LAKE MEAD NATIONAL RECREATION AREA

ENVIRONMENTAL ASSESSMENT

TO UPGRADE POWER SERVICING THE

ECHO BAY DEVELOPED AREA

Lake Mead National Recreation Area
Clark County, Nevada

March 2007

US Department of the Interior, National Park Service

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SECTION I: PURPOSE OF AND NEED FOR ACTION

INTRODUCTION

Lake Mead National Recreation Area (NRA) is a unit of the National Park Service (NPS) and was designated as the first national recreation area in 1964. Lake Mead NRA is situated in southeastern Nevada and northwestern Arizona. It consists of two large reservoirs, Lake Mead and Lake Mohave, formed by the impoundment of the Colorado River (Figure 1). The recreation area is approximately 1.5 million acres with about 87% of the acreage being terrestrial resources.

The NPS is considering upgrading the primary power servicing the Echo Bay developed area, within Lake Mead NRA. Echo Bay is situated in the northern portion of the recreation area on a high bluff and offers uncrowded conditions along the Overton Arm of Lake Mead (Figure 2). This Environmental Assessment (EA) evaluates the no action alternative and one action alternative:

- Alternative A: No-Action
- Alternative B: Upgrade Existing Powerline Servicing Echo Bay developed area

Environmental Assessment

This EA analyzes the context, duration, and intensity of impacts related to the alternatives, describes existing conditions in the project area, identifies alternatives that were eliminated, and analyzes the impacts of each project alternative on the human and natural environment. This EA was prepared to analyze resource impacts along a twelve mile corridor that begins on Bureau of Reclamation (BOR) land and terminates at Echo Bay, within Lake Mead NRA. The first mile of the corridor consists of lands managed by BOR, Bureau of Land Management (BLM), private land, and Valley of Fire State Park. This EA evaluates the impacts associated with the proposed substation construction located on BOR land because it is integral to the success of the overall power upgrades supporting Lake Mead NRA. Overton Power District No. 5 would ensure that all permitting requirements with each respective land owner are met.

This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, regulations of the Council of Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1508.9) and NPS Director's Order-12, *Conservation Planning, Environmental Impact Analysis and Decision Making.*

PURPOSE AND NEED

The purpose of this project is to ensure that reliable power is supplied to the Echo Bay developed area to provide for NPS, concessioner, and visitor safety, and to eliminate power outages that impact the daily operations of NPS staff and concessioners. The NPS would work cooperatively with Overton Power District No. 5 (OPD) to achieve these results by upgrading the primary power source serving the Echo Bay developed area.

The demand for electrical power at Echo Bay has continuously increased over the years, yet the primary power service equipment has remained relatively unchanged for more than 40 years. Brown-outs and power outages have occurred during peak use periods

Figure 1. Regional Map
Lake Mead National Recreation Area

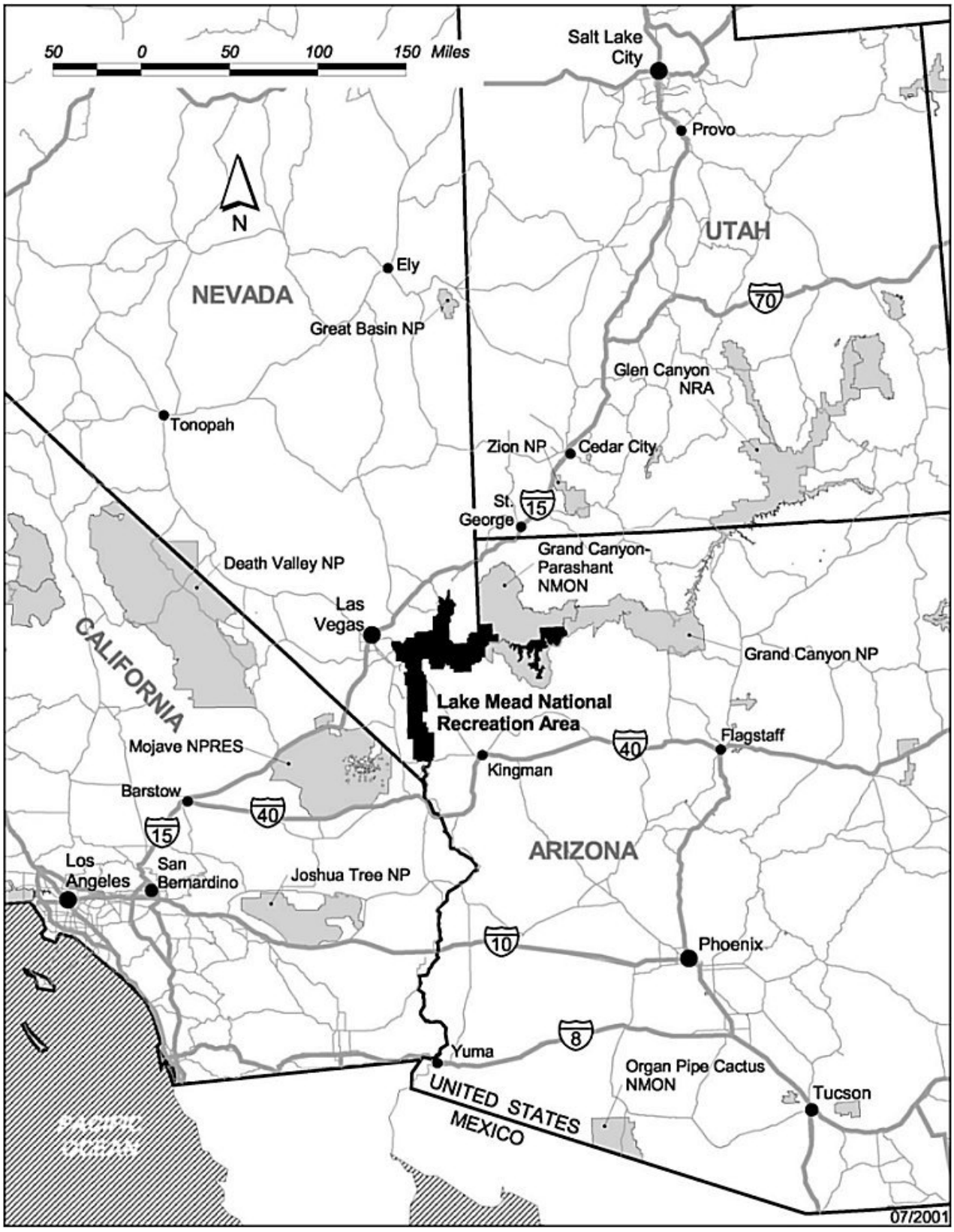
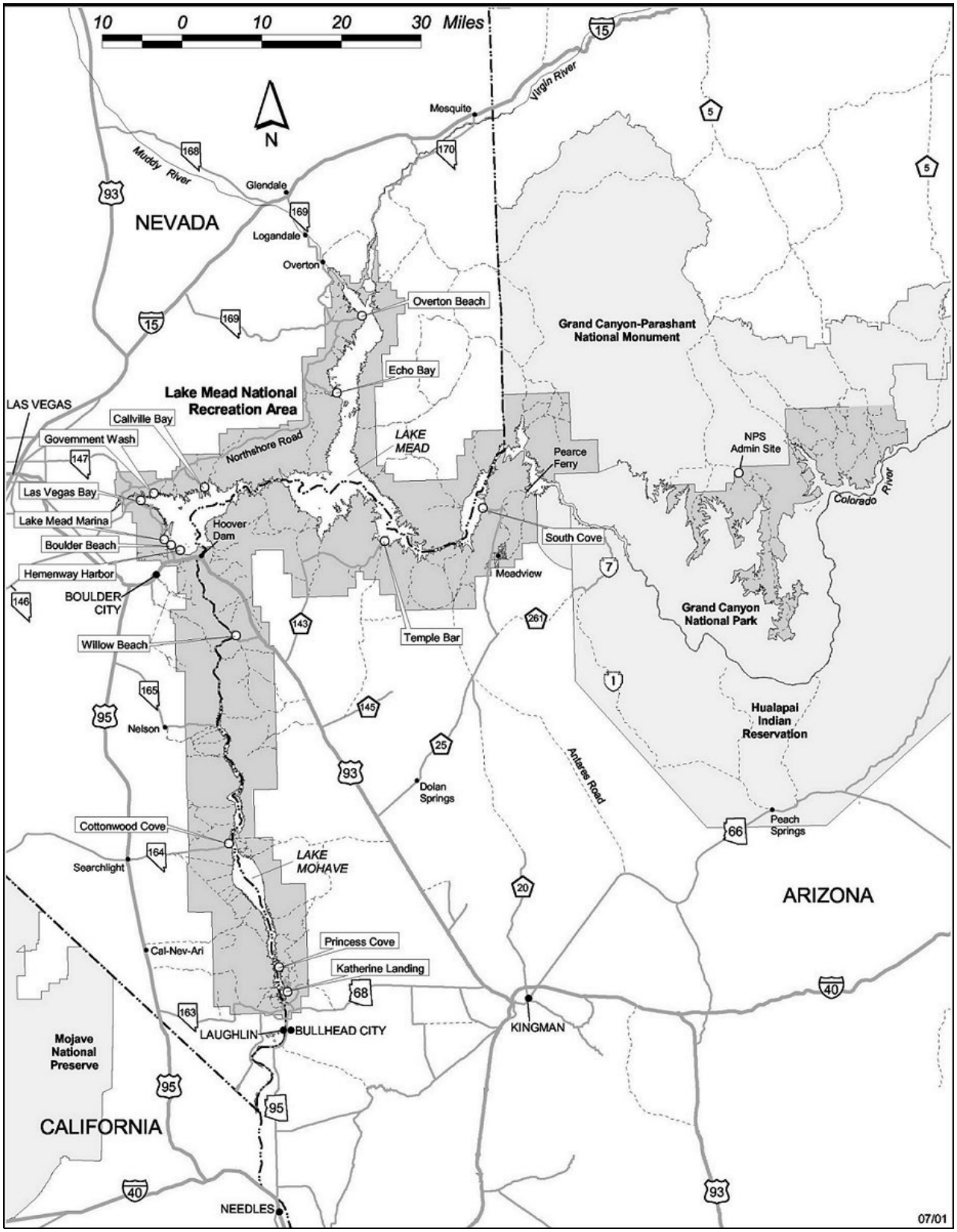


Figure 2. Area Map
Lake Mead National Recreation Area



when the existing power delivery system becomes overloaded by power demands. During the summer of 2002, failure of the local power service equipment forced NPS and concession employees and their families to leave their residences at Echo Bay for temporary lodging in the community of Overton, NV, located over 30 miles away, to escape the relentless southern Nevada heat. Given that this harsh climate makes air conditioned living and work spaces an absolute necessity, these recurring failures resulted in unbearable, and in some cases, life-threatening indoor temperatures.

Additionally, the frequent brown-outs and power outages at Echo Bay have resulted in numerous failures of the new water treatment plant. These failures occurred during times of peak annual water demand, requiring extreme response measures by NPS staff in order to ensure the availability of minimal quantities of potable water for domestic, structural fire, and sanitary needs.

BACKGROUND

OPD is a non-profit special improvement district created in 1935 by the State of Nevada. OPD's service area includes the City of Mesquite and the unincorporated towns of Bunkerville, Logandale, Moapa, and Overton. OPD also provides service to the Moapa Band of Paiutes, Valley of Fire State Park, and portions of Lake Mead NRA including Overton Beach, Echo Bay, and Stewart's Point. The existing power transmission line originates in the community of Overton and crosses over land managed by BOR, BLM, a private entity, and Valley of Fire State Park before entering onto NPS land. OPD has existing rights-of-way permits from each respective federal agency for crossing over lands to provide power to the district's more remote areas. In 2000, OPD upgraded an existing single-phase 7.2 kilovolts (kV) overhead electrical line to a three-phase 12.47 kV electrical line servicing the Overton Beach developed area.

During maximum power usage periods, Echo Bay currently experiences a voltage drop of approximately 19%. A typical electrical system maintains approximately a 5% voltage drop. In 2002, emergency upgrades were made to the electrical system servicing Echo Bay to mitigate power failures that were jeopardizing a continued water supply and forcing some of the NPS and concession residents to relocate to the community of Overton. OPD installed a capacitor bank and three voltage regulators at Echo Bay. The installation of the equipment has kept the line serviceable, but a permanent solution is required to solve the problem. OPD has not permitted any new load to be added for the past five years in the Echo Bay area due to the voltage drop issue.

<u>Alternative Energy Consideration</u>

Government policy has been to connect to public utilities when practicable rather than establish government-owned utilities. Utility companies are able to distribute operating and maintenance costs over their entire rate payer base, can develop efficiencies in the operation and maintenance of utility systems, and can distribute their infrastructure for operation and maintenance over the entire system. In alternative energy projects, it is most beneficial to establish an active partnership with the utility company rather than propose government-ownership of alternative energy infrastructure and thereby creating a future operation and maintenance commitment. Alternative energy is most effective at

meeting low amperage loads (lighting, residential power circuits, etc.) or when it supplements a grid system that has the capacity to meet peak loads. Peak loads in the project area are primarily caused from air conditioning (high amperage motor loads). Currently, OPD does not have an alternative energy program in place. The upgrades to the primary line presented in this document would not preclude alternative energy enhancements as a secondary source. Upgrading the existing line would address the immediate capacity issue, while providing the ability for the park to address long- term alternative energy issues in a well-planned, thought-out approach.

