative impacts to the desert tortoise and species of special concern from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be short- and long-term, minor, adverse, and at a local scale. Implementation of this alternative is consistent with §1.4.7.1 of *NPS Management Policies 2006*.

**Alternative B: Preferred Alternative.** Under the Preferred Alternative, Phases I and II of the project would be implemented. Total new soil disturbance would be approximately 6.2 acres. Rehabilitation (revegetation and mulching) of approximately 1 acre along the roadway would occur.

**Federally Listed Species.** The federally listed desert tortoise is known to occur within the project area. Implementation of the Preferred Alternative may affect, but not likely to adversely affect, the federally listed desert tortoise and park-determined critical habitat. Construction activities would likely result in

impacts to the desert tortoise. These impacts include: potential harm during clearing, grading, and trenching activities; potential disruption of tortoise behavior during construction activities; disturbance by noise or vibrations from heavy equipment; loss of habitat by the project footprint in areas where reconstruction of the roadway are necessary (Cholla Cactus Garden and other unsafe curve areas); incidental destruction of habitat in a buffer area around the project footprint; damage to soil and cryptogams on the periphery; incidental death of unseen tortoise along roads, beneath crushed vegetation, or in undetected burrows; destruction of burrows; handling of tortoise; entrapment of tortoises in pits or trenches; attraction of ravens and facilitation of their survival by augmenting food or water; fugitive dust; and toxins from exhaust (Olson et al. 1992, EG&G 1993, and Olson 1996 as referenced in Boarman 2002).

Desert tortoise may be attracted to the construction area by the application of water to control dust, placing them at higher risk of injury or mortality. Tortoises may also seek shade by taking shelter under parked vehicles and be killed, injured, or harassed when the vehicle is moved. Impacts may also occur to desert tortoise from transportation and access within the project area. These species are mobile and are likely to occur along Pinto Basin Road and may be killed or wounded by vehicles, including construction vehicles, along the roadway. Construction-related impacts would primarily result in short-term, minor, and adverse impacts.

Effects related to the roadway once constructed include degradation of habitat because the roadway serves as a corridor of dispersal for non-native invasive plants, predators, recreation, and other anthropogenic sources of impacts. The most common non-native invasive plants found in tortoise habitat in the west Mojave Desert are cheatgrass, red brome, split grass or Mediterranean grass, redstem filaree, Russian thistle, and Sahara mustard (Boarman 2002). In general, non-native invasive plants tend to proliferate in disturbed areas; however, rainfall and soil nutrient levels also play a key role. In areas where non-native invasive plants out-compete native species, tortoise may forage on the invasive plants which may be of lower-quality nutrient value (Boarman 2002).

Roads also fragment habitats and populations. Roadways attract ravens, which are reportedly significant predators of desert tortoise (primarily juveniles). Areas with trash receptacles may attract a larger number of ravens, which in turn may increase the likelihood of predation on desert tortoise (Boarman 2002). Pinto Basin Road has been continually used for over 20 years and impacts related to the roadway would continue to be present regardless of the proposed rehabilitation and reconstruction actions.

Implementing the Preferred Alternative would result in a may affect, but not likely to adversely affect determination for the desert tortoise. A biological assessment has been developed for submittal to the USFWS as part of ESA formal Section 7 consultation for this species (NPS 2011). The biological assessment will be sent to the USFWS for their review and concurrence.

Approximately 6.2 acres of clearing and grubbing of previously undisturbed areas along the realignment would occur and would result in disturbance of desert tortoise habitat. Approximately 1 acre of the existing roadway alignment no longer needed would be rehabilitated by removing all pavement material and revegetating with native seeds, transplanting native plant species, and mulching, resulting in the rehabilitation of park critical habitat and beneficial effects to the tortoise. Implementation of the avoidance and mitigation measures outlined for the Preferred Alternative would minimize potential impacts to the desert tortoise and critical habitat.

Impacts to the desert tortoise and critical habitat could be detectable, but would occur over a localized area. Construction activities could occur during the desert tortoise breeding season, and tortoise would likely be present during vulnerable life stages. Mortality or interference with tortoise activities could occur, but would not be expected to threaten the continued existence of the tortoise in the park.

Overall, under the Preferred Alternative, impacts to the desert tortoise and critical habitat would be short- and long-term, moderate, adverse, and short- and long-term, minor and beneficial.

Implementation of the Preferred Alternative may result in disturbance to migratory bird species during construction activities. Mitigation measures have been incorporated into the Preferred Alternative that would minimize disturbance and avoid take of migratory bird species. Revegetation and rehabilitation of the approximately 1 acre of disturbed areas would result in beneficial effects to migratory bird species. Under the Preferred Alternative, impacts to migratory bird species would be short-term, minor, adverse, and short- and long-term, minor, beneficial.

Bald and golden eagles are not known to nest, feed, or roost in the project area. Implementation of the Preferred Alternative would not result in take of bald or golden eagles.

*Species of Special Concern.* There are 16 species of special concern known to occur within the project area. These species include birds, mammals, and plants (as detailed in the Existing Conditions section). These species may be impacted during construction activities. Impacts to bird and mammal species of special concern would likely be similar to those discussed above for the desert tortoise. Plant species of special concern may be disturbed or removed during construction activities, similar to impacts discussed for vegetation resources above.

Approximately 6.2 acres of clearing and grubbing of previously undisturbed areas along the realignment would occur. Approximately 1 acre of the existing roadway alignment no longer needed would be rehabilitated by removing all pavement material and revegetating with native seeds, transplanting native plant species, and mulching. This would result in rehabilitation of potential species of special concern habitat. Avoidance measures outlined for the Preferred Alternative would minimize potential impacts to species of special concern.

Impacts to species of concern could be detectable, but would occur over a localized area. Construction activities could occur during the breeding season for species of special concern and these species would likely be present during vulnerable life stages. Mortality or interference with activities could occur, but would not be expected to threaten the continued existence of species of special concern in the park.

Under the Preferred Alternative, impacts to species of special concern would be short- and long-term, moderate, adverse, and short- and long-term, minor beneficial.

*Cumulative Impacts.* Past, present, and reasonably foreseeable future actions with the potential to affect the desert tortoise and species of special concern include past roadway improvement projects and ongoing road maintenance activities. These activities include rehabilitation and reconstruction of roadways, pothole repair, chip sealing, shoulder grading, shoulder edge repair, and recreational development (such as kiosks, trailheads, visitor centers, and waysides). These roadway maintenance and recreational development activities would continue and may increase due to continued deterioration of the roadway and visitor use. Future activities would also likely include rehabilitation and reconstruction of other roadways within the park. Reconstruction, rehabilitation, development, and maintenance actions have the potential to affect the desert tortoise and species of special concern by disturbance and mortality of individual species. Past, present, and reasonably foreseeable future projects within the park and the surrounding region would contribute to habitat loss affecting the abundance and diversity of some of these species by changing the capacity of habitat to provide necessary food, shelter, and reproduction sites.

Desert tortoise may be impacted by handling and deliberate manipulation by curious members of the public traveling along Pinto Basin Road once construction is complete. Tortoise could be illegally removed from the wild or translocated to new sites. There is contradictory evidence regarding whether illegal collection of desert tortoise is currently a widespread problem (Boarman 2002).

The cumulative impacts to the desert tortoise and species of special concern could result in detectable changes to these species, but such changes would be relatively small and localized. Rehabilitation efforts under some past, present, and future actions, including rehabilitation of 1 acre of disturbed areas and mitigation measures under the Preferred Alternative, would result in beneficial effects to desert tortoise and species of special concern. The overall cumulative impacts to the desert tortoise and species of special concern from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be short- and long-term, moderate, adverse, and long-term, minor beneficial effects at a local scale.

**Conclusion.** Implementing the Preferred Alternative would result in a may affect, but not likely to adversely affect determination for the desert tortoise and would not likely adversely affect park-determined critical habitat. Under the Preferred Alternative, impacts to the desert tortoise and species of special concern would be short- and long-term, moderate, adverse, and short- and long-term, minor beneficial. The overall cumulative impacts to the desert tortoise and species of special concern from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be short- and long-term, moderate, adverse, and long-term, minor beneficial effects at a local scale. Implementation of this alternative is consistent with §1.4.7.1 of NPS *Management Policies* 2006.

### **Visitor Use / Experience, Visitor Safety**

**Thresholds to Visitor Use / Experience.** Impacts to visitor use / experience were determined based on the following impact definitions and thresholds.

**Negligible Impacts.** Visitors would not be affected or changes in visitor use and / or experience would be below or at the level of detection under the alternative. The visitor would not likely be aware of the effects associated with the alternative.

**Minor Impacts.** The alternative would result in the displacement of recreationists or closure of trails and recreation areas during off-peak recreation use, alteration of a vista, or presence of equipment. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.

