



Environmental Assessment

REHABILITATION OF MAIN PARK ROAD

CAP ROCK INTERSECTION TO GEOLOGY TOUR ROAD



ENVIRONMENTAL ASSESSMENT

**REHABILITATION OF MAIN PARK ROAD
CAP ROCK INTERSECTION TO GEOLOGY TOUR ROAD**

JOSHUA TREE NATIONAL PARK

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Purpose and Need

The purpose of the project is to rehabilitate the section of Park Route 12 from near Cap Rock intersection to the Geology Tour Road intersection. In 1994 average annual daily traffic (AADT) was about 600 vehicles per day. This traffic is causing the thin pavement to rapidly deteriorate and break up. The park is also experiencing an increase in bus and recreational vehicle use along Park Route 12. These vehicles are heavier and wider than passenger cars, thus their wheels tend to ride on the edge of the narrow roadway. This causes rapid breakdown of the pavement and results in the development of ruts and abrupt drop offs at the soft soil shoulders. Patching the road edges and re-grading these shoulders consumes an inordinate amount of park maintenance time and funds. Narrow roads and soft shoulders are a prime contributor to most of the serious vehicle accidents that occur in the park. These accidents typically occur when a vehicle veers off the road into the soft shoulder and the driver loses control of the vehicle while trying to steer out of the sand, often resulting in a rollover.

This project is needed because the existing road is not adequate for current usage by visitors. When the roads at Joshua Tree were first improved and paved, visitor use was quite low (79,000 in 1950). At that time visitors were accommodated primarily by parking on the road shoulders or in a few informal off road parking areas and pullouts. Since most of the desert at Joshua Tree is gently sloping and lacks major vegetation to impede movement of vehicles, additional areas for parking simply “grew” as people parked on the roadside. Today, visitation exceeds 1.2 million people per year (2001) and the desert resources adjacent to the road are experiencing damage from parking and associated social trailing to rock formations. Parking demand routinely exceeds the capacity of existing defined parking areas. Park management has attempted to stop the incremental creep of vehicles into the desert, yet the existing road configuration makes it difficult to enforce. To minimize impacts to the desert tortoise, a federally listed species, and other resources from off-road parking, this project proposes expanding some of the existing parking areas, adding formal pulloff areas along the road, and curbing the road.

Background and Previous Planning

This project is funded by the Federal Lands Highway Program (FLHP). The Park Roads & Parkway (PRP) program, as a component of the Federal Lands Highway Program (FLHP), is jointly administered by the Federal Highway Administration (FHWA) and the National Park Service (NPS). FLHP was established by the Surface Transportation Assistance Act of 1982 and includes similar component programs with the Forest Service, the Fish and Wildlife Service, and the Bureau of Indian Affairs. Funding for the FLHP began in Fiscal Year (FY) 1983.

The FLHP provides funding and the FHWA’s engineering expertise to federal land management agencies to support the design, construction, reconstruction, and rehabilitation of each agency’s public road system. Funds are allocated on an annual basis from the Highway Trust Fund which is funded by the Federal motor vehicle gas tax. The intent of the PRP program is to maintain and improve the quality, and condition of the approximately 8,000 miles of roads (paved and unpaved) and 1,460 bridges and tunnels which comprise the NPS’s public road system.

In 1984, the National Park Service (NPS) prepared a Transportation Study/Road System Evaluation for Joshua Tree National Monument (prior to the establishment of Joshua Tree National Park, 1994). That study was developed in response to the Surface Transportation Assistance Act of 1982 (P.L. 97-424; 23 USC 202), which addressed the nationwide and upgrading of public roads.

In 1987, a 6.5-mile section of Route 12 was completed immediately east of the Geology Tour Road intersection. An EA was prepared in 1991 for the next phase of rehabilitation. This EA was not approved and the decision on how to best design the road was left to the General Management Plan. The General Management Plan (GMP), approved in 1995, defined road guidelines and described the plans for future road projects. This proposed project as well as phase I are actions tiered from this GMP. Phase I, the section of Route 12 between Quail Springs and Cap Rock as well as the road out to Barker Dam was completed in 2001.

The proposal presented in this document is to rehabilitate the 5.5 mile section of Route 12 beginning near Cap Rock intersection and ending at the Geology Tour intersection. A total of 9 formalized 2 to 3 car capacity pulloffs would replace informal pulloff sites located along route 12. Parking at Ryan Mountain trailhead would be improved and two new parking areas would be constructed along route 12.

The Roadway

Route 12 is one of the two principal accesses into and through Joshua Tree National Park. It begins at the north boundary near Twentynine Palms and traverses a 25.65-mile path through the park to the west entrance. The other access is Route 11, which provides north-south access through the park.

Miners originally built the park roadways to accommodate wagons and teams, and the same basic alignments are followed today. Improvements through the years included widening the roadway, and applying chip and seal coats. After the area was designated as a monument, in 1936, spur roads to popular use areas were built in the same manner. The sequence of additional roadway improvements has resulted in a roadway too narrow for present use, an inadequate structural road base, substandard road alignment and drainage problems, insufficient number of pullouts and parking areas, and safety hazards (especially for recreational vehicles along curve sections).

Associated Visitor Use Areas

The parking areas, like the roads, are no longer adequate to serve current visitation levels and patterns. Visitation type, level, and location have changed dramatically during the past decade (see visitation graph). Two reasons for this change are the expanding suburban sprawl of Los Angeles to the east bringing the park within a two hour drive of more than ten million people, growth of nearby desert communities, and a substantial increase in the popularity of rock climbing as a recreational sport and the discovery of the park as an excellent place to pursue this activity. Designated parking areas are currently too small to accommodate the recent increase in use, and not located adjacent to the popular attractions (e.g. climbing rocks). As a result, visitors are parking in nearby lots (designated for other attractions or functions) or on the roadside and

are walking back cross-country to their destinations. Designated parking currently does not provide for peak season use resulting in unnecessary, uncontrolled, and continually expanding damage to resources the park was originally established to protect.

Although this segment of Route 12 is not the destination for recreational climbers that the Hidden Valley area is it does provide a good number of climbs. The developed area along the segment proposed for improvement includes a campground, picnic areas, and interpretive/hiking trailheads. This area can be congested with traffic during the weekends from October to May, the peak visitor use season.

Scoping

Scoping is the effort to involve agencies and the general public in determining the scope of issues to be addressed in the environmental document for the proposed improvements. Among other tasks information from scoping enables the NPS to determine important issues and eliminate issues not important; allocate assignments among the interdisciplinary team members and/or other participating agencies; identify related projects and associated documents; identifies other permits, surveys, consultations etc. required by other agencies; and create a schedule which allows adequate time to prepare and distribute the environmental document for public review and comment before a final decision is made. Scoping provides an opportunity for early input by any interested agency (e.g., USFWS, Sub., etc.)

The US Fish and Wildlife Service, ACHP, SHPO, and interested Indian Tribes were contacted. A local press release was issued in the Fall of 2001 and Spring of 2002 to let the public know about the road planning and invite them to participate.

Scoping for this project resulted in a number of issues or impact topics to be addressed in this document. These impact topics are described in detail in the Impact Topics section below.

Impact Topics

Issues and concerns associated with the preferred alternative were identified by specialists in the National Park Service utilizing both internal and external input provided during scoping. Impact topics are the resources or values of concern that could be affected by the range of alternatives. Specific impact topics are developed to ensure that alternatives were compared on the basis of the most relevant topics. The following impact topics were identified on the basis of federal laws, regulations, orders, and National Park Service *Management Policies, 2001*. A brief rationale for the selection of each impact topic is given below, as well as the rationale for dismissing specific topics from further consideration.

Included Impact Topics

Biotic Communities: The National Environmental Policy Act (NEPA) calls for an examination of the impacts on all components of affected ecosystems including soils, vegetation, and wildlife. NPS policy is to protect the natural abundance and diversity of all the park's naturally occurring communities. The 2001 NPS *Management Policies*, and DO-77 (Natural Resources Management)

among other NPS and park policies, provides general direction for the protection of the natural abundance and diversity of all the park's naturally occurring communities. Since the preferred alternative would involve manipulation of natural resources, biotic communities would be addressed as an impact topic in this document.

Species of Special Concern. The Endangered Species Act requires an examination of impacts on all species on the federal list of threatened or endangered species. NPS policy requires examination of the impacts on listed threatened, endangered, or rare species and species of concern.

Cultural Resources. The National Park Service (NPS) is mandated to preserve and protect its historic properties through the 1916 organic act (USC Title 16), and such specific legislation as the Antiquities Act of 1906 (16 USC 431), the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC 470), the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4321, 4331, 4332), and the Archeological Resources Protection Act of 1979 (16 USC 470). In addition, the management of cultural resources would be guided by the Advisory Council on Historic Preservation's implementing regulations regarding the *Protection of Historic Properties* (36 CFR Part 800), The Secretary of the Interior's *Standards for the Treatment of Historic Properties* (1995), Chapter V of the *NPS Management Policies 2001* (2000), and NPS Director's Orders (DO)-2 *Park Planning*, DO-12 *Conservation Planning, Environmental Impact Analysis, and Decision-Making*, and DO-28 (*Cultural Resource Management*).

The term historic properties refers to all cultural resources, including archeological sites, historic structures or buildings, cultural landscapes, ethnographic resources, and museum collections. NPS policy calls for the protection of cultural resources and for mitigation (such as data recovery) where it is not possible to avoid impacts to specific sites. The evaluation of potential impacts of preferred alternatives on significant historic properties is required by NEPA and NHPA, as is attention to the provisions of the 1990 Native American Graves Protection and Repatriation Act (NAGPRA) for sites where human remains or burials may be present. The NPS would consult with affiliated American Indian tribes in a way that respects the beliefs, traditions, and other cultural values of the American Indian tribes who are associated with Joshua Tree National Park.

Archeological Resources. An intensive archeological survey of the road project corridor was completed in 2002. The survey included assessments of site significance to identify resources eligible for listing in the National Register of Historic Places (NRHP). The survey covered a 100-meter wide corridor along the road right-of-way. The survey corridor is the project APE. The proposed parking lot areas are also part of the APE and were "over-surveyed" by at least 50 meters to ensure the entire footprint of each parking lot was covered. All sites within and near the survey corridor were relocated, but only those within the APE (threatened by the construction project) for which testing was recommended were re-recorded. Archeological testing was conducted at four sites. Of the sites tested, the National Park Service recommends that two (CA-RIV-346 and CA-RIV-1959) are eligible for listing on the NRHP. Both of these potentially eligible sites are subject to impacts by the road project. The other four archeological sites within the APE are recommended not eligible for listing on the NRHP. These four sites are CA-RIV-1937, CA-RIV-4836, CA-RIV-359, and CA-RIV-960 (NPS, Neff, 2002)

The east west Cocopa-Maricopa Trail, a historic Indian travel route through the park, is identified

in the park's general management plan (NPS, 1995). The Indian Trail passes through the park roughly from the southeast to the northwest crossing Park Boulevard (Route 12) within the project area. The Indian Trail was used by Mojave and Maricopa traders who regularly passed through on treks back and forth to the coast (NPS, 1995). Because archeological resources are present and in close proximity to the proposed road reconstruction project, archeological resources would be addressed as an impact topic in this document.