Location and Description of Existing Utilities and Facilities

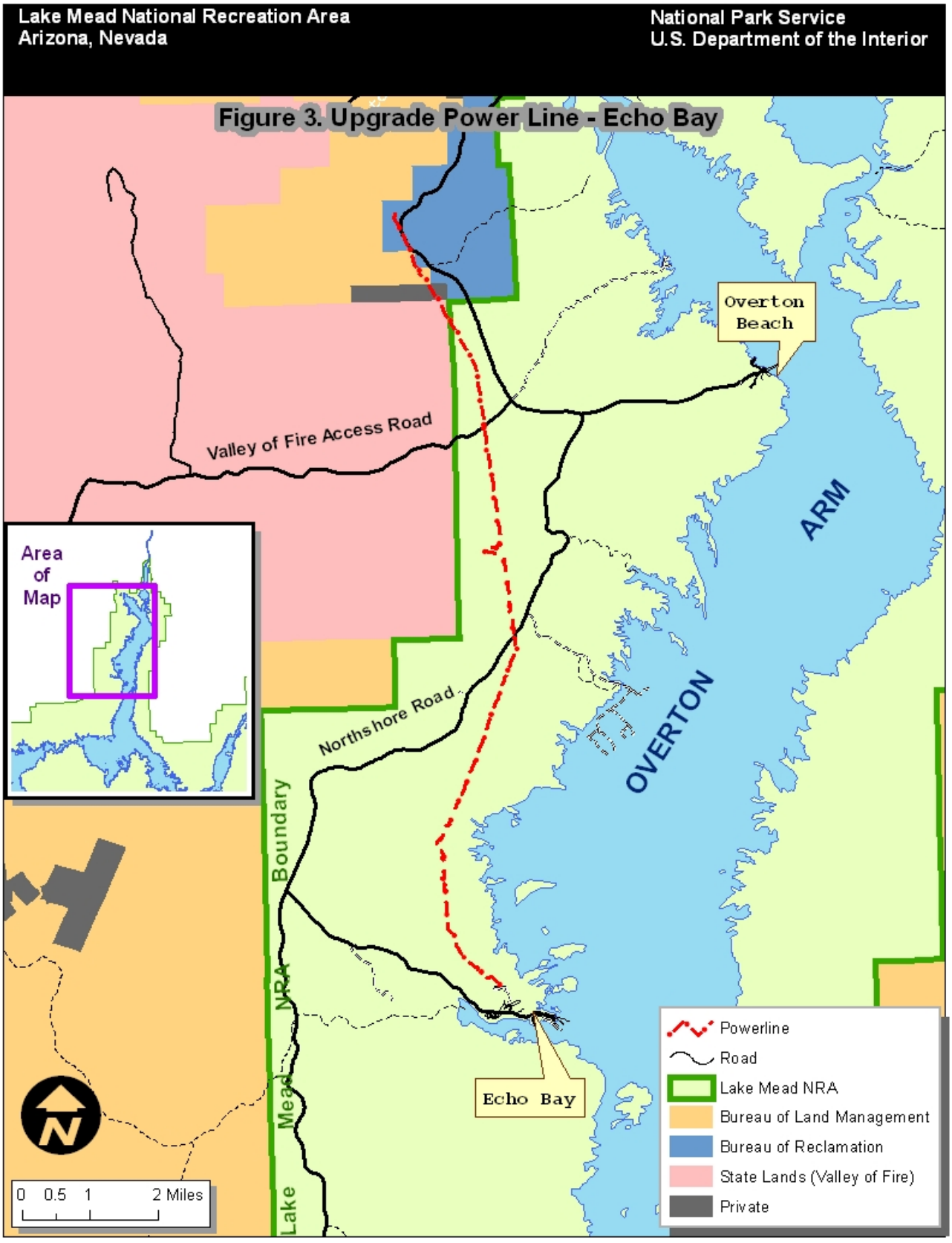
Electric power is provided to Lake Mead NRA by the Overton Substation in Overton, NV. The Overton Substation is a 69-12.47 kV substation rated for 20 MVA (thousand volt-ampere) of electrical capacity. OPD transforms 69 kV to 12.47 kV utilizing two, 10 MVA transformers. Near Overton, the overhead power line is located on private land and land administered by the BLM. Approximately six miles south of Overton, the overhead power line crosses onto lands administered by the BOR, and a small portion crosses BLM land, private land, and Valley of Fire State Park land before entering into the park (Figure 3).

A 12.47 kV three phase, four wire overhead power line originates at the Overton Substation and provides power to southern Overton, Simplot Silica Sand Mine, Valley of Fire State Park, and Lake Mead NRA. The first section of overhead power line from the Overton Substation to the northwest boundary of Lake Mead NRA, approximately seven miles in length, utilizes 4/0 ACSR (aluminum cables reinforced with steel) wire. The next section of overhead power line from the northwest of the Lake Mead NRA boundary, approximately 11 miles in length, utilizes #2 ACSR wire.

The overhead power line is paralleled by a dirt service road that is maintained by OPD. An underground telephone line has been installed along the road to provide telephone service to Echo Bay. Gates have been installed at the access points, and the road is for authorized use only. OPD and the telephone service provider use the access road for maintenance and repair of their respective lines. Wind and lightning are the main causes of power failure at Lake Mead NRA and approximately 5-6 power outages occur on the power line each year. OPD typically patrols the overhead power line 1-2 times per year.

Right-of-Way Permitting

OPD has an existing 20 feet right-of-way permit with the NPS authorizing the operation and maintenance of the electrical power distribution system within Lake Mead NRA, valid through March 26, 2009. In the past, OPD has been granted permission to use public lands for the overhead power line by BLM right-of-way grant, by BOR contract and license, and by NPS right-of-way permit.


Lake Mead National Recreation Area
Arizona, Nevada
National Park Service
U.S. Department of the Interior
Figure 3. Upgrade Power Line - Echo Bay
Overton Beach
Valley of Fire Access Road
Area of Map
Northshore Road
Boundary
Lake Mead NRA
ARM
OVERTON
Echo Bay
0 0.5 1 2 Miles
Powerline
Road
Lake Mead NRA
Bureau of Land Management
Bureau of Reclamation
State Lands (Valley of Fire)
Private

RELATED LAWS, POLICIES, AND OTHER PLANNING AND MANAGEMENT DOCUMENTS

Servicewide and Park Specific Legislation and Planning Documents

The NPS Organic Act directs the NPS to manage units "to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such a manner as will leave them unimpaired for the enjoyment of future generations." (16 U.S.C. § 1). Congress reiterated this mandate in the Redwood National Park Expansion Act of 1978 by stating that the NPS must conduct its actions in a manner that will ensure no "derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress." (16 U.S.C. § 1 a-1). The Organic Act prohibits actions that permanently impair park resources unless a law directly and specifically allows for the acts. An action constitutes an impairment when its impacts "harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources and values." (*NPS Management Policies* 1.4.3).

NPS Management Policies 2006 requires the analysis of potential effects of each alternative to determine if actions would impair park resources. To determine impairment, the NPS must evaluate "the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts." (*NPS Management Policies* 1.4.4). The NPS must always seek ways to avoid or minimize, to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the NPS management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment to the affected resources and values (*NPS Management Policies* 1.4.3).

NPS units vary based on their enabling legislation, natural and cultural resources, missions, and the recreational opportunities appropriate for each unit, or for areas within each unit. The enabling legislation for Lake Mead NRA (PL 88-639), established the recreation area "for the general purposes of public recreation, benefit, and use, and in a manner that will preserve, develop and enhance, so far as practicable, the recreation potential, and in a manner that will preserve the scenic, historic, scientific, and other important features of the area, consistent with applicable reservations and limitations relating to such area and with other authorized uses of the lands and properties within such area." An action appropriate at Lake Mead NRA, as designated by the enabling legislation, may impair resources in another unit. This environmental assessment analyzes the context, duration, and intensity of impacts related to upgrading a power transmission line, as well as the potential for resource impairment, as required by Director's Order 12, *Conservation Planning, Environmental Impact Analysis and Decision Making.*

The 1986 *General Management Plan* (*GMP*) provides the overall management direction for the recreation area. The plan emphasizes long-term protection of park resources

while accommodating increasing visitor use. It allows for increasing use through a combination of providing developed areas, improved access points, and acceptable levels of expansion in existing developed areas. It establishes land-based management zones and strategies for meeting the goals and general purposes of the recreation area.

ISSUES AND IMPACT TOPICS

Issues are related to potential environmental effects of project alternatives and were identified by the project interdisciplinary team. Once issues were identified, they were used to help formulate the alternatives and mitigation measures. Impact topics based on substantive issues, environmental statutes, regulations, and executive orders (EOs) were selected for detailed analysis. A summary of the impact topics and rationale for their inclusion or dismissal is given below.

Issues and Impact Topics Identified for Further Analysis

The following relevant impact topics are analyzed in the EA. Whether each issue is related to taking action or no action is specified.

Safety, Visitor Use and Experience, and Park Operations

Safety of visitors, NPS and concession employees, and construction personnel is important to the NPS. Both alternatives would have an impact on safety, visitor use and experience, and park operations and will be evaluated further in this document.

Visual Resources

The power line is visible from Northshore Road and the Echo Bay developed area. Pole spacing and pole height would change with implementation of the action alternative; therefore, impacts on the visual resource are evaluated in the environmental assessment.

Special Status Species

The Federally-listed threatened desert tortoise occurs in the vicinity of the project area. The relict leopard frog, a federally listed candidate species inhabits the Blue Point Spring complex and Rogers Spring complex. Impacts on these species will be evaluated in the environmental assessment. Additionally, the project area provides habitat for a number of State-sensitive plant species, and impacts on these species will be evaluated.

Wildlife and Wildlife Habitat

Wildlife and wildlife habitat within the project area would be disturbed by construction activities associated with the action alternative. Power lines can be detrimental to birds and older power lines can be more harmful because the design did not consider raptor protection. New power lines can be designed to be less harmful to birds.

Soils and Vegetation

The action alternative involves ground-disturbing activities and portions of the power line cross through areas with sensitive soils; therefore, soils and vegetation are addressed as an impact topic in this environmental assessment. Construction activities could introduce non-native species into the project area.

Water Resources

The existing power line access road crosses through numerous ephemeral washes, and a very small section crosses through a riparian area. Run-off from construction activities could affect water quality; therefore, this impact topic will be considered in this environmental document.

Cultural Resources

Cultural resources exist in the vicinity of the project area. Impacts to cultural resources are considered in this document.

Air Quality

An increase of particulates in the air would occur during construction activities from the action alternative, therefore, air quality is addressed as an impact topic in this document.

Impact Topics Considered but Dismissed from Further Consideration

Wetlands/ Riparian Areas

Executive Order 11990 (Protection of Wetlands) requires an examination of impacts to wetlands. There are NPS-defined wetlands associated with the Blue Point Spring complex and Rogers Spring complex within the project area. The existing power line service road crosses through a small portion of the spring areas, but the line itself spans the riparian areas with no structures located in them. The project is designed to avoid any direct impacts to the wetlands and to minimize and mitigate for any indirect impacts that may result, such as runoff and sedimentation. No equipment or materials would be stored within or directly adjacent to the Blue Point Spring complex or the Rogers Spring complex. Vehicles and equipment would access the power line service road from an authorized access point off of Northshore Road which bypasses the spring areas. The service road passing through the spring area would only be used for critical project activities that require linear travel along the power line (e.g. stringing wire between the poles spanning the riparian area).

The relict leopard frog exists in Blue Point Spring and Rogers Spring and mitigation measures would be implemented as a precautionary measure to avoid potential impacts on the relict leopard frog. The area where the existing road crosses through the springs is not optimal frog habitat. Optimal frog habitat is found upstream of the project area. Due to the likelihood of only short-term, negligible, adverse impacts on the wetland resource, wetlands are dismissed as an impact topic in this environmental assessment.

Land Use

The power transmission line crosses onto adjacent lands including BOR, BLM, private land, and Valley of Fire State Park land before entering onto park land. The Moapa Valley Telephone Company has an existing right-of-way permit with the NPS, and the phone line is within the same corridor as the power line. OPD will continue to communicate with the Moapa Valley Telephone Company to ensure there is no impact on the telephone line. The power line already exists, and there would be no change to existing land use; therefore, land use will not be considered an impact topic in this environmental assessment.

Soundscapes

Park soundscapes include both natural and human components. The natural soundscape is considered a park resource and includes all the naturally occurring sounds in the park, not including any sounds of human origin. Implementation of the preferred alternative would have short-term, localized, negligible, adverse impacts to soundscapes during construction activities. There are no long-term impacts associated with the preferred alternative; therefore, soundscapes will not be addressed as an impact topic in this environmental assessment.

The following resources do not occur in the project area: designated ecologically significant or critical areas; wilderness; floodplains; wild or scenic rivers; wilderness; designated coastal zones; Indian Trust Resources; prime and unique agricultural lands; sites on the U.S. Department of the Interior's National Registry of Natural Landmarks; or sole or principal drinking water aquifers. These resources are therefore not further addressed in this document.

In addition, there are no potential conflicts between the project and land use plans, policies, or controls (including state, local, or Native American) for the project area. There are no potential effects to local or regional employment, occupation, income changes, or tax base as a result of this project. In accordance with EO 12898 on Environmental Justice, there are no potential effects on minorities, Native Americans, women, or the civil liberties (associated with age, race, creed, color, national origin, or sex) of any American citizen. No disproportionate high or adverse effects to minority populations or low-income populations are expected to occur as a result of implementing any alternative.

SECTION II: DESCRIPTION OF ALTERNATIVES

INTRODUCTION

This section describes the alternatives considered, including the No Action Alternative. The alternatives described include mitigation measures and monitoring activities proposed to minimize or avoid environmental impacts. This section also includes a description of alternatives considered early in the process but later eliminated from further study; reasons for their dismissal are provided. The section concludes with a comparison of the alternatives considered.

Alternative A- No Action

Under this alternative, the dilapidated overhead transmission line serving the Echo Bay developed area would not be upgraded to manage the increasing power demand. Power outages and brown-outs would continue and would increase with visitation and demand. The water supply for domestic, structural fire, and sanitary needs of park visitors and NPS and concession employees could be compromised. NPS and concession employees, park operations, and marina/commercial services may suffer from an inadequate power supply.

The existing 12.47 kV transmission line and all associated components would be replaced as they become ineffective or unsafe and emergency upgrades to the system would continue as long as the existing power supply could support them. There are approximately 180 thirty-five foot power poles spaced 350 feet apart within the twelve mile stretch from Overton Mesa to the Echo Bay developed area. The poles have a horizontal pole top configuration and do not possess raptor protection measures to reduce the potential for shock or electrocution of raptors (Figure 4). The poles would remain in kind, and may be individually removed and replaced as needed. Maintenance to the power line service road would continue as stipulated in the right-of-way permit between OPD and the NPS.

Figure 4. Existing power line with horizontal pole top configuration.