**Moderate Impacts.** The alternative would result in direct changes in visitor use and / or experience that would be readily apparent. The visitor would be aware of the effects associated with the alternative and would likely express an opinion about the changes.

**Major Impacts.** The alternative would result in closure of trails and recreation areas, conflict with peak recreation use, or change in scenic integrity of a vista during peak recreation use. The visitor would be aware of the effects association with the alternative and would likely express a strong opinion about the changes.

**Short-term Impact.** Short-term impacts occur only during the construction period.

**Long-term Impact.** Long-term impacts occur during and after the construction period.

**Thresholds to Visitor Safety.** Impacts to visitor safety were determined based on the following impact definitions and thresholds.

***Negligible Impacts.*** Under an alternative, human health and safety would not be affected, or the effects would be at low levels of detection and would not have an appreciable effect on human health and safety.

***Minor Impacts.*** Under an alternative, the effects would be detectable, but would not have an appreciable effect on public health and safety, potentially result in small injuries to any worker or visitor (e.g., scrapes or bruises), or result in limited exposure to hazardous compounds or airborne particulates at concentrations below health-based levels. If mitigation were needed, it would be relatively simple and likely successful.

***Moderate Impacts.*** The alternative would result in effects that are readily apparent and would result in substantial, noticeable effects to public health and safety; lead to non-life threatening injuries to any worker or visitor; or lead to limited exposure to hazardous compounds or airborne particulates at concentrations at or slightly above health-based levels. Mitigation measures would be necessary and would likely be successful.

***Major Impacts.*** The alternative would result in effects that would be readily apparent and would result in substantial, noticeable effects to public health and safety; lead to serious life-threatening injuries to any worker or member of the public; or lead to limited or prolonged exposure to hazardous compounds or airborne particulates at concentrations well above health-based levels. Extensive mitigation measures would be needed, and their success would not be guaranteed.

***Short-term Impact.*** Short-term impacts only occur during the construction period.

***Long-term Impact.*** Long-term impacts continue to occur after the construction period.

**Alternative A: No-action Alternative.** Selection of the No-action Alternative would represent a continuation of current conditions. Visitors that travel Pinto Basin Road currently experience deteriorated road conditions, narrow travel lanes, soft and sandy shoulders, poor sight distance, and lack of adequate parking at turnouts. Because of these conditions, visitors must pay close attention to the road surface, which could detract from the visitor experience of the park. Visitors driving large vehicles or recreational vehicles along the narrow portions of Pinto Basin Road may inadvertently force oncoming vehicles off the side of the road. The existing conditions could cause vehicle collisions as a result of visitors driving too fast for the narrow road width; vehicles involved in accidents as a result of the improperly banked curves in the road; and drivers losing control of their vehicles when they drop onto the soft shoulders.

Under the No-action Alternative, cracking of the deteriorated road surface would be remediated by ongoing patching, while other road conditions would continue. Accident rates would be expected to remain at about the same level as the current rate. The existing roadway conditions would likely be detectable by visitors at a low level. The No-action Alternative could result in displacement of visitors in parking areas (such as Cholla Cactus Garden) during high visitor use periods due to insufficient parking capacity. Visitors would be exposed to limited hazards due to current roadway conditions.

The No-action Alternative would result in short- and long-term, minor to moderate, adverse impacts to visitor use / experience and visitor safety driving Pinto Basin Road.

**Cumulative Impacts.** Past, present, and reasonably foreseeable future actions with the potential to affect the visitor use / experience and visitor safety include past roadway improvement projects and ongoing road maintenance activities. These activities include rehabilitation and reconstruction of roadways, pothole repair, chip sealing, shoulder grading, shoulder edge repair, and recreational development (such as kiosks, trailheads, visitor centers, and waysides). These roadway maintenance and recreational development activities would continue and could increase due to continued deterioration of the roadway and increased visitor use. Future activities would also likely include rehabilitation and reconstruction of other roadways within the park. Reconstruction, rehabilitation, development, and maintenance actions have the potential to affect visitor use / experience and visitor safety by potentially displacing visitors during high seasonal use periods, the visitor could detect deteriorated roadway conditions, and visitors could be exposed to limited hazards due to current roadway conditions. Past, present, and reasonably foreseeable future projects within the park would likely contribute to changes in visitor use and safety hazards. The overall cumulative effects of these past, present, and reasonably foreseeable future actions, in conjunction with the No-action Alternative, would have short-term, minor to moderate, adverse impacts.

**Conclusion.** Under the No-action Alternative, existing conditions would result in short- and long-term, minor to moderate, adverse impacts to visitor use / experience and visitor safety. The overall cumulative effects of these past, present, and reasonably foreseeable future actions on visitor use / experience and visitor safety, in conjunction with the No-action Alternative, would have short-term, minor to moderate, adverse impacts. Implementation of this alternative is consistent with §1.4.7.1 of *NPS Management Policies 2006*.

**Alternative B: Preferred Alternative.** Under the Preferred Alternative, Phases I and II of the project would be implemented. Visitors traveling Pinto Basin Road during construction would experience construction noise, the presence of construction equipment, roadway detours, and construction-related traffic delays or facility closures. Impacts during the construction period for the Preferred Alternative would be short-term, minor, and adverse.

Visitor safety may be impacted during the construction period from the presence of large construction equipment, construction activities, and road detours. Implementation of appropriate employee training, warning signs, and other measures would minimize adverse impacts during the construction period. Implementation of mitigation measures outlined for the Preferred Alternative would minimize potential impacts to visitor use / experience and visitor safety.

Once construction was completed, rehabilitation and reconstruction of Pinto Basin Road would result in improved roadway conditions, shoulders, sight distance, and parking within waysides. Rehabilitation and reconstruction would also result in improvement of overall roadway safety and visitor experience.

The Preferred Alternative would likely result in direct changes in visitor use and / or experience that would be readily apparent. Visitors would likely be aware of the effects associated with the roadway rehabilitation and reconstruction and may express an opinion. The roadway rehabilitation and reconstruction would result in noticeable improvements to public health and safety.

Because the Preferred Alternative would not be adding additional impacts to the park's scenic vistas, there would be a negligible effect to the visitors' experience of those scenic vistas.

The Preferred Alternative would result in short-term moderate adverse impacts and long-term, moderate, beneficial effects to visitor use / experience and visitor safety.

**Cumulative Impacts.** Past, present, and reasonably foreseeable future actions with the potential to affect the visitor use / experience and visitor safety include past roadway improvement projects and ongoing road maintenance activities. These activities include rehabilitation and reconstruction of roadways, pothole repair, chip sealing, shoulder grading, shoulder edge repair, and recreational development (such as kiosks, trailheads, visitor centers, and waysides). These roadway maintenance and recreational development activities would continue and may increase due to continued deterioration of the roadway and visitor use. Future activities would also likely include rehabilitation and reconstruction of other roadways within the park. Reconstruction, rehabilitation, development, and maintenance actions have the potential to affect visitor use / experience and visitor safety by potentially displacing visitors during high seasonal use periods, the visitor may detect deteriorated roadway conditions, and visitors may be exposed to limited hazards due to current roadway conditions. Past, present, and reasonably foreseeable future projects within the park would likely contribute to changes in visitor use and safety hazards.

The short-term effects to visitor use / experience would be related to construction noise, the presence of construction equipment, and construction-related traffic delays or facility closures. Since the cumulative projects would be spread throughout the park and would not occur at the same time, these impacts could be noticeable to some visitors. These activities would have short-term, moderate, adverse impacts on visitor experience for the duration of construction activities. Improvements associated with each of these projects, however, would improve overall visitor use / experience throughout the park, and the improvements would be apparent to some visitors. The improvements would have long-term, moderate, beneficial effects on visitor experience. There would be no long-term impacts to visitor experience of scenic vistas.

Construction related to these projects could have short-term, negligible, adverse impacts to visitor safety assuming that appropriate employee training, warning signs for visitors, and other mitigation measures are implemented. Long-term reconstruction associated with these projects would have long-term, minor, beneficial effects on visitor safety. The Preferred Alternative would provide short-term, moderate, adverse and long-term, moderate beneficial contributions to cumulative effects. The cumulative effects of these past, present, and reasonably foreseeable future actions, in conjunction with the Preferred Alternative, would result in short-term, moderate, adverse impacts and long-term moderate, beneficial effects to visitor use / experience and visitor safety.

**Conclusion.** Under the Preferred Alternative, rehabilitation and reconstruction of Pinto Basin Road would result in short-term, moderate, and adverse impacts during the construction period. Once construction was completed, improvements would result in long-term, moderate, beneficial impacts to visitor use / experience and visitor safety. The cumulative effects in conjunction with the Preferred Alternative would result in short-term, moderate, adverse impacts and long-term moderate, beneficial effects to visitor use / experience and visitor safety. Implementation of this alternative is consistent with §1.4.7.1 of NPS *Management Policies* 2006.