Visitor Use and Experience. Providing for visitor enjoyment is one of the fundamental purposes of the National Park Service. Detailed observation of visitor use within planned area of rehabilitation of Route 12 was a prerequisite for this road project.

Park Operations. These operations could be affected by the alternatives. Therefore, park operations will be addressed as an impact topic in this document

Dismissed Impact Topics

Air Quality. The Clean Air Act requires federal land managers to protect park air quality. NPS Management Policies call for air resource management to be integrated into NPS operations and planning and for all air pollution sources within parks to comply with all federal, state, and local air quality regulations. Short-term impacts from construction activities would include emission from construction vehicles and generation of fugitive dust, however, the use of a palliative would minimize the dust. None of the alternatives being considered would increase the capacity of the roadway (lanes), thus no long-term change in traffic volumes, or resultant vehicle emissions is expected. The alternatives considered would not have a long-term impact on air quality so this topic was dismissed from further analysis.

Socioeconomic. The local economy and most businesses within the communities adjacent to the park are based on professional services, construction, tourism, light industry, and a local military installation. Should the preferred alternative be implemented, the local and regional economy would realize short-term economic benefits from construction related expenditures. It is possible that employment opportunities relating to support of the road construction project may be generated. Possible disturbance and inconvenience to both park visitors and gateway communities from construction activities would be temporary and would occur only during the construction period.

The staging of this road construction project and schedule for potential traffic delays and road closures would temporarily impact visitation to the park as it would adjacent businesses. Therefore, "socioeconomic values" was dismissed as an impact topic in this document.

Wilderness. All of the actions proposed in the alternatives would take place outside designated wilderness. Some short-term noise impacts to wilderness may occur from the construction activity and would be negligible since wilderness is a minimum of 0.3 miles from the project. Construction activity would not be permitted during nighttime hours. Therefore impacts to wilderness are not discussed further.

Environmental Justice. Executive Order 12898, "General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. No alternative would have disproportionate health or environmental effects on minorities or low-income populations or communities as defined in the Environmental Protection Agency's Draft Environmental Justice Guidance (July 1996) therefore this topic will not be addressed further.

Water Resources. The 2001 NPS *Management Policies*, and DO-77 (Natural Resources Management) among other NPS and park policies, provides general direction for the protection of water resources. There are no water resources (lakes, rivers streams, wells) within the project area that would be affected by the alternatives, therefore the topic of water resources was dismissed.

Floodplains and Wetlands: Executive Orders 11988 (Floodplain Management) and 11990 (Protection of Wetlands) require an examination of impacts to floodplains and wetlands; of potential risk involved in placing facilities within floodplains, and protecting wetlands. The 2001 NPS *Management Policies*; and DO-12 (NEPA Guideline), 2001, provide direction on developments proposed in floodplains and wetlands.

The project area has been evaluated for the presence of wetlands and no wetlands would be impacted as the result of the proposed alternative. Also, there are no floodplains located in this phase of the road projects. Therefore, floodplains and wetlands were dismissed as impact topics in this document.

Prime and Unique Farmland. In August, 1980, the Council on Environmental Quality (CEQ) directed that federal agencies must assess the effects of their actions on farmland soils classified by the United States Department of Agriculture's Natural Resource Conservation Service as prime or unique. Prime or unique farmland is defined as soil that particularly produces general crops such as common foods, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts. According to the Natural Resource Conservation Service, there are no prime farmlands within the project area. Therefore, the topic of prime and unique farmland was dismissed as an impact topic in this document.

Historic Structures/Buildings. The National Historic Preservation Act, as amended (16 USC 470 *et seq.*); the National Environmental Policy Act (42 USC 4321 *et seq.*); and NPS DO-28, *Cultural Resource Management Guideline (1997)*, NPS *Management Policies, 2001 (2000)*, and DO-12, *Conservation Planning, Environmental Impact Analysis, and Decision Making (2001)*, require the consideration of impacts on historic structures listed in or eligible for listing in the National Register of Historic Places. There are no historic structures in the project area that could be impacted by construction activities. The road itself, Park Boulevard (Route 12) is considered ineligible for the NRHP because of integrity problems. The current road has been paved, realigned, and otherwise converted for use as a circulation road and lacks historic significance and integrity (Greene, 1983). The majority of the road alignment would be retained. Because there are no historic structures within the project potential area of effect, historic structures were dismissed as an impact topic.

Ethnographic Resources and Cultural Landscapes. NHPA (16 USC 470 *et seq.*); NEPA (42 USC 4321 *et seq.*); and NPS DO-28, *Cultural Resource Management Guideline (1997)*, *Management Policies, 2001 (2000)*, and DO-12, *Conservation Planning, Environmental Impact Analysis, and Decision Making (2001)* require the consideration of impacts on ethnographic resources and cultural landscapes listed in or eligible to be listed in the National Register of Historic Places.

Ethnographic resources are defined by the National Park Service as any “site, structure, 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” (DO-28: 181). American Indian tribes traditionally associated with the lands of Joshua Tree National Park and others with whom park staff regularly consult were apprised by letter of the preferred alternative on December 20, 2000. Letters notifying American Indian tribes of the NPS proposal to reconstruct sections of Park Boulevard (Route 12) in the park were sent to the Morongo Band of Cahuilla Indians, the Colorado River Indian Tribes, the Agua Caliente Tribe, 29 Palms Band of Mission Indians, the Native American Heritage Commission-Morongó Reservation, Cabazon Band of Mission Indians, Morongo Band of Cahuilla Mission Indians, Chemehuevi Indian Tribe, the Cabazon Band of Cahuilla Mission Indians, and the Fort Mojave Indian Tribe.

Because it is very unlikely that ethnographic resources would be affected, and because appropriate steps would be taken to protect any human remains, funerary objects, sacred objects, or objects of cultural patrimony inadvertently discovered, ethnographic resources was dismissed as an impact topic.

Cultural landscapes are broadly defined by the National Park Service as, “a reflection of human adaptation and use of natural resources and 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. 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” (DO-28: 87). Because there are no features of the current project area that would distinguish it as a cultural landscape, this topic was dismissed from analysis.

Museum Collections. The National Park Service’s *Management Policies, 2001* (2000) and NPS DO-28, *Cultural Resource Management Guideline* (1997) require the consideration of impacts on museum collections (historic artifacts, natural specimens, and archival and manuscript material). Because museum collections are not curated within the project area, this topic was dismissed from analysis.

Indian Trust Resources. Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by Department of Interior agencies be explicitly addressed in environmental documents. The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native tribes.

There are no Indian trust resources in Joshua Tree National Park. The lands comprising the park are not held in trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians. Therefore, Indian trust resources was dismissed as an impact topic.



PROPOSED ROAD IMPROVEMENTS

JOSHUA TREE NATIONAL PARK
 UNITED STATES DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE
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Alternatives

Introduction

The alternatives section describes two alternatives for the management of Route 12. Alternatives for this project were developed to resolve pertinent visitor use, resource, and management issues.

The no action alternative describes the action of continuing the present management operation and condition, it does not imply or direct discontinuing the present action or removing existing uses, developments, or facilities. The no action alternative provides a basis for comparing the management direction and environmental consequences of the preferred alternative

The preferred alternative presents the NPS preferred alternative and defines the rationale for the action in terms of resource protection and management, visitor and operational use, costs, and other applicable factors. All actions described in the preferred alternative are consistent with the approved 1995 GMP and related park documents.

A **summary table** comparing the alternatives (table 1) and environmental consequences of each alternative (table 2) is presented at the end of this section.

No Action

This alternative proposes no changes to the existing roadway or associated pullouts or parking areas. Park maintenance would continue to patch potholes and repair the road shoulders to maintain the current conditions. This would be labor intensive and result in a continuation of substandard road surfaces, and high maintenance costs.

The Preferred alternative – Rehabilitate Road

The project would begin near the Cap Rock intersection and construction on Route 12 would extend east to the Geology Tour Intersection, approximately 5.5 miles.

Route 12 Rehabilitation

The existing 20 foot asphalt top with average 1 foot gravel shoulders would be improved to a 22 foot wide asphalt top and 1 foot asphalt shoulders, which would match the cross section of the previous rehabilitated road segments. The majority of the proposed cross section would be constructed on the existing roadway.

Rehabilitation would include recycling of a portion of the existing in-place roadway surface and incorporating it into the sub-grade; laying, leveling, and compacting of this material; applying and compacting a 6-inch layer of aggregate base and applying a 3-inch asphaltic concrete overlay.

Subexcavation of unsuitable subgrade material and backfill with free draining sub-base would be done in select locations as necessary.

Curbing would be placed along the entire roadway to prevent informal roadside parking pull-offs and associated social trails from forming. All parking areas would have an integral concrete curb without gutter. All curbed areas would have constructed tortoise trots, or 18" minimum width breaks in the curb at all drainage outlets and otherwise at intervals not to exceed 100' apart to allow tortoises and other wildlife to move off the road. Locations would be indicated on the plans. On either extruded or integral curb, the curb foreslope would be 2:3 to allow tortoises to crawl over the curb if necessary. The finish grade behind the curb would be level with the top of curb or the transition to outward sloping ground would not exceed 3:1.

The contractor's staging area would be on an existing access road and parking lot, the same area used for the previous road rehabilitation phase. The staging area would be fenced with tortoise proof fencing and gated to limit unauthorized vehicle access to the construction compound. It is difficult to estimate the number of workers that would be present at any given time. The estimated construction time is one year. It would be up to the contractor to phase and schedule work within the limitations set forth in the contract. Types of equipment to be expected on site include but is not limited to: backhoes, scrapers, dump trucks, water trucks, loaders (wheel type), cranes, bulldozers, motor graders, hydraulic excavators, pick up trucks, pilot cars, compressors, asphalt trucks, pavers, rollers (pneumatic rubber tired and steel rollers.) If the contractor decides to work several areas at once – it would be possible to have 20 to 30 machines and up to 60 construction workers for initial construction activities with numbers decreasing during paving operations.