Alternative B- Upgrade Primary Power Servicing Echo Bay Developed Area (Environmentally- and Management-Preferred Alternative)

Under this alternative, OPD would upgrade the electrical system in three phases in order to provide adequate capacity and associated energy to the Echo Bay developed area. To prepare for the proposed power upgrades presented in this alternative, OPD would implement Phase I which includes building a new 69 kV overhead power line with a 12.47 kV under built distribution line from the Overton Substation in the community of Overton to a location approximately six miles south of Overton, Nevada. Once the new power line is completed, OPD would demolish the existing 12.47 kV overhead power line. Only Phase II and Phase III of OPDs proposal, which includes the twelve miles extending from Overton Mesa to the Echo Bay developed area, are evaluated in this document.

Phase II and III of OPDs proposal include constructing a new substation at Overton Mesa, referred to as Payne Substation, and building a new 12.47 kV overhead power line with large conductor from the Payne Substation to the Echo Bay developed area. Project activities associated with this alternative include: constructing a new substation; installing new power poles with vertical pole top configuration and transmission wire; removing the existing power poles with horizontal pole top configuration and transmission wire; and, improving the existing power line service road to safely access the job site.

The types of equipment needed to accomplish the project include: pick-up trucks, a flatbed trailer to bring in new poles, a drill unit and backhoe to set poles, machinery to erect the poles and string wire, and equipment needed for the road improvement.

<u>Payne Substation</u>

A new 10 MVA distribution substation (upgradeable to 20 MVA) would be constructed on BOR land to provide simplex service to the Overton Beach and Echo Bay developed areas (Figure 5). The substation would be constructed utilizing a 10 MVA 69-12.47 kV transformer. In 2002, OPD requested the right to use BOR land for establishment of an electric substation and received a license to proceed in 2003. The Payne Substation would occupy approximately 26,000 sq. feet (0.6 acre) within OPD's 270' x 250' right-of-way corridor with the BOR. The previously disturbed area would be graded and small

Figure 5. Proposed location for Payne Substation.

footings would be placed to stabilize equipment. An eight-foot block wall may be erected to secure and enclose the equipment. The BOR has completed the permitting requirements necessary for OPD to construct the proposed substation.

Electrical Transmission Line from Payne Substation to Echo Bay developed area
The power line would be constructed within the authorized corridor and would follow the existing power line service road to the greatest extent possible. Poles would be placed within approximately 15-20 feet of the existing overhead power line. In a few places, the service road does not directly follow the pole alignment due to the rugged terrain. To access these poles, a short two-track access route would be created along the least disturbing route. The line would be constructed with wood poles, approximately 40-45 feet in height and utilize a CA-1 pole top configuration and 336 ACSR conductor. The average spacing of the new poles would be 440 feet apart, reducing the number of poles by 20% (resulting in approximately 37 fewer poles). The design of the new power poles incorporate raptor protection measures including: armless construction, insulation of components and hardware, adequate spacing between conductors, etc. These design elements reduce the likelihood of large birds being electrocuted by the power line.

The steps involved with erecting the new power line include: predrill holes; dig holes and place poles; attach all electrical components and hardware to poles; and string transmission wire. To ensure pole stabilization, holes must be 10% of the pole height plus 2 feet; therefore, holes would be drilled approximately 6 ½ feet to stabilize the 40-45 feet high poles. Transmission wire would be pulled under tension, 6,000 feet at a time, and would not come into contact with the ground.

Removal of Existing Power Poles and Transmission Line
After the new power line has been successfully constructed, the existing power poles would be cut at or below grade level and would be removed from the project area. Power poles would be stored at an appropriate location for use in NPS Restoration projects. The transmission line would be removed and disposed of properly at an appropriate location outside the park.

Service Road Improvements
The majority of the power line service road is adjacent to the existing power line. Minor improvements would be made to the existing service road to safely transport employees and equipment to the work site. The improvements would entail repairing areas that have been washed out and blading areas that are severely rutted or extremely rugged. Gates are already in place at both ends of the service road to prohibit illegal access. The service road is for authorized use only and is accessible to the respective land management agency or landowner, OPD, and the Moapa Valley Telephone Company.

Right-of-Way Permitting
Vehicular access for construction of the transmission line and maintenance will be confined to the existing service road that was established in the original construction of the transmission line except in limited situations where the pole location cannot be accessed directly from the service road. The NPS would amend the existing right-of-way

permit to reflect the new location of the power line and service road upon completion of the project. OPD would be responsible for notifying adjacent land management agencies and other affected parties prior to activities commencing. The Moapa Valley Telephone Company has an existing right-of-way permit with the NPS and the phone line is within the same corridor as the power line. OPD would continue to communicate with the Moapa Valley Telephone Company to ensure there is no impact on the telephone line.

MITIGATION AND MONITORING

Mitigation measures are specific actions designed to minimize, reduce, or eliminate impacts of alternatives and to protect Lake Mead NRA resources and visitors. Monitoring activities are actions to be implemented during or following construction. The following mitigation for actions connected with upgrading the existing power transmission line would be implemented under the action alternative, and are assumed in the analysis of effects for each alternative.

Soils and Vegetation

- Staging areas will be confined to previously disturbed areas.
- Vehicular access for construction of the transmission line and maintenance will be confined to the existing service road that was established in the original construction of the transmission line except in limited situations where the pole location cannot be accessed directly from the service road. A NPS Resource Manager will be on-site to direct equipment along the least impacting route. No new spurs will be bladed in.
- To prevent the introduction and spread of non-native plant species, construction equipment and vehicles will be pressure-washed prior to working in the park and inspected by the NPS Resource Manager prior to work. In addition, a portable sprayer will be provided by the NPS to clean vehicles and equipment on-site before moving from an invasive weed area to a non-invasive weed area.
- Vehicle tracks will be raked out in situations where pole access deviates from the existing service road.
- OPD personnel will stake the potential pole locations prior to work commencing. NPS Resource Specialists will assess the locations to ensure avoidance of sensitive soils, vegetation, and wildlife habitat to the greatest extent practicable.

Wildlife

- A NPS Resource Manager will be on-site and will move detected wildlife away from construction activities, to the greatest extent possible.
- The design of the power line includes raptor protection measures that reduce avian mortality occurring from collision, entanglement, electrical shock, and/or electrocution along transmission lines.
- No excavations or holes will be left unattended or uncovered to avoid trapping wildlife.

Burrowing Owls

- All burrows, holes, crevices, or other cavities will be collapsed on the construction site before the burrowing owl's breeding season (mid-March through August) to discourage owls from breeding on the construction site.
- If an owl is nesting, the site will be avoided until the chicks fledge to ensure that birds do not abandon the nest.

Gila Monsters

- Live Gila monsters found in harms way on the construction site will be captured and then detained in a cool, shaded environment by a qualified biologist. The Nevada Department of Wildlife (NDOW) will be contacted for documentation purposes.
- In the event that a Gila monster is injured, it will be transferred to a veterinarian proficient in reptile medicine for evaluation of appropriate treatment.

Special Status Species

Desert tortoise

- A NPS Resource Manager will be on-site for the duration of the project to ensure that the desert tortoise will not be affected from project activities and will oversee the implementation of additional conservation measures.
- A desert tortoise education will be presented to all personnel on-site during construction.
- All areas to be disturbed will have boundaries flagged before beginning the activity, and flagged areas will be surveyed for tortoises immediately prior to commencement of activities. All disturbances will be confined to flagged areas.
- Before surface-disturbing activities, a qualified desert tortoise biologist will conduct a clearance survey to locate and remove tortoises according to approved protocols.
- All occupied or unknown burrows found within areas proposed for disturbance, will be excavated by a qualified biologist. All unoccupied burrows will be blocked or collapsed to prevent re-entry.
- Nests/eggs will be avoided so that no relocation is necessary.
- Project activities that may endanger a tortoise will cease if a tortoise is found on the project site.
- Holes drilled for placement of poles will not be left unattended unless secured with tortoise-proof fencing.
- Trash and food items will be disposed of properly in predator-proof containers with resealing lids to avoid attracting predators to the project area.

Relict Leopard Frog

- No equipment or materials will be stored within or directly adjacent to the lower Blue Point Spring complex. Vehicles and equipment will access the power line service road from an authorized access point off of Northshore Road which bypasses the spring areas. The service road passing through the spring area will only be used for critical project activities that require linear travel along the power line (e.g. stringing wire between the poles spanning the riparian area).

- A NPS Resource Manager will be on site to survey for the relict leopard frog immediately before construction equipment passes through the riparian areas to avoid direct mortality of frogs.

Sensitive Plant Species

- Potential pole locations will be staked by OPD engineers prior to project activities commencing. The NPS Botanist will assess the pole locations to make sure they avoid sensitive plant species in the area.
- A NPS Resource Manager will be on-site during construction activities to ensure protection of individual sensitive plants and habitat.

Water Quality

Best Management Practices will be implemented to prevent or reduce nonpoint source pollution and minimize soil loss and sedimentation. BMPs would be implemented to protect water quality and the wetlands associated with Blue Point Spring and Rogers Spring. Mitigation measures would include all or some of the following actions, depending on site-specific requirements:

- Keep disturbed areas as small as practical to minimize exposed soils and potential for erosion;
- Locate waste and excess excavated materials outside drainages to avoid sedimentation;
- Store, use, and dispose chemicals, fuels, and other toxic materials in an appropriate manner;
- Clean equipment prior to work to remove excess oil, hydraulic fluid, or other contaminants;
- Regularly inspect equipment for leaks and repair leaks immediately;
- Have spill containment equipment available and have personnel trained in its use; and,
- No fueling, repairing, or staging of equipment will occur in washes or wetlands.
- No equipment or materials will be stored within or directly adjacent to the Blue Point Spring complex or the Rogers Spring complex. Vehicles and equipment will access the power line service road from an authorized access point off of Northshore Road which bypasses the spring areas. The service road passing through the spring area will only be used for critical project activities that require linear travel along the power line (e.g. stringing wire between the poles spanning the riparian area).

Air Quality

- Water sprinkling or dust palliatives will be used as needed if dust is generated.
- Idling of construction vehicles will be limited to reduce emissions.

Cultural Resources

- NPS cultural resource advisors will document and review the potential effect of the project on the historic properties within the Area of Potential Effect (APE) for this project. If it is determined that the effects of the project will be adverse or that the programmatic exclusions of the Nationwide Programmatic Agreement are

not applicable, then the NPS will consult with the Nevada State Historic Preservation Office (SHPO) as required by 36 CFR Part 800.

- The archeological sites will be staked to visually identify the area of effect. A NPS Resource Manager will be on-site to monitor construction activities in the vicinity of the archeological site.
- If concealed archeological resources are encountered during the project activities, all activities will stop, the park archeologist will be notified immediately, and all necessary steps will be taken to protect the resources.

Land Use

- The NPS will amend the existing right-of-way permit to reflect the new location of the power line and service road upon completion of the project.
- OPD will coordinate with the affected parties and have the necessary permits and agreements in place with the adjacent land management agencies prior to the commencement of work activities.
- OPD will contact the Moapa Valley Telephone Company to notify them of the project and coordinate with them, as needed.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER EVALUATION

Solar Power

Solar generated energy was considered but dismissed from further evaluation. To meet both current and projected future peak power demands at Echo Bay, the NPS would need to construct, own, and operate a solar field of sufficient size to supplement the power that the existing OPD lines currently supply. To consider such a proposal, the NPS would need to hire a firm to perform a feasibility study and determine an appropriate location to site the solar field. An appropriate location in this area of the park is not practicable because of the Federally-listed threatened desert tortoise habitat and rare and sensitive plant species habitat. The visual impact of a solar field within the park large enough to supply adequate power to the Echo Bay developed area would be more obtrusive than upgrading the existing power line. NPS-operated and concessions-operated facilities supported by the existing power line at Echo Bay include a restaurant, marina, hotel, NPS and concessions housing area, NPS and concessions maintenance facilities, campgrounds, restrooms, water treatment plant, long-term trailer village, etc. Installing small, solar components at each facility/home is not practical to address the area's immediate needs for reliable power. Incorporating solar power energy at the Echo Bay developed area would alleviate the demand on the existing power line, but it would not eliminate the need for this energy source. The size of the loads generated at Echo Bay, the remoteness of the area, and the immediate need for action make solar power an unfeasible alternative at this time.

Construct Power Line Underground

The power line corridor passes through Federally-listed threatened desert tortoise habitat, sensitive soils, and rare and sensitive plant species habitat. The existing overhead power line has been in place for over 40 years and building the line underground would cause

greater damage to sensitive resources in the area than upgrading the existing overhead power line. The rugged terrain and undulating topography would further challenge this option. In addition, the time and money required to build an underground power line is not feasible and would not be completed within the critical timeframe of this project.

CONSULTATION, COORDINATION, AND PERMIT REQUIREMENTS

A press release was provided to area newspapers on October 19, 2006 to announce the 30-day scoping period (Appendix A). The press release was also posted on Lake Mead NRA's internet website and on the NPS Planning, Environment, and Public Comment (PEPC) website. No comments were received.

A site visit was conducted with representatives from the NPS and employees of the OPD on November 16, 2006 to gain a better understanding of the proposed project activities, to identify resource concerns, and to develop ways to mitigate impacts to park resources.

In addition, the following consultation and coordination will occur as part of this environmental assessment:

- Formal Section 7 Consultation with the U.S. Fish and Wildlife Service. A Biological Assessment was submitted on September 28, 2006.
- Nevada Natural Heritage Program to determine species of concern that may be present in the project area.
- Section 106 Consultation with the Nevada State Historic Preservation Office.
- Clark County Dust Control Permit will be obtained by OPD or the contractor.
- OPD will continue to consult with the affected land management agencies and landowners, and will obtain the necessary land use authorizations. OPD will be in contact with Moapa Valley Telephone Company to ensure there is no impact to the telephone line that shares the same right-of-way corridor.
- The NPS has an existing general permit with the Nevada Division of Environmental Protection for routine maintenance activities working in the waters of the State. No additional consultation is required.
- Public distribution and review of EA (30 days)

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferred alternative is the alternative that will promote NEPA, as expressed in Section 101 of NEPA. This alternative will satisfy the following requirements:

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 or 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 will 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.

The Council on Environmental Quality states that the environmentally preferable alternative is "the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources (46 FR 18026 – 46 FR 18038)." According to NPS NEPA Handbook (DO-12), through identification of the environmentally preferred alternative, the NPS decision-makers and the public are clearly faced with the relative merits of choices and must clearly state through the decision-making process the values and policies used in reaching final decisions.