## **Archeological Resources**

**Thresholds.** Impacts to archeological resources were determined based on the following impact definitions and thresholds.

**Negligible Impacts.** Impacts are at the lowest levels of detection. There are no perceptible consequences to an archeological site's potential to yield important information.

**Minor Impacts.** Impacts to an archeological site(s) are identifiable and measurable, but would result in little loss of important information potential. The National Register status of the site(s) would be unaffected.

**Moderate Impacts.** Impacts to an archeological site(s) are apparent and measurable but do not result in a loss of most or all of the site(s) and its potential to yield important information. The site would remain eligible to be listed in the National Register.

**Major Impacts.** Impacts to an archeological site(s) are substantial and result in the loss of most or all of the site and its potential to yield important information. The site(s) would no longer be eligible to be listed in the National Register.

**Long-term Impact.** Because most archeological resources are non-renewable, any effects would be long-term.

**Alternative A: No-action Alternative.** Selection of the No-action Alternative would represent a continuation of current conditions. As no action would be taken in this alternative, construction would not occur. Archeological sites could continue to be inadvertently disturbed by visitor activities associated with waysides along the roadway. There were 40 new sites identified during surveys of the APE. For planning purposes, these 40 sites that have not yet been formally evaluated for their eligibility to the National Register are considered to be eligible for listing. Under the No-action Alternative, newly recorded and previously recorded sites would continue to be avoided. Impacts, if any, would be at the lowest levels of detection and no perceptible consequences to an archeological site's potential to yield important information would likely occur. The National Register status of the sites would likely be unaffected. Impacts to archeological sites under the No-action Alternative would be negligible and adverse. Archeological resources are not considered short- or long-term because once the resource is impacted the integrity is irreversibly damaged and would not recover.

**Cumulative Impacts.** Archeological resources are subject to damage from a variety of natural events and human activities. Development, park maintenance, vandalism, theft, traditional visitor use, and natural processes all pose a threat to resources. Past development in the surrounding region has likely damaged archeological resources. Past, present, and reasonably foreseeable future projects with the potential to affect archeological resources include past roadway improvement projects and ongoing road maintenance activities. These activities include rehabilitation and reconstruction of roadways, shoulder grading, shoulder edge repair, and recreational development (such as kiosks, trailheads, visitor centers, and waysides). Roadway maintenance and recreational development activities would continue and could increase due to continued deterioration of the roadway and increased visitor use. Future activities would also likely include rehabilitation and reconstruction of other roadways within the park.

Reconstruction, rehabilitation, development, and maintenance actions have the potential to affect archeological sites. Ground disturbance associated with construction activities would generally occur in previously disturbed areas. Greater impacts would be mitigated through best management practices, project design, and consultation as applicable. Visitors may inadvertently disturb archeological sites near the road and in other areas of the park through trampling, artifact collection, and other recreational activities. The overall cumulative impacts to archeological resources from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be minor and adverse.

**Conclusion.** Impacts to archeological sites under the No-action Alternative would be minor and adverse. The overall cumulative impacts to archeological from past, present, and reasonably

foreseeable future projects in combination with the No-action Alternative would be minor and adverse. Implementation of this alternative is consistent with §1.4.7.1 of NPS *Management Policies* 2006.

**Alternative B: Preferred Alternative.** Under the Preferred Alternative, Phases I and II of the project would be implemented. Disturbance would be localized within the project area. The project design includes features to avoid and minimize impacts to National Register eligible cultural sites. Under the Preferred Alternative, management recommendations, including construction monitoring and testing of sites (if deemed appropriate) that are immediately adjacent to construction activities, would ensure avoidance of impacts to archeological sites within the project area. Impacts to an archeological site would be identifiable and measurable, but would result in little loss of important information potential. The sites would remain eligible to be listed in the National Register. Impacts to archeological sites under the Preferred Alternative would be minor and adverse.

**Cumulative Impacts.** For analysis of cumulative impacts to archeological resources, past, present, and reasonably foreseeable future projects within or adjacent to the park are the same as those outlined above for the No-action Alternative. Archeological resources would continue to be subject to damage from a variety of natural events and human activities. Development, park maintenance, vandalism, theft, traditional visitor use, and natural processes all pose a threat to these resources. Roadway maintenance and recreational development activities would continue and could increase due to continued deterioration of roadways and increased visitor use. Future activities would also likely include rehabilitation and reconstruction of other roadways within the park.

Reconstruction, rehabilitation, development, and maintenance actions have the potential to affect archeological sites. Ground disturbance associated with the Preferred Alternative construction activities would generally occur in previously disturbed areas; however, new disturbance would occur on approximately 6.2 acres. Potential impacts would be mitigated through monitoring, testing if warranted, best management practices, project design, and consultation as applicable. The overall cumulative impacts to archeological resources from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be minor and adverse.

**Conclusion.** Impacts to archeological sites under the Preferred Alternative would be moderate and adverse. The overall cumulative impacts to archeological resources from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be minor and adverse. Implementation of this alternative is consistent with §1.4.7.1 of NPS *Management Policies* 2006.

## **Cultural Landscapes**

**Thresholds.** Impacts to cultural landscapes were determined based on the following impact definitions and thresholds.

**Negligible Impacts.** Impacts are at the lowest levels of detection—barely measurable with no perceptible change.

**Minor Impacts.** Alteration of patterns or features of the landscape would not diminish the overall integrity of the landscape.

**Moderate Impacts.** Alteration of patterns or features of the landscape would diminish the overall integrity of the landscape.

**Major Impacts.** Alteration of patterns or features of the landscape would severely diminish the overall integrity of the landscape.

**Long-term Impact.** Because most resources related to cultural landscapes are non-renewable, any effects would be long-term.

**Alternative A: No-action Alternative.** Selection of the No-action Alternative would represent a continuation of current conditions. As no action would be taken in this alternative, construction would not occur. The Hexie Mountain Mining Historic District cultural landscape could continue to be inadvertently disturbed by visitor activities associated with use of the roadway. Under this alternative, impacts to the cultural landscape would result in little loss of features. Impacts to the cultural landscape under the No-action Alternative would be negligible to minor and adverse.

**Cumulative Impacts.** Cultural landscapes are subject to damage from a variety of natural events and human activities. Development, park maintenance, vandalism, theft, traditional visitor use, and natural processes all pose a threat to landscape features. Past development in the surrounding region has likely damaged some cultural landscape features. Past, present, and reasonably foreseeable future projects with the potential to affect the Hexie Mountain Mining Historic District cultural landscape include recreation activities, past roadway improvement projects, and ongoing road maintenance activities. These activities include rehabilitation and reconstruction of roadways, shoulder grading, shoulder edge repair, and recreational activity and development (such as kiosks, trailheads, visitor centers, and waysides). Roadway maintenance and recreational development activities would continue and could increase due to continued deterioration of the roadway and increased visitor use. Future activities would also likely include rehabilitation and reconstruction of other roadways within the park.

Reconstruction, rehabilitation, development, and maintenance actions have the potential to affect the cultural landscape. Ground disturbance associated with construction activities would generally occur in previously disturbed areas. Greater impacts would be mitigated through best management practices, project design, and consultation as applicable. Visitors may disturb cultural landscape features near the road and in other areas of the park through trampling, artifact collection, and recreational activities. The No-action Alternative impacts detailed above would add an adverse increment to overall cumulative impacts. The overall cumulative impacts to the cultural landscape from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be minor and adverse.

**Conclusion.** Impacts to the Hexie Mountain Mining Historic District cultural landscape under the No-action Alternative would be negligible to minor and adverse. The overall cumulative impacts to the cultural landscape from past, present, and reasonably foreseeable future projects in combination with the No-action Alternative would be minor and adverse. Implementation of this alternative is consistent with §1.4.7.1 of NPS *Management Policies* 2006.

**Alternative B: Preferred Alternative.** Under the Preferred Alternative, Phases I and II of the project would be implemented. Total new disturbance would be approximately 6.2 acres. The reconstructed alignment may encroach upon portions of the access road to Golden Bee Mine. The contributing access road to Unknown Mining Site #1 and access road to Sunshine Load Mining Claim Site are separated from the roadway by the graded apron and proposed road improvement activities would not impact these features.

Overall, disturbance would be localized within the project area. Best management practices, project design, and mitigation measures as outlined under the proposed action would be conducted to avoid impacts to the cultural landscape. Under the Preferred Alternative, the majority of the landscape sites

and features would not be impacted. Impacts to the setting and viewshed of the Hexie Mountain Mining Historic District cultural landscape under the Preferred Alternative would be negligible and adverse.

