U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Las Vegas Field Office
4765 Vegas Drive
Las Vegas, NV 89108

QA: N/A

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May 1998

PROPOSED
LAS VEGAS RESOURCE MANAGEMENT PLAN AND FINAL ENVIRONMENTAL IMPACT STATEMENT

Volume I : Summary, Purpose and Need, Alternatives, Affected Environment, Impacts, Consultation & Coordination, and Plan Implementation, Maintenance, and Amendment

B.

MISSION STATEMENT

The Bureau of Land Management is responsible for the stewardship of our public lands. It is committed to manage, project, and improve these lands in a to manner to serve the needs of the American people for all times. Management in based upon the principles of multiple use and sustained yield of our nation's resources within a framework of environmental responsibility and scientific technology. These resources include recreation, rangelands, timber, minerals, watershed, fish and wilderness, air and scenic, scientific and cultural.

BLM/LV/PL-98/012+1791

UNITED STATES DEPARTMENT of the INTERIOR
BUREAU OF LAND MANAGEMENT
Las Vegas Field Office
4765 Vegas Drive
Las Vegas, Nevada 89108

In Reply Refer To:
1610
(NV-050)

June 12, 1998

Dear Interested Party:

I have enclosed a copy of the Executive Summary to assist in your review of the Las Vegas Proposed Resource Management Plan and Final Environmental Impact Statement. The Summary provides a brief but concise explanation of the Resource Management Plan development over the past nine years with emphasis on identifying the changes made to both organization and content of the document.

In addition, pursuant to the Endangered Species Act (ESA) of 1973, as amended, all Federal agencies including the BLM must ensure that their actions *"will not likely jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of ... (critical) habitat"*. The U.S. Fish and Wildlife Service has reviewed the Proposed Plan and issued a biological opinion which includes *"terms and conditions that must be complied with by the Federal agency or applicant (if any), or both, to implement the measures specified..."*.

The biological opinion lowers the thresholds proposed in the RMP for non-speed OHV activities in desert tortoise ACECs. BLM will manage under those lower thresholds until such time that monitoring data supports a change in these terms and conditions. The BLM will implement a monitoring program that will be reviewed by the BLM and Service to determine if the interim thresholds can be changed to reflect those established in the RMP, or possibly reduced further. The differences between the RMP and biological opinion are described below:

1) Events allowed during the ACTIVE SEASON, 3/1 to 10/31.

The allowable number of events is reduced from ten (10) to five (5) for the first three years of management under the RMP with no more than three (3) events in any one ACEC (no change from RMP).

2) Date restrictions during ACTIVE SEASON

The two closure periods within the ACTIVE SEASON designed to limit use during times when tortoise are most active will be expanded. The early closure will be expanded four weeks from the original April 1 to June 1 closure to March 16 to June 14 and the late closure will be expanded two weeks from the original August 15 to October 15 closure to August 15 to October

31. Provision has been made to ensure full weekend availability when the above dates would otherwise split a weekend into open and closed halves.

3) Restrictions on number of Participants

During ACTIVE SEASON - For the first three years, events will be limited to a maximum of 75 participants. However, to accommodate larger historically held events, an event with up to 150 participants may be authorized with the provision that it counts as two of the three events allowed in the ACEC annually.

During INACTIVE SEASON - The provision allowing events entering from California to exceed the 300 participant INACTIVE SEASON limit (if California has permitted more than 300 participants) has been eliminated. Events may not exceed 300 participants.

4) Geographic restriction during ACTIVE SEASON

Non-speed events may not be permitted in the Paiute Valley ACEC south of the old Nipton Highway and south of Searchlight, NV with the exception of Secs. 10, 15, and 23 within T.63E., R.29S., between March 1 and October 31. This requirement is not included in the RMP. This provision may be modified in the future as a result of monitoring findings.

A complete copy of the Biological Opinion is available on request at address listed above. The BLM will continue to coordinate with the interested parties and the U.S. Fish and Wildlife Service in developing the monitoring plan and other options related to management of non-speed organized OHV activity within desert tortoise ACECs.

Michael F. Dwyer
District Manager

QUESTIONS AND ANSWERS ON THE PROPOSED RESOURCE MANAGEMENT PLAN

Q. For what public lands does this Resource Management Plan (RMP) propose specific management guidance?

A. The plan covers approximately 2.6 million acres of BLM administered lands in Clark County, and approximately 700,000 acres in Southern Nye County. Lands in the Red Rock Canyon National Conservation Area, Nellis Bombing Range, Nevada Test Site and Desert National Wildlife Range are not included in the Las Vegas Resource Management Plan. Each of these areas has a separate planning document which provides guidance for management of the resources.

Q. At what phase of the planning process is the Las Vegas Resource Management Plan?

A. We are near the end of the planning process, with 3 steps remaining to complete, which are as follows: 1.) A 30-60 day Governors consistency review and a 30 day public protest period of the Las Vegas Resource Management Plan/Final Environmental Impact Statement. 2.) Resolution of any protest received. The Director of the BLM will make the decisions on how to resolve any plan protests. The Directors decision is the final position of the BLM. 3.) Final approval through a Record of Decision, signed by the Nevada State Director.

Q. What Chapter in the document contains the proposed plan?

A. Chapter 2 in the RMP contains the specific Objectives and Management Directions. It is recommended the reader focus on this chapter along with the Standard Operating Procedures in Appendix M. Chapter 2 contains about 40 pages and represents the BLM proposed actions for management of the resources, including but not limited to wildlife, special status species, lands, minerals and recreation to name a few.

Q. When does the BLM anticipate final approval of the RMP?

A. If all protests can be resolved within a 60 day period, we expect to issue a Record of Decision in October of 1998. There is a possibility of approving those parts of the plan which are not protested. A decision will be made sometime shortly after the end of the protest period.

Q. What would happen if an action is proposed which is not in conformance with the approved Resource Management Plan?

A. There are 3 options if this were to occur which are as follows: 1.) Change the proposed action so it is in conformance with the approved RMP. 2.) Deny the proposed action. 3.) Amend the RMP to accommodate the proposal.

A plan amendment requires full public participation and review of the NEPA document prior to approval by the Nevada State Director. There will be a number of opportunities for you to participate in the planning process during any amendment as we try to meet the needs of future generations.

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Nevada State Office
1340 Financial Blvd., P.O. Box 12000
Reno, Nevada 89520-0006

In Reply Refer To:
1610 (LVFO)
(NV930.1) (NV050)

JUN 15 1998

Dear Reader:

Enclosed for your review is the Proposed Las Vegas Resource Management Plan (Plan) and Final Environmental Impact Statement (FEIS). This proposed Plan outlines the various decisions for management of renewable and non-renewable resources on approximately 3.3 million acres of public land in Clark and southern Nye counties, Nevada. The Plan is open for a 30 day protest period beginning with the date of this letter.

This Proposed Plan and FEIS has been developed in accordance with the National Environmental Policy Act of 1969 and the Federal Land Policy and Management Act of 1976. This plan is a variation of Alternative E which was presented in the Supplement to the Draft Stateline Resource Management Plan released in May 1994 and as modified by public comment. This document contains a summary of the decisions and resulting impacts, an overview of the planning process and planning issues, the Proposed Plan, a summary of written and verbal comments received during public review of the Draft Plan and Supplement, and responses to the substantive issues raised during the review.

The proposed Plan may be protested by any person who participated in the planning process, and who has an interest which is or may be, adversely affected by the approval of the proposed Plan. A protest may raise only those issues which were submitted for the record during the planning process (see 43 Code of Federal Regulations 1610.5-2). Protests must be filed with the Director, Bureau of Land Management, Attn. Ms. Brenda Williams, Protests Coordinator, WO-210/LS-1075, Department of Interior, Washington, D.C. 20240.

All protests must be written and must be postmarked on or before July 14, 1998 and shall contain the following information:

- **The name, mailing address, telephone number, and interest of the person filing the protest.**
- **A statement of the issue or issues being protested.**
- **A statement of the part or parts of the document being protested.**
- **A copy of all documents addressing the issue or issues previously submitted during the planning process by the protesting party, or an indication of the date the issue or issues were discussed for the record.**
- **A concise statement explaining precisely why the Bureau of Land Management, Nevada State Director's decision is wrong.**

Upon resolution of any protests, an Approved Plan and Record of Decision will be issued. The approved Plan/Record of Decision will be mailed to all individuals who participated in this planning process and all other interested publics upon their request.

Sincerely,

Robert V. Abbey
State Director, Nevada

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COVER SHEET

PROPOSED LAS VEGAS RESOURCE MANAGEMENT PLAN AND FINAL ENVIRONMENTAL IMPACT STATEMENT

( ) DRAFT (X) FINAL

Lead Agency:	U.S. Department of the Interior Bureau of Land Management
Project Location:	Clark and Southern Nye Counties, Nevada
For Further Information Contact:	Dan Morgan Assistant District Manager Renewable Resources Las Vegas Field Office Telephone (702) 647-5060

Abstract: The Proposed Las Vegas Resource Management Plan and Final Environmental Impact Statement provides a comprehensive framework for managing public lands administered by the Las Vegas Field Office, Las Vegas District, Bureau of Land Management.

The preparation of this document was coordinated with numerous individuals, Federal and State agencies, special interest groups, and County governments.

Date Proposed Plan Issued:	June 15, 1998
Protests, if any, are to be filed with:	Director, Bureau of Land Management Attn: Ms. Brenda Williams, Protests Coordinator WO-210/LS-1075 Department of the Interior Washington, D.C. 20240
Overnight Mail Address for Protests:	Director, Bureau of Land Management Attn: Ms. Brenda Williams, Protests Coordinator (WO-210) 1620 L Street, N.W., Rm 1075 Washington, D.C. 20036 Phone: (202) 452-5110
To expedite consideration, in addition to the original sent by mail or overnight mail, a copy of the protest may be sent by:	FAX to (202) 452-5112 or E-Mail to bwilliam@wo.blm.gov
Date Protests Must be Postmarked:	July 14, 1998

Responsible Official for Proposed Plan:

/s/ Robert V. Abbey

Robert V. Abbey
State Director, Nevada

6-15-98
Date

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SUMMARY

The Las Vegas Proposed Resource Management Plan/Final Environmental Impact Statement identifies future management in the form of objectives and management directions for 3.3 million acres of public land in Clark and Nye Counties, located in southern Nevada.

The following Summary Tables (S1 and S2) present a comparison of all the alternatives and impacts of each alternative as compared to the no action alternative. The components of the various alternative are summarized in Table S1 and are further described in Chapter 2. The impacts anticipated are summarized in Table S2 and are more fully detailed in Chapter 4.

Table S-1 Summary of the Alternatives

Program	No Action	Alternative A	Alternative B
Air Resource Management	Compliance with Clean Air Act; project specific mitigation	Compliance with all Federal, State and local air quality standards and regulations, including Clean Air Act; Project specific mitigation	Same as A
Soil Resource Management	Maintain/improve watershed condition to reduce erosion and sedimentation and to enhance site productivity	Determine watershed potential; undertake actions to reduce erosion and sedimentation while enhancing site productivity	Same as A
	Project specific mitigation based upon soil surface factor classes	Project specific mitigation based on erosion condition classes and erosion susceptibility ratings	Same as A
	Develop watershed management plans for Virgin River, Muddy River and Meadow Valley Wash	Prepare watershed management plans where other management plans cannot adequately address the situation	Same as A
Water Resource Management	Maintain existing waters at the source; fence to prevent degradation of the source or associated riparian area;	Determine amount of water needed to meet management objectives. File for appropriative water rights on public and acquired lands, in accordance with State water laws, for those waters not federally reserved	Same as A
	Minimize non-point pollution from BLM- initiated and authorized actions; Where appropriate institute Best Management Practices to control non-point source pollution	Minimize both point and non-point sources of pollution following Best Management Practices	Not addressed
	Not addressed	Determine instream flow requirements and apply for necessary water rights on the Virgin River and in Meadow Valley Wash	Same as A
	Maintain or improve the water quality of streams and springs in accordance with State and Federal regulations.	Maintain the quality of waters presently in compliance and improve the quality of those waters found to be in non-compliance with State and/or Federal water quality standards	Same as A
	Not addressed	Not addressed	Not addressed

Table S-1 Summary of the Alternatives

Alternative C	Alternative D	Alternative E	Proposed
Same as A	Same as A	Same as A	Same as A
Same as A	Same as A	Same as A	Same as A
Same as A	Same as A	Same as A	Same as A
Same as A	Same as A	Same as A	On those watersheds that exhibit good potential for recovery, prepare and implement watershed management plans or address in other activity plans
Same as A	Same as A	Obtain water rights to springs associated with the grazing privileges for allotments closed to grazing and maintain for wildlife, wild horses, burros, and riparian values; Determine amount of water needed to meet management objectives. File for appropriative water rights on public and acquired lands, in accordance with State water laws, for those waters not federally reserved	Determine water needs to meet objectives; file for water rights on public and acquired lands for sources not federally reserved
Same as A	Same as A	Same as A	Same as A
Same as A	Same as A	Same as A	Same as A
Same as A	Same as A	Same as A	Same as A
Not addressed	Not addressed	Not addressed	Minimize the threat of flood and sediment damage on populated areas from public land management actions by providing lands necessary to construct flood-control structures

Table S-1 Summary of the Alternatives

Program	No Action	Alternative A	Alternative B
Riparian Management	Ensure that 75% of riparian areas are in proper functioning condition by 1997	Same as No Action	Same as No Action
	Do not allow competitive off-road vehicle events within 1/4 mile of water sources	Same as No Action	Same as No Action
	Protect the Virgin River riparian zone from degradation	Modify grazing systems or use protective fences, as needed to prevent further degradation and to aid in recovery of the Virgin River riparian zone	Same as A
	Provide water for wildlife, wild horses and burros, and livestock; Fence riparian areas to exclude livestock and wild horses and burros; Provide water for livestock, wild horses and burros away from the source	Use protective fencing as needed and provide alternative water sources and/or locations to prevent further degradation of and to aid in the recovery of spring associated riparian areas	Same as A
	Retain all riparian areas in public ownership unless disposal would be in the public interest	Same as No Action	Same as No Action
	Give special attention to monitoring and evaluating management activities in riparian areas and revise management practices where site specific objectives are not being met	Same as No Action	Same as No Action
	Not addressed	Not addressed	Not addressed
Vegetation Management	Continue existing rangeland monitoring studies and establish new studies as needed	Determine ecologic status of plant communities on public lands and manage to achieve desired plant communities or potential natural community	Same as A

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Table S-1 Summary of the Alternatives