Alternative B is the environmentally preferable alternative because overall it would best meet the requirements in Section 101 of NEPA. Alternative B is consistent with NEPA criteria two, three, four, and five. The Preferred Alternative would meet the goals of the project and would achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities. Upgrading the power line would provide reliable power to assure a safe, healthful, and esthetically pleasing surrounding. Replacing the existing overhead power line with a less visually intrusive power line that incorporates raptor protection measures and includes mitigation measures to avoid impacts to sensitive resources would preserve important cultural and natural resources and maintain an environment that supports diversity and variety of individual choice. The Preferred Alternative would attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable or unintended consequences

Unlike Alternative B, the no-action alternative would not assure a safe, healthful, and esthetically pleasing surrounding because upgrades to the existing power line would not occur, and health and safety would continue to be jeopardized when demand exceeds the available power supply. The no action alternative is not compatible with NEPA criteria four because the dilapidated power line does not incorporate raptor protection measures which conflicts with preservation of the natural aspects of our national heritage. Unlike the preferred alternative, the no-action alternative does not achieve a balance between population and resource use and does not permit high standards of living and a wide sharing of life's amenities.

COMPARISON OF IMPACTS

Table 1 summarizes the potential long-term impacts of the proposed alternative. Short-term impacts are not included in this table, but are analyzed in the Environmental Consequences section. Impact intensity, context, and duration are also defined in the Environmental Consequences section.

Table 1.
Comparison of Long-Term Impacts from the Alternatives Considered

IMPACT TOPIC	ALTERNATIVE A- (NO ACTION)	ALTERNATIVE B- (PREFERRED)
Safety, Visitor Use and Experience, and Park Operations	Major, adverse, long-term impacts	Major, long-term, beneficial effects
Visual Resources	No new long-term impacts	Minor, adverse, long-term impacts (additional pole height) with some Minor, long-term, beneficial effects (fewer poles and vertical pole top configuration)
Special Status Species	Potential minor to moderate, adverse, long-term impacts	*May affect, likely to adversely affect* desert tortoise; Potential minor, adverse, long-term impacts on sensitive plant species
Wildlife and Wildlife Habitat	Potential minor to moderate, adverse, long-term impacts; Minor to moderate, adverse, long-term impacts on avian species	Minor to moderate, adverse, long-term impacts on wildlife and wildlife habitat; Minor to moderate, long-term, beneficial effects on avian species
Soils and Vegetation	Potential minor, adverse, long-term impacts	Minor, adverse, long-term impacts
Water Resources	No long-term impacts	No long-term impacts
Cultural Resources	Potential minor, adverse, long-term impacts	Minor, adverse, long-term impacts, but the impacts will not diminish the integrity of the resources.
Air Quality	No long-term impacts	No long-term impacts

SECTION III: AFFECTED ENVIRONMENT

INTRODUCTION

This section provides a description of the existing environment in the project area and the resources that may be affected by the proposals and alternatives under consideration. Complete and detailed descriptions of the environment and existing use at Lake Mead NRA is found in the *Lake Mead NRA Lake Management Plan and Final Environmental Impact Statement* (2002b), *Lake Mead NRA Resource Management Plan* (NPS 2000a) *Lake Mead NRA General Management Plan* (NPS 1986), the *General Management Plan Amendment* (NPS 2005), and on the Park website at www.nps.gov/lame.

LOCATION AND GENERAL DESCRIPTION OF LAKE MEAD NRA AND THE PROJECT AREA

Lake Mead NRA is located in southern Nevada and northwestern Arizona, about 20 miles southeast of Las Vegas, Nevada, and about 5 miles north of Bullhead City, Arizona, and Laughlin, Nevada (Figures 1 and 2). The recreation area is approximately 1.5 million acres in size, with about 87% of that acreage being terrestrial resources. Approximately 60% of the total acreage is within the state of Arizona, in Mohave County, and 40% of the total acreage is in the state of Nevada, in Clark County. There are approximately 185,051 acres of designated wilderness in the Nevada portion of Lake Mead NRA, and over 200,000 acres of suitable, proposed, and potential wilderness in Nevada and Arizona.

Echo Bay is situated in the northern portion of the recreation area on a high bluff and offers uncrowded conditions along the Overton Arm of Lake Mead (Figure 2). Northshore Road follows the north and west shores of Lake Mead, connecting the Las Vegas metropolitan area and visitors traveling on Interstate 15 with the developed areas of Callville Bay, Echo Bay, and Overton Beach. The project area is located in the northern portion of Lake Mead NRA. The power transmission line extends from the Echo Bay developed area, parallels Northshore Road, and exits the park continuing onto state, private, and federal land before reaching the power generating station south of the community of Overton, NV (Figure 3).

Nearly 275,000 visitors accessed the Echo Bay developed area during 2005. Visitors are attracted to the uncrowded conditions and spectacular views at Echo Bay of the Overton Arm of Lake Mead. The Echo Bay developed area supports NPS operations and facilities and concessions-operated facilities including a marina, watercraft rentals, slip rentals, restaurant, motel, trailer village, recreational vehicle sites, dry boat storage, store, shower/laundry, boat/motor repairs, and auto and boat fuel. The Echo Bay developed area also provides housing for NPS staff and concessions employees.

Lake Mead NRA users include boaters, swimmers, fishermen, canoeists, kayakers, hikers, photographers, roadside sightseers, backpackers, campers, and bicyclists. Recreation visits in 2005 totaled nearly 8 million. The majority of park visitation occurs

during the summer months and involves water-based recreation. However, visitation is increasing in the spring and fall as visitors discover the backcountry regions of the recreation area through hiking and travel on the approved road system.

Soils and Vegetation

The project area lies within the southwest reaches of the Great Basin, with the Basin and Range Physiographic Province (Figure 6). This is an area of low lying, alluvium-filled valleys surrounded by steep, rugged mountain ranges. The topography of the project area can be characterized by gently to moderately sloping alluvial plains, interspersed with a series of well defined drainages.

Figure 6. Photo of project area.

The soils of the project area are primarily sedimentary in origin. Soils typically develop on gray alluvium and generally have high salt-alkali contents that often form caliche hardpans. Fine textured, red to pink clays with pockets of evaporates where salts have crystallized form patches and layers of white gypsum. The interspersed layers of gypsum soils support uncommon species potentially including: *Arctomecon californica* (Las Vegas bearpoppy), *Astragalus geyeri* (Threecorner milkvetch), *Erigonum viscidulum* (Sticky buckwheat), *Erigonum corymbosum* var. *nilesii* (Las Vegas buckwheat), *Anulocaulis leiosolenus* (Ringstem), *Enceliopsis argophylla* (Sunray), *Astragalus preussii* var. *laxiflorus* (Lancaster milkvetch), and *Yucca utahensis* (Utah yucca). The creosotebush community sparsely covers the majority of the project area and supports creosotebush, bursage, ephedra, brittlebush, range ratany, and indigo bush. Catclaw acacia, mesquite, cheesebush, desert willow, and non-native saltcedar may also be

observed along ephemeral washes. Following the period of above-average precipitation, profusions of annual wildflowers can be observed.

Water Resources

Lake Mead and Lake Mohave are the primary water resources in the region. The project area is in the northern portion of the park, near the Overton Arm of Lake Mead. Most of the streams in the recreation area are intermittent or ephemeral and are subject to seasonal flash flooding, primarily in the late summer and early fall months. Ephemeral washes near the project area drain into Lake Mead. There are natural springs in the area that support riparian vegetation and provide wildlife habitat. The Rogers Spring complex and Blue Point Spring complex are within the project area (Figure 7).

Figure 7. Photo of Service Road near the Roger's Spring area.

Wildlife and Wildlife Habitat

Common mammals that would be expected in the project area include the desert cottontail (*Sylvilagus audubonii*); black-tailed jackrabbit (*Lepus californicus*); Merriam's, Ord's, and desert kangaroo rats (*Dipodomys merriami, D. ordii,* and *D. deserti*); least chipmunk (*Eutamias minimus*); deer, cactus, and desert pocket mice (*Peromyscus maniculatus, P. eremicus,* and *Chaetodipus penicillatus*); kit fox (*Vulpes macrotis*); and coyote (*Canis latrans*). Feral burros and wild horses have been observed in the project area; however, management actions by the NPS and drought conditions have reduced the number of animals in the area.

The lizard species most likely to occur in the project area include the western banded gecko (*Coleonyx variegate*), desert iguana (*Dipsosaurus dorsalis*), zebra-tailed lizard (*Callisaurus draconoides*), collared lizard (*Crotaphytus collaris*), leopard lizard (*Crotophytus wislizenii*), side-blotched lizard (*Uta stansburiana*), desert horned lizard (*Phrynosoma platyrhinos*), and western whiptail (*Cnemidophorus tigris*). A variety of snakes may also be expected to occur here, including the speckled rattlesnake (*Crotalus mitchelli*), coachwhip (*Masticophis flagellum*), and gopher snake (*Pituophis melanoleucus*). Amphibians that may be expected within the desert habitats include the red-spotted toad (*Bufo punctatus*), Woodhouses's toad (*B. woodhouseii*), and the Arizona

toad (*B. microscaphus*). Gila monster (*Heloderma suspectum*) and chuckwalla (*Sauromalus obesus*) are less common, but may be in the project area.

Densities of bird species are low, but include Gambel's quail (*Callipepla gambelii*), common raven (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), mourning dove (*Zenaida macroura*), roadrunner (*Geococcyx californianus*), and white-crowned sparrow (*Zonotrichia leucophrys*) among other species. Burrowing owls (*Athene cunicularia*) may also be present in the project area. The common raven is of interest because they forage on a variety of foods, including the eggs and young of reptiles such as those of the federally threatened desert tortoise.

Air Quality

The NPS- Air Resources Division and the USFWS- Air Quality Branch together have responsibility for approximately 378 park units and 503 refuges, for which the Clean Air Act designates Class I and Class II air quality areas. Lake Mead NRA is designated as a Class II air quality area, and air quality in the region is generally good. Most reductions in air quality are due to air flows from the Las Vegas Valley west of Lake Mead NRA. The Air Quality Division of the Clark County Health District is the regulatory and enforcement agency for air quality matters in Clark County.

Special Status Species

The NPS consulted the most recent listing of Endangered, Threatened, and Candidate Species prepared by the USFWS (Appendix B) and determined that the federally listed desert tortoise occupies the project area. The NPS has prepared a biological assessment which was submitted to USFWS for concurrence that the project "*may affect, likely to adversely affect"* the desert tortoise.

Desert Tortoise. The desert tortoise, Mojave population, is a federally listed threatened species (Figure 8). The state of Nevada classifies the desert tortoise as protected and rare outside the urban areas of Clark County (Las Vegas). The Mojave population is found to the west and north of the Colorado River and is subdivided into two subpopulations, western and eastern. The project area is within the area occupied by the eastern Mojave subpopulation, which includes tortoises in eastern California, southern Nevada, and the Beaver Dam slope and Virgin River Basin of southwestern Utah and extreme northwestern Arizona (north of the Colorado River). Eastern Mojave tortoises are found in creosotebush, burrobush (*Ambrosia dumosa*), and creosotebush/ Joshua tree (*Yucca brevifolia*) vegetation types.

Figure 8. Desert tortoise.

The Mojave population of the desert tortoise is threatened by loss and degradation of habitat due to construction activities (roads, pipelines, powerline, housing developments, energy developments, etc.), mining, grazing, and off-road vehicle use. An upper respiratory disease, predation of juveniles by common ravens, illegal collection, and vandalism also are threats to the population. Tortoise populations are probably dependent on relatively rare years of sufficient forage for reproduction and survival. Tortoises are generally active in the spring and fall when annual plants are most abundant, and they must consume their forage requirement during this active period. Tortoises usually spend the remainder of the year in burrows or dens, out of the extreme weather conditions of the desert. Burrows may be under or between bushes, in the banks or beds of washes, in rock outcrops, or in caliche caves.

Relict Leopard Frog (*Rana onca*)

The relict leopard frog is a medium-sized brownish gray fog in the family Ranidae (Figure 9). Historical records of this species exist for more than 12 sites along the Virgin and Colorado rivers in Utah, Nevada, and Arizona. Considered extinct since the 1950s, the species was rediscovered in the 1990s, during which time populations were known from only seven sites in three relatively small areas (Jaeger et al. 2001). By 2001 populations had disappeared from two of these sites, leaving only two areas inhabited by a total of five small populations of relict leopard frogs- all in Lake Mead NRA (Bradford et al. 2004). Two of the five sites that are believed to still support this species are Rogers Spring and Blue Point Spring (Bradford et al. 2004). Primary threats to the relict leopard frog include habitat degradation from livestock grazing, erosion and scouring, recreational impacts, roads, and fire; over-utilization; disease, predation, competition, and hybridization; inadequate regulatory mechanisms; and, limited habitat and fragmentation of populations.

Figure 9. Relict leopard frog.

Sensitive Plant Species

NPS biologists were consulted and the Nevada Natural Heritage Program to help determine sensitive plant species that could potentially be in the project area. Habitat supporting populations of *Arctomecon californica* (Las Vegas bearpoppy), *Astragalus geyeri* (Threecorner milkvetch), *Erigonum viscidulum* (Sticky buckwheat), *Erigonum corymbosum* var. *nilesii* (Las Vegas buckwheat), and *Anulocaulis leiosolenus* (Ringstem) may exist within the project area.

Figure 10. Las Vegas bearpoppy.

Cultural Resources

Archeologists have identified a series of Native American cultures that have occupied Lake Mead NRA and adjacent areas in southern Nevada and Western Arizona over the last 12,000 to 13,000 years. These cultures have been divided into discrete time periods based on various criteria, i.e. changes in technology, the types of animal and plant foods used, or the migration of peoples into and out of the area.

Occupation of the area dates back to the end of the late Pleistocene around 12,000 to 13,000 years ago. The Spanish and later the Mexicans were the first whites to explore the area. The Mormons were the first to establish permanent white settlements in Southern Nevada. The construction of Hoover Dam in the 1930s dramatically changed the landscape of southern Nevada and Western Arizona, bringing thousands of people to the area and developing the area's current economy based on recreation and tourism.