**Cumulative Impacts.** For analysis of cumulative impacts to cultural landscapes, past, present, and reasonably foreseeable future projects within or adjacent to the park are the same as those outlined above for the No-action Alternative. The cultural landscape would continue to be subject to damage from a variety of natural events and human activities. Development, park maintenance, vandalism, theft, traditional visitor use, and natural processes all pose a threat to the cultural landscape. Roadway maintenance and recreational development activities would continue and could increase due to continued deterioration of roadways and increased visitor use. Future activities would also likely include rehabilitation and reconstruction of other roadways within the park.

Reconstruction, rehabilitation, development, and maintenance actions have the potential to affect contributing features of the Hexie Mountain Mining Historic District cultural landscape. Ground disturbance associated with the Preferred Alternative construction activities would generally occur in previously disturbed areas; however, new disturbance would occur on approximately 6.2 acres. Impacts would be mitigated through best management practices, project design, and consultation as applicable. The overall cumulative impacts to the cultural landscape from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be negligible to minor and adverse.

**Conclusion.** Impacts to the Hexie Mountain Mining Historic District cultural landscape under the Preferred Alternative would be negligible and adverse. The overall cumulative impacts to the cultural landscape from past, present, and reasonably foreseeable future projects in combination with the Preferred Alternative would be negligible to minor and adverse. Implementation of this alternative is consistent with §1.4.7.1 of NPS *Management Policies* 2006.

## **Park Management / Operations**

**Thresholds.** Impacts to park management / operations were determined based on the following impact definitions and thresholds.

**Negligible Impacts.** Park management / operations would not be affected or the effect would be at or below the lower levels of detection, and would not have an appreciable effect on park management / operations.

**Minor Impacts.** The alternative results in direct and indirect effects that would be detectable, but would be of a magnitude that would not have an appreciable effect on park management/operations, suspension of non-critical park management/operations, or impact to park buildings and structures. If mitigation measures were needed to offset adverse effects, it would be relatively simple and likely successful.

**Moderate Impacts.** The alternative would result in effects that would be readily apparent, and would result in a substantial change in park management/operations in a manner noticeable to staff and the public; suspension of all park operations (one to two days); or detectable impacts to park buildings and structures. Mitigation measures would probably be necessary to offset adverse effects and would likely be successful.

**Major Impacts.** The alternative would result in effects that would be readily apparent, would result in a substantial change in park management/operations in a manner noticeable to staff and the public and

be markedly different from existing operations; suspension of all park operations; or substantial impacts to park buildings and structures. Mitigation measures to offset effects would be needed, would be extensive, and their success could not be guaranteed.

**Short-term Impact.** Short-term impacts are effects lasting for the duration of the construction period.

**Long-term Impact.** Long-term impacts are effects lasting longer than the duration of the construction period.

**Alternative A: No-action Alternative.** Selection of the No-action Alternative would represent a continuation of current conditions. Vehicle waysides and pullouts would remain the same, primarily unpaved. The Cholla Cactus Garden wayside would continue to have unsafe pullout conditions and be undersized for visitor use. Pinto Basin Road would continue to require regular maintenance to repair cracks, potholes, roadway edges, and soft shoulders. Low water crossings would also continue to require regular repairs and maintenance. These conditions would result in continued expenditure on maintenance for visitor experience and safety.

The No-action Alternative would result in effects that would be detectable, but that would be of a magnitude that would not have an appreciable effect on park management / operations. This alternative would not likely result in suspension of non-critical park management / operations and would not impact park buildings or structures. Under the No-action Alternative, impacts to park management / operations would be long-term, minor, and adverse.

**Cumulative Impacts.** Past, present, and reasonably foreseeable future actions with the potential to affect park management / operations include past roadway improvement projects and ongoing road maintenance activities. These activities include rehabilitation and reconstruction of roadways, pothole repair, chip sealing, shoulder grading, shoulder edge repair, and recreational development (such as kiosks, trailheads, visitor centers, and waysides). These roadway maintenance and recreational development activities would continue and could increase due to continued deterioration of the roadway and increased visitor use. Future activities would also likely include rehabilitation and reconstruction of other roadways within the park. Reconstruction, rehabilitation, development, and maintenance actions have the potential to affect park management / operations by potentially resulting in increased maintenance costs or causing a change in management and operations. Improved roadways and recreational facilities would reduce maintenance needs and costs, resulting in long-term, minor beneficial effects to park management / operations. The overall cumulative effects of these past, present, and reasonably foreseeable future actions, in conjunction with the No-action Alternative, would have long-term, minor, adverse impacts and long-term, minor, beneficial effects on park management / operations.

**Conclusion.** Under the No-action Alternative, impacts to park management / operations would be long-term, minor, and adverse. The overall cumulative effects of these past, present, and reasonably foreseeable future actions, in conjunction with the No-action Alternative, would have long-term, minor, adverse impacts and long-term, minor beneficial effects on park management / operations. Implementation of this alternative is consistent with §1.4.7.1 of NPS *Management Policies* 2006.

**Alternative B: Preferred Alternative.** Under the Preferred Alternative, Phases I and II of the project would be implemented. During the construction period, park management would need to notify visitors (bulletins, notices at visitor centers, and roadway signs) of construction activities, wayside closures, and roadway lane closures or detours. Once construction is completed, maintenance activities would be minimized along Pinto Basin Road as cracks, potholes, roadway edges, and soft

shoulders would no longer exist or would occur less frequently. Low water crossings would be improved resulting in less regular repair and maintenance needs.

The Preferred Alternative would result in effects that would be detectable during construction, but that would be of a magnitude that would not have an appreciable effect on park management / operations. Traffic delays and closure of some wayside pullouts would likely be detectable during the construction period. This alternative would not likely result in suspension of non-critical park management / operations, and would not impact park buildings or structures. Upon completion of construction, rehabilitation and reconstruction of the roadway would result in reduction of maintenance along the roadway (fewer crack, pot hole, low water crossing, and roadway edge repairs needed) and reduced maintenance costs. Under the Preferred Alternative, impacts to park management / operations would be short- and long-term, minor, and adverse and long-term, minor, beneficial.

***Cumulative Impacts.*** For analysis of cumulative impacts to park management / operations, past, present, and reasonably foreseeable future projects within or adjacent to the park are the same as those outlined above for the No-action Alternative. Development of facilities, maintenance and reconstruction of roadways, and increases in recreational opportunities would have effects on the overall management / operation of the park. Improved roadways and facilities would result in reduced maintenance / operations costs. Increases in recreational use would result in increased management / operations requirements. Reconstruction, rehabilitation, development, and maintenance actions have the potential to affect park management / operations by potentially resulting in increased maintenance costs or causing a change in management and operations. Improved roadways and recreational facilities would reduce maintenance needs and costs, resulting in long-term, minor beneficial effects to park management / operations. The overall cumulative effects of these past, present, and reasonably foreseeable future actions, in conjunction with the Preferred Alternative, would have long-term, minor, adverse impacts and long-term, minor, beneficial effects on park management / operations.

***Conclusion.*** Under the Preferred Alternative, impacts to park management / operations would be short- and long-term, minor, and adverse and long-term minor, beneficial. The overall cumulative effects of these past, present, and reasonably foreseeable future actions, in conjunction with the Preferred Alternative, would have long-term, minor, adverse impacts and long-term, minor, beneficial effects on park management / operations. Implementation of this alternative is consistent with §1.4.7.1 of NPS *Management Policies* 2006.

## **CONSULTATION AND COORDINATION**

### **AGENCY CONSULTATION**

In accordance with the ESA, the park contacted the U.S. Fish and Wildlife Service with regards to federally listed species. Joshua Tree National Park ecologist Michael Vamstad contacted Pete Sorensen of the Carlsbad USFWS office on August 13, 2010, regarding the Pinto Basin Road proposed project and tortoise surveys of the project area. NPS informed the U.S. Fish and Wildlife Service that the northern half (Phase I portion) of the project area had been surveyed for desert tortoise. It was concluded that NPS would develop a BA for the Phase I portion of the proposed action. NPS would add language to the Phase I BA stating that a review by the U.S. Fish and Wildlife Service of Phase II of the proposed project would determine if mitigation measures outlined in the Biological Opinion for Phase I would need to be amended based on survey results of the Phase II portion of the project area.

Joshua Tree National Park ecologist Michael Vamstad contacted Pete Sorensen of the Carlsbad USFWS office on November 1, 2010, regarding the potential presence of least Bell's vireo within the Pinto Basin Road project area. Both U.S. Fish and Wildlife Service and NPS agreed that habitat requirements for the least Bell's vireo, specifically a mesquite riparian mix habitat, is not present within the action area and would not be affected by the proposed road reconstruction project. It was concluded that the least Bell's vireo did not need to be evaluated further.