Alternative C	Alternative D	Alternative E	Proposed
Same as No Action	Same as No Action	Same as No Action; Complete inventory of riparian areas by 1995	Ensure that all riparian areas are in proper functioning condition; Complete assessments on all riparian areas; establish a schedule for actions necessary to achieve proper functioning condition
Same as No Action	Same as No Action	Same as No Action	Do not allow competitive off-road vehicle events within 1/4 mile of natural water sources associated with riparian areas
Same as A	Same as A	Same as A	Ensure that all riparian areas are in proper functioning condition
Same as A	Same as A	Same as A	Improve riparian areas with priority given to those that are functioning at risk with a downward trend; Use appropriate measures necessary for improvement, including fencing and/or alternate water sources away from the riparian area
Same as No Action	Same as No Action	Same as No Action	Retain riparian areas and mesquite woodlands in federal ownership, unless disposal is in the public interest
Same as No Action	Same as No Action	Same as No Action	Ensure that the minimum requirement of Proper Functioning Condition on all riparian areas is maintained or achieved during any planning process
Not addressed	Not addressed	Establish the following criteria for water utilization of springs and associated riparian areas; 50% for riparian; 25% for wildlife; 15% for wild horses and burros; and 10% for livestock (25% will be allocated for wild horses and burros if no livestock grazing occurs and visa versa)	Not addressed
Same as A	Same as A	Determine ecologic status, woodland index or forage value rating, as determined by plant community surveys, on Public land and manage to achieve desired plant communities or potential natural community	Maintain or improve the condition of vegetation on public lands to a desired plant communities or potential natural community

Table S-1 Summary of the Alternatives

Program	No Action	Alternative A	Alternative B
Vegetation Management (con't)	Not addressed	Maintain or improve habitat of threatened or endangered plant species	Same as A
	Allow only minimal clearing of vegetation on project sites	Allow construction, mining activity or off-road vehicle activity on threatened or endangered, or candidate plant species habitat only after appropriate mitigation	Same as A
	Rehabilitate all disturbed sites where necessary and practical	Provide for rehabilitation of disturbed areas on public land to maintain or restore plant productivity	Same as A
Visual Resource Management	No Visual Resource Management classes; develop mitigation on a project specific basis	Designate and manage the following Visual Resource Management Classes: 1,125,415 acres class II; 1,867,657 acres class III; 678,055 acres class IV	Same as A
	Not addressed	Not addressed	Not addressed
Areas of Critical Environmental Concern	Not addressed	Designate 1,151,938 acres as areas of critical environmental concern	Designate 1,530,838 acres as areas of critical environmental concern
	Not addressed	Not addressed	Not addressed
	Not addressed	Not addressed	Not addressed
Fish, Wildlife and Special Status Species Management	Not addressed	Designate 970,160 acres as tortoise areas of critical environmental concern	Designate 1,346,200 acres as tortoise areas of critical environmental concern
	Provide special management consideration on Public lands within Clark County to protect and increase current populations of desert tortoise	Maintain or improve habitat conditions on 970,160 acres of tortoise habitat to support current population levels of desert tortoise	Maintain or improve habitat conditions on 1,346,200 acres of tortoise habitat to support current population levels of desert tortoise

Table S-1 Summary of the Alternatives

Alternative C	Alternative D	Alternative E	Proposed
Same as A	Same as A	Inventory special status plant species; take appropriate action to protect their habitat.	See Fish, Wildlife and Special Status Species
Same as A	Same as A	Develop appropriate mitigation measures before allowing construction, mining activity or off-road vehicle activity on known habitat for special status plant species	See Fish, Wildlife and Special Status Species
Same as A	Same as A	When feasible, rehabilitate, reclaim or revegetate areas subject to surface disturbing activities;	Same as E
Same as A	Same as A	Same as A	Designate and manage the following: 968,890 acres class II; 1,727,870 acres class III; 635,135 acres class IV
Not addressed	Not addressed	Update visual resource inventory; Adjust designations through a plan amendment	Continue to refine the Visual Resource Management inventory to refine the database and ratings
Designate 1,538,298 acres as areas of critical environmental concern	Same as A	Designate 969,600 acres as areas of critical environmental concern	Designate 1,005,031 acres as areas of critical environmental concern
Not addressed	Not addressed	Not addressed	Withdrawn lands relinquished by other Federal agencies and located within these areas would attain designated status immediately upon administrative control by BLM. All ongoing management guidance, restrictions and directions would apply to relinquished lands.
Not addressed	Not addressed	Not addressed	Portions of wilderness study areas within areas of critical environmental concern would fall under management guidance, restrictions and directions for the area of critical environmental concern, when released by Congress
Designate 1,356,680 acres as tortoise areas of critical environmental concern	Same as A	Designate 797,730 acres as tortoise areas of critical environmental concern	Designate 743,209 acres as tortoise areas of critical environmental concern
Maintain or improve habitat conditions on 1,356,680 acres of tortoise habitat to support viable populations of desert tortoise as defined in the Recovery Plan	Same as A	Manage desert tortoise habitat to achieve the recovery criteria defined in the Tortoise Recovery Plan	Same as E

Table S-1 Summary of the Alternatives

Program	No Action	Alternative A	Alternative B
Fish, Wildlife and Special Status Species Mgmt (con't)	Not addressed	Minimize impacts to tortoise habitat during fire suppression	Same as A
	Not addressed	Remove wild horses and burros which expanded beyond existing herd management areas or into Ash Meadows Natl. Wildlife Refuge	Same as A
	Encourage all public land users to travel only on existing roads or trails in crucial wildlife habitat; avoid new road or trail construction in crucial habitat	Designate all areas of critical environmental concern as limited to designated roads and trails	Same as A
	Not addressed	Not addressed	Not addressed
	Not addressed	Monitor tortoise populations, habitat, activity plans, management decisions and compliance with stipulations to determine effectiveness of desert tortoise mitigation measures	Same as A
	Not addressed	Not addressed	Not addressed
	Not addressed	Not addressed	Not addressed
	Not addressed	Not addressed	Not addressed
	Not addressed	Not addressed	Not addressed

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Table S-1 Summary of the Alternatives

Alternative C	Alternative D	Alternative E	Proposed
Same as A	Same as A	Same as A	Same as A
Same as A	Same as A	Manage for zero wild horses and burros in tortoise areas of critical environmental concern	Manage for zero wild horses and burros in tortoise areas of critical environmental concern
Same as A	Same as A	Same as A	Designate all tortoise areas of critical environmental concern as LIMITED to designated roads and trails for all motorized and mechanized vehicles
Not addressed	Not addressed	Not addressed	Do not allow commercial collection of flora in tortoise areas of critical environmental concern; Only allow commercial collection of fauna upon completion of a scientifically credible study that demonstrates commercial collection does not adversely impact affected species or their habitat. This action will not affect hunting or trapping and casual collection as permitted by the State
Same as A	Same as A	Implement monitoring and research dealing with management issues within desert tortoise areas of critical environmental concern	Same as E
Not addressed	Not addressed	Limit utility corridors to 3,000 feet or less in width within areas of critical environmental concern	Same as E
Not addressed	Not addressed	Allow no new landfills in tortoise areas of critical environmental concern. Close existing landfills by 1995	Do not allow new landfills in tortoise areas of critical environmental concern
Not addressed	Not addressed	Do not authorize military maneuvers in tortoise areas of critical environmental concern	Same as E
Not addressed	Not addressed	Require reclamation of activities which result in loss or degradation of tortoise habitat with areas to be reclaimed to pre-disturbance condition	Same as E

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Table S-1 Summary of the Alternatives

Program	No Action	Alternative A	Alternative B
Fish, Wildlife and Special Status Species Mgmt. (con't)	Not addressed	Prohibit off-road vehicle competitive events in tortoise areas of critical environmental concern	Same as A
	Not addressed	Allow other types of events and commercial activities on a case-by-case basis in tortoise areas of critical environmental concern	Same as A
	Not addressed	Allow no new road construction or siting of ancillary facilities in bighorn lambing habitat	Same as A
	Not addressed	Determine if predator control is necessary in tortoise habitat; minimize increase or spread of predator populations where they prey on tortoises	Same as A
	Develop habitat management plans for the Virgin River and Big Dune	Revise the Virgin River habitat management plan. Designate Big Dune, River Mts., and Amargosa Mesquite as areas of critical environmental concern	Same as A
	Implement the Ash Meadows Habitat Management Plan	Designate Ash Meadows as an area of critical environmental concern; Make BLM inholdings available for withdrawal by the U.S. Fish and Wildlife Service	Same as A
	Not addressed	Prohibit BLM authorized activities which would affect groundwater levels/spring flows in Ash Meadows and Moapa Valley	Same as A
	Do not develop new dual-use allotments in bighorn sheep habitat; Do not authorize domestic sheep in McCullough Allotment	Do not authorize domestic sheep grazing in allotments with bighorn sheep habitat	Same as A

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Table S-1 Summary of the Alternatives

Alternative C	Alternative D	Alternative E	Proposed
Same as A	Same as A	Do not allow speed off-road vehicle competitive events or off-road vehicle free play in tortoise areas of critical environmental concern	Prohibit off-road vehicle speed events, mountain bike races, horse endurance rides, hill climbs, mini events, publicity rides, high speed testing and similar speed based events in tortoise areas of critical environmental concern
Same as A	Same as A	Allow non-speed off-road vehicle events and commercial activities on a case-by-case basis in tortoise areas of critical environmental concern	Allow non-speed off-road vehicle events in tortoise areas of critical environmental concern consistent with restrictions in RC11
Same as A	Same as A	Same as A	Evaluate discretionary activities in bighorn sheep habitat. Grant authorization if consistent with goals and objectives of the Rangewide Plan
Same as A	Same as A	Not addressed	Animal damage control activities may be allowed on a temporary basis if necessary for reestablishment of native species or as a tool to allow recovery of decimated wildlife populations
Same as A	Same as A	Designate Virgin River, River Mts., Amargosa Mesquite and Big Dune as areas of critical environmental concern;	Same as E
Same as A	Same as A	Same as A	Same as A
Same as A	Same as A	Prohibit BLM authorized land uses which would result in unmitigated, significant adverse impacts to ground water levels/spring flows in Moapa Valley and Ash Meadows area of critical environmental concern	Manage public lands adjacent to the Ash Meadows Area of Critical Environmental Concern and Moapa Natl. Wildlife Refuge to complement spring and aquatic habitat for special status species, including projects that may affect ground water level or spring flows
Same as A	Same as A	Do not authorize domestic sheep grazing in bighorn sheep habitat	In accordance with BLM guidelines, no domestic sheep grazing will be authorized in bighorn sheep habitat

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Table S-1 Summary of the Alternatives

Program	No Action	Alternative A	Alternative B
Fish, Wildlife and Special Status Species Management	All new livestock and wild horse and burro waters must not create new conflicts with fish or wildlife habitat	Allow new water developments for wildlife, livestock, wild horses and burros in tortoise areas of critical environmental concern only if these developments do not create conflicts with desert tortoise	Allow new water developments for wildlife, livestock, wild horses and burros in category I and II tortoise habitat only if these developments do not create conflicts with desert tortoise
	Impacts from mining to crucial bighorn sheep and desert tortoise habitat will be subject to mitigative measures during the plan of operations stage	Prevent undue and unnecessary degradation of bighorn sheep habitat due to mineral exploration and development	Same as A
	Identify habitat needs of wildlife and provide for these needs so as to attain population goals, mutually agreed to with NDOW for species.	Allow wildlife populations to reach levels consistent with habitat carrying capacity; adjust populations using monitoring data	Same as A
	Accomplish bighorn sheep introductions and permit natural expansion into historic habitat after preparation of a habitat management plan or release site description; Return native fauna to historic ranges and/or improve population numbers	Allow reintroduction of wildlife species into tortoise areas of critical environmental concern only if it will create no conflicts with tortoise	Same as A
	Not addressed	Inventory/monitor peregrine falcon habitat; prevent undue and unnecessary degradation of habitat; prepare a habitat mgmt. plan for occupied habitat; close areas within 1/2 mile of active nests between Feb.1-Sept.1; explore reintroduction of peregrine into suitable habitat	Same as A
	Not addressed	Manage mesquite habitats for wildlife habitat values; Develop a management plan for Amargosa Mesquite areas of critical environmental concern	Same as A
	Not addressed	Not addressed	Not addressed
	Provide and maintain sufficient quality and quantity of food, water, cover and space to satisfy demands of all wildlife species. Give special emphasis to Federal and State classified species and to BLM sensitive species	Maintain or improve the habitat of threatened, endangered or candidate plant species found on public lands (Vegetation Mgmt.)	Same as A
Forestry Resources Management	Allow greenwood cutting in the Spring, Virgin, and McCullough Mtns.	Allow firewood harvest in Pahrump and Amargosa Flat; Limit to one cord/household/year with maximum of 35 cords/year	Same as A

Table S-1 Summary of the Alternatives

Alternative C	Alternative D	Alternative E	Proposed
Allow new water developments for wildlife and wild horses and burros in tortoise areas of critical environmental concern only if these do not create conflicts with desert tortoise	Same as C	Maintain existing wildlife waters; Construct new guzzlers as needed, consistent with other resource needs;	Same as E; Desgin new waters for livestock, and wild horses and burros to reduce potential conflicts with wildlife
Same as A	Same as A	Same as A	Evaluate discretionary activities in bighorn sheep habitat on a case-by-case basis. Authorize if consistent with the Rangewide Plan
Same as A	Same as A	Same as A	Support viable and diverse native wildlife populations by providing sufficient quantity and quality of habitat
Same as A	Same as A	Same as A	Cooperate with State and Federal wildlife agencies in implementing introductions, reintroduction and augmentation releases of native or naturalized species
Same as A	Same as A	Same as A	Protect key nesting areas, migration routes, important prey base areas, and concentration areas for birds of prey on public lands through mitigation of activities during National Environmental Policy Act compliance
Same as A	Same as A	Manage mesquite and Acacia habitats for wildlife habitat values	Same as E; Only allow woodcutting where consistent with sustaining a healthy, vigorous plant community and viable wildlife populations
Not addressed	Not addressed	Not addressed	Manage habitat to support elk which move onto BLM managed lands from the Spring Mts. in cooperation with Nevada Division of Wildlife
Same as A	Same as A	Same as A	Enter into conservation agreements with the U.S. Fish and Wildlife Service and the State of Nevada for management of special status species to prevent future federal listing of such species
Same as A	Same as A	Allow firewood harvest in Pahrump Valley; Limit to one cord per household/year	Allow harvest of dead or down, or BLM marked green trees for dwarf mistletoe control only in approved areas;