Parking Areas and Pulloffs

Proposed parking areas and pulloff locations and number of vehicles.

Table 1: Parking Areas and Pulloffs

Area	Number of Vehicles
Pulloffs (Adjacent to Route 12)	
Pulloff: Station 0+630	3 car
Pulloff: Station 4+630	3 car
Pulloff: Station 5+250	2 car
Pulloff: Station 5+300	3 car
Pulloff: Station 6+030	3 car
Pulloff: Station 6+860	3 car
Pulloff: Station 7+350	3 car
Pulloff: Station 7+400	2 car/ 1 RV
Pulloff: Station 7+980	3 car
New or Improved Parking areas	
Ryan Ranch Parking Pull-off	5 car/ 2 RV-Bus
Oyster Bar	16 car/3 RV-Bus
Ryan Mountain	40 car/6 RV-Bus
Hall of Horrors	45 car/6 RV-Bus
Geology Tour Road	10 car/3 RV-Bus
Queen Valley	20 car/3 RV-Bus

Mitigation

Mitigation measures are presented as part of the alternatives. These actions have been developed to lessen the adverse effects of the proposal.

Revegetation: Revegetation work would be minimized because construction would primarily be completed in previously disturbed areas or within narrow construction limits around new parking areas. Revegetation plantings would use native species from genetic stocks originating in Joshua Tree National Park. Revegetation efforts would strive to establish the natural spacing, abundance, and diversity of native plant species. A variety of native plants will be removed and relocated both during the project and post-project into disturbed sites (see page 36, table 4). Most areas of construction, soils and vegetation are already impacted to a degree by existing facilities and human activity. Construction would take advantage of these previously disturbed areas wherever possible. In an effort to avoid introduction of exotic plant species, no imported topsoil or hay bales would be used. Revegetation of areas temporarily disturbed by project-related activities would utilize only native plants/seeds originating from Joshua Tree National Park.

Vegetation impacts and potential compaction and erosion of bare soils would be minimized by conserving topsoil in windrows, replacement of topsoil in as near as original location as possible, scarification, mulching, and seeding and/or planting with species native to the immediate area.

Topsoil salvaging and respread would be performed in order to return native seeds, organic materials/nutrients, and soil microbiota to the site. Desert soil crust replacement techniques would be used to reestablish desert crust surface and minimize impacts from invasive plant species that thrive on disturbed sites.

Desert Tortoise Mitigation: The proposed project would take place in Mojave desert tortoise (*Gopherus agassizii*) habitat. Construction along the existing road alignment would primarily effect previously disturbed, sparsely used habitat. There are no known desert tortoise immediately adjacent to the existing roadway.

The NPS would designate one or two field contact representative (FCR) who would be an authorized biologist responsible for overseeing compliance for the desert tortoise. The FCR would coordinate with the FWS and be authorized to halt any activity that may endanger desert tortoises.

The FCR would be present during all monitoring/surveying efforts, road improvements, and parking/pull-off area construction.

Only the FCR authorized by USFWS would be allowed to handle/relocate desert tortoises.

The NPS permit issued by USFWS would be modified to allow for relocation of tortoises within the park.

Clearance surveys would be conducted one week prior to commencement of any construction/rehabilitation activities. All potential desert tortoise burrows, as well within 30.5 m (100 ft) of the designated routes, parking/pull-off sites (existing or proposed), or staging areas would be examined. At the completion of the road improvement, all materials used to mark or identify the tortoise burrows would be promptly removed.

Any desert tortoise relocated or otherwise removed from areas undergoing road rehabilitation would be handled in accordance with the procedures described in *Guidelines for Handling Desert Tortoises During Construction Projects* (DTC 1994, revised 1996). All tortoise would be translocated the minimum distance practicable, within appropriate habitat, to ensure the animal's safety and survival.

Temporary tortoise-proof fencing would be established around all staging areas. The fence would consist of a non-breachable barrier and support structures. Galvanized hardware cloth of 0.13 cm (0.50 in) diameter, and at least 46 cm (18 in) in height, would be firmly secured along the base of the fence in direct contact with the ground. Fence placement and construction would be supervised and approved by the authorized biologist. All tortoise fencing would be dismantled and transported from the site following project completion.

The FCR would conspicuously stake, flag, or mark work area boundaries (including the new access roads, realignments, and parking/pull-off areas) to minimize surface disturbance to the surrounding habitat. Material stockpiling, machinery storage, and vehicle parking would only be permitted in designated area.

Newly constructed culverts would maintain a minimum 46 cm (18 in) diameter to adequately

allow for tortoise passage through the structure(s).

Employees would inspect beneath parked vehicles and equipment prior to traveling. If a desert tortoise is encountered, the FCR would relocate the tortoise out of harm's way.

A desert tortoise education program would be presented by the FCR to all construction personnel, prior to any construction activities. Following the onset of construction activities, any new employees must formally complete the tortoise program prior to working on-site. At a minimum, the tortoise education program would contain the following topics: (1) desert tortoise distribution/occurrence; (2) general behavior and ecology; (3) species' sensitivity 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 FCR would maintain a complete record of all desert tortoise encountered. The record should include: location, date and time, life history, general condition, and identification numbers.

Within 90 days following the completion of this project a report of all FCR activities and actions would be submitted to USFWS.

All trash and food items would be promptly contained within raven and coyote proof containers, provided by the contractor, and transported off park lands on a weekly basis.

No pets or firearms would be permitted inside the project's construction boundaries, or other associated work areas, at any time.

Upon completion of Joshua Tree National Park's Road Rehabilitation Project, all materials and vehicles/equipment would be removed from the site.

The planned 16.6 acres of habitat disturbance would be mitigated through the park's revegetation/restoration of an estimated 25 acres/year.

An USFWS approved palliative would be used to mitigate fugitive dust

Cultural Resources Mitigation: Identified archeological sites would be protected with temporary fencing and monitored during construction. If during construction previously undiscovered archeological resources are discovered, all work in the immediate vicinity of the discovery would be halted until the resources could be identified and documented and an appropriate mitigation strategy developed, if necessary, in consultation with the California State Historic Preservation Office. In the unlikely event that human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (25 USC 3001) of 1990 would be followed.

Environmentally Preferred Alternative

In accordance with DO-12, the NPS is required to identify the "environmentally preferred alternative" in all environmental documents, including EAs. The environmentally preferred

alternative is determined by applying the criteria suggested in the National Environmental Policy Act (NEPA) of 1969, which is guided by the Council on Environmental Quality (CEQ). The CEQ provides direction that “[t]he environmentally preferable alternative is the alternative that would promote the national environmental policy as expressed in Section 101 of NEPA, which considers

1. fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;
3. attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
5. achieve a balance between population and resource use that would permit high standards of living and a wide sharing of life’s amenities; and
6. enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.”

Generally this means the alternative that causes the least damage to the biological and physical environment. It also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources.” (Council on Environmental Quality, “Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations” (40 CFR 1500-1508), *Federal Register* Vol. 46, No. 55, 18026-18038, March 23, 1981: Question 6a.).

The no action alternative represents the current road conditions without any major rehabilitation or changes to parking or pullouts. This alternative would not fully achieve provisions 1,3,4, and 5 of Section 101 of NEPA. Although the current road alignment would be maintained, parking , road safety, and resource issues would continue unresolved. The preferred alternative would further the goals of provisions 2, 3, 4, and 5 by providing for safer travel through the park with a redesign road and safe pulloffs, protection of sensitive resource by curbing the road edge, and provide better designed parking for enjoyment of the parks resources. The National Park Service has determined that the environmentally preferable alternative is the preferred alternative since it goes the furthest in attaining the goals of Section 101 of NEPA.

Table 1: Comparative Summary of Alternatives

Alternative A No Action	Alternative B Preferred alternative
<ul style="list-style-type: none"> <input type="checkbox"/> Five and a half-mile of road would not be rehabilitated. <input type="checkbox"/> Improved and new parking areas along the road would not be constructed <input type="checkbox"/> Formalized pullouts would not be constructed 	<ul style="list-style-type: none"> <input type="checkbox"/> Five and a half-mile of road would be rehabilitated and redesigned to provide safer travel and increased resource protection as a result of curbing. <input type="checkbox"/> Improved and new parking areas along the road section to provide better visitor experience <input type="checkbox"/> New formalized pullouts along the road to provide visitor with a safe pullout.

Table 2: Summary of Environmental Consequences

Impact Topic	Alternative A No Action	Alternative B Preferred alternative
Biotic Communities	The effect of the no action alternative on biotic communities would be negligible and long term. There would be no impairment of the park biotic community minimum impairment resources.	If the preferred alternative would be implemented there would be short-term negligible impacts to natural resources. With mitigation as described in the “Mitigation” section above, The overall effect of construction and post construction activities of the preferred alternative would have no long-term impact to any natural resource, individual species or populations of animal or plants, or any biotic communities as a whole. There would be negligible impacts of the park biotic community resources.
Desert Tortoise	There would be no new impacts from the no action alternative to desert tortoise.	Impacts to desert tortoise would be negligible and long-term from the implementation of the preferred alternative.
Archeological Resources	No impact to archeological resources. No contribution to cumulative impacts on archeological resources. No impairment to park resources necessary to fulfill specific purposes identified in the park’s enabling legislation or key to the cultural integrity of the park	Negligible short and long-term adverse impacts to archeological resources. Minor adverse cumulative impact on archeological resources in the region. No impairment to archeological resources that are integral to the cultural integrity of the park.
Visitor Use	Impacts to visitor use would continue to be adverse, negligible to minor in intensity, and long-term	Over the short term, visitor use would be adversely affected by noise, dust, fumes, delays, and construction vehicle traffic along this section of road for a very short time. Over the long term visitors would benefit

Impact Topic	Alternative A No Action	Alternative B Preferred alternative
Park Operations	Existing and future impacts to park operations would continue and worsen over time; these impacts would be adverse, minor in intensity, and long-term.	from safer improved road section. The preferred alternative would result in a long-term, minor to moderate, directly beneficial impact to park operations.

Affected Environment

Location and Background

Joshua Tree National Park is located in the Mojave and Colorado Deserts of southern California. It lies along the east-west transverse ranges of the Little San Bernardino Mountains. The southern boundary follows the base of these mountains along the northern perimeter of the Coachella Valley; the Morongo Basin defines the north boundary. The park is in San Bernardino and Riverside Counties.

Of the park's 794,000 acres, 593,490 are legislated wilderness – set aside for the preservation of natural, cultural, historic, and scenic resources. The compressed 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.