A biological assessment has been developed for submittal to the USFWS as part of ESA formal Section 7 consultation for this species (NPS 2011). Implementing the Preferred Alternative would result in a may affect, but not likely to adversely affect determination for the desert tortoise. The biological assessment will be sent to the USFWS for their review and concurrence.

In accordance with Section 106 of the NHPA, the park has initiated consultation with the California State Historic Preservation Officer. The consultation letter is included as Appendix C. Compliance with Section 106 of the NHPA will be completed as a separate submittal which will provide a summary of impacts to sites. NPS is seeking California State Historic Preservation Officer concurrence of no adverse effect on historic properties.

### **NATIVE AMERICAN CONSULTATION**

Consultation was initiated with 14 Native American tribes in December 2010 to determine if there were any ethnographic resources in the project area and if they wanted to be involved in the environmental compliance process. Tribes consulted include the following:

- Agua Caliente Band of Cahuilla Indians
- Ramona Band of Cahuilla Indians
- Torres-Martinez Band of Desert Cahuilla Indians
- Soboba Band of Luiseno Indians
- Augustine Band of Mission Indians
- Cahuilla Band of Mission Indians

- Los Coyotes Band of Mission Indians
- Morongo Band of Mission Indians
- Twentynine Palms Band of Mission Indians
- Cabazon Band of Cahuilla Mission Indians
- San Manuel Band of Serrano Mission Indians
- Chemhuevi Indian Tribe
- Colorado River Indian Tribes
- Fort Mojave Indian Tribe

The letters sent to the tribes on December 22, 2010, informed them of the project, and NPS requested the tribes' preliminary comments regarding ethnographic concerns by February 7, 2011. The tribal consultation letters and responses from the tribes are included as Appendix D. Each tribe will be given further opportunity to review the EA and to provide additional comments. Tribes will be consulted prior to conducting any archeological testing, as well as in the development of site treatment plans, as appropriate.

#### **ENVIRONMENTAL ASSESSMENT REVIEW AND LIST OF RECIPIENTS**

This EA will be released for public review in April 2011. To inform the public of the availability of the EA, NPS will publish and distribute a letter or press release to various agencies, tribes, and members of the public on the park's mailing list, as well as place an ad in the local newspaper. Copies of this EA will be provided to interested individuals upon request. Copies of the document will also be available for review at the park's visitor center and on the Internet.

The EA is subject to a 30-day public comment period. During this time, the public is encouraged to submit their written comments to the NPS address provided at the beginning of this document. All public comments will be reviewed and analyzed following the close of the comment period and prior to the release of a decision document. NPS will issue responses to substantive comment received during the public comment period, and will make appropriate changes to the EA as needed.

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## GLOSSARY OF TERMS

**authorized biologist** – Authorized biologists are responsible for being aware of the latest information on USFWS protocols and guidelines for the desert tortoise. The authorized biologist must have thorough and current knowledge of desert tortoise behavior, natural history, ecology, and physiology, and demonstrate substantial field experience and training to safely and successfully conduct their required duties. Authorized biologists are approved to monitor project activities within desert tortoise habitat and are responsible for locating desert tortoises and their sign (i.e., conduct clearance surveys). Authorized biologists must ensure proper implementation of protective measures, and make certain that the effects of the project on the desert tortoise and its habitat are minimized in accordance with a biological opinion or incidental take permit.

**biological assessment** – Information prepared by or under direction of a federal agency to determine whether a proposed action is likely to 1) harm threatened or endangered species or designated critical habitat, 2) jeopardize the existence of species that are proposed for listing, or 3) adversely modify proposed critical habitat. Biological assessments must be prepared for major construction activities. The outcome of a biological assessment determines whether formal Section 7 consultation or a conference is needed.

**critical habitat (designated)** – Specific parts of an area that are occupied by a federally listed or endangered plant or animal at the time it is listed and that contain physical or biological features essential to the conservation of the species or that may require special management or protection. Critical habitat may also include specific areas outside an area occupied by a federally listed species, if the Secretary of the Interior determines that these areas are essential for conserving the species.

**cultural resource.** A location of human activity, occupation, or use identifiable through field inventory, historical documentation, or oral evidence. Cultural resources include prehistoric and historic archeological sites, structures, buildings, objects, artifacts, works of art, architecture, and natural features that were important in past human events. They may consist of physical remains or areas where significant human events occurred, even though evidence of the events no longer remains. And they may include definite locations of traditional, cultural, or religious importance to specified social or cultural groups.

**desert tortoise monitor** – Desert Tortoise Monitors will be approved by the Authorized Biologist to monitor project activities within desert tortoise habitat, ensure proper implementation of protective measures, and record and report desert tortoise and sign observations in accordance with approved protocol. They will report incidents of noncompliance in accordance with a biological opinion or permit, move desert tortoises from harm's way when desert tortoises enter project sites and place these animals in "safe areas" pre-selected by authorized biologists or maintain the desert tortoises in their immediate possession until an authorized biologist assumes care of the animal. Monitors assist authorized biologists during surveys and serve as "apprentices" to acquire experience. Monitors should not conduct clearance surveys or other specialized duties of the authorized biologist unless directly supervised by an authorized biologist; "directly supervised" means the authorized biologist has direct voice and sight contact with the monitor.

**ecosystem** – Organisms, together with their abiotic environment, forming an interacting system and inhabiting an identifiable space.

**endangered species** – An animal or plant species that is in danger of extinction throughout all or a significant portion of its range (as defined in the ESA, as amended in 1982).

**ground-disturbing activities** – This term generally refers to any NPS-authorized action that disturbs vegetation and surface soil, increasing erosion potential above normal site conditions. Examples of ground-disturbing activities include mining, construction and / or maintenance of roads; installation of facilities; and implementation of vegetation treatments.

**invasive non-native plant** – A plant species that was introduced to the ecosystem under consideration after European contact as a direct or indirect result of human activity and that produces large numbers of offspring at considerable distances from parent plants.

**mitigation** – Mitigation includes the following: a) avoiding impacts altogether by not taking an action or parts of an action, b) minimizing impacts by limiting the degree or magnitude of the action and its implementation, c) rectifying the impacts by repairing, rehabilitating, or restoring the affected environment, d) reducing or eliminating impacts over time by preservation and maintenance operations during the life of the action, e) compensating for the impacts by replacing or providing substitute resources or environments (40 CFR 1508.20).

**mitigation measures** – Methods or procedures designed to reduce or lessen the adverse impacts caused by an action or management activities.

**National Historic Preservation Act of 1966, as amended (NHPA)** – A federal statute that established a federal program to further the efforts of private agencies and individuals in preserving the nation's historic and cultural foundations. The NHPA 1) authorized the National Register, 2) established the Advisory Council on Historic Preservation and a National Trust Fund to administer grants for historic preservation, and 3) authorized the development of regulations to require federal agencies to consider the effects of federally assisted activities on properties included on or eligible for the National Register. *See also National Register of Historic Places.*

**National Register of Historic Places (National Register)** – The official list, established by the NHPA, of the nation's cultural resources worthy of preservation. The National Register lists archeological, historic, and architectural properties (i.e., districts, sites, buildings, structures, and objects) nominated for their local, state, or national significance by state and federal agencies and approved by the National Register staff. NPS maintains the National Register. *See also National Historic Preservation Act.*

**native species** – A species of plant or animal that naturally occurs in an area and that was not introduced by humans (indigenous).

**noxious weed** – According to the Federal Noxious Weed Act (Public Law 93-629), a weed that causes disease or has other adverse effects on humans and their environment and therefore is detrimental to the agriculture and commerce of the United States and to public health.

**plant community** – Assemblage of plant populations in a defined area or physical habitat; an aggregation of plants similar in species composition and structure, occupying similar habitats over the landscape.

**rehabilitation** – A management practice which restores landscapes to a desired quality.

**road bench** – the area of the ground containing the road surface, cut slope and fill slope.

**sensitive species (plant and animal)** – All species that are under status review, have small or declining populations, live in unique habitats, or need special management. Sensitive species include threatened, endangered, and proposed species that are classified by the U.S. Fish and Wildlife Service.

**special status species** – Plant and animal species listed as endangered, threatened, candidate, or sensitive by federal or state governments.

**threatened species** – Any plant or animal species likely to become endangered within the foreseeable future throughout all or part of its range and designated by the U.S. Fish and Wildlife Service under the ESA.

**wilderness** – As defined by the Wilderness Act, a wilderness, in contrast with those areas where humans and their works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by humans, where humans are visitors who do not remain. An area of wilderness is further defined as an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which 1) generally appears to have been affected primarily by the forces of nature, with the imprint of human's work substantially unnoticeable; 2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; 3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and 4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**wildlife** – A broad term that includes birds, reptiles, amphibians, and non-domesticated mammals.