Table S-1 Summary of the Alternatives

Program	No Action	Alternative A	Alternative B
Forestry Resources Management (con't)	Coordinate the removal of native desert vegetation with the Nevada Division of Forestry	Allow harvest of desert vegetation from areas subject to surface-disturbing activities	Same as A
	Not addressed	Maintain 138,000 acres of pinyon-juniper and conifer forest at late seral stage or full ecological potential	Same as A
Livestock Grazing Management	Allow livestock grazing on 2,237,478 acres of public lands; Close part of Spring Mountain Allotment and all of River Mt. Allotment	Allow livestock grazing on 2,036,933 acres of public lands;	Same as A
	Close the Ash Meadows Allotment to livestock grazing; do not authorize livestock grazing on the Carson Slough or Grapevine-Rock Valley Allotments until completion of Section 7 consultation	Manage livestock grazing under constraints of Section 7 consultation; Grazing prescription 1 in category I, II and intensive III tortoise habitat; prescription 2 in category IIIb habitat.	Same as A
	Close that portion of Red Rock Canyon within the Spring Mountain Allotment, and the River Mountain Allotment to livestock grazing	Allow no livestock grazing on 19 allotments including unalloted areas in Nye County and riparian zones along the Muddy and Virgin Rivers, and Meadow Valley Wash; Do not authorize livestock grazing in Planning Area B, Southern Nye county except within the Mt. Stirling and County Line Allotments	Same as A
	Develop allotment mgmt. plans for the 7 allotments in Clark County and one allotment in Southern Nye County	Develop allotment mgmt. plans for "I" and "M" allotments	Same as A
	Intensively manage 14 allotments, including Mt. Stirling; Manage 4 allotments in the maintain management category guidelines	Develop allotment mgmt. plans for "I" and "M" allotments	Same as A
	Determine proper long-term stocking rates of domestic livestock on allotments, desirable numbers of wild horses and burros in herd mgmt. areas, and populations of mule deer and bighorn sheep in their existing and potential habitat	Establish stocking level based on availability of ephemeral forage	Same as A

Table S-1 Summary of the Alternatives

Alternative C	Alternative D	Alternative E	Proposed
Same as A	Same as A	Allow harvest of desert vegetation at those locations where surface disturbing activities will occur	Public lands in Las Vegas District will be assessed for salvage of desert vegetation where surface disturbance occurs
Same as A	Same as A	Maintain Pinyon Juniper woodland and conifer forest where possible for all aged stands	Same as E
Allow livestock grazing on 1,001,767 acres of public lands; limit livestock grazing in desert tortoise habitat	Allow livestock grazing on 1,902,881 acres of public lands	Allow livestock grazing on 692,844 acres of public lands;	Allow livestock grazing on 610,893 acres of public lands;
Same as A	Close allotments in tortoise areas of critical environmental concern to livestock grazing	In tortoise habitat outside of areas of critical environmental concern, manage for grazing prescription 2 on open allotments; eliminate livestock grazing in tortoise areas of critical environmental concern	Manage open allotments consistent with grazing prescription 2; eliminate livestock grazing in tortoise areas of critical environmental concern
Allow no livestock grazing on 19 allotments, Amargosa Valley/Crater Flat, the riparian zones along the Muddy and Virgin Rivers, and Meadow Valley Wash, and within allotments containing desert tortoise habitat	Allow no livestock grazing on 28 allotments; Do not allow grazing in these areas: Amargosa Valley/Crater Flat, along the Muddy and Virgin Rivers, and Meadow Valley Wash	Allow no livestock grazing on 40 allotments	Allow no livestock grazing on 38 allotments and all unalloted areas in Southern Nye County; Additional allotment closures could be approved based on voluntary relinquishment of grazing privileges, permits or leases
Same as A	Same as A	Completion of an allotment management plan and environmental assessment required to reactivate any inactive ephemeral-perennial or perennial allotment	Establish grazing systems, including rest and/or deferment principles as needed to meet specific resource objectives
Same as A	Same as A	Same as A	Drop existing categories from allotments closed to livestock grazing; Change Lower Mormon Mesa from C to I and Flat Top Mesa from C to M
Same as A	Same as A	Reclassify 21 allotments as ephemeral/perennial; Set a total of preference of 13,200 animal unit months; 33 allotments remain ephemeral	Livestock grazing on ephemeral allotments will be allowed if sufficient forage is available and use is consistent with the Standards and Guidelines, and allotment specific objectives

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Table S-1 Summary of the Alternatives

Program	No Action	Alternative A	Alternative B
Livestock Grazing Management	Manage perennial vegetation at a proper utilization rate to obtain a sustained yield and improve livestock forage condition	Maintain/improve condition of vegetation to desired plant community or potential natural community	Same as A
Wild Horse and Burro Management	Manage wild horses and burros in the Gold Butte, Muddy Mtns., Spring Mtns., and Eldorado Mtns. herd mgmt. areas	Maintain healthy, viable herds in thriving ecological balance in the herd mgmt. areas	Same as A
	Develop herd management area plans for the following herd mgmt. areas: Mt. Stirling, Amargosa, and Last Chance herd mgmt. areas; Maintain Ash Meadows Herd Management Area as a horse free area	Develop herd management area plans for each herd mgmt. area	Same as A
	Manage wild horse and burro numbers at current population levels unless monitoring indicates that adjustments are necessary	Develop Long-Term Management Levels for wild horses and burros	Same as A
	Not addressed	Realign herd mgmt. area boundaries in the following areas to gain more management control of populations: Red Rocks, Lucky Strike, Johnnie, and Trout Canyon herd mgmt. areas	Same as A
	Not addressed	Maintain or improve wild horse and burro habitat to desired plant community or potential natural community	Same as A
	Not specifically addressed	Develop dependable water sources for wild horses and burros	Same as A
Cultural Resource Management	Develop cultural resource management plans for Willow Springs and Muddy Mtns; prepare interpretive signs and a brochure for Willow Springs	Develop project plans for the following: Old Spanish Trail/Mormon Road; Las Vegas and Tonopah Railroad; Red Spring; Sandstone Quarry; Willow Spring; and Whitney Pockets sites to manage for public values	Same as A

Table S-1 Summary of the Alternatives

Alternative C	Alternative D	Alternative E	Proposed
Same as A	Same as A	Same as A	Provide for increased plant vigor and reproductive capability of perennial forage; Maintain static to upward trend on key perennial species through livestock grazing management
Same as A	Same as A	In herd management areas which are not managed for zero appropriate management level, maintain healthy, viable herds in thriving ecological balance	Same as E
Same as A	Same as A	Same as A	Same as A
Same as A	Same as A	Establish appropriate management levels for each herd mgmt. area; Establish an appropriate management level of zero for Gold Butte, Eldorado, Amargosa and Ash Meadows herd mgmt. areas	Establish appropriate management level for each herd mgmt. area; Establish an appropriate management level of zero for Eldorado, Ash Meadows and Amargosa mgmt. areas; Do not allow use by horses and burros in that part of the Gold Butte Herd Mgmt. Area which overlaps with the tortoise area of critical environmental concern
Same as A	Same as A	Combine Last Chance and Mt. Stirling herd mgmt. area into the Johnnie Herd Mgmt. Area; Realign the Spring Mt. Herd Mgmt. Area to create the Spring Mt Herd Mgmt. Area managed by the Forest Service and Red Rock Herd Mgmt. Area managed by BLM	Realign the following herd management areas to facilitate management considerations with distinct population units: Johnnie, Red Rocks and Wheeler Pass
Same as A	Same as A	Same as A	Limit utilization of current years production by all herbivores on key perennial species to 50% for grasses and 45% for shrubs
Same as A	Same as A	Same as A	Same as A
Same as A	Same as A	Same as A	Selected cultural resources should be designated as priorities for activity planning and to determine best use potential including: Gold Butte, Crescent, Goodsprings, Searchlight and Hidden Valley

Table S-1 Summary of the Alternatives

Program	No Action	Alternative A	Alternative B
Cultural Resources Management (con't)	Preserve a representative sample of line shacks, mining cabins, and other isolated historic structures	Designate 13 areas of critical environmental concern (20,020 acres) for identified National Register eligible or listed sites (cultural acreage in the following includes only 5,840 acres in Red Rock, 320 acres in Sunrise Mountain and 5,000 acres in Virgin River areas of critical environmental concern)	Same as A
	Not addressed	Research Virgin River Anasazi district	Same as A
	Provide fire protection for Mt. Potosi Cabin, Wheeler Pass Charcoal Kilns, Searchlight Mining District, Virgin Mountain Cabin, Goodsprings Mining District, Trout Canyon Cabin, Mt. Potosi Mines, South McCullough Wickiup, and the Crescent Peak District	Manage cultural resources at Red Rock and Stump Springs, Hidden Valley district, Bird Spring site, Sloan rock art site, Crescent; Gold Butte; Goodsprings; and Searchlight mining districts; and South Virgin Peak Ridge district for conservation of scientific or historic values	Same as A
	----------	Manage cultural resources within Arrow Canyon rock art district, Brownstone Canyon district, Keyhole Canyon, Frenchman Mine, and Gypsum Cave for public values	Same as A
	Initiate regular and systematic patrols of specific areas and/or sites with high cultural sensitivity	Use surveillance to monitor known cultural and paleontological sites; install protective devices as appropriate	Same as A
	Protect and preserve important paleontological sites	Designate 40 acre area of critical environmental concern within Arrow Canyon Bird Track paleontological district	Same as A
	Not addressed	Manage 12,000 acres within Muddy Creek and Eglingston Escarpment districts for information potential	Same as A
	Not addressed	Designate Gold Butte/Virgin Mountain traditional lifeway area	Same as A
	Determine sources of deterioration and priorities for preservation through field evaluations of all cultural resource sites	Same as A	Same as A

Table S-1 Summary of the Alternatives

Alternative C	Alternative D	Alternative E	Proposed
Same as A	Same as A	Designate 13 areas of critical environmental concern (20,650 acres) for identified National Register Eligible or listed sites (subtract 5,840 acres for Red Rock, add 150 acres to Crescent, add 6,320 acres for new Arden Historic area)	Designate 12 areas of critical environmental concern (20,520 acres) for identified National Register Eligible or listed sites (less 160 acres at Bird Spring in Red Rock Canyon, subtract 110 acres from Crescent, add 140 acres to Keyhole Canyon)
Same as A	Same as A	Same as A	Manage cultural resources on 1,500 acres of public land within the Virgin River Anasazi district for the potential to yield historic or scientific information
Same as A	Same as A	Same as A	Manage cultural resources on 11,759 acres at Red Rock Spring; Stump Spring; Hidden Valley district; Sloan Rock Art district; Crescent and Gold Butte, mining townsites; and S.Virgin Peak Ridge for conservation of scientific or historic values
Same as A	Same as A	Same as A	Manage cultural resources on 3,660 acres w/in Arrow Canyon rock art district; Keyhole Canyon; Frenchman Mine and Gypsum Cave for public values
Same as A	Same as A	Same as A	Same as A
Same as A	Same as A	Same as A	Same as A
Same as A	Same as A	Same as A	Not addressed
Same as A	Same as A	Designate Gold Butte/Virgin Mountain, Quail Spring/Bird Spring and Spirit Mountain traditional lifeway areas	Manage cultural resources on 200,000 acres of traditional lifeway areas for their sociological values by providing for their protection and preservation
Same as A	Same as A	Same as A	Utilize data recovery efforts through research designs to mitigate adverse effects to cultural resources and paleontological sites from proposed federal actions

Table S-1 Summary of the Alternatives (continued)

Program	No Action	Alternative A	Alternative B
Lands Management	Dispose of 163,673 acres of public lands by the most appropriate authority	155,258 acres are available for discretionary disposal through sale, exchange, color-of-title or recreation and public purpose patent	540,171 acres are available for discretionary disposal through sale, exchange, color-of-title or recreation and public purpose patent
	Grant leases/permits under Sec. 302 of the Federal Land Policy and Management Act (FLPMA) for private or commercial uses throughout the planning area on a case-by-case basis	Grant leases/permits (Sec. 302 of FLPMA) for private and commercial uses (areas of critical environmental concern excluded) on a case-by-case basis	Same as A
	Grant leases for agricultural uses throughout the planning area for the Muddy River and Virgin River floodplain	All public lands are closed to agricultural entry	Same as A
	Grant airport leases within Clark County	Grant airport leases (areas of critical environmental concern excluded) on a case-by-case basis in the following areas: within a 2 mile radius of Jean and Searchlight and within a 3 mile radius of Pahrump	Grant airport leases (areas of critical environmental concern excluded) on a case-by-case basis
Rights-of-Way Management	Designate 61 miles of utility corridors (for planning purposes) in Planning Area B of southern Nye County	Designate 590 miles of utility corridors (for planning purposes) in Clark and southern Nye counties	Same as A
	Not addressed	Exclusive of designated corridors, designate all areas of critical environmental concern, semi-primitive non-motorized Recreational Opportunity Spectrum areas (hereinafter referred to as semi-primitive, non-motorized areas), significant caves (within 1/4 mile), wilderness study areas, and Red Rock Canyon National Conservation Area (hereinafter referred to as Red Rock Canyon) as right-of-way avoidance areas (1,938,845 acres)	Exclusive of designated corridors, designate all areas of critical environmental concern, semi-primitive non-motorized areas, significant caves, wilderness study areas, and Red Rock Canyon as right-of-way avoidance areas (2,317,745 acres)

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Table S-1 Summary of the Alternatives (continued)

Alternative C	Alternative D	Alternative E	Proposed
98,943 acres are available for discretionary disposal through sale, exchange, color-of-title or recreation and public purpose patent	540,171 acres are available for discretionary disposal through sale, color-of-title, or recreation and public purpose patent; all public lands (excluding areas of critical environmental concern and wilderness study areas) are available for exchange	111,563 acres are available for discretionary disposal through sale, exchange, color-of title or recreation and public purpose patent	175,314 acres are available for discretionary disposal through sale, exchange, color-of title or recreation and public purpose patent. Public lands outside of disposal ares would be considered for repositioning to consolidate BLM parcels and improve BLM management if specific criteria are met
All public lands are closed to leases/permits (Sec. 302 of FLPMA)	Same as A	Same as A	Same as A
Same as A	Same as A	Same as A	Public lands within the District are not suitable for entry under Indian Allotment, Desert Land Entry or Carey Act and would not be disposed of through those authorities
Same as A	Same as B	Same as B	Same as B
Designate 476 miles of utility corridors (for planning purposes) in Clark and southern Nye counties	Designate 536 miles of utility corridors (for planning purposes in Clark and southern Nye counties	Designate 538 to 560 miles of utility corridors (for planning purposes in Clark and southern Nye counties	Designate 538 miles of utility corridors (for planning purposes in Clark and southern Nye counties
Exclusive of designated corridors, designate all areas of critical environmental concern, semi-primitive non-motorized areas, significant caves, wilderness study areas, and Red Rock Canyon as right-of-way avoidance areas (2,325,205 acres)	Same as A	Exclusive of designated corridors, designate all areas of critical environmental concern and significant caves as right-of-way avoidance areas (971,231 acres)	Exclusive of designated corridors, designate all areas of critical environmental concern and significant caves as right-of-way avoidance areas. Under Interim Management Policy, wilderness study areas are managed as right-of-way avoidance areas (1,351,536 acres)