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. Humans, from prehistoric times to the present, have been an integral component of this desert environment. The park was added to the system under the Antiquities Act of 1906 and the enabling legislation also stresses cultural resources as a reason for establishment of the park.

Biotic Communities

Two deserts, whose characteristics are determined primarily by elevation, come together at Joshua Tree National Park. Below 3,000 feet, the Colorado Desert, occupying the eastern half of the park is dominated by abundant creosote bush. The higher, moister, and slightly cooler Mojave Desert is the area where the Joshua tree thrives, extensive stands of which occur throughout the western half of the park. The area of the proposed project is within the Mojave Desert section of the park near Lost Horse and Queen Valley, and supports three associations, *Yucca brevifolia/Larrea tridentata/Pleuraphis rigida*, *Yucca brevifolia/Coleogyne ramosissima* and *Juniperus californica/Coleogyne ramosissima*.

It is estimated that approximately 350 vertebrate species inhabit the park. Large mammals in the area include desert bighorn sheep, mule deer, and mountain lion. The most common smaller mammals include the mouse and wood rat species, white-tailed antelope ground squirrel, chipmunk, coyote, and black-tailed rabbit. There are about 15 species of lizard and 19 species of snakes found in the park. Over 270 species of birds live in or fly through the park, which is adjacent to a major migratory flyway in the Coachella Valley.

Species of Concern

Besides the desert tortoise (see below), two other species listed as sensitive by the US Fish and Wildlife Service are the burrowing owl (*Speotyto cunicularia*) and the little San Bernardino

Mountains gilia (*Linanthus maculata*). The geographic range of these species lie within the general range of the project areas but the park does not have any confirmed sightings of these species occurring within the immediate range of the project area. Neither of these species would be affected by the proposed project and are not evaluated in the environmental consequences section.

The Desert Bighorn Sheep (*Ovis canadensis nelsoni*) are not a federally listed species; however, they are listed as a “sensitive” species in the State of California because of their low numbers and their sensitivity to human disturbance. Herd populations in the park appear to be in good conditions. Measures to ensure herd and habitat viability would be considered during the project. The park intends to continue to monitoring the park’s bighorn sheep population and public use activities within sheep habitat.

Desert Tortoise

The desert tortoise, *Gopherus agassizii*, is listed as a threatened species by the US Fish and Wildlife Service (USFWS) (50 CFR 17.11 & 17.12, August 23, 1993). The Mojave populations of the desert tortoise are threatened by habitat loss, habitat degradation (exotic weeds), mining, grazing, off-road vehicle use, and construction projects (roads, powerlines, etc.). Joshua Tree National Park has been surveying for tortoises since 1978 in the Pinto Basin area; but with the recent road work in the Hidden Valley area more data is being gathered on the population in this area. This area was originally believed to be less desirable for tortoises as the habitat is high elevation black brush and juniper. Recent distance sampling surveys (Anderson and Burnham 1994) in the black brush communities have documented a small population of animals. Six adult animals were sighted in the Queen Valley area during the 1998 field season; six were sighted in 1999 and two additional animals were radio tagged at Keys Ranch (1999). Surveys for this project were conducted from Apr 9th to Jul 19th 2001. The surveys were performed according to USFWS protocols (Appendix C) as specified under informal consultation from the Carlsbad Field Office. The techniques applied in these surveys are based on information from Field survey protocol for any federal action (or non-federal action) that may occur within the range of the desert tortoise (USFWS 1992), and Guidelines for Handling Desert Tortoises (LaRue. ed. 1999). During this survey two adult tortoises, eighteen burrows, and numerous scats were found primarily in Mojave mixed steppe. One juvenile tortoise, seven burrows, and numerous scats were found in Blackbush scrub.

Cultural Resources Overview

Archeological and historic resources in the region of Joshua Tree National Park may reflect as much as 11,000 years of human use and occupation (NPS, 1999). Archeological evidence documents the earliest human activity within the region to the Paleoindian period (ca 12,000 to 8,500 years ago). Fluted projectile points of the Paleoindian period have been found in the region and are thought to be associated with a tradition of big-game hunting that could date back to 11,000 years ago. These fluted points resemble Clovis-Folsom points and suggest that the peoples who lived and hunted on the margins of Lake Mojave 11,000 years ago represent a peripheral outpost of the Great Plains Fluted Point Tradition.

Artifacts of a slightly later period, the Early Archaic (circa 8,500 years ago) including those of the San Dieguito and Lake Mojave complexes, have also been found in the region. The main

economic activities of the Archaic period are believed to be predominately hunting, fishing, and gathering with the beginning of the domestication of some locally available plants. Following the Early Archaic period, a paucity of archeological artifacts indicates a decline in the use of the area as the climate gradually became warmer and drier and more desert-like conditions prevailed (Heizer and Whipple 1971).

During the Late Archaic period from about 5000 to 1000 years ago, evidence exists of an increase in human occupation in what is now the park. This evidence includes artifacts from the Pinto complex dating from about 7,000 to 10,000 years ago, including Pinto projectile points, which are well known from the Pinto Basin site and other sites in the park (Schroth, 1994). Patayan occupation or influence from the lower Colorado River area may have begun as early as 1300 years ago (Heizer, Whipple, 1971). Evidence of Patayan occupation or influence includes the presence of milling sites to process seeds and grains which indicates some level of agricultural production, while the presence of points and other tools for hunting suggest a hunting and gathering economy.

From 8,500 to 5,000 years ago the main trends in human occupation of the area reflect an adjustment to the region's various natural environments and increased subsistence efficiency. A useful model for understanding this long-lasting adaptation to desert living documented by archeological artifacts in the region is the "Desert Culture" or "Desert Archaic." As playa lakes began to dry and desert plants replaced the grasslands many large game animals migrated to more favorable habitat. The drier conditions also meant that the peoples living in the region had to diversify subsistence patterns to adapt to a life based on desert hunting and gathering. This mode of living is characterized by small, mobile bands and by participation in a mixed hunting and gathering economy. Although milling equipment, the bow, ceramics, and perhaps even horticulture were added to the culture over time, the basic configuration of the culture may have remained relatively stable (Jennings, 1964, Fowler, 1986).

After about A.D. 1000, judging from the frequency of sites that date within the last thousand years, occupation of the park area increased considerably. At the time of European contact, the boundaries of three American Indian groups the Cahuilla, Chemehuevi, and Serrano, intersected at points now within the park. The Chemehuevi occupied eastern portions of the park; the Serrano, northern and northwestern portions; and the Cahuilla, southern and southwestern portions (Heizer and Whipple, 1971). Descendants of these Indian groups continue to live in the area and have cultural interests in the park (NPS, 1995).

Indigenous subsistence patterns, trails for seasonal migrations, and regional trade are important aspects of the history of the area prior to European contact. Petroglyphs and pictographs scattered along a northwest-southeast path through the heart of park may be evidence of a prehistoric travel route. An historic Indian travel route, the Cocopa-Maricopa Indian Trail, traces the same general axis across the park (NPS, 1995).

Buried human remains have been found in the park (Schroth 1992). In June of 1992, park staff, in concert with Native Americans, completed repatriation of the remains of several Native Americans, associated grave goods, and objects of patrimony. This was done in accordance with the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA).

Exploration, mining, ranching and homesteading all occurred in the area now encompassed by the park. The first Europeans to visit the area were members of Spanish expeditions and explorers dispatched by the Mexican government in the late 18th and early 19th centuries. A Spanish army

officer commanding California's Spanish forces probably entered the area now included in the park in 1772 when he crossed the Mojave Desert. Captain Jose Romero, representing the Mexican government, reconnoitered southern periphery of the present park while evaluating the east-west Cocopa-Maricopa Trail. The first American presence in the area is attributed to Jedediah Strong Smith, a fur trapper with the Rocky Mountain Fur Company who visited the area in the 1820s. Smith trekked westward through the area of the present park over the Colorado Desert and Mojave Desert Indian Trail reportedly becoming the first American to reach California via an overland route from the east (NPS, 1995).

During the gold strike of 1849, gold seekers traversed the area on their way to central California. In 1865, the first mining claim was filed in the present-day park and mining, mostly for gold, continued in and near the park into the 1960s (NPS, 1983). Contemporary with mining, cattle raising and homesteading occurred in the park from the mid 1800s to the 1960s. Cattle raising peaked during the 1920s, about the time that homesteading was getting started. Subsistence based homesteading, often coupled with mining and ranching activities, continued at least through the 1940s (NPS, 1995).

The park contains historic sites reflecting 19th and 20th century activities including ranching, mining, and homesteading. Historic properties listed in or eligible for the National Register of Historic Places are significant ranch-related, mining and homesteading sites and districts including Barker Dam, Cow Camp, Desert Queen Mine, Keys-Desert Queen Ranch, Ryan House and Lost Horse Well, Wall Street Mill, Cottonwood Oasis, Eagle Cliff Mine, Eldorado Mine and Mill, Lost Horse Mine and Mill, Pinto Wye Arrastra, Pinyon Mountain Historic Mining District, and Twentynine Palms (Oasis of Mara).

A number of historic mining, cattle-related, or stage routes likely following prehistoric routes evolved to serve these enterprises. The alignment of Park Boulevard (Route 12) probably appropriated earlier historic road segments. The National Park Service has recommended that Park Boulevard be considered not eligible for the NRHP (Greene, 1983)

Archeological Investigations/Resources

An archeological survey of the road project corridor was conducted in 2001. In April and May of 2001, an intensive pedestrian survey was conducted along the 5.6 mile length of the proposed road construction from Geology Tour Road to Keys View turn off at Cap Rock in Joshua Tree National Park. Three archeologists walked parallel transects at 10-meter intervals along either side of a 100-meter wide corridor centered on the existing road. All cultural resources within the survey area were identified and recorded. In addition to surveying the roadway corridor, WACC archeologists also covered the proposed locations of parking lots and roadside pull-outs (NPS Neff, 2001). Initial assessments were made of site significance to identify resources eligible for listing in the National Register of Historic Places (NRHP). The survey resulted in the recordation of 13 previously identified sites and 16 isolated finds (IFs).

The IFs consist of sherds, flakes, bedrock milling slicks, historical and modern can scatters, clear glass bottle fragments, and modern ceramic fragments. None of the recorded IFs represent significant cultural resources, and their research potential has been exhausted by the archeological survey project (Neff, 2002). No special protection measures are recommended for these IFs.