## **ACRONYMS**

APE	area of potential effect
BLM	Bureau of Land Management
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DO	Director's Order
EA	environmental assessment
ESA	Endangered Species Act
FHWA	Federal Highway Administration
GHG	greenhouse gas
GIS	geographic information system
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPS	National Park Service
National Register	National Register of Historic Places
USC	United States Code
USFWS	U.S. Fish and Wildlife Service

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## **APPENDICES**



## **APPENDIX A**

### **U.S. Fish and Wildlife Service Species List for the Pinto Basin Region**





# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Ecological Services

Carlsbad Fish and Wildlife Office  
6010 Hidden Valley Road, Suite 101  
Carlsbad, California 92011

In Reply Refer To:  
FWS-ERIV-05B0004-11SL0249

FEB 03 2011

Ms. Susy Morales  
RECON Environmental  
525 West Wetmore  
Suite 111  
Tucson, Arizona 85705

Subject: Species List for the Pinto Basin Region of Joshua Tree National Park, California

Dear Ms. Morales:

This letter is in response to your electronically-generated request for information on federally endangered, threatened, proposed, and candidate species, and designated critical habitat that may occur in the Pinto Basin Region of Joshua Tree National Park, California. Your request was generated in the IPaC interactive database on January 12, 2011, and was received in this office on January 18. Although we do not have site-specific biological survey information, we are providing the enclosed list of species to assist RECON and the National Park Service in conducting planning and environmental reviews for Pinto Basin Road and its vicinity. Designated critical habitat for the desert tortoise (*Gopherus agassizii*) occurs at the southern terminus of Pinto Basin Road as well as near the road's northwestern reach.

Should you have any questions regarding the species listed, the action agency's responsibilities under the Endangered Species Act of 1973 (Act), as amended, or if we can provide any other technical assistance related to fish and wildlife resource planning, please contact James Thiede of my office at (760) 431-9440, extension 243.

Sincerely,

*for* Kennon A. Corey  
Assistant Field Supervisor

TAKE PRIDE  
IN AMERICA 

**Federally Endangered, Threatened, Proposed, and Candidate Species  
that may occur in the  
Pinto Basin Road Region of Joshua Tree National Park  
January 2011**

Common Name	Scientific Name	Federal Status
	<b>REPTILES</b>	
desert tortoise (Mojave pop.)	<i>Gopherus agassizii</i>	Threatened
	<b>BIRDS</b>	
southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Endangered
least Bell's vireo	<i>Vireo bellii pusillus</i>	Endangered
golden eagle	<i>Aquila chrysaetos</i>	Eagle Act protection

Golden eagles are protected by the Migratory Bird Treaty Act and also by the Bald and Golden Eagle Protection Act, as explained below.

The **Migratory Bird Treaty Act** (16 U.S.C. 703-712; MBTA) protects migratory birds, and their nests, eggs, young, and parts from possession, sale, purchase, barter, transport, import, and export, and take. For purposes of the MBTA, "take" is defined as "*to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect.*" (50 C.F.R. § 10.12). It is a strict liability statute wherein proof of intent is not an element of a taking violation. The MBTA applies to migratory birds that are identified in 50 C.F.R. § 10.13 (defined hereafter as "migratory birds"). Generally speaking, the MBTA protects all birds occurring in the U.S. except for house (English) sparrows, European starlings, rock doves (pigeons), any recently listed unprotected species in the Federal Register and non-migratory upland game birds. Many migratory birds, including raptor species, are sensitive to disturbance when nesting and roosting. Should such disturbance result in the wounding or killing of adult birds, chicks, or eggs, including abandonment of a nest with eggs or young, the activity causing the disturbance would violate the MBTA, thus necessitating additional measures be incorporated into the activities in question to avoid such take.

Under the authority of the **Bald and Golden Eagle Protection Act** (16 U.S.C. 668- 668d; BGEPA), bald eagles and golden eagles are afforded additional legal protection. "Take" under this statute was defined as "*pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, or molest or disturb.*" 50 C.F.R. § 22.3. "Disturb," in turn, was defined as "*to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.*" *Id.* If a proposed project or action would occur in areas where nesting, feeding, or roosting eagles occur, then project proponents may need to incorporate additional conservation measures into projects to achieve compliance with the BGEPA.

Federal agencies and applicants are encouraged to work closely with Service biologists to identify available protective measures when developing project plans and/or avian protection plans, and to implement those measures prior to and during construction.



## **APPENDIX B**

### **Determination of Impairment**



## **APPENDIX B: DETERMINATION OF IMPAIRMENT**

### **JOSHUA TREE NATIONAL PARK REHABILITATION AND RECONSTRUCTION OF PINTO BASIN ROAD ENVIRONMENTAL ASSESSMENT**

While Congress has given the Service the management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the Park Service must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the Organic Act, establishes the primary responsibility of the National Park Service. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

The impairment of park resources and values may not be allowed by the NPS unless directly and specifically provided for by legislation or by the proclamation establishing the park. The relevant legislation or proclamation must provide explicitly (not by implication or inference) for the activity, in terms that keep the Service from having the authority to manage the activity so as to avoid the impairment.

The impairment that is prohibited by the Organic Act and the General Authorities Act 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. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts.

An impact to any park resource or value may, but does not necessarily, constitute an impairment. 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, or
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- identified in the park's general management plan or other relevant NPS planning documents as being of significance.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated. An impact that may, but would not necessarily, lead to impairment may result from visitor activities; NPS administrative activities; or activities undertaken by concessioners, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park.

National Park Service's *Management Policies 2006* requires analysis of potential effects to determine whether or not actions would impair park resources. The park resources and values that are subject to the no-impairment standard include:

- the parks scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
- the parks role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.

Based on enabling and wilderness legislation, legislation of October 1994, and biosphere reserve status, the purposes of the park are to:

- protect and interpret areas, sites, structures, and various artifacts associated with occupations by prehistoric, historic, and contemporary Native American groups, historic miners, and subsistence cattle ranchers
- protect and interpret the biologically diverse examples of the Mojave and Colorado desert ecosystems
- serve as a natural laboratory for understanding and managing the Mojave and Colorado desert ecosystems
- preserve the character and values of wilderness in the park
- provide visitors with opportunities to experience and enjoy natural and cultural resources through compatible recreational activities

Impairment findings are not necessary for visitor use and experience, socioeconomics, public health and safety, environmental justice, land use, and park operations, because impairment findings relates back to park resources and values, and these impact areas are not generally considered park resources or values according to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values. Topics dismissed from further analysis in the Environmental Assessment include geohazards/natural hazards, soundscapes, air quality, water quality/quantity, streamflow characteristics, floodplains, wetlands and riparian habitats, cultural landscapes, ethnographic resources, and wilderness.

After dismissing the above topics, topics remaining to be evaluated for impairment include geological (soils) resources, vegetation resources (including non-native species), wildlife, federally listed species and species of special concern, and archeological resources.

Fundamental resources and values for Joshua Tree National Park are identified in the GMP. According to that document, of the impact topics carried forward in this Environmental Assessment, natural resources (geologic, vegetation, wildlife or wildlife habitat, federally listed species, and species of special concern) and archaeological resources are considered necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; are key to the natural or cultural integrity of the park; and/or are identified as a goal in the park's GMP or other relevant NPS planning document.

## **NATURAL RESOURCE TOPICS**

### **Geological Resources - Soils**

The landscape within the park consists of mountain ranges, desert basins, and rock piles. Most soils in the park are poorly developed. The eastern half is mostly alluvial with no true soil structure. This granitic fill ranges from boulders to gravel and coarse sand. These are modern deposits consisting of fan gravel and other alluvium being deposited by drainage systems. There are no known rare or unique soils in the park.

Under the Preferred Alternative, the Proposed Action would result in clearing and grubbing (during construction activities) of approximately 6.2 acres of newly disturbed areas, resulting in disturbance and removal of soils. Road rehabilitation and reconstruction would involve excavation, grading, and exposure of soil material which would increase the potential for erosion. Revegetation of approximately 1 acre of disturbed areas along the roadway would provide long-term and beneficial impacts to soils. Mitigation measures incorporated into the Preferred Alternative (including Best Management Practices) would be used to protect disturbed areas from erosion and compaction. The Preferred Alternative would not result in impairment of soil resources because adverse impacts would be temporary, approximately 1 acre of disturbed areas would be revegetated, and mitigation measures would reduce impacts.

### **Vegetation**

Vegetation within the Pinto Basin Road proposed project area consists primarily of creosote shrub community vegetation, with the following vegetation associations: Arizona upland Sonoran desert scrub; lower bajada and fan Mojavean-Sonoran desert scrub; Mojavean semi-desert wash scrub; North American warm desert bedrock cliff and pavement; Mojavean upper desert scrub; and Sonoran-Coloradan semi-desert wash woodland / scrub.