Table S-1 Summary of the Alternatives (continued)

Program	No Action	Alternative A	Alternative B
Rights-of-Way Management (con't)	Not addressed	Designate all areas of critical environmental concern as material site right-of-way exclusion areas (1,151,938 acres)	Designate all Category I tortoise habitat as material site right-of-way exclusion areas (364,000 acres)
Acquisitions	Acquire private and State of Nevada lands within Red Rock Canyon	Acquire private lands within designated areas of critical environmental concern (4,797 acres); and 7,882 acres conveyed to Aerojet	Acquire private lands within designated areas of critical environmental concern (9,049 acres)
	Not addressed	Obtain an easement on or across Pabco Tram Road	Same as A
Recreation Management	Manage Red Rock Canyon, Clark, and Spring Mtn. special recreation management areas, and the Stateline Extensive Recreation Management Area, for recreational values	Designate and manage 13 special recreation management areas, and 1 extensive recreation management area for their specific recreational opportunities	Same as A
	Manage the Las Vegas Dunes Off Highway Vehicle Play Area (9,180 acres) for intensive off-highway vehicle recreational use	Nellis Dunes Special Recreation Management Area,: Manage 9,180 acres for intensive off-highway vehicle recreational use	Same as A
	Not addressed	Stateline Extensive Recreation Management Area: Manage 2,661,907 acres for dispersed and diverse opportunities that meet Recreation Opportunity Spectrum objectives	Same as A

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Table S-1 Summary of the Alternatives (continued)

Alternative C	Alternative D	Alternative E	Proposed
Designate all areas of critical environmental concern as material site right-of-way exclusion areas (1,538,298 acres)	Designate all areas of critical environmental concern as areal right-of-way exclusion areas (1,151,938 acres); designate Hidden Valley, Sloan Rock Art, and Big Dune areas of critical environmental concern as linear right-of-way exclusion areas (4,680 acres)	Designate all tortoise areas of critical environmental concern as material site right-of-way exclusion areas (968,031 acres)	Designate Hidden Valley, Sloan Rock Art and Big Dune areas of critical environmental concern as linear right-of-way exclusion areas (5,640 acres); With the exception of within 1/2 mile of Federal Aid Highways, designate all areas of critical environmental concern as areal right-of-way exclusion areas (approximately 953,000 acres)
Acquire private lands within designated areas of critical environmental concern and tortoise management areas (6,787 acres); in Ash Meadows, only acquire lands outside the refuge; and 7,882 acres conveyed to Aerojet	Same as B	Acquire undeveloped private lands within designated areas of critical environmental concern and the Aerojet area; and private lands along the Virgin River, south of Riverside	Acquire private lands within areas of critical environmental concern, wilderness study areas, Congressionally designated areas and habitat for special status species; including Aerojet, private lands along the Virgin River, south of Riverside and other lands not specifically identified which would provide resource protection, improve land ownership patterns or enhance public uses and values
Same as A	Same as A	Same as A	Secure on the ground access to otherwise inaccessible public lands
Designate 11 special recreation management areas, and 1 extensive recreation management area	Same as A	Same as A	Designate 8 special recreation management areas, and 1 extensive recreation management area as shown on Map 2-5
Same as A	Same as A	Same as A	Manage the Nellis Dunes Special Recreation Management Area, (10,000 acres) for intensive off-highway vehicle recreational use
Manage 2,753,732 acres of Stateline Extensive Recreation Management Area for dispersed and diverse opportunities that meet Recreation Opportunity Spectrum objectives	Same as A	Manage 1,277,133 acres of Stateline Extensive Recreation Management Area for dispersed and diverse recreation opportunities that meet Recreation Opportunity Spectrum objectives	Manage the Stateline Extensive Recreation Management Area (Map 2-5) for dispersed and diverse recreation opportunities that meet Recreation Opportunity Spectrum objectives

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Table S-1 Summary of the Alternatives (continued)

Program	No Action	Alternative A	Alternative B
Recreation Management (con't)	Allow off-highway vehicle competitive events on 2,655,278 acres	Allow off-highway vehicle competitive events on 238,162 acres in special recreation management areas and in the Extensive Recreation Management Area in the following locations: Dry Lake Valley area; Pahrump to Beatty; Mt. Stirling/Mercury area; Highland Hills area; Laughlin area; Bitter Springs area	Allow off-highway vehicle competitive events on 238,162 acres in special recreation management areas and in the Extensive Recreation Management Area in the following locations: Dry Lake Valley area; Pahrump to Beatty; Mt. Stirling/Mercury; Highland Hills area
	Not addressed	Allow competitive and commercial events which do not involve off-highway vehicles ,and recreation concessions in Stateline Extensive Recreation Management Area, subject to conflict resolution	Same as A
	Not addressed	Prohibit recreational and target shooting in the Las Vegas Valley; Legal hunting appropriate per Nevada Division of Wildlife regulations.	Same as A
	Designate 2,900,998 acres as OPEN to all motorized and mechanized vehicles	Designate 9,180 acres as OPEN to all motorized and mechanized vehicles (Nellis Dunes Special Recreation Management Area)	Same as A
	Designate 696,175 acres as LIMITED to existing roads, trails, and washes for all motorized and mechanized vehicles	Designate 2,524,889 acres as LIMITED to existing roads, trails, and washes for all motorized and mechanized vehicles	Designate 2,136,029 acres as LIMITED to existing roads, trails, and washes for all motorized and mechanized vehicles
	Designate 70,641 acres as LIMITED to designated roads, trails, and washes for all motorized and mechanized vehicles	Designate 1,124,868 acres as LIMITED to designated roads, trails, and washes for all motorized and mechanized vehicles	Designate 1,513,728 acres as LIMITED to designated roads, trails, and washes for all motorized and mechanized vehicles
	Designate 3,313 acres as CLOSED to all motorized and mechanized vehicles: Hidden Valley	Designate 12,190 acres as CLOSED to all motorized and mechanized vehicles: Hidden Valley	Same as A
	In wilderness study areas all vehicle use is LIMITED to existing roads, trails, and washes unless current designations are more restrictive	Same as No Action	Same as No Action
	Not addressed	Determine primary resource value in each significant cave; Manage all caves and karsts as wild systems, free from commercial or show cave developments	Same as A

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Table S-1 Summary of the Alternatives (continued)

Alternative C	Alternative D	Alternative E	Proposed
Allow off-highway vehicle competitive events on 238,162 acres in special recreation management areas and in the Extensive Recreation Management Area in the following locations: one designated course, Pahrump to Beatty	Same as A	Allow off-highway vehicle competitive events in special recreation management areas and in the Extensive Recreation Management Area in the following locations: Dry Lake Valley, Pahrump Valley to Beatty, Mercury area, Laughlin area, Muddy Mountains, and Meadow Valley Wash Road	Allow off-highway vehicle competitive events within specified special recreation management areas and the Extensive Recreation Management Area, exclusive of areas of critical environmental concern and wilderness study areas (Map 2-5)
Same as A	Same as A	Same as A	Same as A
Same as A	Same as A	Same as A	Same as A
Same as A	Same as A	Designate 10,040 acres OPEN to all motorized and mechanized vehicles (Nellis Dunes, 1/2 Big Dune); Also, unvegetated portions of dry lake beds	Designate 24,600 acres OPEN to all motorized and mechanized vehicles (Nellis Dunes, parts of Big Dune, dry lake beds) Map 2-10
Designate 1,871,444 acres as LIMITED to existing roads, trails, and washes for all motorized and mechanized vehicles	Same as A	Designate the remainder of the planning area as LIMITED to existing roads, trails, and washes for all motorized and mechanized vehicles	Designate 2,186,483 acres as LIMITED to existing roads, trails, and washes for all motorized and mechanized vehicles
Designate 1,777,313 acres as LIMITED to designated roads, trails, and washes for all motorized and mechanized vehicles	Same as A	Designate 1,310,000 acres as LIMITED to designated roads, trails, and washes for all motorized and mechanized vehicles	Designate 1,117,252 acres as LIMITED to designated roads, trails, and washes for all motorized and mechanized vehicles
Designate 13,190 acres as CLOSED to all motorized and mechanized vehicles: Hidden Valley and Big Dune	Same as A	Designate approx. 19,200 acres as CLOSED to all motorized and mechanized vehicles: Hidden Valley, Virgin River and 1/2 of Big Dune	Designate approx. 3,560 acres as CLOSED to all motorized and mechanized vehicles: Hidden Valley and 200 acres at Big Dune
Same as No Action	Same as No Action	Same as No Action	Same as No Action
Same as A	Same as A	Same as A	Same as A; If needed, implement seasonal closures to protect bats

Table S-1 Summary of the Alternatives (continued)

Program	No Action	Alternative A	Alternative B
Wild and Scenic River Management	Not addressed	Coordinate with the Cedar City and Arizona Strip Districts on a formal study of the Virgin River for eligibility	Same as A
Wilderness Management	Manage 21 wilderness study areas in accordance with the Interim Management Policy until designated or released by Congress	Same as No Action	Same as No Action
	Not addressed	Release the Logandale Unit from further consideration as wilderness	Same as A
	Not addressed	If released by Congress, manage wilderness study areas in accordance with applicable special recreation management area or area of critical environmental concern management direction	Same as A
Minerals Management, Fluid Minerals	All public lands within the planning area are OPEN for fluid mineral activities except for legislatively withdrawn areas and other withdrawn and segregated areas. Special stipulations may apply within crucial bighorn sheep habitat	Allow fluid mineral leasing, subject to standard terms and conditions, on 747,779 acres; Allow fluid mineral leasing, subject to seasonal and other minor constraints, on 3,205,952 acres; Allow fluid mineral leasing, subject to no surface occupancy and similar major constraints, on 15,133 acres; Do not allow fluid mineral leasing on 716,226 acres;	Allow fluid mineral leasing, subject to standard terms and conditions, on 1,833,000 acres; Allow fluid mineral leasing, subject to seasonal and other minor constraints, on 1,699,620 acres; Allow fluid mineral leasing, subject to no surface occupancy and similar major constraints, on 296,362 acres; Do not allow fluid mineral leasing on 856,108 acres
Minerals Management, Locatable Minerals	All public lands within the planning area are OPEN for locatable mineral activities except for legislatively withdrawn areas and other withdrawn and segregated areas	Allow locatable mineral activity on 3,703,833 acres Do not allow locatable mineral activity on 937, 100 acres	Allow locatable mineral activity on 3,158,567 acres Do not allow locatable mineral activity on 1,482,870 acres

Table S-1 Summary of the Alternatives (continued)

Alternative C	Alternative D	Alternative E	Proposed
Same as A	Same as A	Same as A	Participate in an eligibility determination of the Virgin River for Wild and Scenic River designation when initiated by either Arizona or Utah BLM
Same as No Action	Same as No Action	Same as No Action	Same as No Action
Same as A	Same as A	Not addressed	Same as A
Same as A	Same as A	If released by Congress, manage wilderness study areas to maintain existing qualities of the areas through multiple use management	If released by Congress, manage wilderness study areas to maintain existing qualities of the areas through multiple use management and to provide for semi-primitive recreation opportunities.
Allow fluid mineral leasing, subject to standard terms and conditions, on 755,654 acres; Allow fluid mineral leasing, subject to seasonal and other minor constraints, on 1,886,509 acres; Allow fluid mineral leasing, subject to no surface occupancy and similar major constraints, on 9,558 acres; Do not allow fluid mineral leasing on 2,033,369 acres	Allow fluid mineral leasing, subject to standard terms and conditions, on 531,844 acres; Allow fluid mineral leasing, subject to seasonal and other minor constraints, on 3,936,500 acres; Do not allow fluid mineral leasing on 216,746 acres	Allow fluid mineral leasing, subject to standard terms and conditions, on 4,051,661 acres; Allow fluid mineral leasing subject to no surface occupancy and other major constraints on 81,405 acres, plus acreage within Meadow Valley Wash, Muddy River and Virgin River riparian zones and flood plains; Do not allow fluid mineral leasing on 552,024 acres	Allow fluid leasing subject to standard terms and conditions on 1,909,351 acres; Allow fluid mineral leasing subject to no surface occupancy stipulations on 866,067 acres; Allow fluid mineral leasing subject to Timing and Surface Use Constraints on 111,799 acres; Close Ash Meadows Area of Critical Environmental Concern to geothermal prospecting and leasing
Allow locatable mineral activity on 2,328,265 areas Do not allow locatable mineral activity on 2,312,668 acres	Allow locatable mineral activity on 4,008,868 acres Do not allow locatable mineral activity on 632,065 acres	Allow locatable mineral activity on 1,812,320 acres Do not allow locatable mineral activity on 2,828,613 acres, plus acreage in Meadow Valley Wash, Virgin River and Muddy River riparian zones	Allow locatable mineral activity on 2,135,146 acres Do not allow locatable mineral activity on 1,227,226 acres

Table S-1 Summary of the Alternatives (continued)