Seven of the 13 previously recorded sites were identified to be outside of the project survey corridor and not threatened by the proposed construction. The six remaining sites within the area of potential effect include CA-RIV-344, 346, 359, 960, 1959, and 4836. During the initial intensive pedestrian survey, the National Park Service recommended that two of the six sites within the area of potential effect are not eligible for inclusion on the NRHP. These two sites are CA-RIV-1937 Indian Cove and CA-RIV-4836 Queen Mountain. The four remaining sites within the area of potential effect, CA-RIV-346, CA-RIV-359, CA-RIV-960, and CA-RIV-1959, were recommended for further sub-surface testing, which was accomplished by NPS WACC archeologists in November and December of 2001 (NPS, 2002). CA-RIV-346, 359, 960, and 1959, were tested according to NPS standards as outlined in DO-28 *Cultural Resource Management Guideline*, 1997, and in the Secretary of the Interior's Standards and Guidelines for Archeological and Historical Preservation (U.S. DOI, 1983). Testing included systematic excavation of shovel test pits (STPs) on 10 by 10-meter or five by five-meter grids over the sites and formal excavation units. Results of STP testing were used to determine site boundaries and to identify areas within the sites that have good potential to contain subsurface cultural deposits. Assessments were made of site significance to identify resources eligible for listing in the NRHP (NPS, Neff 2002). Of the four sites tested, the National Park Service recommends that two sites, CA-RIV-346 and CA-RIV-1959, be considered eligible for listing on the NRHP. Both of these sites are subject to direct and indirect impacts by the road project. The other two sites tested, CA-RIV-359 and CA-RIV-960, are recommended not eligible for listing on the NRHP (NPS, 2002).

Site CA-RIV-346 is adjacent to the road within the project area of potential effect. The site is associated with an isolated boulder outcrop that includes two sheltered areas and a rock art panel. Recorded features include sparse surface artifact scatter, rockshelter features, and rock art. Archeological testing revealed that while subsurface cultural deposits exist, they do not form well-developed midden deposits. The rockshelter features and rock art combined with the site's good subsurface integrity give it moderate research potential. A few historical or modern glass and metal fragments, wire nails, and a sanitary can were also recorded at the site. None of the historical/modern artifacts were diagnostic and most likely represent casual roadside discard by park visitors (NPS, 2002). The site is a significant resource under Criterion D of the NRHP and the National Park Service recommends that the site be considered eligible for listing in the NRHP (NPS, Neff, 2002). The site limits of CA-RIV-346 do not extend into the project right-of-way.

Site CA-RIV-1959 is adjacent to the road and is associated with the enormous bedrock and boulder outcrop . Originally recorded in 1979, as a series of five rockshelter features and artifact concentrations associated with the massive outcrop, recent archeological testing at the site yielded prehistoric cultural materials from subsurface contexts. The site consists of rockshelters, bedrock milling features, and associated artifact scatter. Testing results indicate that intact subsurface prehistoric deposits exist, which combined with the site's surface expression, give it good research potential. The National Park Service recommends that the site be considered eligible for listing under Criterion D, of the NRHP (NPS, Neff, 2002). This is also the site of the unofficial memorial marker for 1970s rock musician Gram Parsons. Although adjacent to the road, the site limits of CA-RIV-1959 do not extend into the road project right-of-way.

Visitor Use and Experience

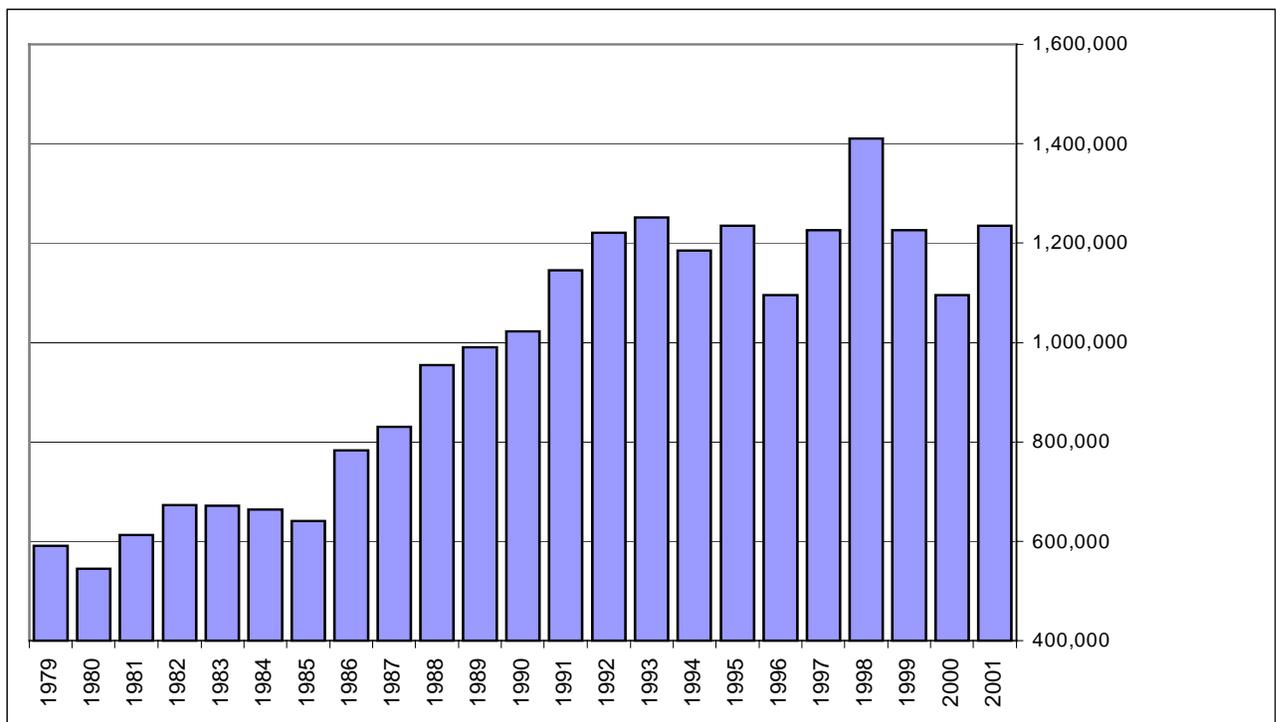
Park visitation has more than doubled in the last 20 years (sheet chart below). As visitation has grown, the impacts to roads have also increased. Social trails leaving from informal parking areas have also increased in recent years resulting in greater impacts to desert soils and vegetation.

Park Operations

Park operation spends a considerable amount of time to keep the entire road in a stable condition, which exceeds the amount considered as routine maintenance. In addition, the park's natural resource staff is not funded enough to fully maintain and revegetate areas impacted by social trails.

In 1997-1999, 29 property damage, 6 injury and 2 fatal motor vehicle accidents occurred along route 12. Widening of similar roads in Lake Mead NRA resulted in as much as 68% reduction in accidents due to providing wider margins of pavement which prevent vehicles from drifting off onto soft shoulders.

Joshua Tree National Park
Visitor 1979-2001



Environmental Consequences

Introduction

This section describes the environmental consequences associated with the alternatives. This environmental consequences section is organized by impact topics, which distill the issues and concerns into distinct topics for discussion analysis. These topics focus on the presentation of environmental consequences, and allow a standardized comparison between alternatives based on the most relevant topics. NEPA requires consideration of context, intensity and duration of impacts, indirect impacts, cumulative impacts, and measures to mitigate for impacts. National Park Service policy also requires that “impairment” of resources be evaluated in all environmental documents.

General Definitions: The following definitions were used to evaluate the context, intensity, duration, and cumulative nature of impacts associated with project alternatives:

Impact Intensity

Potential impacts to natural and cultural resources, visitor use and experience and park operations are described in terms of type (are the effects beneficial or adverse?), context (are the effects site-specific, local, or even regional?), duration (are the effects short-term, lasting less than one year, or long-term, lasting more than one year?), and intensity (are the effects negligible, minor, moderate, or major). Because definitions of intensity (negligible, minor, moderate, or major) vary by impact topic, intensity definitions are provided separately for each resource impact topic analyzed in this environmental assessment of effect.

Impact Topic	Impact Threshold Definition			
	Negligible	Minor	Moderate	Major
Biotic Communities	Biotic communities would not be affected or the effects would be at or below the level of detection, and the changes would be so slight that they would not be of any measurable or perceptible consequence to the biotic communities.	Effects to biotic communities would be detectable, although the effects would be localized, and would be small and of little consequence to the species' population. Mitigation measures, if needed to offset adverse effects, would be simple and successful.	Effects to biotic communities would be readily detectable, and localized, with consequences at the population level. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.	Effects to biotic communities would be obvious, and would have substantial consequences to biotic communities in the region. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be assured.

Impact Topic	Impact Threshold Definition			
	Negligible	Minor	Moderate	Major
Endangered or threatened species	No federally listed species would be affected or the alternative would affect an individual of a listed species or its critical habitat, but the change would be so small that it would not be of any measurable or perceptible consequence to the protected individual or its population. Negligible effect would equate with a "no effect" determination in U.S. Fish and Wildlife Service terms.	The alternative would affect an individual(s) of a listed species or its critical habitat, but the change would be small. Minor effect would equate with a "may effect" determination in U.S. Fish and Wildlife Service terms and would be accompanied by a statement of "likely..." or "not likely to adversely affect" the species.	An individual or population of a listed species, or its critical habitat would be noticeably affected. The effect would have some consequence to the individual, population, or habitat. Moderate effect would equate with a "may effect" determination in U.S. Fish and Wildlife Service terms and would be accompanied by a statement of "likely..." or "not likely to adversely affect" the species.	An individual or population of a listed species, or its critical habitat would be noticeably affected with a vital consequence to the individual, population, or habitat. Major effect would equate with a "may effect" determination in U.S. Fish and Wildlife Service terms and would be accompanied by a statement of "likely..." or "not likely to adversely affect" the species.
Archeological Resources	There are no perceptible consequences to an archeological site(s) potential to yield important information. For purposes of Section 106, the determination of effect would be <i>no adverse effect</i> .	Adverse impact - disturbance of a site(s) is confined to a small area with little, if any, loss of important information potential. Beneficial impact – preservation of a site(s) in its natural state. For purposes of Section 106, the determination of effect would be <i>no adverse effect</i>	Adverse impact - disturbance of the site(s) would not result in a substantial loss of important information. For purposes of Section 106, the determination of effect would be <i>adverse effect</i> . Beneficial impact – stabilization of the site(s). For purposes of Section 106, the determination of effect would be <i>no adverse effect</i>	Adverse impact – disturbance of the site(s) is substantial and results in the loss of most or all of the site and it's potential to yield important information. For purposes of Section 106, the determination of effect would be <i>adverse effect</i> . Beneficial impact – active intervention to preserve the site. For purposes of Section 106, the determination of effect would be <i>no adverse effect</i> .
Visitor use and experience	Visitors would not be affected or changes in visitor experience or safety would be below or at the level of detection. The visitor would not likely be aware of the effects associated with the alternative.	Changes in visitor experience or safety would be detectable, although the changes would be slight. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.	Changes in visitor experience or safety would be readily apparent. The visitor would be aware of the effects associated with the alternative and would likely be able to express an opinion about the changes.	Changes in visitor experience or safety would be readily apparent. The visitor would be aware of the effects associated with the alternative and would likely express a strong opinion about the changes.
Park operations	Park operations would not be affected or the effect would be at or below the lower levels of detection, and would not have	The effect would be detectable but would be of a magnitude that would not have an appreciable effect on park operations. If	The effects would be readily apparent and would result in a substantial change in park operations in a manner noticeable to	The effects would be readily apparent, would result in a substantial change in park operations in a manner noticeable to

Impact Topic	Impact Threshold Definition			
	Negligible	Minor	Moderate	Major
	an appreciable effect on park operations.	mitigation were needed to offset adverse effects, it would be relatively simple and likely successful.	staff and the public. Mitigation measures would probably be necessary to offset adverse effects and would likely be successful.	staff and the public. Mitigation measures to offset adverse effects would be needed, would be extensive, and their success could not be assured.