Several non-native invasive species occur throughout the park, primarily along roadways and trails. Many of these species migrate along the roadway through motorized and non-motorized seed dispersal.

Roadway reconstruction and rehabilitation would primarily occur within the existing disturbed roadway bench. Total new soil disturbance would be approximately 6.2 acres under the Preferred Alternative. Revegetation of approximately 1 acre of disturbed areas along the roadway would occur. Mitigation measures are also incorporated under the Preferred Alternative to minimize impacts to vegetation within the project area. Any cholla cactus removed for the roadway realignment would be transplanted to areas identified for revegetation within the Cholla Cactus Garden.

The Preferred Alternative would affect a small portion of vegetation species populations in the project area and result in short-term changes to plant species composition. Invasive species would likely increase in only limited locations along the roadway. The Preferred Alternative would not result in

impairment of vegetation because adverse impacts would be addressed by mitigation measures including revegetation of disturbed areas and controlling invasive species.

## **Wildlife**

A number of wildlife species are known to occur within or adjacent to the project area. Wildlife known to occur includes large and small mammals, reptiles, and bird species.

Under the Preferred Alternative, roadway reconstruction and rehabilitation (construction) activities would result in potential impacts to wildlife, such as: clearing and grubbing of approximately 6.2 acres of undisturbed areas resulting in loss of habitat; harm or disruption of behavior during construction activities; noise disturbance; and temporary displacement. The majority of construction activity would occur within the existing roadway areas of disturbance (existing roadway bench). Mitigation measures to minimize the disturbance area, monitoring during construction, and revegetation of approximately 1 acre along the roadway would reduce the potential for adverse impacts.

The Preferred Alternative would not result in impairment of wildlife resources because adverse impacts would be temporary and mitigation measures would be implemented to avoid and reduce impacts.

## **Federally Listed Species and Species of Special Concern**

Consultation with the USFWS identified one federally listed threatened species, the Mojave population of the desert tortoise, known to occur within the project area. There are 15 species of special concern known to occur within the project area. These species include: Bendire's thrasher; Le Conte's thrasher; yellow warbler; pallid bat; western mastiff bat; pallid San Diego pocket mouse; Nelson's bighorn sheep; rosy boa; Alverson's foxtail cactus; Coves' cassia; Hall's tetracoccus; Jarwood's milk-vetch; Las Animas colubrine; Little San Bernardino Mountains linanthus; spear-leaf matelea; and thorny milkwort.

Under the Preferred Alternative, the Proposed Action would result in impacts to desert tortoise and species of special concern. Impacts from construction activities to tortoise would include: clearing and grubbing of 6.2 acres of undisturbed areas resulting in loss of habitat; potential direct harm and disruption of behavior during clearing, grading, and trenching activities; disturbance by noise or vibrations from heavy equipment; damage to soil and cryptogams on the periphery; incidental death of unseen tortoise along roads, beneath crushed vegetation, or in undetected burrows; destruction of burrows; handling of tortoise; entrapment of tortoises in pits or trenches; attraction of ravens and facilitation of their survival by augmenting food or water; fugitive dust; and toxins from exhaust.

Implementation the Preferred Alternative would result in a may affect, not likely to adversely affect determination for the desert tortoise and park-determined critical habitat. No USFWS designated desert tortoise critical habitat would be impacted. Species of special concern could be disturbed or displaced during construction activity. Impacts would occur to the approximately 6.2 acres of undisturbed areas needed for roadway reconstruction; however, the majority of construction activity would occur within the existing disturbed roadway bench. Approximately 1 acre of the existing roadway alignment no longer needed would be rehabilitated by removing all pavement material and revegetating with native seeds, and transplanting native plant species. This would result in rehabilitation of potential habitat for desert tortoise and species of special concern. In addition, mitigation measures would be implemented to minimize disturbance outside the roadway bench, monitor for desert tortoise and species of special concern, and avoid or minimize impacts to these species. The Preferred Alternative would not result in impairment of the federally listed desert tortoise

or species of special concern because the adverse impacts would be temporary and would be mitigated by implementation of specific mitigation measures.

### **Archeological Resources**

An archeological resources survey was conducted in the fall of 2010. Based on a records search provided by the park, there were 64 isolates and 10 sites previously recorded within the search boundary. During the survey, archeologists recorded 135 new isolates and 40 new sites within the proposed project area. Under the Preferred Alternative, total new disturbance would be approximately 6.2 acres. Surface disturbance associated with construction activities under the Preferred Alternative would generally occur in previously disturbed areas. Best management practices, project design, mitigation measures as outlined under the proposed action, and consultation as applicable would be conducted to avoid impacts to National Register-eligible cultural sites. To reduce the potential for impacts, construction work in proximity to National Register-eligible sites would be subject to monitoring by a professional archeologist. The Preferred Alternative would not result in impairment of archeological resources because known sites would be avoided and monitoring and mitigation measures would be implemented to reduce the potential for adverse impacts.

### **SUMMARY**

As described above, adverse impacts anticipated as a result of implementing the Preferred Alternative on 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, or identified as significant in the park's general management plan or other relevant NPS planning documents, would not rise to levels that would constitute impairment.



## **APPENDIX C**

### **Section 106 Consultation Letter to State Historic Preservation Officer**



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Mr. Milford Wayne Donaldson  
State Historic Preservation Officer  
Department of Parks and Recreation  
1725 23<sup>rd</sup> Street, Suite 100  
Sacramento, California 95816

Dear Mr. Donaldson:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. We will be preparing a separate Assessment of Effect for submittal to your office in compliance with Section 106 of the National Historic Preservation Act, 36 CFR 800. In the meantime, the Park welcomes your input during the scoping phase of the project, and would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultation with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent

## **APPENDIX D**

### **Tribal Consultation Letters and Responses**



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Patricia Tuck, THPO  
Agua Caliente Band of Cahuilla Indians  
5401 Dinah Shore Drive  
Palm Springs, California 92264

Dear Ms. Tuck:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Mr. Darrell Mike, Tribal Chair  
Twentynine Palms Band of Mission Indians  
46200 Harrison Place  
Coachella, California 92236

Dear Mr. Mike:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Joseph Hamilton, Tribal Chairman  
Ramona Band of Cahuilla Indians  
56310 Highway 371, Suite B  
Anza, California 92539

Dear Mr. Hamilton:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot- wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Mary L. Resvaloso, Tribal Chair  
Torres-Martinez Band of Desert Cahuilla Indians  
P.O. Box 1160  
Thermal, California 92236

Dear Ms. Resvaloso:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Scott Cozart, Chairman  
Soboba Band of Luiseno Indians  
P.O. Box 487  
San Jacinto, California 92581

Dear Mr. Cozart:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park

74485 National Park Drive

Twentynine Palms, California 92277-3597

IN REPLY REFER TO:

D30 (JOTR-RM)

December 22, 2010

James Ramos, Tribal Chair  
San Manuel Band of Serrano Mission Indians  
26569 Community Center Drive  
Highland, California 92346

Dear Mr. Ramos:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Robert Martin, Tribal Chair  
Morongo Band of Mission Indians  
12700 Pumarra Road  
Banning, California 92220

Dear Mr. Martin:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Francine Kupsch, Spokeswoman  
Los Coyotes Band of Mission Indians  
P.O. Box 189  
Warner Springs, California 92086

Dear Ms. Kupsch:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Timothy Williams, Chairman  
Fort Mojave Indian Tribe  
500 Merriam Avenue  
Needles, California 92363

Dear Mr. Williams:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Eldred Enas, Chairman  
Colorado River Indian Tribes  
26600 Mohave Road  
Parker, Arizona 85344

Dear Mr. Enas:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Charles Wood, Chairman  
Chemhuevi Indian Tribe  
P.O. Box 1976  
Havasu Lake, California 92363

Dear Mr. Wood:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Luther Salgado, Tribal Chair  
Cahuilla Band of Mission Indians  
P. O. Box 391760  
Anza, California 92539

Dear Mr. Salgado:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

John James, Tribal Chair  
Cabazon Band of Cahuilla Mission Indians  
84-245 Indio Springs Drive  
Indio, California 92203

Dear Mr. James:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Mary Ann Martin, Chairperson  
Augustine Band of Mission Indians  
P.O. Box 846  
Coachella, California 92236

Dear Ms. Martin:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Richard M. Milanovich, Chairperson  
Agua Caliente Band of Cahuilla Indians  
5401 Dinah Shore Drive  
Palm Springs, California 92264

Dear Mr. Milanovich:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Tara Frank  
Morongo Band of Cahuilla Mission Indians  
12700 Pumarra Road  
Banning, California 92220

Dear Ms. Frank:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Mike Contreras, Director of Cultural Department  
Morongo Band of Cahuilla Mission Indians  
12700 Pumarra Road  
Banning, California 92220