Program	No Action	Alternative A	Alternative B
Minerals Management, Salable Minerals	The Las Vegas Valley is CLOSED to sand and gravel sales except in established community pits; free use permits will be issued; Administer sand and gravel leases within and outside of the Las Vegas Valley Subunit consistent with the Clark County Management Framework Plan amendment; The remainder of the public lands are OPEN for saleable mineral activities except for legislatively withdrawn areas and other withdrawn and segregated areas	Deny existing sand and gravel applications; Close Las Vegas and Laughlin land disposal areas to mineral material disposal (65,993 acres); Sand and gravel leasing same as No Action Alternative; Allow saleable mineral disposal on 2,959,709 acres Do not allow saleable mineral disposal on 1,682,219 acres	Deny existing sand and gravel lease applications; Close Las Vegas and Laughlin land disposal areas to mineral material disposal (111,524 acres); Sand and gravel leasing same as No Action Alternative; Allow saleable mineral disposal on 2,561,798 acres Do not allow saleable mineral disposal on 2,080,130 acres
Minerals Management, Solid Leasable Minerals	All public lands within the planning area are OPEN for non-energy leasable mineral activities except for legislatively withdrawn areas and other withdrawn and segregated areas	Allow non-energy leasing on 3,943,316 acres Do not allow non-energy leasing on 721,759 acres	Allow non-energy leasing on 3,522,205 acres Do not allow non-energy leasing on 1,142,870 acres
Hazardous Materials Management	Not addressed	Not addressed	Not addressed
Fire Management	The entire planning area is a full suppression area	Same as No Action	Same as No Action
	Develop a county-wide program to utilize prescribed burning and hazard reduction burning to meet resource management needs as well as fire management goals	149,231 acres of public land are available for prescribed burning for resource enhancement; 232,109 acres available for prescribed burning for fuel hazard reduction	Same as A
	Not specifically addressed	Designate the following: 627,011 acres as 10-acre initial attack area; 1,921,794 acres as 100-acre initial attack area; 1,122,322 acres as 500-acre initial attack area	Same as A

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Table S-1 Summary of the Alternatives (continued)

Alternative C	Alternative D	Alternative E	Proposed
Deny existing sand and gravel lease applications; Close Las Vegas and Laughlin land disposal areas to mineral material disposal (61,273 acres); Sand and gravel leasing same as No Action Alternative Allow saleable mineral disposal on 2,533,021 acres Do not allow saleable mineral disposal on 2,108,907 acres	Deny existing sand and gravel lease applications; Las Vegas and Laughlin land disposal areas are open to mineral material disposal (111,524 acres) Sand and gravel leasing same as No Action Alternative; Allow saleable mineral disposal on 4,035,390 acres Do not allow saleable mineral disposal on 606,538 acres	Do not approve or renew existing sand and gravel lease applications. Convert unrenewed leases to mineral material contracts within community pits; Do not allow the authorization or renewal of material site rights-of-way or mineral material disposal outside of community pits within the Las Vegas Valley non-attainment area; Allow saleable mineral disposal on 3,421,446 acres; Do not allow saleable mineral disposal on 1,220,482 acres, plus acreage within the riparian zones for Meadow Valley Wash, Virgin River and Muddy River	After June 1, 1999, do not renew sand and gravel leases within areas identified for land disposal Allow saleable mineral disposal outside of areas listed in Table 2-12 and outside of areas of critical environmental concern, except within 1/2 mile of Federal Aid Highways and specified County Roads in desert tortoise Areas of Critical Environmental Concern and in the Government Wash Community Pit on the east edge of Rainbow Gardens Area of Critical Environmental Concern Do not allow saleable mineral disposal on approximately 1,033,569 acres (Table 2-12)
Allow non-energy leasing on 2,660,386 acres Do not allow non-energy leasing on 2,004,689 acres	Allow non-energy leasing on 4,448,329 acres Do not allow non-energy leasing on 216,746 acres	Allow non-energy leasing on 1,481,625 acres; Do not allow non-energy leasing on 3,183,450 acres, plus acreage within the riparian zones for Meadow Valley Wash, Virgin River and Muddy River	Allow non-energy leasing on 1,872,673 acres outside of riparian areas, disposal areas and areas of critical environmental concern Do not allow non-energy leasing on 1,033,569 acres (Table 2-12)
Not addressed	Not addressed	Not addressed	Reduce risks associated with hazardous materials on public lands
Same as No Action	Same as No Action	Same as No Action	Provide fire suppression on 3,331,895 acres based upon suppression areas/zones and resource management needs
Same as A	Same as A	Same as A	Allow prescribed fire for resource enhancement on those areas identified in Map 2-11
Same as A	Same as A	Same as A	Provide fire suppression efforts commensurate with resource and adjacent property values at risk

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Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
Air Resource Management			
From Vegetation	Not addressed	Not addressed	Not addressed
From Lands Management	Increases of between 907 and 2,384 tons per year in airborne particulates and 91 to 238 tons per year of carbon monoxide in the Las Vegas Valley Non-Attainment Area (Non-Attainment Area).	Same as No Action	Same as No Action
From Recreation Management	Off-highway vehicle events within or upwind of Las Vegas Valley could result in a temporary increase in airborne particulates in the Non-Attainment area.	Same as No Action	Same as No Action
From Minerals Management	Particulate emissions of 900 tons per year within the Las Vegas Valley Non-Attainment Area	Same as No Action	Same as No Action
Soil Resource Management			
From Livestock Grazing Management	Loss of 650,654 tons per year on critical condition and highly susceptible soils; loss of 114,080 tons per year of saline soils.	Same as No Action	Same as No Action

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Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Not addressed	Not addressed	Not addressed	Windblown particulates would be reduced through the improvement of protective ground cover.
Same as No Action	Same as No Action	Same as No Action, but no quantification given	Increases of 243 tons per year in airborne particulates, 1,750 tons per year of carbon monoxide, 370 tons per year of VOC and NO_x and 10.2 tons per year of SO_2
Proper meteorological conditions could potentially result in a temporary but significant increase in airborne particulates in the Non-Attainment Area, despite limitations on off-highway vehicle events	Same as No Action	Given proper meteorological conditions, air quality in the Non-Attainment Area could temporarily further degrade during off-highway vehicle events	Events, if held upwind of the valley, would potentially contribute to short term further degradation of the air quality in Las Vegas Valley
Same as No Action	Same as No Action	Mineral activities could create significant airborne particulates, especially in the Non-Attainment Area	Sand and Gravel operations in Las Vegas Valley would produce approximately 743 tons of PM_{10} annually.
Loss of 224,655 tons per year on critical condition and highly susceptible soils; loss of 1,905 tons per year of saline soils.	Loss of 590,512 tons per year on critical condition and highly susceptible soils; loss of 94,015 tons per year of saline soils.	Salt loading of the Colorado River drainage due to impacts from grazing would reduce significantly due to closure of many allotments containing saline soils.	Soil loss of 224 tons per year from allotments remaining open to grazing. This is a savings of 966 tons per year soil loss if all allotments remain open.

Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
Soil Resource Management			
From Wild Horse and Burro	Not addressed	Not addressed	Not addressed
From Rights-of-Way Management	Loss of 31,414 tons/year of critical condition and highly susceptible soils; Loss of 28,594 tons/year of saline soils within the Colorado River drainage.	Loss of 4,463 tons/year of critical condition and highly susceptible soils; Loss of 6,541 tons/year of saline soils within the Colorado River drainage.	Loss of 4,463 tons/year of critical condition and highly susceptible soils; Loss of 6,591 tons/year of saline soils within the Colorado River drainage.
From Recreation Management	Loss of 128,357 tons per year of critical condition and highly susceptible soils; Loss of 89,353 tons per year of saline soils within the Colorado River drainage.	Loss of 55,347 tons per year of critical condition and highly susceptible soils; Loss of 33,348 tons per year of saline soils within the Colorado River drainage.	Loss of 81,027 tons per year of critical condition and highly susceptible soils; Loss of 28,061 tons per year of saline soils within the Colorado River drainage.
From Minerals Management	Loss of 47,118 tons per year of critical condition and highly susceptible soils; Loss of 28,171 tons per year of saline soils within the Colorado River drainage.	Loss of critical condition and highly susceptible soils; 11,936 tons per year from leasable mineral entry; 10,533 tons from mineral sales; 13,082 tons from non-energy leasables; annual loss of saline soils in Colorado River drainage: 7,975 tons from leasable mineral entry; 6,152 tons from mineral sales and 7,975 tons from non-energy leasables.	Loss of critical condition and highly susceptible soils; 12,192 tons per year from leasable mineral entry; 10,520 tons from mineral sales; 11,880 tons from non-energy leasables; annual loss of saline soils in Colorado River drainage: 6,392 tons from leasable mineral entry; 5,936 tons from mineral sales and 5,296 tons from non-energy leasables.

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Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Not addressed	Not addressed	Not addressed	Horse and burro use at the appropriate management level would result in a reduction of 113 tons of soil loss per year (2,260 tons over 20 years)
Loss of 4,463 tons/year of critical condition and highly susceptible soils; Loss of 5,135 tons/year of saline soils within the Colorado River drainage.	Loss of 4,463 tons/year of critical condition and highly susceptible soils; Loss of 5,582 tons/year of saline soils within the Colorado River drainage.	Not addressed	Due to error in calculations used in the Draft Plan the impact is not addressed because it is not significant
Loss of 79,495 tons per year of critical condition and highly susceptible soils; Loss of 26,446 tons per year of saline soils within the Colorado River drainage.	Same as C	Not addressed	Soil losses resulting from continued off-road vehicle use in previously disturbed areas is approximately 2,650 tons per year.
Loss of critical condition and highly susceptible soils; 10,755 tons per year from leasable mineral entry; 18,807 tons from mineral sales; 9,876 tons from non-energy leasables; annual loss of saline soils in Colorado River drainage: 4,231 tons from leasable mineral entry; 4,556 tons from mineral sales and 4,175 tons from non-energy leasables.	Loss of critical condition and highly susceptible soils; 14,608 tons per year from leasable mineral entry; 14,206 tons from mineral sales; 13,669 tons from non-energy leasables; annual loss of saline soils in Colorado River drainage: 7,964 tons from leasable mineral entry; 8,996 tons from mineral sales and 7,964 tons from non-energy leasables.	Not addressed	From areas disturbed by mineral activities an estimated soil loss of 1,164 tons per year or a total of 23,280 tons over the life of the Plan would be expected.

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Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
Water Resource Management			
From Riparian	Not addressed	Not addressed	Not addressed
From Livestock Grazing Management	48,799 tons per year delivered to stream channels from critical condition and highly susceptible soils; 8,556 tons per year of saline sediments within Colorado River drainage.	Same as No Action	Same as No Action
From Wild Horse and Burro	Not addressed	Not addressed	Not addressed
From Lands Management	Annual increase of 1,512 to 3,974 acre-feet of water used per year within the Las Vegas Valley due to land disposal.	Same as No Action	Same as No Action
From Right-of-Way Management	2,356 tons per year delivered to stream channels from critical condition and highly susceptible soils; 2,145 tons per year of saline sediments within Colorado River drainage.	355 tons per year delivered to stream channels from critical condition and highly susceptible soils; 491 tons per year of saline sediments within Colorado River drainage.	355 tons per year delivered to stream channels from critical condition and highly susceptible soils; 494 tons per year of saline sediments within Colorado River drainage.

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Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Not addressed	Not addressed	Improved riparian areas would aid in soil stabilization, decreased water temperatures, moderate peak flows and stabilize base flows.	Improving riparian areas to proper functioning condition would result in improved water quality. Protection of springs in open allotments and herd management areas would improve water quality.
16,849 tons per year delivered to stream channels from critical condition and highly susceptible soils; 143 tons per year of saline sediments within Colorado River drainage.	42,288 tons per year delivered to stream channels from critical condition and highly susceptible soils; 7,051 tons per year of saline sediments within Colorado River drainage.	Long-term benefit could occur through the protection of approximately 2,925 acres along Meadow Valley Wash and Virgin River.	Water quality improvements on 117 spring sources would occur as a result of reduced grazing activity.
Not addressed	Not addressed	Not addressed	Water quality improvement would occur on 34 spring sources as a result of removal of horses from 3 of 6 herd management areas
Same as No Action	Same as No Action	Additional lands to be disposed of will increase the demand on available ground water.	Additional lands available for disposal will result in an increased demand for ground water (an additional 3,193 acre feet per year).
355 tons per year delivered to stream channels from critical condition and highly susceptible soils; 385 tons per year of saline sediments within Colorado River drainage.	355 tons per year delivered to stream channels from critical condition and highly susceptible soils; 419 tons per year of saline sediments within Colorado River drainage.	Not addressed	Minimal impact would result through implementation of mitigation measures such as reclamation and the avoidance of waters

Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
Water Resource Management			
From Recreation Management	9,627 tons per year delivered to stream channels from critical condition and highly susceptible soils; 6,701 tons per year of saline sediments within Colorado River drainage.	4,151 tons per year delivered to stream channels from critical condition and highly susceptible soils; 2,501 tons per year of saline sediments within Colorado River drainage.	6,077 tons per year delivered to stream channels from critical condition and highly susceptible soils; 2,105 tons per year of saline sediments within Colorado River drainage.
From Minerals Management	3,534 tons per year delivered to stream channels from critical condition and highly susceptible soils; 2,113 tons per year of saline sediments within Colorado River drainage.	Tons per year delivered to stream channels from critical condition and highly susceptible soils; 895 from leasable mineral entry, 790 from mineral sales, 981 from non-energy leasables. Tons per year of saline sediments within Colorado River drainage: 776 from leasable mineral entry, 1,064 from mineral sales, 837 from non-energy leasables.	Tons per year delivered to stream channels from critical condition and highly susceptible soils; 914 from leasable mineral entry, 789 from mineral sales, 891 from non-energy leasables. Tons per year of saline sediments within Colorado River drainage: 479 from leasable mineral entry, 445 from mineral sales, 397 from non-energy leasables.
Riparian Resource Management			
From Riparian Management	Long-term enhancement through maintenance, restoration or improvement of riparian values to healthy, productive ecological condition	Same as No Action	Same as No Action

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Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
5,962 tons per year delivered to stream channels from critical condition and highly susceptible soils; 1,983 tons per year of saline sediments within Colorado River drainage.	Same as C	Not addressed	The restriction of off-road vehicle activity to areas previously disturbed will benefit water resources through the preservation of presently undisturbed areas.
Tons per year delivered to stream channels from critical condition and highly susceptible soils; 807 from leasable mineral entry, 1,411 from mineral sales, 741 from non-energy leasables. Tons per year of saline sediments within Colorado River drainage: 317 from leasable mineral entry, 342 from mineral sales, 313 from non-energy leasables.	Tons per year delivered to stream channels from critical condition and highly susceptible soils; 1,096 from leasable mineral entry, 1,065 from mineral sales, 1,025 from non-energy leasables. Tons per year of saline sediments within Colorado River drainage: 579 from leasable mineral entry, 675 from mineral sales, 479 from non-energy leasables.	Not addressed	Potential sedimentation could occur to the 90 springs and approx. 12 miles of stream located in areas open to mineral activity.
Same as No Action	Same as No Action	Same as No Action	Measures would be taken to ensure all spring associated riparian areas and riparian areas associated with perennial streams would be in proper functioning condition

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Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
Riparian Resource Management			
From Area of Critical Environmental Concern Management	Not addressed	Not addressed	Not addressed
From Fish, Wildlife and Special Status Species Management	Not addressed	Not addressed	Not addressed
From Livestock Grazing Management	Concentration of grazing in riparian areas on 10 active allotments would degrade those areas on 80 springs (approx. 40 acres of riparian) and the Virgin River (approx. 190 acres of riparian)	Concentration of grazing in riparian areas on 10 active allotments would degrade those areas on 80 springs (approx. 40 acres of riparian); No impact on the Virgin River	Same as A
From Wild Horse and Burro Management	Concentration of wild horses and burros in riparian areas on 5 herd management areas would degrade those areas on 58 springs (approx. 29 acres of riparian).	Same as No Action	Same as No Action
From Right-of-Way Management	Not addressed	Not addressed	Not addressed

Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Not addressed	Not addressed	Not addressed	Designation of 1,016,709 acres as Areas of Critical Environmental Concern will help mitigate impacts to riparian areas on 106 springs and 1.7 miles of stream due to restriction of impacting activities.
Not addressed	Not addressed	Not addressed	Designation of 743,209 acres as Areas of Critical Environmental Concern for desert tortoise reduce impacts to riparian habitat at 82 springs and 1.7 miles of stream due to restriction of impacting activities.
Concentration of grazing in riparian areas on 2 active allotments would degrade those areas on 38 springs (about 19 acres of riparian); No impact on the Virgin River	Same as A	Closure to grazing plus fencing riparian areas where grazing remains will mitigate impacts to riparian areas.	Same as E
Same as No Action	Same as No Action	Removal of horses and burros in some herd management areas plus managing for the appropriate management level in the remaining herd management areas will help mitigate impacts to riparian areas.	Removal of horses and burros in some herd management areas plus managing for the appropriate management level in the remaining areas to ensure proper functioning condition will mitigate impacts to riparian areas.
Not addressed	Not addressed	Not addressed	Potential impacts to riparian areas would be minimized through avoidance and site specific mitigation.

Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
Riparian Resource Management			
From Recreation Management	Not addressed	Not addressed	Not addressed
From Minerals Management	Not addressed	Not addressed	Not addressed
Vegetation Management			
From Vegetation Management	Long-term improvement of vegetative community due to management for desired plant community or potential natural community	Same as No Action	Same as No Action
From Livestock Grazing Management	Moderate to slight impacts from livestock grazing, by cropping of forage plants during the year.	Reduced impacts from livestock grazing based on closure of 14 allotments to livestock grazing	Same as A
From Wild Horse and Burro Management	Not addressed	Utilization of forage plants would be eliminated with removal of wild horses and burros from Amargosa Herd Management Area; Impacts would continue in other areas.	Same as A

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Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Not addressed	Not addressed	Not addressed	Limiting off-road vehicle activity to existing roads and trails would improve the riparian resource through the prevention of new soil disturbance and sediment production.
Not addressed	Not addressed	Not addressed	Closure to mineral activity, except fluid, within 1/4 mile of riparian areas would help mitigate impacts to riparian habitat.
Same as No Action	Same as No Action	Same as No Action	Same as No Action
Decreased grazing impacts in designated Areas of Critical Environmental Concern where livestock grazing is removed	Reduced impacts from livestock grazing based on closure of 24 grazing allotments	Closure of 43 grazing allotments would increase above ground biomass with plant vigor and reproductive capability maintained or enhanced.	Closure of 42 grazing allotments would increase above ground biomass with plant vigor and reproductive capability maintained or enhanced.
Same as A	Same as A	Substantial decrease to elimination of use levels based upon setting appropriate management levels and managing herds and habitat would minimize or eliminate damage to vegetative resources.	Same as E

Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
Visual Resource Management			
From Visual Resource Management	Reduced impacts of projects	Reduced impacts by designation of visual resource management classes in planning area	Same as A
From Lands Management	Loss of natural landscape in Las Vegas Valley, Mesquite, Laughlin & Pahrump due to urban development	Same as No Action	Same as No Action
From Rights-of-Way Management	No corridors designated	Designation of corridors would help protect veiwsheds by concentrating impacts within specific geographic areas; Corridors would have moderate visual impacts.	
From Minerals Management	Impacts to form, line, color, and texture from mining; In some cases, would cause long-term scars to landscape	Same as No Action	Same as No Action
Fish, Wildlife and Special Status Species Management			
From Riparian Management	Enhanced habitat for wildlife and special status species	Same as No Action	Same as No Action
From Vegetation Management	Enhanced habitat as result of management to achieve full ecological potential or potential natural community	Enhanced habitat from management for potential natural community; management of mesquite stands	Same as A
From Areas of Critical Environmental Concern	No areas of critical environmental concern would be designated	Habitats for wildlife would be protected by the designation of 1,151,938 acres as areas of critical environmental concern	Habitats for wildlife would be protected by the designation of 1,530,838 acres as areas of critical environmental concern

Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Same as A	Same as A	Same as A	Same as A
Same as No Action	Same as No Action	Same as No Action	Same as No Action
Same as A	Same as A	Same as A	Same as A
Same as No Action	Same as No Action	Not addressed	Same as No Action
Same as No Action	Same as No Action	Same as No Action	Same as No Action
Same as A	Same as A	Same as A	Same as A
Habitats for wildlife would be protected by the designation of 1,538,298 acres as areas of critical environmental concern	Same as A	Habitats for wildlife would be protected by the designation of 969,591 acres as areas of critical environmental concern	Habitats for wildlife would be protected by the designation of 1,005,031 acres as areas of critical environmental concern

Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
Fish, Wildlife and Special Status Species Management			
From Fish, Wildlife and Special Status Species Management	Habitat would be managed to sustain or increase existing wildlife populations	Same as No Action	Same as No Action
From Livestock Grazing Management	Wildlife habitat would improve as 2,795,792 acres open to grazing would be managed under Section 7 prescriptions and 875,335 acres would be closed to grazing.	Wildlife habitat would improve as 2,595,247 acres open to grazing would be managed under Section 7 prescriptions and 1,075,880 acres would be closed to grazing	Same as A
From Wild Horse and Burro Management	Managing wild horses and burros to maintain thriving ecological balance would improve habitat for some wildlife.	Same as No Action	Same as No Action
From Lands Management	Disposal of Category I and II tortoise habitat would fragment tortoise populations and reduce available habitat	970,160 acres of tortoise habitat within Areas of Critical Environmental Concern would not be available for disposal and would be protected for the long-term	1,346,200 acres of tortoise habitat within Areas of Critical Environmental Concern would not be available for disposal and would be protected for the long
From Rights-of-Way Management	Both direct and indirect impacts to wildlife from rights-of-way construction & maintenance	Impacts to wildlife from construction & maintenance; Habitat would be protected as Areas of Critical Environmental Concern would be closed to material site rights-of-way and be right-of-way avoidance areas, outside of corridors	Impacts to wildlife from construction & maintenance; Only Category I tortoise habitat would be closed to material sites rights-of-way resulting in continuing impacts to wildlife in other areas
	Not addressed	Impacts to wildlife from designation of 590 miles of corridors.	Impacts to wildlife from 590 miles of corridors.

Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Same as No Action	Same as No Action	Same as No Action	Same as No Action
Wildlife habitat would improve as 1,001,767 acres open to livestock grazing would be managed under Section 7 prescriptions and 2,669,360 acres would be closed to grazing.	Wildlife habitat would improve as 2,341,875 acres open to livestock grazing would be managed under Section 7 prescriptions and 1,329,252 acres would be closed to grazing.	Habitat for wildlife would improve as 2,757,360 acres would be closed to livestock grazing; Open allotments would be managed under Section 7 prescriptions	Wildlife habitat would improve as 2,721,002 acres would be closed to livestock grazing. 11 allotments open to grazing would be managed under Section 7 prescriptions
Same as No Action	Same as No Action	Managing for zero animals in 4 herd management areas and for appropriate management level in other areas would improve habitat for wildlife	Managing for zero animals in 3 herd management areas and managing for appropriate management level in other areas would improve habitat for wildlife
1,356,680 acres of tortoise habitat within Areas of Critical Environmental Concern would not be available for disposal and would be protected for the long term	Same as A	797,938 acres of tortoise habitat within Areas of Critical Environmental Concern would not be available for disposal and would be protected for the long term	743,209 acres of tortoise habitat within Areas of Critical Environmental Concern would not be available for disposal and would be protected for the long term
Same as A	Same as A	Same as A	Impacts to wildlife from construction & maintenance; Areas of Critical Environmental Concern would be right-of-way avoidance areas, outside of corridors and would be closed to material site rights-of-way, except within 1/2 mile of highways.
Impacts to wildlife from 476 miles of corridors.	Impacts to wildlife from 563 miles of corridors.	Impacts to wildlife from 539 miles of corridors.	Same as E

Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
Fish, Wildlife and Special Status Species Management			
From Recreation Management	Impacts to wildlife from off-highway vehicle designations: 2,900,998 acres OPEN; 766,789 acres LIMITED; 3,313 acres CLOSED.	Impacts to wildlife from off-highway vehicle use would decrease: 9,180 acres OPEN; 3,649,757 acres LIMITED; 12,190 acres CLOSED.	Same as A
	Impacts to wildlife in areas open to competitive off-highway vehicle events; Most of the planning area is open.	Impacts to wildlife would be reduced as acreage open to high-speed competitive events would decrease.	Same as A
From Wilderness Management	Over the short-term wildlife habitat in wilderness study areas would be protected by Interim Management Policy	Same as No Action	Same as No Action
	Congressional release of study areas would impact long-term management of wildlife habitat.	Same as No Action	Same as No Action
From Minerals Management	Impacts to wildlife from mineral development on 4,412,940 acres open to fluid mineral leasing; 4,208,846 acres open to locatables; 4,496,342 acres open to saleables; 4,448,329 acres open to non-energy leasables	Impacts to wildlife from mineral development on 3,968,864 acres open to fluid mineral leasing; 3,703,833 acres open to locatables; 3,943,316 acres open to non-energy leasables; 2,959,709 acres open to saleables	Impacts to wildlife from mineral development on 3,828,982 acres open to fluid mineral leasing; 3,158,567 acres open to locatables; 2,561,798 acres open to saleables; 3,522,205 acres open to non-energy leasables

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Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Impacts to wildlife from off- highway vehicles would decrease: 9,180 acres OPEN; 3,648,757 acres LIMITED; 13,190 acres CLOSED.	Same as A	Impacts to wildlife from off- highway vehicles would decrease: 10,180 acres OPEN; 3,542,820 acres LIMITED; 4,360 acres CLOSED.	Impacts to wildlife from off- highway vehicles would decrease: 24,600 acres OPEN; 3,303,735 acres LIMITED; 3,560 acres CLOSED.
Same as A	Same as A	Same as A	Impacts to wildlife would be reduced as acreage open to high speed, competitive events would decrease.
Same as No Action	Same as No Action	Same as No Action	Same as No Action
Same as No Action	Same as No Action	Same as No Action	Study areas released by Congress would be managed to maintain their existing aesthetic qualities
Increased protection of wildlife from closure of 2,033,369 acres to fluid mineral leasing; 2,312,668 acres to locatables; 2,108,907 acres to saleables, and 2,004,689 acres to non-energy leasables	Impacts to wildlife from 4,468,344 acres open to fluid mineral leasing; 4,008,868 acres to locatables; 4,035,390 acres to mineral materials; 4,448,329 acres to non-energy leasables	Increased protection of wildlife from closure of 552,024 acres to fluid mineral leasing, 2,828,613 acres to locatables; 1,220,482 acres to saleables, and 3,183,450 acres to non-energy leasables	Increased protection of wildlife from no surface occupancy stipulations on 866,067 acres open to fluid mineral leasing, withdrawal of 1,227,226 acres to locatables; closure of 1,033,569 acres to saleables, and 1,443,799 acres to non-energy leasables

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Table S-2 Summary of the Impacts

Program	No Action,	Alternative A	Alternative B
Fish, Wildlife and Special Status Species Management			
	Not addressed	Additional protection of wildlife habitat as tortoise areas of critical environmental concern would be closed to mineral materials disposal and seasonal closures would be in effect for fluid mineral leasing	Same as A
Livestock Grazing Management			
From Riparian Management	Not addressed	Not addressed	Not addressed
From Fish, Wildlife and Special Status Species Management	Not addressed	Not addressed	Not addressed
	Decreased grazing from management actions and Section 7 consultation; season of use and utilization levels reduced	Same as No Action	Same as No Action
From Range Reclassification	Not addressed	Not addressed	Not addressed
Wild Horse and Burro Management			
From Air, Soil and Water Resource Management	Short-term possible reductions in horse and burro numbers from management actions; long-term improved condition of vegetation and water quality and quantity	Same as No Action	Same as No Action

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Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Same as A	Impacts to wildlife tortoise areas of critical environmental concern would remain open to mineral material disposal; Increased protection from seasonal closure on fluid mineral leasing	Additional protection of wildlife as all areas of critical environmental concern would be recommended for closure to saleables, solid leasables and material site rights-of-way	Additional protection of wildlife as all areas of critical environmental concern would be recommended for withdrawal from the mining law and closed to saleables, solid leasables.
Not addressed	Not addressed	Livestock would be relocated or removed if utilization levels are exceeded.	Same as E
Not addressed	Not addressed	Protection of special status species could require a change in grazing systems or removal of livestock.	Same as E
Substantial decrease in forage use from closure of desert tortoise habitat to livestock grazing	Same as No Action	Substantial decrease in forage use from closure of tortoise areas of critical environmental concern to livestock grazing.	Same as E
Not addressed	Not addressed	Permittees could realize an economic benefit by setting of preference since a animal unit month has an implied value.	Not addressed
Same as No Action	Same as No Action	Wild burros would be removed from Gold Butte & Eldorado Herd Management Areas to implement Tortoise Recovery Plan.	Wild burros would be removed from Eldorado and part of Gold Butte Herd Management Areas to implement Tortoise Recovery Plan.