Impact Duration

The duration of the impacts in this analysis is defined as follows:

- *Short term* – impacts that last less than one year.
- *Long term* – impacts that last longer than one year.

Impairment

In addition, *National Park Service Management Policies, 2001* (2000) require analysis of potential effects to determine whether or not actions would impair park resources. 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. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values. However, the laws do give the National Park Service the 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 the National Park Service the management discretion to allow certain impacts within park, that discretion is limited by the statutory requirement that the National Park Service 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 National Park Service manager, would harm the integrity of park resources or values. An impact to any park resource or value may constitute an impairment, but an impact would be more likely to constitute an impairment to the extent that it has a major or severe adverse effect upon 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 identified as a goal in the park’s general management plan or other relevant NPS planning documents.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by contractors, and others operating in the park. A determination on impairment is made in the *Environmental Consequences* section for biological communities, and archeological resources.

Cumulative Impacts

The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act of 1969 (42 USC 4321 *et seq.*), 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 other actions" (40 CFR 1508.7). Cumulative impacts are considered for both the no-action and preferred alternatives.

Cumulative impacts were determined by combining the impacts of the preferred alternative – reconstructing Park Boulevard (Route 12) Geology Tour Road to Keys View Turnoff - with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects at Joshua Tree National Park and, if applicable, the surrounding region.

Past, present and future projects in Joshua Tree National Park include:

- a 1995, a general management plan / environmental impact statement;
- rehabilitation of Park Boulevard (Route 12) through the park began in 1999, and was completed in 2002 (Joshua Tree National Park package 173); this first phase of the highway rehabilitation project reconstructed the section of road from Quail Springs picnic area to Cap Rock intersection, and included the paving the Barker Dam Road as well as the construction of new access roads to the Hidden Valley Campground; archeological surveys conducted for Phase one, completed in 1999, tested six archeological sites along that segment of Park Boulevard.
- in 2001, the National Park Service began an archeological survey in the northwestern section of the park as part of a proposed multi-year program of site testing to identify and evaluate the significance of sites in the area so that their eligibility for inclusion in the NRHP could be determined.
- Future phases of road projects including; the Keys View road and Indian Cove area.
- Possible redesign and relocation of the park headquarters and visitor center.

Impacts to Cultural Resources and Section 106 of the National Historic Preservation Act

In this environmental assessment impacts to cultural resources are described in terms of type, context, duration, and intensity, which is consistent with the regulations of the Council on Environmental Quality (CEQ) that implement the National Environmental Policy Act (NEPA). These impact analyses are intended, however, to comply with the requirements of both NEPA and Section 106 of the National Historic Preservation Act (NHPA). In accordance with the Advisory Council on Historic Preservation's regulations implementing Section 106 of the NHPA (36 CFR Part 800, *Protection of Historic Properties*), impacts to cultural resources were identified and evaluated by (1) determining the area of potential effects; (2) identifying cultural resources present in the area of potential effects that were either listed in or eligible to be listed in the National Register of Historic Places; (3) applying the criteria of adverse effect to affected cultural resources either listed in or eligible to be listed in the National Register; and (4) considering ways to avoid, minimize or mitigate adverse effects.

Under the Advisory Council's regulations a determination of either *adverse effect* or *no adverse effect* must also be made for affected, National Register eligible cultural resources. An *adverse effect* occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualify it for inclusion in the National Register, e.g. diminishing the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association. Adverse effects also include reasonably foreseeable effects caused by the preferred alternative that would occur later in time, be farther removed in distance or be cumulative (36 CFR Part 800.5, *Assessment of Adverse Effects*). A determination of *no adverse effect* means there is an effect, but the effect would not diminish in any way the characteristics of the cultural resource that qualify it for inclusion in the National Register.

CEQ regulations and the National Park Service's *Conservation Planning, Environmental Impact Analysis and Decision-making* (DO-12) also call for a discussion of the appropriateness of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact, e.g. reducing the intensity of an impact from major to moderate or minor. Any resultant reduction in intensity of impact due to mitigation, however, is an estimate of the effectiveness of mitigation under NEPA only. It does not suggest that the level of effect as defined by Section 106 is similarly reduced. Although adverse effects under Section 106 may be mitigated, the effect remains adverse.

A Section 106 summary is included in the impact analysis sections for archeological resources under the preferred alternative. The Section 106 Summary is intended to meet the requirements of Section 106 and is an assessment of the effect of the undertaking (implementation of the alternative) on cultural resources, based upon the criterion of effect and criteria of adverse effect found in the Advisory Council's regulations.

Environmental Consequences of No Action

Biotic Communities

Under the no action alternative the 5.5 miles of road would not be rehabilitated. Therefore, there would be no new impacts to any biotic communities under this no action alternative. Road shoulder parking and social trailing would continue to grow and impact the surrounding fragile vegetation and wildlife along the road corridor as vehicles continued to pull-off on the fragile vegetation and soils along side the road. This would result in a long-term negligible adverse impact to the biotic communities along side the road.

Cumulative Impacts: Past development within Joshua Tree NP and the surrounding region has contributed to increased soil erosion and compaction, vegetation loss, and minor to moderate, adverse, long-term impacts on the abundance and diversity of wildlife by changing the capacity of habitats to provide necessary food, shelter, and reproduction sites. Reasonably foreseeable future actions associated with the GMP, such as continued road rehabilitation and redevelopment of the visitor/headquarters area, have the potential adverse impact soils and biotic communities. The potential impacts associated with the GMP would be adverse and range in intensity from minor to moderate, depending upon both the scope of the potential actions and the location. However, because there are no new impacts associated with this alternative, it would not contribute to impacts of other actions. Consequently there would be no cumulative impacts under the no action alternative.

Conclusion: The effect of the no action alternative on biotic communities would be negligible, adverse and long term. There would be no impairment of park's biotic community resources.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Joshua Tree NP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's general management plan or other relevant NPS planning documents, there would be no impairment of the park's resources or values.

Species of Special Concern - Desert Tortoise

There would be no new impacts to desert tortoise. The population adjacent to the existing road would continue to be impacted by road traffic and vehicles parking along the road shoulder.

Cumulative Impacts: The plans for additional development (see page 31) by the Park Service within the park could have adverse impacts to the desert tortoise. The lands within areas of the park emphasizes conservation of natural resources and provision for environmentally compatible recreational activities. The continued development of private lands around the park and associated loss and degradation of tortoise habitat is expected to continue and result in adverse impacts to the tortoise. However, since there would be no construction under this no action alternative this alternative would not contribute to the impacts of other actions described above.

Conclusion: No new effect. The desert tortoise population along the road would continue to be

affected by road use. Impacts to desert tortoise would be negligible, long term, and adverse.

Cultural Resources - Archeological Resources

Under the no action alternative, the existing road corridors would continue unchanged in the project area and there would be no project-related ground disturbance with potential to impact archeological resources.

Cumulative Impacts: Some archeological resources at Joshua Tree National Park have been adversely impacted from past construction disturbance with road improvement and other projects. Some of these impacts have perhaps occurred before establishment of the park and/or as a result of inadvertent impacts prior to the legal requirements for archeological survey, site protection, and mitigation. Visitor use pressures and natural erosional processes have also contributed to past archeological impacts. Other current and foreseeable construction projects have the potential to impact archeological resources as a result of ground disturbance. If adverse impacts could not be avoided, the NPS would implement data recovery or other mitigation measures. The no action alternative would not contribute to the impacts of other past, present, and reasonably foreseeable future actions. Consequently, the no action alternative would have no cumulative impacts on archeological resources.

Conclusion: The no action alternative would result in no direct impacts, indirect impacts or cumulative impacts on identified archeological resources. There would be no impairment to park resources necessary to fulfill specific purposes identified in the park's enabling legislation or key to the cultural integrity of the park.

Visitor Use and Experience

Visitor use of this area of the park would likely continue, resulting in accelerated degradation of the road surfaces and adjacent areas. Parking along road shoulders would continue leading to unsafe visitor situations and the continued road and shoulder degradation would have a minor, long-term adverse impact to visitor use.

Cumulative Impacts: The safety concerns and inconvenience of the continued use of the road without redesign in combination with other projects planned in the area would be a minor, impact to visitor use and experience in the area. However, the no action alternative would not be a component of the overall cumulative impact.

Conclusion: The impacts to visitor use and experience would continue to be adverse, minor, and long term.

Park Operations

Park maintenance of paved and unpaved roads would also continue and likely increase as the road continues to deteriorate. It would be expected that traffic accidents would likely continue at

existing or greater rates for this section of road.

Cumulative Impacts: The impact of not correcting the road design would continue to be minor and adverse for park operations. Reasonable foreseeable future actions would be a beneficial, moderate impact to operations in the park. However, the no action alternative would not be a component of the overall cumulative impact.

Conclusion: The impacts to park operations would continue to be adverse, minor and long term.

Environmental Consequences of the Proposal

Biotic Communities

The total road reconstruction would impact 16.6 acres of new disturbance to accommodate parking, curve realignment, and road widening. This disturbance is within or near the existing road corridor or in current areas of high visitor activity. Of these acres it is anticipated that about 7 acres of this disturbance would be eventually revegetated. Details of the disturbance are listed in table 3.