Results of Cultural Resource Inventory

The APE for the project was inventoried for cultural resources and several archaeological sites were located along the power line. No sites are located in the APE of the substation. A report is being prepared documenting the sites and evaluating the effect of the project on the sites.

Visitor Use and Experience and Park Operations

Lake Mead NRA is composed of 595,041 hectares (1,470,328 acres) of federal land and 10,254 hectares (25,338 acres) of nonfederal land, for a total of approximately 605,296 hectares (1.5 million acres) (NPS 2004a). Lake Mead NRA users include boaters, swimmers, fishermen, hikers, photographers, roadside sightseers, backpackers, and campers. Recreation visits in 2005 totaled nearly eight million (NPS 2005). There is approximately 185,051 acres of designated wilderness in the Nevada portion of Lake

Mead NRA, offering solitude and undisturbed vistas to hikers and backpackers exploring the backcountry.

The Echo Bay developed area provides a full range of services and facilities for day and overnight use. Historically, the area has not been heavily visited because of its distance from California and Las Vegas. However, crowding at other marinas and people seeking distance from heavily visited areas has resulted in more people utilizing the Echo Bay area for lake access. Park staff in the Echo Bay area includes law enforcement rangers and maintenance personnel that enforce, oversee, and maintain a ranger station, two campgrounds, launch ramps, restrooms, roads, and landscaping.

SECTION IV: ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This section presents the likely beneficial and adverse effects to the natural and human environment that would result from implementing the alternatives under consideration. This section describes short-term and long-term effects, direct and indirect effects, cumulative effects, and the potential for each alternative to impair park resources. Interpretation of impacts in terms of their duration, intensity (or magnitude), and context (local, regional, or national effects) are provided where possible.

METHODOLOGY

This section contains the environmental impacts, including direct and indirect effects and their significance to the alternatives. It also assumes that the mitigation identified in the *Mitigation and Monitoring* section of this EA would be implemented under any of the applicable alternatives, as identified in each mitigation criterion.

Impact analyses and conclusions are based on NPS staff knowledge of resources and the project area, review of existing literature, and information provided by experts in the NPS or other agencies. Any impacts described in this section are based on preliminary design of the alternatives under consideration. Effects are quantified where possible; in the absence of quantitative data, best professional judgment prevailed.

CRITERIA AND THRESHOLDS FOR IMPACT ANALYSES

The following are laws, regulations, and/ or guidance that relates to the evaluation of each impact topic.

Threatened and Endangered Species
Laws, Regulations, and Policies: Section 7 of the Endangered Species Act mandates all federal agencies determine how to use their existing authorities to further the purposes of the Act to aid in recovering listed species, and to address existing and potential conservation issues. Section 7(a)(2) states that each federal agency shall, in consultation with the Secretary of the Interior, insure that any action they authorize, fund, or carry out

is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat.

NPS Management Policies directs the parks to survey for, protect, and strive to recover all species native to National Park System units that are listed under the Endangered Species Act (4.4.2.3). It sets the direction to meet the obligations of the Act. *NPS Management Policies* also directs the NPS to inventory, monitor, and manage state and locally listed species, and other native species that are of special management concern to the parks, to maintain their natural distribution and abundance.

The *General Management Plan* designated 1,050,030 acres, or 70 percent of the NRA, as natural zones, and areas with known habitat or potential habitat for rare, threatened, or endangered species were further protected by placement in the environmental protection or outstanding natural feature subzone of the natural zone. Management of these zones focuses on the maintenance of isolation and natural process, and restoration of natural resources.

Impact Indicators, Criteria, and Methodology: The Endangered Species Act defines the terminology used to assess impacts to listed species as follows:

- *No effect*: The appropriate conclusion when the action agency determines that its proposed action would not affect a listed species or designated critical habitat.

- *Is not likely to adversely affect*: The appropriate conclusion when effects on listed species are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur. Based on the best judgement, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur.

- *Is likely to adversely affect:* The appropriate finding if any adverse effect to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not: discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species, but is also likely to cause some adverse effects, then the proposed action "is likely to adversely affect" the listed species. If incidental take is anticipated to occur as a result of the proposed action, an "is likely to adversely affect" determination should be made.

- *Is likely to jeopardize proposed species/adversely modify proposed critical habitat – (Impairment):* The appropriate conclusion when the action agency or the U.S. Fish and Wildlife Service identify situations in which the proposed

action is likely to jeopardize the continued existence of a proposed species or adversely modify the proposed critical habitat.

Wildlife and Wildlife Habitat

Laws, Regulations, and Policies: The NPS Organic Act, which directs parks to conserve wildlife unimpaired for future generations, is interpreted by the NPS to mean native animal life should be protected and perpetuated as part of the recreation area's natural ecosystem. Natural processes are relied on to control populations of native species to the greatest extent possible. The restoration of native species is a high priority. Management goals for wildlife include maintaining components and processes of naturally evolving park ecosystems, including natural abundance, diversity, and ecological integrity of plants and animals.

The recreation area also manages and monitors wildlife cooperatively with the Arizona Game and Fish department and the Nevada Division of Wildlife.

Impact Indicators, Criteria, and Methodology: The impacts of wildlife were evaluated in terms of impacts to individual animals and wildlife habitat. Specific localized impacts were estimated based on knowledge garnered from similar past activities.

The following are standards used by the NPS in interpreting the level of impact to wildlife:

- *Negligible impacts*: No species of concern is present; no impacts or impacts with only temporary effects are expected.

- *Minor impacts*: Nonbreeding animals of concern are present, but only in low numbers. Habitat is not critical for survival; other habitat is available nearby. Occasional flight responses by wildlife are expected, but without interference with feeding, reproduction, or other activities necessary for survival.

- *Moderate impacts*: Breeding animals of concern are present; animals are present during particularly vulnerable life-stages, such as migration or winter; mortality or interference with activities necessary for survival expected on an occasional basis, but not expected to threaten the continued existence of the species in the park.

- *Major impacts*: Breeding animals are present in relatively high numbers, and/or wildlife is present during particularly vulnerable life stages. Habitat targeted by actions has a history of use by wildlife during critical periods, but there is suitable habitat for use nearby. Few incidents of mortality could occur, but the continued survival of the species is not at risk.

- *Impairment*: The impact would contribute substantially to the deterioration of natural resources to the extent that the park's wildlife and habitat would no longer function as a natural system. Wildlife and its habitat would be affected

over the long-term to the point that the park's purpose (Enabling Legislation, *General Management Plan*, *Strategic Plan*) could not be fulfilled and the resource could not be experienced and enjoyed by future generations.

Soils and Vegetation

Laws, Regulations, and Policies: Soil resources would be protected by preventing or minimizing adverse potentially irreversible impacts on soils, in accordance with *NPS Management Policies*. NPS-77 specifies objectives for each management zone for soil resources management. These management objectives are defined as: (1) natural zone-preserve natural soils and the processes of soil genesis in a condition undisturbed by humans; (2) cultural zone-conserve soil resources to the extent possible consistent with maintenance of the historic and cultural scene and prevent soil erosion wherever possible; (3) park development zone- ensure that developments and their management are consistent with soil limitations and soil conservation practices; and, (4) special use zone-minimize soil loss and disturbance caused by special use activities, and ensure that soils retain their productivity and potential for reclamation.

Zones within the recreation area have been designated in the Lake Mead NRA General Management Plan, which provides the overall guidance and management direction for Lake Mead NRA.

The NPS Organic Act directs the park to conserve the scenery and the natural objects unimpaired for future generations. *NPS Management Policies* defines the general principles for managing biological resources as maintaining all native plants and animals as part of the natural ecosystem. When NPS management actions cause native vegetation to be removed, then the NPS will seek to ensure that such removals will not cause unacceptable impacts to native resource, natural processes, or other park resources.

Exotic species, also referred to as non-native or alien, are not a natural component of the ecosystem. They are managed, up to and including eradication, under the criteria specified in *NPS Management Policies* and *NPS-77*.

Impact Indicators, Criteria, and Methodology: The following impact thresholds were established for impacts to soils and vegetation.

- *Negligible impacts*: Impacts have no measurable or perceptible changes in soil structure or plant community size, integrity, or continuity. Impacts occur in a relatively small area.

- *Minor impacts*: Impacts are measurable or perceptible, but localized in a relatively small area. The overall soil structure and viability of the plant community would not be affected.

- *Moderate impacts*: Impacts would be localized and small in size, but would cause a permanent change in the area's soil structure or plant community (e.g. plant diversity, abundance, or distribution).

- *Major impacts*: Impact to the soil structure or plant community would be substantial, highly noticeable, and permanent.

Impairment: For this analysis, impairment is considered a permanent change in soils and vegetation in a large portion of the park, affecting the resource over the long-term to the point that the park's purpose cannot be fulfilled, and resource degradation precludes the enjoyment of future generations.

Water Resources and Water Quality

Laws, Regulations, and Policies: The Clean Water Act, and supporting criteria and standards promulgated by the Environmental Protection Agency (EPA), the Nevada Department of Environmental Protection (NDEP), and the Arizona Department of Environmental Quality (ADEQ) are used at Lake Mead NRA to protect the beneficial uses of water quality, including human health, health of the aquatic ecosystem, and recreational use.

A primary means for protecting water quality under the Clean Water Act is the establishment, implementation, and enforcement of water quality standards. Generally, the federal government has delegated the development of standards to the individual states subject to EPA approval. Water quality standards consists of three components: (1) the designated beneficial uses of a water body, such as aquatic life, cold water fishery, or body contact recreation (i.e. swimming or wading); (2) the numerical or narrative criteria that define the limits of physical, chemical, and biological characteristics of water that are sufficient to protect the beneficial uses; and (3) an anti-degradation provision to protect the existing uses and quality of water. In addition, the National Park Service complies with Section 313 of the Clean Water Act, Federal Facilities Pollution Control.

A state's anti-degradation policy is a three-tiered approach for maintaining and protecting various levels of water quality. In Tier 1 waters, the existing uses of a water body and the quality necessary to protect the uses must be maintained. This is considered to be the base level of protection that must be applied to the water body. If the water quality in a water body already exceeds the minimum requirements for the protection of the designated uses (Tier 2), then the existing water quality must be maintained. The third level provides protection for the state's highest quality waters or where ordinary use classification my not suffice; these water bodies are Tier 3 waters and are classified as Outstanding National Resource Waters. The existing water quality must be maintained and protected at this level. Lakes Mead and Mohave are Tier 1 water bodies.

Water quality in Lake Mead in Nevada is regulated by NDEP under water quality standards and regulations that are promulgated in the Nevada Administrative Code (NAC, Chapter 445A.118-445A.225). Consistent with federal regulations, Nevada has established numerical and narrative standards that protect existing and designated uses of the State's waters, and implements the anti-degradation requirements by establishing "requirements to maintain existing higher quality." Compliance with the numerical

standards for water quality is determined at control points that are specified in the regulations.

The Lake Mead NRA Resource Management Plan identifies internal threats to water resources, including heavy recreational use in coves, illegal sewage discharge, and petrochemical spills in harbors. External threats are identified as materials transported to the lakes by outside sources, air pollutants dropping into the lakes, and adjacent land uses and increasing development.

The following impact thresholds were established to describe the relative changes in water quality (localized, short-term, long-term, cumulative, adverse, and beneficial), under the various alternatives, when compared to baseline conditions.

- *Negligible impacts*: Impacts are effects that are not detectable, well below water quality standards and/or historical ambient or desired water quality conditions.

- *Minor impacts*: Impacts are effects that are detectable but well within or below water quality standards and/or historical ambient or desired water quality conditions.

- *Moderate impacts*: Impacts are effects that are detectable, within or below water quality standards, but historical baseline or desires water quality conditions are being altered on a short-term basis.

- *Major impacts*: Impacts are effects that are detectable, and significantly and persistently alter historical baseline or desired water quality conditions. Water quality standards are locally approached, equaled, or slightly singularly exceeded on a short-term and temporary basis.

- *Impairment:* Impacts are effects that alter baseline or desired water quality conditions on a long-term basis. Water quality standards are exceeded several times on a short-term and temporary basis.

Cultural Resources

Laws, Regulations, and Policies: Numerous legislative acts, regulations, and NPS policies provide direction for the protection, preservation, and management of cultural resources on public lands. Further, these laws and policies establish what must be considered in general management planning and how cultural resources must be managed in future undertakings resulting from the approved plan regardless of the final alternative chosen. Applicable laws and regulations include the NPS Organic Act (1916), the Antiquities Act of 1906, the National Historic Preservation Act of 1966 (1992, as amended), the National Environmental Policy Act of 1969, the National Parks and Recreation Act of 1978, the Archeological Resources Protection Act of 1979, the Native American Graves Protection and Repatriation Act of 1990, and the Curation of Federally Owned and Administered Archeological Collections (1991).

Applicable agency policies relevant to cultural resources include Chapter 5 of *NPS Management Policies*, and the *Director's Order 28: Cultural Resource Management Guideline* (NPS 1998), as well as other related policy directives such as the NPS *Museum Handbook* (NPS 2000d), the NPS *Manual for Museums* (Lewis 1976), and *Director's Order 6: Interpretation* (NPS 2001).

The National Historic Preservation Act of 1966 (NHPA; 16 USC 470, et seq.) requires in section 106 that federal agencies with direct or indirect jurisdiction over undertakings take into account the effect of those undertakings on properties that are listed on, or eligible for listing on, the National Register of Historic Places. Section 110 of the act further requires federal land managers to establish programs in consultation with the state historic preservation office to identify, evaluate, and nominate properties to the national register. This act applies to all federal undertakings or projects requiring federal funds or permits.

The Archeological Resources Protection Act of 1979 (16 USC 470aa-mm) further codifies the federal government's efforts to protect and preserve archeological resources on public lands by stiffening criminal penalties, as well as instituting civil penalties, for the unauthorized collection of artifacts. Additionally, it establishes a permit system for the excavation and removal of artifacts from public lands, including their final disposition, as well as confidentiality provisions for sensitive site location information where the release of such information may endanger the resource.

Impact Indicators, Criteria, and Methodology: Impacts on cultural resources were developed based on existing conditions, current regulations, and likely development trends. The inventory of archaeological resources in the park is largely incomplete. For purposes of assessing impacts, all unrecorded resources are considered potentially eligible for listing on the National Register of Historic Places.