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Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
Wild Horse and Burro Management			
From Fish, Wildlife and Special Status Species Management	Competition from wildlife expanding into herd management areas; potential for reduced herd numbers in tortoise habitat	Same as No Action	Same as No Action
From Rights-of-Way Management	Not addressed	Not addressed	Not addressed
Cultural Resource Management			
From Fish, Wildlife and Special Status Species Management	Not addressed	Designation of 1,017,838 acres as areas of critical environmental concern aids in preserving 2,200 eligible sites	Designation of 1,404,358 acres as areas of critical environmental concern aids in preserving 2,800 eligible sites
From Forestry Management	Potential disturbance of 700 eligible sites from cutting in Virgin, McCullough, Spring Mountains	Potential disturbance of 300 eligible sites from wood cutting in Pahrump Valley and Amargosa Flat	Same as A
From Livestock Grazing Management	Potential disturbance of 5,200 eligible sites, 31,000 acres of Traditional Lifeway Area	Potential disturbance of 5,200 eligible sites, 31,000 acres of Traditional Lifeway Area	Same as A
From Lands Management	Potential disturbance of 6,300 eligible sites from availability for disposal of 3,140,585 acres	Potential disturbance of 3,300 eligible sites from availability for disposal of 1,603,885 acres	Potential disturbance of 2,500 eligible sites from availability for disposal of 1,224,985 acres
From Rights-of-Way Management	Potential disturbance of 6,500 eligible sites, 31,000 acres Traditional Lifeway Area from permits	Potential disturbance of 1,000 eligible sites from designated corridors on 540,247 acres	Same as A

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Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Same as No Action	Same as No Action	Wild burros would be removed from Gold Butte & Eldorado Herd Management Areas to implement Tortoise Recovery Plan.	Wild burros would be removed from Eldorado and part of Gold Butte Herd Management Areas to implement Tortoise Recovery Plan.
Not addressed	Not addressed	Fencing highways without installing under passes would hinder movement of animals as well as closing access to waters.	Same as E
Designation of 1,409,478 acres as areas of critical environmental concern aids in preserving 2,800 eligible sites	Same as A	Designation of 969,591 acres of areas of critical environmental concern aids in preserving 2,100 eligible sites.	Designation of 1,005,031 acres of areas of critical environmental concern aids in preserving 2,100 eligible sites.
Same as A	Same as A	Not addressed-	Potential disturbance of 300 eligible sites from wood cutting in Pahrump Valley.
Potential disturbance of 2,000 eligible sites, 31,000 acres of Traditional Lifeway Area	Potential disturbance of 4,600 eligible sites, 31,000 acres of Traditional Lifeway Area	Potential disturbance of 1,700 eligible sites.	Potential disturbance of 1,255 eligible sites.
Minimum of 2,000 eligible sites protected by closure of planning area to leases and permits	Potential disturbance of 3,500 eligible site from availability to disposal of 1,517,562 acres	Not addressed	Potential disturbance involving 2,100 eligible sites by the availability of 1,022,314 acres for disposal.
Potential disturbance of 1,000 eligible sites from designated corridors on 505,012 acres	Potential disturbance of 1,000 eligible sites from designated corridors on 531,148 acres	Not addressed	Potential disturbance of 200 eligible sites from designated corridors on 157,761 acres.

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Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
Cultural Resource Management			
From Recreation Management	Potential disturbance of 5,800 eligible sites from off-road vehicle use on 2,900,298 acres designated as OPEN	Potential disturbance of 20 eligible sites from off-road vehicle use on 9,180 acres designated as OPEN	Same as A
From Wilderness Management	Additional protection of cultural resources from restrictions on new access and limitations on other surface-disturbing activities in wilderness study areas	Same as No Action	Same as No Action
From Minerals Management	Potential disturbance of 7,500 eligible sites, 31,000 acres Traditional Lifeway Areas	Potential disturbance of 7,500 eligible sites from locatables; to 6,000 eligible sites from saleable minerals; 7,500 eligible sites from solid leasables; and 1,500 eligible sites from fluid mineral uses	Potential disturbance of 7,300 eligible sites from locatables; to 5,400 eligible sites from saleable minerals; 7,300 eligible sites from solid leasables; and 3,800 eligible sites from fluid mineral uses
Lands Management			
From Lands Management	Long-term encumbrances could occur on lands identified for disposal but also a part of the 3,140,759 acres available for Section 302 leases, permits, and airport leases; multiple use goals would be met	Long-term encumbrances could occur on lands identified for disposal but also a part of the 1,636,059 acres available for leases and permits; encumbrances lessened by limiting airport leasing to specific areas; multiple use goals would be met	Long-term encumbrances could occur on lands identified for disposal but also a part of the 1,257,159 acres available for leases, permits, and airport leasing; multiple use goals would be met

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Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Same as A	Same as A	Not addressed	Potential disturbance of eligible sites from off-road vehicle use on 24,600 acres designated as OPEN
Same as No Action	Same as No Action	Not addressed	Same as No Action
Potential disturbance of 5,000 eligible sites from locatables; 5,400 eligible sites from saleable minerals; 5,700 eligible sites from solid leasables; and 1,500 eligible sites from fluid mineral uses	Potential disturbance of 7,700 eligible sites from locatables; 7,700 eligible sites from saleables; 9,000 eligible sites from solid leasables; and 1,000 eligible sites from fluid mineral uses	Potential disturbance of 7,500 eligible sites from mineral exploration and development.	Same as C
Closing the planning area to leases and permits would prevent long-term encumbrances on lands valuable for disposal; some long-term encumbrances could occur from airport leasing limited to specific areas; multiple use management goals would still be met	Long-term encumbrances could occur on lands identified for disposal but also a part of the 1,657,514 acres available for leases, permits and airport leasing; multiple use goals would be met	Not addressed	Land would be available to enhance community growth and expansion.

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Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
From Rights-of-Way Management	Public lands would be encumbered, establishing valid existing rights	Designation of 540,247 acres of utility corridors could lessen encumbrances on lands identified for disposal; potential loss of 37,372 acres identified for disposal throughout the planning area	Designation of 540,247 acres of utility corridors could lessen encumbrances on lands identified for disposal; potential loss of 77,124 acres identified for disposal throughout the planning area
Lands Management			
From Minerals Management	Impacts to lands disposal program could occur from "nuisance" claims, mineral entry, and development for locatable, leasable, and saleable minerals on 163,673 acres	Withdrawal of 65,998 acres from all mineral entry and development within the Las Vegas and Laughlin areas would limit long term or permanent encumbrances which could preclude disposal or lower appraisal values	Withdrawal of 111,524 acres from all mineral entry and development within the Las Vegas and Laughlin areas would limit long-term or permanent encumbrances which could preclude disposal or lower appraisal values
Rights-of-Way Management			
From Rights-of-Way	Long-term impacts could occur due to continued proliferation of randomly placed utility line and material site rights-of-way (mainly in Clark County)	Right-of-way corridors could reduce social, economic, and environmental impacts by confining similar uses to a specific area.	Same as A
	Not addressed	Right-of-way exclusion areas could constitute a loss of 31% of public land available for material site development; Right-of-way avoidance areas could constitute a loss of 53% of public land available for all types of rights-of-way	Exclusion areas could constitute a loss of 9% of public lands available for material site development; Avoidance areas could constitute a loss of 63% of public lands available for all types of rights-of-way

Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Designation of 505,012 acres of utility corridors could lessen encumbrances on lands identified for disposal; potential loss of 19,375 acres identified for disposal throughout the planning area	Designation of 531,148 acres of utility corridors could lessen encumbrances on lands identified for disposal; potential loss of 179,953 acres identified for disposal throughout the planning area	Not addressed	Designation of 158,806 acres of utility corridors could lessen encumbrances incurred on Public lands by randomly placed lines.
Withdrawal of 61,278 acres from all mineral entry and development within the Las Vegas and Laughlin areas would limit long-term or permanent encumbrances which could preclude disposal or lower appraisal values	Withdrawal of 57,163 acres from locatable entry in the Las Vegas, Searchlight, Jean, Goodsprings and Laughlin areas would limit long-term or permanent encumbrances which could preclude disposal or lower appraisal values	Not addressed	Mineral entry and development encumbers land and lessens appraisal values.
Same as A	Same as A	Scenic values and integrity of the surrounding area would be better protected by designation of corridors.	Same as E
Exclusion areas could constitute a loss of 42% of public lands available for material site development; Avoidance areas could constitute a loss of 63% of public land available for all types of rights-of-way.	Exclusion areas could constitute a loss of 34% of public lands available for linear and areal rights-of-way (including material sites); Avoidance areas could constitute a loss of 53% of public lands available for all types of rights-of-way.	Not addressed	Exclusion areas could constitute a loss of 28% of public lands available for linear and areal rights-of-way (including material sites); Avoidance areas could constitute a loss of 29% of public lands available for all types of rights-of-way.

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Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
	Delays in processing applications could occur due to continued authorization of communication (comm) site rights-of-way on crowded, multi-user sites operating without a site management plan	Management would be facilitated by limiting future comm site rights-of-way to established sites, until approval of a site management plan for each specific site	Same as A
Acquisitions			
From Acquisitions	Not addressed	Short-term administrative impacts could occur from acquisition of 12,679 acres of private lands	Short-term administrative impacts could occur from acquisition of 9,049 acres of private lands
Recreation Management			
From Water Resource Management	Not addressed	Minor impacts to avoid water sources, including rerouting of off-highway vehicle events; increased water source developments could increase visitor use by 10%	Same as A
From Areas of Critical Environmental Concern Management	Not addressed	Off-highway vehicle competitive events would be eliminated on 1,145,978 acres designated as areas of critical environmental concern	Off-highway vehicle competitive events would be eliminated on 1,530,838 acres of areas of critical environmental concern
From Fish, Wildlife and Special Status Species Management	Cancellation of competitive events in tortoise habitat resulted in impacts to participants and spectators; Closure of 996,400 acres to competitive off-highway vehicle use would increase use in Jean/Roach areas and Nelson Hills.	Cancellation of competitive events in tortoise habitat resulted in impacts to participants and spectators; Closure of 970,160 acres would increase use in Jean/Roach, Eldorado, Nelson Hills, and Nellis Dunes.	Cancellation of competitive events in tortoise habitat resulted in impacts to participants and spectators; Closure of 1,346,200 acres would increase use in Jean/Roach areas and Nelson Hills.

Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Same as A	Same as A	Not addressed	Same as A
Short-term administrative impacts could occur from acquisition of 14,669 acres of private lands	Same as B	Not addressed	Any private lands acquired within areas of critical environmental concern would enhance the integrity of those areas
Same as A	Same as A	Not addressed	Minor impacts to avoid water sources, including rerouting of off-highway vehicle events.
Off-highway vehicle competitive events would be eliminated on 1,538,298 acres of areas of critical environmental concern	Same as A	Off-highway vehicle competitive events would be eliminated on 969,591 acres areas of critical environmental concern	Off-highway vehicle speed events eliminated from 1,005,031 acres of critical environmental concern; Minimal impact as limits are already in effect.
Cancellation of competitive events in tortoise habitat resulted in impacts to participants and spectators; Closure of 1,356,680 acres would increase use in Jean/Roach area and Nelson Hills.	Same as A	Cancellation of competitive events in tortoise habitat resulted in impacts to participants and spectators; Closure of 798,000 acres would increase use in Jean/Roach area, Pahrump Valley, Laughlin and Nellis Dunes.	Minimal impact. Users and use patterns have already adjusted to desert tortoise protection measures and limits.

Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
Recreation Management			
From Fish, Wildlife and Special Status Species Management	Approx. a 10% reduction in visitor use would be expected, based upon restrictions in tortoise habitat	Approx. a 6 % reduction in visitor use would be expected, based upon restrictions in tortoise habitat	Approx. a 10%reduction in visitor use would be expected, based upon restrictions in tortoise habitat
	Big Dune would be open to casual off-road vehicle use, except for five acres which would be closed	Same as No Action	Same as No Action
From Rights-of-Way Management	Construction of new projects could reduce semi-primitive and non-motorized opportunities; increased hunting and camping opportunities	Additional road rights-of-way in Sunrise Mtn. could increase visitor use by 10% but could reduce aesthetic value; Right-of-way construction could detract from semi-primitive and non-motorized opportunities	Same as A
From Recreation Management	Visitor use would increase by 10% or 144,810 visitor days	Visitor use would increase by 20% or 289,620 visitor days; Special Recreation Management Areas would be designated.	Same as A
From Minerals Management	Geophysical exploration and road construction could reduce water percolation into caves	Management actions to protect cave and karst resources would lessen impacts from minerals activities	Same as A
	Loss of 20% of semi-primitive non-motorized opportunities from mineral exploration and development.	Management actions to protect areas of critical environmental concern, caves, and semi-primitive areas would lessen impacts from minerals activities.	Same as A; Big Dune Special Recreation Management Area would be protected from minerals exploration and development.

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Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Same as B	Same as B	Approx. a 15% reduction in visitor use would be expected, based upon restrictions in tortoise habitat	Minimal impact. Users and use patterns have already adjusted to desert tortoise protection measures and limits.
With Big Dune closed, displaced recreationists would need to travel greater distances for similar opportunities	Same as No Action	Same as No Action	Off-highway vehicle enthusiasts would be displaced from about 10% of Big Dunes
Same as A	Same as A	Increased access could increase opportunities for hunting, camping and off-highway vehicle touring, racing and free-play	Same as A
Same as No Action; Big Dune and Desert View would not be designated as Special Recreation Management Areas.	Same as A	Same as No Action	Visitor use would increase by 20% or 289,620 visitor days due to increased population growth.
Same as A	Same as A	Not addressed	Same as A
Same as B	Protection of caves from locatable mineral entry; loss of 20% of semi-primitive non-motorized recreation opportunities from mineral activities over 10 year period.	Not addressed	Same as A

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Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
Minerals Management			
From Riparian Management	Not addressed	Approx. 2,330 acres would be withdrawn from mining claim location, solid mineral leasing, and mineral material disposal; fluid mineral leasing would be allowed subject to major restrictions	Approx. 5,350 acres would be withdrawn from mining claim location, solid mineral leasing, and mineral material disposal; fluid mineral leasing would be allowed subject to major restrictions
From Areas of Critical Environmental Concern Management	No impacts	Areas of critical environmental concern would be designated, withdrawing 931,398 acres from mineral material disposal; 172,218 acres from mining claim location, solid mineral leasing, and fluid mineral leasing; 9,600 acres would be open to fluid mineral leasing, subject to major restrictions; 760,277 acres would be open to fluid mineral leasing, subject to minor restrictions	1,465,138 acres of areas of critical environmental concern would be withdrawn from mineral material disposal; 175,938 acres from mining claim location; 544,938 acres from solid mineral leasing; 10,000 acres would be open to fluid mineral leasing, subject to major restrictions; 956,580 acres would be open to fluid mineral leasing, subject to minor restrictions
From Fish, Wildlife and Special Status Species Management	----------	Approx. 634 acres would be withdrawn from mining claim location, mineral leasing, and mineral material disposal	Same as A
From Cultural Resource Management	----------	Approx. 31,000 acres would be withdrawn from mining claim location, mineral leasing and mineral material disposal	Same as A