Dear Mr. Contreras:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twenty-nine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Mr. Anthony Madrigal, Sr.  
San Manuel Band of Mission Indians  
26569 Community Center Drive  
Highland, California 92346

Dear Mr. Madrigal:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Ann Brierty, Tribal Representative  
San Manuel Band of Mission Indians  
26569 Community Center Drive  
Highland, California 92346

Dear Ms. Brierty:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



# United States Department of the Interior

## NATIONAL PARK SERVICE

Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, California 92277-3597

IN REPLY REFER TO:  
D30 (JOTR-RM)

December 22, 2010

Anthony Madrigal, Jr.  
Twentynine Palms Band of Mission Indians  
46200 Harrison Place  
Coachella, California 92236

Dear Mr. Madrigal:

At Joshua Tree National Park (Park) the National Park Service (NPS) in cooperation with the Federal Highway Administration, Central Federal Lands Highway Division, is beginning to explore appropriate alternatives for the reconstruction and rehabilitation of approximately 23.5 miles of Pinto Basin Road. The proposed action would include widening, realigning, and modifying the existing 20- to 22-foot-wide paved road to a 24-foot-wide road, with a design speed of 35 or 45 miles per hour. The speed limit would depend on the location along the roadway. The proposed action would also redesign and realign the road to improve sight distance at Cholla Cactus Garden, Porcupine Wash, and at the Pinkham Canyon Road intersection.

The proposed action is part of a phased effort to rehabilitate many of the Park's primary roadways in accordance with the 1995 General Management Plan. The primary objective of the project would be to improve road safety conditions for Pinto Basin Road.

The NPS intends to develop alternatives for this project and prepare an environmental analysis for tribal, agency and public review. The Park welcomes your input during the scoping phase of the project. An archeological survey of the Area of Potential Effect (APE) has been completed recently, and we are awaiting a final summary report. My staff will continue to keep you informed as the effort progresses, and we would appreciate receiving any preliminary comments you may have by February 7, 2011.

If you have any questions, please contact either Andrea Compton, Chief of Resources, at (760) 367-5560 or Jan Keswick, Cultural Resources Manager, at (760) 367-5570. I look forward to continued consultations with your office.

Sincerely,

Kevin Hendricks  
Acting Superintendent



**AUGUSTINE BAND OF CAHUILLA INDIANS**  
P.O. Box 846 • Coachella, CA 92236 • (760) 398-4722 • Fax (760) 398-4252  
Tribal Chairperson: MaryAnn Green

January 6, 2011

Kevin Hendricks  
U.S. Department of the Interior  
NATIONAL PARK SERVICE  
Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, CA 92277-3597

RE: D30 (JOTR-RM) – Pinto Basin Road Rehab Project (29 Palms, CA)

Dear Mr. Hendricks:

Thank you for the opportunity to offer input concerning the development of the above-identified project. We appreciate your sensitivity to the cultural resources that may be impacted by your project, and the importance of these cultural resources to the Native American peoples that have occupied the land surrounding the area of your project for thousands of years. Unfortunately, increased development and lack of sensitivity to cultural resources has resulted in many significant cultural resources being destroyed or substantially altered and impacted. Your invitation to consult on this project is greatly appreciated.

At this time we are unaware of specific cultural resources that may be affected by the proposed project. We encourage you to contact other Native American Tribes and individuals within the immediate vicinity of the project site that may have specific information concerning cultural resources that may be located in the area. We also encourage you to contract with a monitor who is qualified in Native American cultural resources identification and who is able to be present on-site full-time during the pre-construction and construction phase of the project. Please notify us immediately should you discover any cultural resources during the development of this project.

Very truly yours,

Augustine Band of Cahuilla Indians

A handwritten signature in cursive script that reads "Mary Ann Green". The signature is written in black ink and is positioned above the printed name and title of the signatory.

Mary Ann Green  
Tribal Chairperson

January 19, 2011

Attn: Kevin Hendricks, Acting Superintendent  
Joshua Tree National Park  
74485 National Park Drive  
Twentynine Palms, CA 92277-3597



**Re: Alternatives for the Reconstruction and Rehabilitation of  
Approximately 23.5 Miles of Pinto Basis Road**

The Soboba Band of Luiseño Indians appreciates your observance of Tribal Cultural Resources and their preservation in your project. The information provided to us on said project has been assessed through our Cultural Resource Department, where it was concluded that although it is outside the existing reservation, the project area does fall within the bounds of our Tribal Traditional Use Areas. This project location is in close proximity to known village sites and is a shared use area that was used in ongoing trade between the Luiseno and Cahuilla tribes. Therefore it is regarded as highly sensitive to the people of Soboba.

Soboba Band of Luiseño Indians is requesting the following:

1. **Government to Government** consultation in accordance to Section 106. Including the transfer of information to the Soboba Band of Luiseno Indians regarding the progress of this project should be done as soon as new developments occur.
2. Soboba Band of Luiseño Indians continue to be a lead consulting tribal entity for this project.
3. Working in and around traditional use areas intensifies the possibility of encountering cultural resources during the construction/excavation phase. For this reason the Soboba Band of Luiseño Indians requests that Native American Monitor(s) from the Soboba Band of Luiseño Indians Cultural Resource Department to be present during any ground disturbing proceedings. Including surveys and archaeological testing.
4. Request that proper procedures be taken and requests of the tribe be honored (Please see the attachment)

Sincerely,

Joseph Ontiveros  
Soboba Cultural Resource Department  
P.O. Box 487  
San Jacinto, CA 92581  
Phone (951) 654-5544 ext. 4137

Cell (951) 663-5279  
[jontiveros@soboba-nsn.gov](mailto:jontiveros@soboba-nsn.gov)

**Cultural Items (Artifacts).** Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer should agree to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. When appropriate and agreed upon in advance, the Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.

The Developer should waive any and all claims to ownership of Native American ceremonial and cultural artifacts that may be found on the Project site. Upon completion of authorized and mandatory archeological analysis, the Developer should return said artifacts to the Soboba Band within a reasonable time period agreed to by the Parties and not to exceed (30) days from the initial recovery of the items.

#### **Treatment and Disposition of Remains**

A. The Soboba Band shall be allowed, under California Public Resources Code § 5097.98 (a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods shall be treated and disposed of with appropriate dignity.

B. The Soboba Band, as MLD, shall complete its inspection within twenty-four (24) hours of receiving notification from either the Developer or the NAHC, as required by California Public Resources Code § 5097.98 (a). The Parties agree to discuss in good faith what constitutes "appropriate dignity" as that term is used in the applicable statutes.

C. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code § 5097.98 (a) and (b). The Soboba Band, as the MLD in consultation with the Developer, shall make the final discretionary determination regarding the appropriate disposition and treatment of human remains.

D. All parties are aware that the Soboba Band may wish to rebury the human remains and associated ceremonial and cultural items (artifacts) on or near, the site of their discovery, in an area that shall not be subject to future subsurface disturbances. The Developer should accommodate on-site reburial in a location mutually agreed upon by the Parties.

E. The term "human remains" encompasses more than human bones because the Soboba Band's traditions periodically necessitated the ceremonial burning of human remains. Grave goods are those artifacts associated with any human remains. These items, and other funerary remnants and their ashes are to be treated in the same manner as human bone fragments or bones that remain intact.

**Coordination with County Coroner's Office.** The Lead Agencies and the Developer should immediately contact both the Coroner and the Soboba Band in the event that any human remains are discovered during implementation of the Project. If the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, the Coroner shall ensure that notification is provided to the NAHC within twenty-four (24) hours of the determination, as required by California Health and Safety Code § 7050.5 (c).

**Non-Disclosure of Location Reburials.** It is understood by all parties that unless otherwise required by law, the site of any reburial of Native American human remains or cultural artifacts shall not be disclosed and shall not be governed by public disclosure requirements of the California Public Records Act. The Coroner, parties, and Lead Agencies, will be asked to withhold public disclosure information related to such reburial, pursuant to the specific exemption set forth in California Government Code § 6254 (r).

Ceremonial items and items of cultural patrimony reflect traditional religious beliefs and practices of the Soboba Band. The Developer agrees to return all Native American ceremonial items and items of cultural patrimony that may be found on the project site to the Soboba Band for appropriate treatment. In addition, the Soboba Band requests the return of all other cultural items (artifacts) that are recovered during the course of archaeological investigations. Where appropriate and agreed upon in advance, Developer's archeologist may conduct analyses of certain artifact classes if required by CEQA, Section 106 of NHPA, the mitigation measures or conditions of approval for the Project. This may include but is not limited or restricted to include shell, bone, ceramic, stone or other artifacts.



As the nation's principal conservation agency, the Department of the Interior has the responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historic places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. Administration.

National Park Service 156/102126

June 2011

United States Department of the Interior ✧ National Park Service