The number of large plants disturbed would be approximately 1151 (895 salvageable). Of these 359 would be Joshua trees (*Yucca brevifolia*). A vast majority, 347 would be salvaged and transplanted to other areas. The survival rate for transplanted Joshua trees during the last phase of road rehabilitation was 84%. The other 12 are unsalvageable due to their size or health. Table 4 lists the plant species and the number to be salvaged or not.

There would be some positive effects as a result of curbing the road through sensitive areas and providing designated parking areas. This would minimize the amount of informal parking and social trails that now exist along the road, thereby reducing disturbance to biotic communities in these areas.

The project would be implemented in such a manner as to protect natural resources through erosion control and prevention along the road corridor.

Loss of wildlife would be proportional to the amount of habitat lost. The existing road corridor and adjacent area have been previously affected through years of close association with vehicles and attendant human activity; any wildlife in the area have unquestionably been long habituated to human activity, noise, and traffic. Larger wildlife would probably avoid the construction zone to a certain extent during construction. During construction some small animals, such as rodents, may be killed or forced to relocate to areas outside the construction zone. Overall populations of affected species might be slightly and temporarily lowered but no permanent negative effects on wildlife would be anticipated.

Overall, if the preferred alternative would be implemented there would be short-term, adverse, negligible impacts to biotic communities. The overall effect of construction and post construction activities would have short term impact to any natural resources, individual species or populations of animals or plants or any biotic communities as a whole.

Cumulative Impacts: This project would occur in desert environments north of Coachella Valley and south of the Morongo basin urban areas. The development of private lands in the area and the associated loss and degradation of natural habitat is expected to continue. However, impacts to the natural environment along the road would be a small impact to the Joshua Tree National Park and encompassing Mojave Desert habitat, when the geographical extent of these biotic communities are considered. The major projects planned for the future within the park that may impact the desert environment would be the continuation of road rehabilitation and associated parking.

The impacts upon biotic communities by implementing the proposals in the GMP would be adverse and range in intensity from minor to moderate, depending upon both the scope of the potential actions and the location. Biotic community impacts associated with both the preferred alternative and future actions would be minimized by requirements to provide mitigation measures during and after construction and the removal of an equivalent amount of existing road and restoring the site to preconstruction conditions.

The cumulative effect of the preferred alternative on biotic communities, in combination with other past, present, and reasonably foreseeable future actions, would be minor, adverse, and long-term. The adverse impacts of this preferred alternative would be a minor component of the overall cumulative impact of other actions in the region .

Conclusion: If the preferred alternative would be implemented there would be short-term negligible, adverse impacts to natural resources. With mitigation as described in the “Mitigation” section in the alternatives chapter, the overall effect of construction and post construction activities of the preferred alternative would have no long-term impact to any natural resources, individual species or populations of animals or plants, or any biotic communities as a whole. There would be a loss of 12 Joshua trees but this would be a negligible, adverse, short-term impact to the park’s estimated 5.5 million trees. Some habitat would be lost as a result of road construction. Reduction in social trails and informal parking would result from roadside curbing and designating parking.

Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Joshua Tree NP; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park’s general management plan or other relevant NPS planning documents, there would be no impairment of the park’s resources or values.

Table 3: Amount of Habitat Disturbance. Amount of disturbance was estimated using the amount of new disturbance required. Most pulloffs are located on previous informal pulloff areas.

Area	Number of Vehicles	Disturbance (m ²)	Disturbance (acres)
Pulloffs (Adjacent to Route 12)			
Pulloff: Station 0+630	3 car	235	.06
Pulloff: Station 4+630	3 car	205	.05
Pulloff: Station 5+250	2 car/ 1RV	468	.11
Pulloff: Station 5+300	3 car	706	.17
Pulloff: Station 6+030	3 car	281	.07
Pulloff: Station 6+860	3car	0	0
Pulloff: Station 7+350	3 car	600	.14
Pulloff: Station 7+400	2 car/1 RV	438	.10
Pulloff: Station 7+980	3 car	296	.07
<i>Subtotal</i>		4087	1.01
New or Improved Parking areas			
Ryan Ranch Parking Pull-off	5 car/ 2 RV-Bus	1180	.29
Oyster Bar	16 car/3 RV-Bus	550	.13
Ryan Mountain	40 car/6 RV-Bus	2312	.57
Hall of Horrors	45 car/6 RV-Bus	6640	1.64
Geology Tour Road	10 car/3 RV-Bus	842	.2
Queen Valley	20 car/3 RV-Bus	2500	.62
<i>Subtotal</i>		14,024	3.45
Road Improvements			
Route 12		48,997	12.0
Total		67,108	16.6

These are maximum or worst case acreage figures; the actual acreage cannot be accurately calculated at this stage of design, but it would not exceed these acres and would almost certainly be less. Of these acres it is anticipated that about 7 acres of the listed disturbance would be revegetated.

Table 4: Estimate of major plant species to be affected by the project. Listed is the genus and species of each plant and the estimated numbers to be salvaged and unsalvageable due to size.

Genus	Species	Salvageable	Unsalvageable	Total Numbers Disturbed
Yucca	brevifolia	347	12	359
Yucca	schidigera	212	1	213
Opuntia	echinocarpa	138	18	156
Opuntia	ramosissima	64	12	76
Opuntia	basilaris	65	0	65
Opuntia	stanlyi parishii	15	0	15
Echinocerus	triglochidiatus	15	1	16
Echinocerus	engelmannii	38	1	39
Larrea	tridentata	0	44	44
Escobaria	vivipara alversonii	1	0	1
Juniperus	californica	0	167	167
Totals*		895	256	1151

** In addition approximately 3000 assorted perennial shrubs within the proposed project area would not be salvageable due to their inability to survive transplant.*

Species of Concern - Desert Tortoise

Road use would continue to affect the tortoise population adjacent to the road resulting in reduced tortoise densities and effect on tortoise movements. A total of about 16.6 acres of tortoise habitat adjacent to the existing road would be impacted by construction (see Table 3).

Tortoises both on the surface or in their burrows within the construction limits could be killed or injured by construction vehicles or harassed through removal during road rehabilitation. To mitigate these impacts clearing limits outside of the existing road prism would be clearly marked. Construction limits would be fenced for the new parking area. Tortoise surveys would be completed prior to construction. Any tortoise burrows found near the project boundary would be avoided if possible and protected with tortoise-proof fencing during construction. Any handling of tortoises would be done by a qualified biologist in accordance with procedures outlined by the USFWS.

Additional indirect, adverse, impacts could occur from capture or harassment of tortoises by construction personnel or by the attraction of ravens to the area if trash is not removed immediately. Each project employee would be informed prior to the start of construction of the occurrence of the desert tortoise in the area and the threatened status of this species. A litter control program would be implemented during construction requiring the contractor to provide coyote and raven-proof trash receptacles.

Desert tortoise mitigation measures to reduce direct and indirect impacts to tortoises and habitat during the construction period are presented in the alternatives section. Prior to any of this project being implemented consultation with the USFWS would be completed to minimize future tortoise impacts to the greatest extent possible.

Cumulative Impacts: This project occurs in desert tortoise habitat east and north of the Los Angeles and Palm Springs metropolitan areas. The development of these private lands and the associated loss and degradation of tortoise habitat is expected to continue. However, impacts to

the tortoise population along the road would be a small impact to the encompassing Mojave Desert tortoise population, when total tortoise population numbers and geographical extent are considered. The major projects planned for the future within the park that may impact the desert tortoise would be the continuation of road rehabilitation and associated parking.

The cumulative effect of the preferred alternative on desert tortoise, in combination with other past, present, and reasonably foreseeable future actions, would be moderate, adverse, and long-term. The adverse impacts of this preferred alternative would be a minor component of the overall cumulative impact of other actions in the region.

Conclusion: About 16.6 acres of tortoise habitat would be permanently lost adjacent to the existing road. This area is already impacted highly from road use and informal roadside parking. Road use would likely continue to result in depressed tortoise numbers immediately adjacent to the road. There would be a short term, negligible adverse impact to desert tortoise in the project area.

Cultural Resources - Archeological Resources

Under the proposed action, negligible short and long-term adverse impacts to archeological resources would occur. Negligible short-term impacts would be associated with construction activity to widen and re-align Park Boulevard (Route 12) in the vicinity of CA-RIV-346. Although the site limits of CA-RIV-346 do not extend into the road right-of-way, the close proximity of the site to the road right-of-way leaves it vulnerable to road construction. Archeological resources would be protected from construction-related activities, equipment, and vehicles with temporary fencing. Similarly, borrow, fill, and stockpiling areas would not be placed near the sites. In addition, a professional archeologist would monitor the sites during construction (NPS Neff, 2002). Negligible long-term impacts would result from increased visitor access and use of the area near CA-RIV-1959 which would result from the improvement of the road and its ancillary features, such as the proposed turnouts and parking areas near Cap Rock (NPS, Neff 2002).

Cumulative Impacts: The proposed action would contribute to the impacts of other past, present, and reasonably foreseeable future actions. Some archeological resources at Joshua Tree National Park have been adversely impacted from past construction disturbance with road improvement and other projects. Some of these impacts have perhaps occurred before establishment of the park and/or as a result of inadvertent impacts prior to the legal requirements for archeological survey, site protection, and mitigation. Visitor use pressures and natural erosional processes have also contributed to past archeological impacts. Other current and foreseeable construction projects have the potential to impact archeological resources as a result of ground disturbance. These impacts of other actions, in conjunction with the impacts of the preferred alternative, would result in minor long-term adverse cumulative effects to archeological resources. However, the preferred alternative would contribute a relatively small increment to the overall cumulative impact. If adverse impacts could not be avoided, the NPS would implement data recovery or other mitigation measures.

Conclusion: Implementation of the proposed alternative would have negligible short and long-

term adverse impacts on archeological resources. The proposed action would have a minor adverse cumulative impact on archeological resources in the region. Because there is no major adverse impacts to resources that are integral to the cultural integrity of the monument, there would be no impairment to archeological resources.

Section 106 Summary: After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of the preferred alternative would have *no adverse effect* on potentially eligible archeological sites CA-RIV-346 (Ryan Campground turnoff) and CA-RIV-1959 (Cap Rock). The determination of no adverse effect on historic properties was derived by analyzing site location (both are within the area of potential effect but outside of the construction right-of-way) and protection strategies to shield the sites from construction activity.

Visitor Use and Experience

Visitors would have better opportunities for parking and viewing the park with addition of more parking and roadside pullouts. Road safety would be increased with a better-designed roadway and intersections.