The park's inventory of standing structures and cultural landscapes is relatively complete; however, many structures and landscapes still require evaluation to determine their eligibility for listing on the National Register of Historic Places. For purposes of assessing potential impacts to these properties, unevaluated structures and landscapes are assumed to be potentially eligible.

Under Section 106 of the National Historic Preservation Act (NHPA), only historic resources that are eligible or are listed on the National Register of Historic Places are considered for impacts. An impact to a property occurs if a proposed action would alter in any way the characteristic that qualifies it for inclusion on the register.

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.

For the purposes of this document, the level of impacts to cultural resources was accomplished using the following criteria:

- *Negligible impacts*: No potentially eligible or listed properties are present; no direct or indirect impacts. For purposes of Section 106, the determination would be *no effect*.

- *Minor impacts*: Potentially eligible or listed properties are present; no direct impacts, i.e. no impacts that diminish the integrity of the property, or impacts with only temporary effects are expected. For purposes of Section 106, the determination would be *no adverse effect*.

- *Moderate impacts*: Potentially eligible or listed properties are present; indirect impacts may occur or, in the case of structures, activity is limited to rehabilitation conducted in a manner that preserves the historical and architectural value of the property. For purposes of Section 106, the determination would be *no adverse effect*.

- *Major impacts*: Potentially eligible or listed properties present; direct impacts including physical destruction, damage, or alteration of all or part of a property. Isolation of a property from or alteration of the character of a property's setting when that character contributes to its eligibility, including removal from its historic location. Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting. Neglect of a property resulting in its deterioration or destruction (36 CFR 800.5). For purposes of Section 106, the determination would be *adverse effect.*

- *Impairment*: Loss, destruction, or degradation of a cultural property, resource, or value to the point that it negatively affects the park's purpose and visitor experience. For purposes of Section 106, the determination would be *adverse effect*.

Air Quality

Laws, Regulations, and Policies: Air pollution sources within parks must comply with all federal, state, and local regulations. The regulations and policies that govern pollutants of concern are discussed briefly below.

Lake Mead NRA is designated as a Class II Air Quality area under the Clean Air Act. The main purpose of this act is to protect and enhance the nation's air quality to promote the public health and welfare. The act establishes specific programs to provide protection for air resources and values, including the program to prevent significant deterioration of air quality in clean air regions of the country. Although Lake Mead NRA is designated as a Class II Air Quality area, the park strives to maintain the highest air quality standards, and project work within the recreation area is completed in accordance with regional standards. However, the recreation area does not possess sufficient autonomous authority to address issues of air quality improvements when air pollution originates outside the boundaries.

NPS Management Policies direct parks to seek to perpetuate the best possible air quality to preserve natural and cultural resources, sustain visitor enjoyment, human health, and preserve scenic vistas (4.7). Parks are directed to comply with all federal, state, and local air quality regulations and permitting requirements. In cases of doubt as to the impacts of existing or potential air pollution on park resources, the NPS "will err on the side of protecting air quality and related values for future generations."

Impact Indicators, Criteria, and Methodology: Information from the literature was used to assess probable impacts to air quality. There are four impact categories relevant to air quality issues: negligible, minor, moderate and major. Each category is discussed below relative to potential airborne pollution impacts from the alternatives on park resources and human health.

- *Negligible impacts*: There is no smell of exhaust and no visible smoke. Dust from construction activities can be controlled by mitigation.

- *Minor impacts*: There is a slight smell of exhaust and smoke is visible during brief periods of time. Dust from use the dirt roads is visible during brief periods. Dust from construction activities is visible only during the work period, but most can be controlled by mitigation.

- *Moderate impacts*: There is a smell of gasoline fumes and exhaust in high-use areas. Smoke is visible during periods of high use. Dust from the use of dirt roads is visible for an extended area. Dust from construction activities is visible for over a large area for an extended period, but is reduced by mitigation.

- *Major impacts*: Smoke and gasoline fumes are easily detectable for extended periods of time in a large area. Dust from the use of dirt roads and construction activities is visible for an extended period of time, and mitigation is unable to alleviate the conditions.

In the absence of quantitative data concerning the full extent of actions under a proposed alternative, best professional judgment prevailed.

CRITERIA AND THRESHOLDS FOR IMPACT ANALYSES OF ALL OTHER ISSUES

Impacts to visual resources, safety and visitor use and experience, and park operations were analyzed using the best available information and best professional judgment of park staff.

Environmental Impact = a change that will alter:

1. the quality of the human environment;
2. an object protected by law; or
3. an object of high public concern.

Terms referring to impact intensity, context, and duration are used in the effects analysis. Unless otherwise stated, the standard definitions for these terms are as follows:

- *Negligible impacts*: The impact is at the lower level of detection; there would be no measurable change.

- *Minor impacts*: The impact is slight but detectable; there would be a small change.

- *Moderate impacts*: The impact is readily apparent; there would be a measurable change that could result in a small but permanent change.

- *Major impacts*: The impact is severe; there would be a highly noticeable, permanent measurable change.

- *Localized Impact*: The impact occurs in a specific site or area. When comparing changes to existing conditions, the impacts are detectable only in the localized area.

- *Direct Effect*: The effect is caused by the action and occurs at the same time and place.

- *Indirect Effect*: The effect is caused by the action and may occur later in time or be farther removed in distance, but is still reasonably foreseeable.

- *Short-Term Effect*: The effect occurs only during or immediately after implementation of the alternative.

- *Long-Term Effect*: The effect could occur for an extended period after implementation of the alternative. The effect could last several years or more and could be beneficial or adverse.

IMPAIRMENT ANALYSIS

In addition to determining the environmental consequences of the alternatives, *NPS Management Policies* 2006, requires the analysis of potential effects to determine if actions would impair park resources. Under the NPS Organic Act and the General Authorities Act, as amended, the NPS may not allow the impairment of park resources and values except as authorized specifically by Congress. The NPS must always seek ways to avoid or minimize, to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the NPS management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment to the affected resources and values (*NPS Management Policies* 1.4.3). The determinations regarding impairment apply to NPS lands only. The impairment determinations do not apply to lands managed by other federal agencies, state, local, or private entities.

Impairment to park resources and values has been analyzed within this document. Impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. An impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is necessary to fulfill specific purposes identified in the enabling legislation or proclamation of the park; is the key to the cultural or natural integrity of the park or to opportunities for enjoyment of the park; or is identified as a goal in the park's general management plan or other relevant NPS planning document. An impact would be less likely to constitute an impairment to the extent that it is an unavoidable result, which cannot be reasonably further mitigated, of an action necessary to preserve or restore the integrity of park resources or values.

CUMULATIVE EFFECTS

Cumulative effects are the direct and indirect effects of a proposed project alternative's incremental impacts when they are added to other past, present, and reasonably foreseeable actions, regardless of who carries out the action (40 CFR Part 1508.7). Guidance for implementing NEPA (Public Law 91-190, 1970) requires that federal agencies identify the temporal and geographic boundaries within which they will evaluate potential cumulative effects of an action and the specific past, present, and reasonably foreseeable projects that will be analyzed. This includes potential actions within and outside the recreation area boundary. The geographical boundaries of analysis vary depending on the impact topic and potential effects. While this information may be inexact at this time, major sources of impacts have been assessed as accurately and completely as possible, using all available data.

Specific projects or ongoing activities with the potential to cumulatively affect the resources (impact topics) evaluated for the project are identified in this document and described in the following narrative. Some impact topics would be affected by several or all of the described activities, while others could be affected very little or not at all. How

each alternative would incrementally contribute to potential impacts for a resource is included in the cumulative effects discussion for each impact topic.

Las Vegas Valley area population growth and Park Visitation

The park currently receives about 8 million visitors per year. With the predicted increases in population in the local and surrounding areas, visitation can be expected to increase in the coming years. Population growth and associated land-use changes for the region, planned housing developments in close proximity to the park, recreational development, improvements to NPS facilities and infrastructure, threatened and endangered species protection initiatives could also contribute to cumulative effects.

To accommodate the visitors, and to maintain and improve its existing facilities, the park is undertaking numerous development projects. The third phase for rehabilitating Northshore Road, which is the main artery for travel in the northern portion of the park, is occurring and is expected to be completed in Spring 2007. In addition, the NPS has recently completed the environmental assessment for rehabilitating the final phase of Northshore Road, including the access roads to Overton Beach and Echo Bay. The project is anticipated to be a five-year project commencing in Fall 2007.

Trailhead and picnic ground construction is planned at Rogers Spring, Blue Point Spring, and Redstone. The projects would tie into the Northshore Road project area. Construction of a new entrance station and realignment of St. Thomas Road are planned for the northern boundary of the recreation area. Redevelopment projects are planned for Willow Beach and Callville Bay. Development concept plans will be prepared for Katherine's Landing and Cottonwood Cove. Construction of the River Mountains Loop Trail, which would consist of 17 to 18 miles of trail that would parallel Lakeshore Road, is scheduled to begin in early 2007. Water and sewer systems rehabilitation in eight developed areas (including Echo Bay) within the recreation area to include replacement of mains, lines, valves, manholes, fire hydrants, and additional water storage.

Drought Conditions in the Colorado River Basin

The past five years of drought conditions in the Colorado River Basin have resulted in the lowest lake elevations of Lake Mead in over 40 years. Runoff during this period has been approximately 60% of normal. An amendment to the 1986 *GMP* was developed to provide guidance on long-term strategies for addressing low water conditions on Lake Mead that affect lake access. One of the proposed actions in the 2005 *GMP Amendment* is to relocate the Overton Beach Marina facility. Relocation of this marina to another area of the park would make Echo Bay the first developed area accessible from the northern park entrance.

Historically, the Echo Bay developed area has not been heavily used because of its distance from southern California and Las Vegas. However, in response to crowding at developed areas in the Boulder Basin, and with the foreseeable relocation of the Overton Beach Marina, much higher visitation is anticipated. Visitation to the Echo Bay developed area of the park in 2005 was approximately 275,000. In 2005 visitation to the Overton Beach area was over 260,000.

ALTERNATIVE A- NO ACTION

Safety, Visitor Use and Experience, and Park Operations

Due to the voltage, distance, wire size, and load utilized at Echo Bay, the power system experiences an excessive amount of voltage drop. During maximum power usage periods, Echo Bay currently experiences a voltage drop of approximately 19%. A typical electrical system maintains approximately a 5% drop. OPD has not permitted any new load to be added for the past five years in the Echo Bay area due to the voltage drop problem and no new load would be permitted under the current conditions. With the relocation of Overton Beach Marina to another area of the park, it is anticipated that visitation to the Echo Bay area would increase as it would be the first developed area accessible from the northern entrance into the park. This could be extremely problematic as loads would increase and outages may become more frequent.

Brown-outs and power outages would continue and become more frequent during peak use periods when the existing power delivery system becomes overloaded by power demands. Similar to 2002, failure of the local power service equipment could force NPS and concession employees and their families to leave their residences at Echo Bay for temporary lodging in the community of Overton, NV, to escape the relentless southern Nevada heat. Given that this harsh climate makes air conditioned living and work spaces an absolute necessity, these recurring failures could result in unbearable, and in some cases, life-threatening indoor temperatures.

As visitation and power demand increases in the Echo Bay area, power outages and brown outs would become more frequent and the health and safety of visitors, NPS personnel, and concessions employees would be compromised. Additionally, the frequent brown-outs and power outages at Echo Bay would continue to result in numerous failures of the new water treatment plant. Failures would continue to occur during the time of peak annual water demand requiring extreme response measures by NPS operations staff in order to ensure the availability of minimal quantities of potable water for domestic, structural fire, and sanitary needs. NPS law enforcement rangers and maintenance personnel would most likely have an increase in work load created by the need to respond to potential emergency situations. Maintenance and emergency repairs to the deteriorating power line would increase the work load for OPD employees.

Taking into consideration all of the above factors, impacts on safety, visitor use and experience, and park operations would be major, adverse, and long-term as a result of the No Action Alternative.

Cumulative Effects: In response to the lowering water level of Lake Mead, the 2005 *General Management Plan Amendment* included the possible relocation of Overton Beach Marina to the Echo Bay developed area, which would be within the expansion limits identified in the 2003 *LMP* and is consistent with the 1986 *GMP*. Considering the anticipated growth in the surrounding communities and the likely relocation of Overton Beach Marina, increased visitation to Echo Bay is expected. Taking no action would

result in major, adverse, long-term cumulative effects on safety, visitor use and experience, and park operations.

Conclusion:
The unacceptable voltage drop and unreliable power supply would continue to affect the utilities essential for the health and safety of visitors, NPS employees, concessions employees, and daily operations at Echo Bay. The No Action Alternative would have major, long-term, adverse impacts on safety, visitor use and experience, and park operations.

Visual Resources
The horizontal pole top configuration of the existing line is not as visually unobtrusive as the vertical pole top configuration proposed in the preferred alternative. Additionally, there would be no reduction in the number of poles. The No Action Alternative would not change the existing visual presence of the power line; however, the beneficial effects of fewer poles and a vertical pole top configuration would not be realized.

Cumulative Effects: There would be no cumulative effects on visual resources under this alternative.

Conclusion: The No Action Alternative would result in no new long-term impacts on visual resources; however, the potential long-term, beneficial effects of having fewer poles and a vertical pole top configuration associated with Alternative B would not be realized. There would be no impairment of scenic resources under this alternative.

Special Status Species
Maintenance and repairs to the existing service road and power line would occur on an as needed basis. Some poles are not directly adjacent to the power line and would require travel off the approved service road. Because power outages would most likely increase under the No Action Alternative, emergency repairs to the existing power line can be expected to increase. In emergency situations quick response is necessary. In these situations, a NPS Resource Manager may not be available to survey for special status species, or to determine the least impacting route which would avoid impacts to sensitive plant species in the area. The No Action Alternative could have potential minor to moderate, long-term, adverse impacts on special status species.

Cumulative Effects: The development of private land in the vicinity of Las Vegas and its suburbs, and the associated loss and degradation of desert tortoise habitat and habitat for the other species of concern is expected to continue into the future. Actions on private lands, such as urban development, recreation, and grazing, would continue to contribute to habitat degradation and loss for all biotic species.