It is expected that traffic accident rates would drop significantly. At Lake Mead National Recreation Area, widening and paving the shoulders of segments of the Northshore Road, which also had soft, sandy shoulders, resulted in a 83% reduction in the number of accidents. While we don't have the high proportion of wide boat trailer, RV etc. traffic that Lake Mead National Recreation has, it is safe to assume that a significant reduction in traffic accidents would occur here.

There would be adverse, short-term, negligible impacts during construction. These would be from construction noise, delays and visual intrusion on the visitor experience.

Cumulative Impacts: Future action including additional road improvements, possible visitor facilities would all improve the visitor experience and safety. This in combination with the overall improvements from this project would result in a moderate, beneficial, long-term impact to visitor use and experience in the area.

Conclusion: Visitor use of the park would be enhanced by road and parking improvements resulting in a long-term, minor, beneficial impact to visitor use.

Park Operations

Park road repair maintenance would be reduced and curbing would reduce the number of unlawful parking contacts. The park would have to conduct cyclic maintenance activities to the newly constructed paved and unpaved areas (striping, grading, etc.)

Cumulative Impacts: Future improvements to park facilities is expected to continue in the future. These improvements in addition to the road improvements under the preferred alternative would result in a long-term, moderate, beneficial, cumulative impact to park operations .

Conclusion: Road maintenance would be reduced, however, the addition of parking areas would increase road surface to be maintained. Overall, there would be a long-term, beneficial, minor, impact to park operations through reduced maintenance and cost.

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Compliance, Consultation/Coordination, References, Preparers and Appendix

Compliance

This EA provides disclosure of the planning and decision-making process and potential environmental consequences of the alternatives. The analysis of environmental consequences was prepared on the basis of a need to adequately analyze and understand the consequences of the impacts related to the proposed developments and to involve the public and other agencies in the decision-making process.

In implementing this proposal, the NPS would comply with all applicable laws and executive orders, including the following:

NEPA: The environmental analysis was prepared in accordance with the regulations of the Council on Environmental Policy Act (CEQ) (40 CFR 1500 et seq.) and in part 516 of the U.S. Department of the Interior's Departmental Manual (516 DM).

The National Environmental Policy Act (NEPA) is the basic national charter for environmental protection; among other actions it calls for an examination of the impacts on the components of affected ecosystems. The 1989 GMP, 2001 NPS *Management Policies*, DO-12 (*Conservation Planning, Environmental Impact Analysis and Decision Making*); and DO-77 (*Natural Resources Management*), among other NPS and park policies, provides general direction for the protection of the natural abundance and diversity of all the park's naturally occurring communities.

Various agencies have been contacted and consulted as part of this planning and environmental analysis effort. Appropriate federal, state, and local agencies have been contacted for input, review, and permitting in coordination with other legislative and executive requirements.

Special Status Species: Endangered Species Act of 1973, as amended (16 USC 1531 et seq.). Section 7 of the Endangered Species Act requires all federal agencies to consult with the U.S. Fish and Wildlife Service to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats.

Cultural Resources: The NPS is mandated to preserve and protect its cultural resources through the Organic Act of August 25, 1916, and through specific legislation such as the Antiquities Act of 1906, the National Environmental Policy Act of 1969 (as amended), and the National Historic Preservation Act of 1966 (as amended), NPS *Management Policies 2001*, the *Cultural Resource Management Guideline* (DO-28), and the Advisory Council on Historic Preservation's implementing regulations regarding *Protection of Historic Properties* (36 CFR 800). Section 106 of the National Historic Preservation Act of 1966 requires that federal agencies having direct or indirect jurisdiction over undertakings consider the effect of those undertakings on properties on or eligible for listing on the National Register of Historic Places and afford the Advisory Council on Historic Preservation and the state historic preservation office an opportunity to comment.

In the unlikely event that human remains, funerary objects, sacred objects, or objects of cultural

patrimony are discovered during construction; provisions outlined in the *Discovery Plan, Revised 2002* would be followed. The National Park Service, Denver Service Center developed this plan as required by the Native American Graves Protection and Repatriation Act (NAGPRA) [Public Law No. 101-601; 25 USC Section 3001-3013; 104 Stat. 3048-3058] and its implementing regulations (43 CFR 10). A copy of this plan is on file at Joshua Tree National Park.

As construction occurs, an archeologist would monitor activities to assure that archeological resources are not impacted. If unknown buried deposits are located, documentation of the resources would occur. Construction would avoid impacting deposits whenever possible. However, in the unlikely event that impacts to previously unknown or known buried deposits are unavoidable, data recovery excavation may be undertaken. Data recovery efforts would be guided by the provisions of the 1966 National Historic Preservation Act, as amended in 1992 (16 USC 470); the Native American Graves Protection and Repatriation Act (1990), the Advisory Council regulations *Protection of Historic Properties 2000* (36 CFR Part 800), and NPS *Cultural Resource Management Guidelines*, Release 5, 1997.

Consultation and Coordination

Agencies and Organizations

Agencies and Organizations contacted for information; or that assisted in identifying important issues, developing alternatives, or analyzing impacts; or that have been sent the EA for review and comment include:

Federal Agencies

Advisory Council on Historic Preservation

U.S. Department of the Interior - Fish and Wildlife Service

State Agencies

Office of Cultural Affairs, Historic Preservation Division (office of State Historic Preservation Officer)

Selected References

Executive Orders

Executive Order 11988 (Floodplain Management)

Executive Order 11990 (Protection of Wetlands)

Executive Order 12898 (Environmental Justice)

National Park Service, U.S. Department of the Interior Director's Orders

DO-2 *Park Planning*

DO-12 *Conservation Planning, Environmental Impact Analysis, and Decision Making*

DO-28 *Cultural Resource Management Guideline, Release No. 5, 1997.*

DO-47 *Sound Preservation and Noise Management*

DO-77 *Natural Resources Management*

Joshua Tree National Park General Management Plan/Development
Concept Plan/Environmental Impact Statement, 1995

U.S. Federal Government

1864 Act of Congress (13 Stat. 325)
1890 Act of Congress (26 Stat. 650)
1906 Joint Resolution of Congress (34 Stat. 831)
1955 Federal Air Quality Law
1963 Clean Air Act, as amended
1966 National Historic Preservation Act
1969 National Environmental Policy Act (NEPA)
1973 Endangered Species Act, as amended
1977 Clean Water Act
1990 Native American Graves Protection and Repatriation Act

36 CFR 800.11 40 CFR, Part 503

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

Conservation Planning, Environmental Impact Analysis, and Decision Making Director's Order #12, (2001).

Draft Environmental Assessment: Rehabilitation of Roads in Hidden Valley Area, Joshua Tree National Park, California, January 2000.

General Management Plan / Development Concept Plans / Environmental Impact Statement, Joshua Tree National Park, California, 1995.

“Historic Resource Study: A History of Land Use in Joshua Tree National Monument, California,” by Linda W. Greene. Denver, Colorado: Denver Service Center, 1983.

“Cremations and Associated Artifacts from the Campbell Collection, Joshua Tree National Monument, California.” Schroth, Adella B., Editor. Prepared on contract with the Western Regional Office, San Francisco, California. Prepared by the Departments of Anthropology at the University of California at Riverside and at the University of Nevada at Las Vegas, 1992.

Personal Communication (electronic mail), Loy Neff, Archeologist, WACC, December 2001.

“Trip Report, WACC Project No. JOTR 2001 A: Archeological Survey and Site Assessments in the Proposed Roadway Corridor, Joshua Tree Roads Project (Package 291), Joshua Tree National Park, Riverside County, Loy Neff, Archeologist, California, 2001.

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Schneider, Joan S. and Claude N. Warren. "Preliminary Results of a Systematic Random Sample of Prehistoric Cultural Resources at Joshua Tree National Monument, California." Paper presented at the 1992 Kelso, California Conference on Mojave Desert.

Schroth, Adella Beverly. "The Pinto Point Controversy in the Western United States," A Dissertation Submitted in Partial Satisfaction of the Requirements for the Degree of Doctor of Philosophy in Anthropology, University of California, Riverside, 1994.

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Appendix A - US Fish and Wildlife Correspondence

JUN 05 2001

N1671 (DSC-PDS)

JOTR-291

X Comp

Memorandum

Field Supervisor, U.S. Fish and Wildlife Service, Ecological Services,
2730 Loker Avenue West, Carlsbad, CA 92069

Natural Resource Specialist, Planning Group, Denver Service Center

Reference: Joshua Tree National Park, Pkg.291, Park Road Improvements

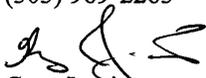
Subject: List of Threatened or Endangered Species

The National Park Service (NPS) is initiating a planning project for improvements to the park road for Joshua Tree National Park. The area of the proposed project is from the Cap Rock intersection to Geology Tour Road intersection (map attached). As the Natural Resource Specialist assigned to this project, I am requesting a current list of federally-listed or any other special status species that might occur in the locality mentioned above, and designated critical habitat, if any, for these species.

This letter will serve as a record that the NPS is initiating informal consultation with your agency pursuant to the requirements of the Endangered Species Act and National Park Service Management Policies.

We appreciate your response to this inquiry. Please send any responses to:

Greg Jarvis (DSC-PDS)
National Park Service
12795 W. Alameda Parkway
Denver, CO 80225
(303) 969-2263


Greg Jarvis

Attachment

PDS:GJarvis:aae:06/05/01:2263:JOTR291RD



United States Department of the Interior
 Fish and Wildlife Service
 Ecological Services
 Carlsbad Fish and Wildlife Office
 2730 Loker Avenue, West
 Carlsbad, CA 92008



In Reply Refer To: FWS-ERIV-1948.1

JUN 29 2001

Memorandum

To: Greg Jarvis, Planning Group, Denver Service Center

From: *Acting* Assistant Field Supervisor, Carlsbad Fish and Wildlife Office *John Brown*

Subject: Species List Request for Park Road Improvements in Joshua Tree National Park

This memorandum lists the federally listed and sensitive species which may occur in the area of the proposed project from the Cap Rock intersection to the Geology Tour Road intersection within Joshua Tree National Park.

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
REPTILES		
desert tortoise	<i>Gopherus agassizii</i>	Threatened
BIRDS		
burrowing owl	<i>Speotyto cunicularia</i>	Sensitive
PLANTS		
Little San Bernardino Mountains Gilia	<i>Linanthus maculata</i>	Sensitive

If you have any questions regarding this memo, please contact Matt McDonald of my staff at (760) 431-9440.



As the nation's principal conservation agency, the Department of Interior has 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 historical 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.