The U.S. Fish and Wildlife Service issued an incidental take permit pursuant to section 10(a)(1)(B) of the Endangered Species Act to Clark County and the cities of Las Vegas, North Las Vegas, Henderson, and Boulder City (24 July 1991). This permit authorized incidental take of desert tortoises on non-federal land in the permit boundaries. When

reviewed within the regional expanse of Clark County and the geographical extent of the Mojave Desert habitat available for the desert tortoise population, the impact to desert tortoise from upgrading the power line would be minimal. The cumulative effects of the no action alternative to the desert tortoise would be minimal relative to regional effects outside the recreation area, and would be long-term, negligible, and adverse.

Conclusion: Power outages would continue or would increase and emergency response can be expected to increase under the current conditions. Potential minor to moderate, long-term, adverse impacts on special status species could result from the need to respond quickly and not having a NPS Resource Manager on-site to help mitigate potential impacts. There would be no impairment to special status species under this alternative.

Wildlife and Wildlife Habitat

The horizontal pole top configuration of the existing power line does not possess raptor protection measures. Raptors may come into contact with the energized components of the power line and could suffer from electric shock injuries or death. The horizontal pole top configuration would not be replaced with power poles implementing raptor protection measures and would have minor to moderate, long-term, adverse impacts on avian species.

Maintenance and repairs to the existing service road and power line would occur on an as needed basis. Some poles are not directly adjacent to the power line and would require travel off the approved service road. Because power outages would most likely increase under the No Action Alternative, emergency repairs to the existing power line can be expected to increase. In emergency situations quick response is necessary and wildlife unable to move away from equipment could be injured or killed. In these situations, a NPS Resource Manager may not be available to survey and relocate wildlife away from project activities. The No Action Alternative could have potential minor, to moderate, long-term, adverse impacts on wildlife.

Cumulative Effects: There would be no cumulative effects on wildlife from the No Action Alternative.

Conclusion: Continued potential for electric shock or electrocution of avian species would result in minor to moderate, adverse, long-term impacts on avian species. Potential minor to moderate, long-term, adverse impacts on wildlife could result from the need to respond to emergencies quickly and not having a NPS Resource Manager on-site to help mitigate potential impacts. There would be no impairment to wildlife under this alternative.

Soils and Vegetation

Maintenance and repairs to the existing service road and power line would occur on an as needed basis. Some poles are not directly adjacent to the power line and would require travel off the approved service road. Because power outages would most likely increase under the No Action Alternative, emergency repairs to the existing power line can be expected to increase. In emergency situations quick response is necessary and trampling

of soils and vegetation may be required to quickly access the problem area. In these situations, a NPS Resource Manager may not be available to determine the least impacting route. The No Action Alternative could have potential minor, long-term, adverse impacts on soils and vegetation.

Cumulative Effects: There would be no cumulative effects on soils and vegetation from the No Action Alternative.

Conclusion: Potential minor, long-term, adverse impacts on soils and vegetation could result from the need to respond to emergencies quickly and not having a NPS Resource Manager on-site to help mitigate potential impacts. There would be no impairment to soils and vegetation under this alternative.

Water Resources
There would be no new impacts to water resources under the No Action Alternative.

Cumulative Effects: There would be no cumulative effects on water resources from Alternative A.

Conclusion: Alternative A would have no impacts on water resources. No impairment to water resources would result from the no action alternative.

Cultural Resources
Maintenance and repairs to the existing service road and power line would occur on an as needed basis. Some poles are not directly adjacent to the power line and would require travel off the approved service road. Because power outages would most likely increase under the No Action Alternative, emergency repairs to the existing power line can be expected to increase. In emergency situations quick response is necessary. In these situations, a NPS Resource Manager may not be available to zone off cultural resource sites. The No Action Alternative could have potential minor, long-term, adverse impacts on cultural resources.

Cumulative Effects: There would be no cumulative effects to cultural resources from the No Action alternative.

Conclusion: Potential minor, long-term, adverse impacts on cultural resources could result from the need to respond to emergencies quickly and not having a NPS Resource Manager on-site to help mitigate potential impacts. There would be no impairment to cultural resources under this alternative.

Air Quality
Alternative A would result in no change and no impacts on air quality in the project area, since no construction activities would occur. Maintenance and repairs to the service road and existing power line would be permissible as stipulated in the existing right-of-way permit.

Cumulative Effects: There would be no cumulative effects under the No Action Alternative to air quality.

Conclusion: There would be no new impacts and no impairment on air quality from the No Action Alternative.

ALTERNATIVE B- Upgrade Primary Power Servicing Echo Bay

Safety, Visitor Use and Experience, and Park Operations
Under this alternative, reliable power would be supplied to the Echo Bay developed area and upgrades to the power line would reduce the voltage drop from 19% to 2.6%, which is within an acceptable range. With the relocation of Overton Beach Marina to another area of the park, it is anticipated that visitation to the Echo Bay area would increase as it would be the first developed area accessible from the northern entrance into the park. This alternative would provide additional capacity for future load growth.

Upgrades to the power line would eliminate power outages and brown outs, and would assure an operable water treatment plant and potable water for domestic, fire, and sanitary needs. NPS law enforcement rangers and NPS maintenance staff would not have as many emergency situations and emergency repairs to contend with. Adequate power would be supplied to the Echo Bay area to provide for the health and safety of visitors, NPS and concessions employees and residents, NPS operations, and commercial/marina operations. Maintenance of the power line would be greatly reduced and OPD personnel would not have as many emergency repairs to respond to. Alternative B would have major, long-term, beneficial effects on safety, visitor use and experience, and park operations.

Cumulative Effects: In response to the lowering water level of Lake Mead, the 2005 *General Management Plan Amendment* included the possible relocation of Overton Beach Marina to the Echo Bay developed area, which would be within the expansion limits identified in the 2003 *LMP* and is consistent with the 1986 *GMP*. Considering the anticipated growth in the surrounding communities and the likely relocation of Overton Beach Marina, increased visitation to Echo Bay is expected. Alternative B would result in major, beneficial, long-term cumulative effects on safety, visitor use and experience, and park operations.

Conclusion:
Providing a reliable power supply to the Echo Bay developed area that considers power needs for future growth and is consistent with approved park planning documents would have major, long-term, beneficial effects on the safety, visitor use and experience, and park operations.

Visual Resources
The power line servicing the Echo Bay developed area has been in place for decades and upgrading the line would not create any new visual intrusion on the landscape. The new power poles would be 40-45 feet tall, 5-10 feet taller than the existing 35 feet tall poles.

The additional height of the line would create a negligible to minor, adverse, long-term impact on the landscape. The design of the new power poles utilize a vertical pole top configuration which would lessen the visual impact of the existing cross arm power poles. In addition, there would be a 20% reduction (approximately 37 fewer) in the number of poles because on average, the pole spacing would be every 440 feet in contrast to the existing 350 foot spacing. This would have long-term, minor, beneficial effects on the visual resource.

Some power poles are not directly adjacent to the existing power line service road and would be accessed by driving off the road. A NPS Resource Manager will be on-site to direct vehicles and equipment along the least impacting route to the pole. All vehicle tracks would be raked out to minimize impacts on the visual resource.

Cumulative Effects: Preserving the visual quality of Lake Mead NRA is integral to preserving the quality of the natural and cultural resources and the overall recreation experience. This project would replace a power line that currently exists and would not create a new unnatural imprint on the landscape. There would be no cumulative effects on visual resources from this project.

Conclusion: Mitigation measures implemented in the power line design and in the field would alleviate impacts on the visual resource. Alternative B would result in long-term, minor, adverse impacts on visual resources because of the additional height of the poles; with some long-term, minor, beneficial impacts on visual resources because of the reduction in the number of poles and the use of a vertical pole top configuration. There would be no impairment of scenic resources under this alternative.

Special Status Species

Desert Tortoise

Potential direct impacts to the desert tortoise resulting from this project include injury or mortality from vehicles and construction equipment, destruction of burrows by vehicles or equipment, and vegetation removal resulting in loss of forage and cover. Conservation measures will be implemented and make it unlikely that tortoises or burrows would be harmed by equipment. Additionally, the majority of project activities would occur within the authorized corridor and there should be little permanent damage to habitat. For logistical reasons, equipment would have to move outside the permanent right-of-way. In these cases, vegetation would be trampled but not uprooted, allowing the plants to recover. Any tracks created would be raked out.

In addition to the direct affects mentioned above, noise, vibration, and human presence in the project area may disturb tortoises and interfere with the animals' normal activities. Also, if tortoises are found in harm's way on the project site, they may have to be relocated to a safer location away from the project area, and such movement constitutes harassment. Mitigation measures, as mentioned in the Mitigation Section of the EA, will be implemented to minimize the potential for disturbance or harm to desert tortoises.

Relict Leopard Frog

The relict leopard frog inhabits the Blue Point Spring complex and Rogers Spring complex. Poles would span Blue Point Spring and Rogers Spring and no equipment or materials would be stored within or directly adjacent to the spring. Vehicles and equipment would access the power line service road from an authorized route off of Northshore Road which bypasses the spring areas. The service road passing through the spring areas would only be used for critical project activities that require linear travel along the power line (e.g. stringing wire between the poles spanning the riparian area). A NPS Resource Manager will be on-site to survey the springs for the relict leopard frog immediately before construction equipment passes through the riparian area to prevent direct mortality of frogs, but there could be a short-term flight response. Impacts on the relict leopard frog are anticipated to be short-term, minor and adverse.

Rare and Sensitive Plant Species

NPS representatives met on-site with OPD personnel to discuss resource concerns and identify sensitive areas along the power line corridor. OPD would stake the proposed locations for pole placement prior to the commencement of project activities. The NPS Botanist would visit the project area and assess the proposed pole locations to make sure rare and sensitive plant species are avoided to the greatest extent practicable. Every effort would be made to avoid impacts the rare and sensitive plant species and their habitat. A NPS Resource Manager will be on-site during construction activities to ensure protection of individual sensitive plants and habitat. For logistical reasons, there may be areas where sensitive plants and their habitat are unavoidable. For this reason, implementation of Alternative B could have potential minor, adverse, long-term impacts on rare and sensitive plant species.

Cumulative Effects: The development of private land in the vicinity of Las Vegas and its suburbs, and the associated loss and degradation of desert tortoise habitat and habitat for the other species of concern is expected to continue into the future. Actions on private lands, such as urban development, recreation, and grazing, would continue to contribute to habitat degradation and loss for all biotic species.

The U.S. Fish and Wildlife Service issues an incidental take permit pursuant to section 10(a)(1)(B) of the Endangered Species Act to Clark County and the cities of Las Vegas, North Las Vegas, Henderson, and Boulder City (24 July 1991). This permit authorized incidental take of desert tortoises on non-federal land in the permit boundaries. When reviewed within the regional expanse of Clark County and the geographical extent of the Mojave Desert habitat available for the desert tortoise population, the impact to desert tortoise from upgrading the power line would be minimal. The cumulative effect of the action alternative to the desert tortoise would be minimal relative to regional effects outside the recreation area, and would be long-term, negligible, and adverse.

Conclusion:

Due to the proposed conservation measures, the probability of injury to mortality of desert tortoises is low. However, the proposed action would result in impacts to a small amount of desert tortoise habitat. In addition, tortoises may be disturbed by project

activities, and it is possible that a tortoise would have to be removed from the project area. Therefore, the determination is that the proposed action "*may affect, likely to adversely affect*" the desert tortoise.

Mitigation measures will be implemented to protect the relict leopard frog and the sensitive plant species in the project area. A NPS Resource Manager will be on-site to ensure all sensitive plant species are avoided to the greatest extent practicable and that potential impacts on the relict leopard frog are minimized. Alternative B would have short-term, minor, adverse impacts on the relict leopard frog. There would be potential minor, long-term, adverse impacts on sensitive plant species and their habitat from project activities. No impairment to special status species would result from implementing Alternative B.

Wildlife and Wildlife Habitat

Approximately 29 acres (63,300 feet long, 20 foot wide corridor) are being considered as the potential area of effect in this analysis. The limited scope of construction and occupancy associated with installation and maintenance of the proposed transmission line would result in site-specific disturbance to individual local habitat within the corridor. The new power line would be constructed within the same corridor as the existing power line. On average, poles would be spaced every 440 feet and approximately 145 power poles would be installed. Installation of the power poles would directly impact the area of pole placement (approximately 3 feet wide x 6 ½ feet deep). In a few places, the service road does not directly follow the pole alignment due to the rugged terrain. To access these poles, a short two-track route would be created. A NPS Resource Manager would be on-site to determine the least impacting route. Vehicle tracks would be raked out to restore the natural appearance.

Ground-disturbing activities during construction could kill or injure animals that are unable to move away from equipment. Small mammals and reptiles located within or near the project area would be temporarily disturbed during construction activities. Flight responses by wildlife are expected, and larger mammals and avian species would avoid the project area during construction activities. Mitigation measures would be implemented to reduce impacts on wildlife and wildlife habitat, including having a NPS Resource Manager on-site to monitor for wildlife and when possible, relocate wildlife that could be harmed from construction activities. Minor to moderate, adverse, long-term impacts on wildlife and wildlife habitat would result from implementation of Alternative B.

Raptor protection measures are included in the design of the power line and a vertical pole top configuration would replace the horizontal pole top configuration that currently exists. The vertical construction ensures separation of energized conductors and minimizes the potential for electrocution or electric shock of avian species. This would result in minor to moderate, beneficial effects on avian species in the area.

Cumulative Effects: Land-use changes for the region and development occurring outside of the park will continue to convert open desert and encroach on wildlife habitat.

Projects occurring within the park are concentrated in developed areas and along utility corridors essential for park and concession operations, and aim to minimize disturbance to pristine areas. This project would not appreciably add to the cumulative effects to wildlife and wildlife habitat, as mitigation measures would be implemented to reduce impacts. The new power line would utilize the same power line corridor that currently exists; and the old power line would be removed immediately after the new power line is constructed. Avian species would benefit from raptor protection measures incorporated into the new power line.

Conclusion:
Alternative B would have minor to moderate, adverse, long-term impacts on wildlife and wildlife habitat with minor to moderate, long-term beneficial effects on avian species. No impairment to wildlife or wildlife habitat would result from implementing Alternative B.

Soils and Vegetation
Impacts on soils and vegetation would occur from the following activities: constructing the substation, minor improvements to the original service road, accessing poles that are not directly adjacent to the existing service road, and installing approximately 145 power poles. Approximately 29 acres (63,300 feet long, 20 foot wide corridor) is being considered as the potential area of affect in this analysis. The limited scope of construction and occupancy associated with installation and maintenance of the proposed transmission line would result in site-specific disturbance to individual plants and local habitat within this corridor.

The Payne Substation would be constructed and would occupy approximately 26,000 sq. feet (0.6 acre) within OPD's 270' x 250' right-of-way corridor on BOR land. Minor grading of the 26,000 sq. feet area would be needed to provide a level spot on which to construct the substation. The soils and vegetation in this area are low quality and have been previously disturbed.

The existing power line service road would be improved and would include repairing areas that have been washed out and blading areas that are severely rutted or extremely rugged. In a few places, the service road does not directly follow the pole alignment due to the rugged terrain. To access these poles, a short two-track route would be created. A NPS Resource Manager would be on-site to determine the least impacting route. Vehicle tracks would be raked out to restore the natural appearance.

OPD would stake the potential pole locations before construction begins. A NPS Resource Specialist will review the potential sites to make sure poles avoid sensitive vegetation and soils to the greatest extent practicable. Poles would be placed within approximately 15-20 feet of the existing overhead power line. Holes approximately 3 feet in diameter and 6 ½ feet deep would be excavated for pole placement. Down guys and anchors are required at line angles to provide stability to the power line; anchors are typically placed approximately 35 feet from the pole.

Mitigation measures would be implemented to reduce impacts to soils and vegetation. Mitigation measures include: NPS review of potential pole locations to ensure sensitive soils and resources are avoided to the greatest extent practicable; having a NPS Resource Manager on-site to notify construction personnel of sensitive resource issues; pressure-washing vehicles and equipment to minimize introduction of non-native species; and raking out vehicle tracks created from accessing poles distant from the service road. Isolated disturbances to soils and vegetation would result in minor, adverse, long-term impacts on soils and vegetation.

Cumulative Effects: Past, present, and foreseeable actions occurring within the northern portion of Lake Mead NRA that may disturb soils and vegetation include: rehabilitation of Northshore Road, Echo Bay access road, and Overton Beach access road; replacement of the water/wastewater distribution systems; trailhead and picnic ground construction at Rogers Spring, Blue Point Spring, and Redstone; and construction of an entrance station and realignment of St. Thomas Road. Additionally, there are many construction activities occurring in adjacent communities to accommodate growth. The proposed project would not appreciably add to the cumulative effects on soils and vegetation.

Conclusion: This alternative would have minor, adverse, long-term impacts on soils and vegetation. No impairment to soils or vegetation would result from implementation of this alternative.

Water Resources

Best Management Practices will be implemented to prevent or reduce nonpoint source pollution, minimize soil loss and sedimentation, and to protect water quality. Disturbed areas will be as small as practical to minimize exposed soils and the potential for erosion. Waste and excess excavated materials will be located outside of drainages to avoid sedimentation. Chemicals, fuels, and other toxic materials will be stored, used and disposed of appropriately. Equipment will be cleaned to remove excess oil, hydraulic fluid, and other contaminants prior to work. Equipment will be regularly inspected for leaks and leaks will be repaired immediately. Spill containment equipment will be available and personnel will be knowledgeable on how to use it. Fueling, repairing, and staging of equipment will not occur in washes or wetlands.

In addition, no equipment or materials will be stored within or directly adjacent to the Blue Point Spring complex or the Rogers Spring complex. Vehicles and equipment will access the power line service road from an authorized access point off of Northshore Road which bypasses the spring areas. The service road passing through the spring area will only be used for critical project activities that require linear travel along the power line (e.g. stringing wire between the poles spanning the riparian area). Depending on the extent to which storm events occur during construction, short-term, adverse impacts on water quality from increased erosion, sedimentation, and turbidity would range from negligible to minor.

Cumulative Effects: Visitor use and facilities in the recreation area contribute sediments and pollutants into Lake Mead. Continuing and upcoming projects including the

implementation of the *Lake Management Plan*, boat ramp improvements, *Low Water Amendment* to the *GMP*, the *Southern Nevada Water Authority 3rd Intake, Water and Wastewater Rehabilitation*, and the *Systems Conveyance and Operations Program*, are likely to have both beneficial and adverse impacts on water resources. This project would not appreciably add to the long-term, cumulative effects.

Conclusion: Alternative B would result in short-term, adverse, negligible to minor impacts on water resources. BMPs and mitigation would be implemented to minimize or eliminate impacts on water resources. There would be no impairment to water quality as a result of the impacts associated with this alternative.

Cultural Resources

Impacts on National Register eligible cultural resources could occur from minor improvements to the original service road, accessing poles that are not directly adjacent to the existing service road, and installation of the new poles. The park's cultural resource staff will review proposed road improvement locations and new pole locations and access routes to insure that National Register eligible cultural resources are avoided or that project activities do not diminish the integrity of the resources so the project has negligible to minor impacts on cultural resources. If National Register eligible cultural resources cannot be avoided and resource integrity would be diminished, the park will consult with the Nevada SHPO to determine the appropriate mitigation measures to reduce the project's impacts on cultural resources.

Cumulative Effects: There would be no cumulative effects to cultural resources from implementation of Alternative B.

Conclusion: Provided the integrity of National Register eligible cultural resources is not diminished, the project would have minor, adverse, long-term impacts on cultural resources. No impairment to National Register eligible cultural resources would result from implementation of this alternative.

Air Quality

Construction activities would generate dust and pollution from the use of heavy equipment. This would occur only during construction activities and would be localized in the construction zone. There would be a slight smell of exhaust, and smoke and dust would be visible during brief periods of time. Mitigation measures would be implemented to alleviate these short-term, localized, adverse, minor impacts caused by construction activities.

Cumulative Effects: There would be no cumulative effects on air quality from Alternative B.

Conclusion: Under this alternative, short-term, localized, minor, adverse impacts on air quality would result. There would be no impairment to air quality as a result of the impacts associated with this alternative.

SECTION V: COORDINATION AND CONSULTATION

A 30-day public scoping period occurred from October 19, 2006 through November 18, 2006, through a press release (Appendix A). The scoping press release was sent to television stations, newspapers, magazines, and radio stations in Las Vegas, Henderson, Boulder City, Pahrump, Overton, Logandale, Laughlin, Nevada; Meadview, Kingman, Phoenix, and Bullhead City, Arizona; and Needles, and Los Angeles, CA. The scoping press release was also posted on the Lake Mead NRA internet website and on the NPS Planning, Environment, and Public Comment (PEPC) internet website. No comments were received.

A press release announcing the availability of this environmental assessment is sent to the above entities and is posted at the Alan Bible Visitor Center and the Echo Bay Ranger Station. The environmental assessment is published on the Lake Mead NRA internet website (http://www.nps.gov/lame) and on the NPS PEPC internet website at http://parkplanning.nps.gov/. Comments may be submitted to either internet website address. Additionally, individuals and organizations may request the environmental assessment in writing, by phone, or by e-mail. Comments on this environmental assessment must be submitted during the 30-day public review and comment period.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Lake Mead NRA's mailing list is comprised of 165 federal and state agencies, individuals, businesses, and organizations. The environmental assessment will be distributed to those individuals, agencies, and organizations likely to have an interest in this project. Entities on the park mailing list that do not receive a copy of the environmental assessment will receive a letter notifying them of its availability and methods of accessing the document. Copies of the environmental assessment are available at area libraries, including: Boulder City Library, Clark County Community College (North Las Vegas), Clark County Library, Las Vegas Public Library, Mohave County Library (Kingman, AZ), Sunrise Public Library (Las Vegas), University of Arizona Library (Tucson, AZ), University of Nevada- Las Vegas James R. Dickinson Library, Meadview Community Library, Moapa Valley Library (Overton, NV), Mesquite Library, Mohave County Library (Lake Havasu City, AZ), Laughlin Library, Searchlight Library, and Washington County Library (St. George, UT).

A copy of the environmental assessment can be obtained by direct request to:

National Park Service, Lake Mead NRA
Attention: Compliance Office
601 Nevada Way
Boulder City, Nevada 89005
Telephone: (702) 293-8956
Facsimile: (702) 293-8008

SECTION VI: LIST OF PREPARERS AND CONTRIBUTORS

NPS Personnel at Lake Mead NRA
Chanteil Walter, Environmental Protection Assistant
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NPS Personnel at Denver Service Center
Richard Marshall, Project Manager

OPD Personnel
Mendis Cooper, Engineering Manager for Overton Power District #5

A site visit to the project area on November 16, 2006 was attended by NPS personnel and the following members representing Overton Power District #5: Richard Jones, Layne Maxfield, Brett Gale, and Nick Leavitt.

SECTION VII: REFERENCES

U.S. Public Laws, Codes, Federal Regulations, Statutes, and Acts

All U.S. Public Laws, Codes, Federal Regulations, and Statutes can be found at the Office of the Federal Register, U.S. Government Printing Office, Washington, DC. Many can be found on the Internet at http://www.gpo.gov.

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APPENDIX A

National Park Service
U.S. Department of the Interior

Lake Mead National Recreation Area

601 Nevada Way
Boulder City, NV 89005

702.293.8947 phone
702.293.8936 fax

Lake Mead National Recreation Area (NRA) News Release

For Immediate Release: October 19, 2006 **Release #:** 55-06
Contact: Roxanne Dey, 702.293.8947

Upgrades to the Primary Power Servicing the Echo Bay Developed Area

Officials at Lake Mead National Recreation Area are partnering with the Overton Power District to develop options to upgrade the power supply servicing the Echo Bay developed area. The demand for electrical power at Echo Bay has continuously increased, yet, the more than 35-year-old primary power service equipment has remained unchanged. Brown-outs and power outages have occurred during peak use periods when the existing power delivery system becomes overloaded by power demands. During the summer of 2002, failure of the local power service equipment forced NPS and concession employees and their families to leave their residences at Echo Bay for temporary lodging in the town of Overton, Nevada, located more than 30 miles away. Additionally, the frequent brown-outs and power outages at Echo Bay have resulted in numerous failures of the new water treatment plant. These failures occurred at the time of peak annual water demand requiring extreme response measures by NPS operation and maintenance staff in order to ensure the availability of minimal quantities of potable water for domestic, structural fire, and sanitary needs.

Upgrading the primary power source would ensure that reliable power is supplied to the Echo Bay developed area to provide for NPS, concessioner, and visitor safety, by eliminating power outages that impact the daily operations of NPS staff and concession operations. The NPS would work cooperatively with Overton Power District (OPD) to achieve these results.

An environmental assessment will be prepared to identify and evaluate potential alternatives, including no action, for the power upgrades. Officials at Lake Mead National Recreation Area encourage input from the public on alternatives and on potential issues and impacts to be addressed in the environmental assessment. Written comments, which must be received by November 18, 2006, should be sent to: Superintendent, Lake Mead National Recreation Area, Attention: Compliance Office, 601 Nevada Way, Boulder City, Nevada 89005. Comments may also be submitted via the internet at http://parkplanning.nps.gov/.

-end-

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APPENDIX B

Listing of Threatened and Endangered Species – State of Nevada

http://ecos.fws.gov/tess_public/StateListingAndOccurrence.do?state=NV

Accessed on August 23, 2006

Listed species (based on published population data) -- 38 listings

Animals -- 29

Status	*Species/Listing Name*
T	Bear, grizzly lower 48 States, except where listed as an experimental population or the Yellowstone population (*Ursus arctos horribilis*)
E	Chub, bonytail (*Gila elegans*)
E	Chub, Pahranagat roundtail (*Gila robusta jordani*)
E	Chub, Virgin River (*Gila seminuda (=robusta)*)
E	Cui-ui (*Chasmistes cujus*)
E	Curlew, Eskimo (*Numenius borealis*)
E	Dace, Ash Meadows speckled (*Rhinichthys osculus nevadensis*)
E	Dace, Clover Valley speckled (*Rhinichthys osculus oligoporus*)
T	Dace, desert (*Eremichthys acros*)
E	Dace, Independence Valley speckled (*Rhinichthys osculus lethoporus*)
E	Dace, Moapa (*Moapa coriacea*)
T	Eagle, bald lower 48 States (*Haliaeetus leucocephalus*)
T	Naucorid, Ash Meadows (*Ambrysus amargosus*)
E	Pikeminnow (=squawfish), Colorado except Salt and Verde R. drainages, AZ (*Ptychocheilus lucius*)
E	Poolfish, Pahrump (*Empetrichthys latos*)
E	Pupfish, Ash Meadows Amargosa (*Cyprinodon nevadensis mionectes*)
E	Pupfish, Devils Hole (*Cyprinodon diabolis*)
E	Pupfish, Warm Springs (*Cyprinodon nevadensis pectoralis*)
E	Skipper, Carson wandering (*Pseudocopaeodes eunus obscurus*)
T	Spinedace, Big Spring (*Lepidomeda mollispinis pratensis*)
E	Spinedace, White River (*Lepidomeda albivallis*)

E	Springfish, Hiko White River (*Crenichthys baileyi grandis*)
T	Springfish, Railroad Valley (*Crenichthys nevadae*)
E	Springfish, White River (*Crenichthys baileyi baileyi*)
E	Sucker, razorback (*Xyrauchen texanus*)
T	Tortoise, desert U.S.A., except in Sonoran Desert (*Gopherus agassizii*)
T	Trout, bull U.S.A., conterminous, lower 48 states (*Salvelinus confluentus*)
T	Trout, Lahontan cutthroat (*Oncorhynchus clarki henshawi*)
E	Wolf, gray lower 48 States, except MN and where XN; Mexico (*Canis lupus*)

Plants -- 9

Status	***Species/Listing Name***
T	Blazingstar, Ash Meadows (*Mentzelia leucophylla*)
E	Buckwheat, steamboat (*Eriogonum ovalifolium var. williamsiae*)
T	Centaury, spring-loving (*Centaurium namophilum*)
T	Gumplant, Ash Meadows (*Grindelia fraxino-pratensis*)
T	Ivesia, Ash Meadows (*Ivesia kingii var. eremica*)
T	Ladies'-tresses, Ute (*Spiranthes diluvialis*)
T	Milk-vetch, Ash meadows (*Astragalus phoenix*)
E	Niterwort, Amargosa (*Nitrophila mohavensis*)
T	Sunray, Ash Meadows (*Enceliopsis nudicaulis var. corrugata*)