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Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Same as B	Same as No Action	Not addressed	Approx. 9,000 acres would be withdrawn from mining claim location, solid mineral leasing, and mineral material disposal; fluid mineral leasing would be allowed subject to no surface occupancy
1,538,298 acres of areas of critical environmental concern would be withdrawn from mineral material disposal and solid mineral leasing; 1,474,658 acres from mining claim location; 1,483,258 acres from fluid mineral leasing; 1,000 acres would be open to fluid mineral leasing subject to major restrictions; 54,040 acres would be open to fluid mineral leasing subject to minor restrictions	Areas of critical environmental concern would be designated, withdrawing 139,658 acres from mineral material disposal and mining claim location	Not addressed	Areas of critical environmental concern would be designated, withdrawing 1,005,031 acres from mining claim location, mineral material disposal and mineral leasing. Fluid mineral leasing would be subject to no surface occupancy and timing and use constraints.
Approx. 11,600 acres would be withdrawn from mining claim location, mineral leasing, and mineral material disposal	Same as A	Increased costs of operation and reclamation of disturbed areas in areas of critical environmental concern	Same as E; Approx. 25% of the planning area would be withdrawn from mining claim, mineral leasing, and mineral material disposal.
Same as A	Approx. 12,570 acres would be withdrawn from mining claim location, mineral leasing and mineral material disposal	Approx. 12,400 acres would be withdrawn from mining claim location, mineral leasing and mineral material disposal	Approx. 12,185 acres would be withdrawn from mining claim location, mineral leasing and mineral material disposal

Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
Minerals Management			
From Lands Management	Disposal of 108,107 acres of public lands in Las Vegas Valley, including saleable mineral, would decrease the availability of silt, sand and gravel to construction industry	Disposal of 61,838 acres of public lands within Las Vegas Valley, including saleable minerals, would decrease the availability of silt, sand and gravel to construction industry	Disposal of 99, 391 acres of public lands within Las Vegas Valley, including saleable minerals, would decrease the availability of silt, sand and gravel to construction industry
From Lands Management	Existing classifications, withdrawals, and segregation affect 530,582 acres, limiting the availability of public lands for mining claim location, mineral leasing, and mineral material disposal	Same as No Action	Same as No Action
From Rights-of-Way Management	Existing material site rights-of-way would exclude 15,842 acres, from mining claim location	Same as No Action	Same as No Action
From Recreation Management	Approx. 3,308 acres would be designated as closed to all motorized vehicle use, restricting access for mineral-related activities	Approx. 12,190 acres would be designated as closed to all motorized vehicle use, restricting access for mineral-related activities	Same as A
	----------	Cave management actions would limit the availability of 3,200 acres of public lands to mining claim location, mineral materials disposal, solid mineral leasing and fluid mineral leasing.	Same as A

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Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Disposal of 59,998 acres of public lands within Las Vegas Valley, including saleable minerals, would decrease the availability of silt, sand and gravel to construction industry	Same as B	Disposal of 69,771 acres of public lands within Las Vegas Valley, including saleable minerals, would decrease the availability of silt, sand and gravel to construction industry	Disposal of 175,314 acres of public lands, including saleable minerals, would decrease the availability of silt, sand and gravel to construction industry
Same as No Action	Same as No Action	Not addressed	Existing classifications, withdrawals, and segregation affect 434,055 acres, limiting the availability of public lands for mining claim location, mineral leasing, and mineral material disposal
Same as No Action	Same as No Action	Not addressed	Same as No Action
Same as A	Same as A	Not addressed	Approx. 3,560 acres would be designated as closed to all motorized vehicle use, restricting access for mineral-related activities.
Same as A	Cave management actions would potentially limit the availability of 3,200 acres of public lands to mining claim location	Not addressed	Same as A

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Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
Minerals Management			
From Minerals Management	----------	Acreage available for fluid mineral leasing would decrease by 11%, solid mineral leasing acreage by 11%, mining claim location acreage by 12% and mineral material disposal acreage by 34%	Acreage available for fluid mineral leasing would decrease by 14%, solid mineral leasing acreage by 20%, mining claim location acreage by 25%, and mineral material disposal acreage by 43%
Fire Management			
From Air Resource Management	Fire kept to a maximum of 10 acres 90% of the time in the Non-Attainment Area	Same as No Action	Same as No Action
From Soil Resource Management	Critical erosion areas would require the use of hand tools	Same as No Action	Same as No Action
From Riparian Resource Management	Limits on use of foams, penetrants or retardants within 100 yards of riparian areas, could lead to larger fires in some instances	Same as No Action	Same as No Action
From Wilderness Management	Prescribed burning for enhancement available on case-by-case basis, under approved burn plan	Minor impacts to fire program as prescribed burning for enhancement only allowed on 56,721 acres in specified wilderness study areas; burning for fuels reduction only allowed on 61,793 acres in specified wilderness study areas, subject to approved plan/environmental assessment	Same as A

Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Minerals Management			
Acreage available for fluid mineral leasing would decrease by 40%, solid mineral leasing acreage by 40%, mining claim location acreage by 44%, and mineral material disposal acreage by 43%	Acreage available for mining claim location would decrease by 5% and mineral material disposal acreage by 11%	Not addressed	Acreage available for fluid mineral leasing would decrease by 45%, mining claim location acreage by 38% and mineral material disposal acreage by 39%
Same as No Action	Same as No Action	Not addressed	Same as No Action
Same as No Action	Same as No Action	Not addressed	Same as No Action
Same as No Action	Same as No Action	Not addressed	Same as No Action
Same as A	Same as A	Not addressed	Minor impacts to fire program as prescribed burning for enhancement allowed only on 56,721 acres in specified wilderness study areas; burning for fuels reduction only allowed on 44,343 acres in specified wilderness study areas, subject to approved plan/ environmental assessment

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Table S-2 Summary of the Impacts

Program	No Action	Alternative A	Alternative B
Socio-Economic Values			
From Livestock Grazing Management	Withdrawal of 5,124 animal unit months as a result of Section 7 consultation; possible adverse economic impacts on 6 operators; lessor economic effects to 10 operators; net reduction of $128,000 in capital value of ranch assets; no significant impacts to overall economy of agricultural community.	Same as No Action	Same as No Action
From Lands Management	Total of 163,673 acres could be disposed of through sales, adding $1.2 billion assessed values to counties and $23.6 million in tax revenues	Total of 155,258 acres could be disposed of through sales, adding $1.1 billion assessed values to counties and $22.4 million in tax revenues	Total of 540,171 acres could be disposed of through sales, adding $2.3 billion assessed values to counties and $45.9 million in tax revenues
From Rights-of-Way Management	Continued high costs and lengthy processing times for rights-of-way; facilities not limited to designated corridors, lowering construction and operating costs	Lower processing costs and times; increased construction costs as facilities limited to designated corridors	Same as A
From Minerals Management	Potentially significant financial impacts to surface owners during extended mineral extraction where BLM administers minerals	Reduced mineral development potential; impacts cannot be estimated due to numerous uncertainties	Same as A

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Table S-2 Summary of the Impacts

Alternative C	Alternative D	Alternative E	Proposed
Withdrawal of 13,477 animal unit months, net reduction of $393,757 in gross income from ranching activities; potential severe, long-term adverse economic effects on operators; no significant impact on regional economy	Same as No Action	Withdrawal of 7,427 animal unit months, net reduction of $36,000 in gross income from ranching activities; potential severe, long-term adverse economic effects on operators; no significant impact on regional economy	Withdrawal of 7,597 animal unit months, net reduction of $36,238 in gross income from ranching activities; potential severe, long-term adverse economic effects on operators; no significant impact on regional economy
Total of 98,943 acres could be disposed of through sales, adding $923.6 million assessed values to counties and $18.5 million in tax revenues	Same as B	Total of 111,000 acres could be disposed of through sales, adding $950 million assessed values to counties and $19 million in tax revenues.	Total of 175,314 acres could be disposed of through sales, adding 1.3 billion assessed values to counties and 24.5 million in tax revenues.
Same as A	Same as A	Same as A; Values of private lands would be decreased near corridors.	Same as E
Same as A	Same as A	Same as A; wilderness study areas released from wilderness consideration could provide opportunities for mineral development.	Same as E

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Chapter 1 - Introduction

General Information

The Las Vegas District Proposed Resource Management Plan/Final Environmental Impact Statement, hereafter referred to as The Plan, will provide management guidance for approximately 3.3 million acres of public land administered by the Bureau of Land Management (BLM) (Maps 1-1 and 1-2). The Plan is prepared subject to Sections 102 and 202 of the *Federal Land Policy and Management Act* (FLPMA) of 1976 that require the Secretary of the Interior to develop land use plans for all public lands and to the *National Environmental Policy Act* (NEPA) of 1969 mandating that Federal agencies prepare Environmental Impact Statement (EIS) for major Federal actions. Since development of a Resource Management Plan is a large-scale Federal action, an Environmental Impact Statement was completed. The Plan conforms to the Council on Environmental Quality (CEQ) regulations for implementing National Environmental Policy Act requirements (40 Code of Federal Regulations 1500-1508).

Purpose and Need for Action

The Plan identifies and analyzes alternatives for long-term management of public lands and resources administered by BLM in the planning area, which is defined as the Las Vegas District excluding Red Rock Canyon National Conservation Area, and the Nellis Range. (*Note*: A General Management Plan is being prepared to outline specific management strategy for the Conservation Area.)

The Plan addresses seven management issues:
- Land tenure
- Desert tortoise protection
- Mineral availability
- Off-road vehicle use (ORV)
- Special management areas/Areas of Critical Environmental Concern (ACECs)
- Minerals Management after Congressional Designation of Wilderness Areas
- Utility corridors

These seven issues were identified during BLM's scoping process, which began March 29, 1990 with the *Federal Register* publication of a Notice of Intent to prepare a Resource Management Plan/Environmental Impact Statement. The process continued with scoping reports mailed to the public to present preliminary issues; to announce notices of public meetings; and to identify other issues to be considered in The Plan.

Present management direction for the Las Vegas District is in two existing plans:
- *Clark County Management Framework Plan* (MFP)(approved January 9, 1984)
- *Esmeralda-Southern Nye Resource Management Plan/Environmental Impact Statement- Planning Area B* (approved October 10, 1986).

The current planning effort was initiated due to the following factors:

- A regularly scheduled 5-year evaluation of the *Clark County Management Framework Plan* indicated the plan was not adequately addressing the rapidly changing public land use demands in Clark County.
- The two present land use plans did not anticipate listing of the desert tortoise as a threatened species and, therefore, did not provide for its recovery.
- Public land disposals and exchanges being accomplished by legislative action (such as Aerojet and Apex) generated public concern.

These factors led to the determination that both plans (in particular the *Clark County Management Framework Plan*) needed to be amended or revised. Plan amendments usually focus on resolving a single issue and, depending on the significance of the anticipated impacts, may require an Environmental Impact Statement. A plan revision, which is usually developed to resolve multiple issues, generally requires an Environmental Impact Statement. Rather than amend the *Clark County Management Framework Plan* and *Esmeralda-Southern Nye Resource Management Plan/Environmental Impact Statement-Planning Area B* on a single issue basis, the decision was made to prepare The Plan addressing the areas covered by both existing plans. This option was

projected to be the most cost-effective and efficient long-term solution to public land management concerns in southern Nevada. Management decisions in the *Clark County Management Framework Plan* and *Esmeralda-Southern Nye Resource Management Plan/Environmental Impact Statement* determined to be valid would be carried forward into The Plan.

Another factor supporting the current planning effort is that the planning area (where more than two-thirds of Nevada's population live) is experiencing rapid growth not only in the Las Vegas area but also in smaller communities including Laughlin, Mesquite, and Pahrump. This rapid growth, considered in conjunction with the intermingled land ownership pattern, necessitates that BLM respond to complex land use demands. Among those demands are:

- Public land for community expansion and industrial uses in the Las Vegas Valley and surrounding areas.
- Lands for open space recreation and public purposes.
- Resources, such as sand and gravel, in support of regional growth.
- Listing of the desert tortoise as a threatened species.

These demands make it imperative to provide for orderly disposal of public lands for community development; to provide areas for sand, gravel, and other minerals consistent with all laws and regulations; and to implement the goals and objectives of the *Desert Tortoise (Mojave Population) Recovery Plan* (USFWS 1994).

The planning process requires that a Resource Management Plan be a comprehensive document to address all resources and programs administered by BLM. Consequently, in addition to the seven identified issues, The Plan also addresses management of soil, air, and water resources, riparian areas, wild horses and burros, fire, cultural resources, wildlife, livestock grazing, visual resources, withdrawal review, and vegetation.

Public input, as well as the availability of pertinent new data and the release of the U. S. Fish and Wildlife Service's *Draft Recovery Plan for the Desert Tortoise (Mojave Population)* (1993) indicated the need to supplement The Draft Plan. The Supplement to the Draft Resource Management Plan, hereafter referred to as the Supplement to the Draft, focused on four issues:

- Issues that were either not included, or not analyzed adequately, in The Draft Plan and rangeland classification.
- Utility corridor locations and widths.
- Mineral management and/or Congressional release of Wilderness Study Areas.
- Desert tortoise habitat management in conformance with the *Tortoise Recovery Plan*.

The Plan's new alternative (Alternative E) identifies and analyzes management goals, objectives, and direction for these four issues, as well as all programs and resources managed by BLM. Based on public comment and internal review, The Plan uses Alternative E as its foundation, and includes portions of other alternatives where appropriate.

Description of the Planning Area

The planning area includes those lands in southern Nevada as identified on Map 1-1. The Las Vegas BLM District encompasses a total of approximately 3,332,000 acres of public lands in Clark County and a portion of southern Nye County (Map 1-2 and Table 1-1). In addition, the BLM is also manages one million acres of split-estate lands in the planning area. The split-estate lands are of two types, one where the subsurface or mineral estate or a portion thereof is owned by the Federal government and the surface is under private ownership, and another where the Federal government owns the surface and the subsurface minerals or a portion thereof are in private ownership (Table 1-2).

Southern Nevada is characterized by diverse geographical features. Landforms range from rugged mountain ranges, to sloping bajadas and broad valleys. The Colorado River and several of its tributaries flow through the eastern portions of the planning area. New communities and developments, such as Laughlin, are expanding along the Colorado River, providing jobs and recreational opportunities in previously undeveloped areas. The Las Vegas Valley portion of the planning area is a major topographic feature, trending north-south through the middle of the planning area. This valley has a burgeoning metropolitan area, consisting of the cities of Las Vegas, North Las Vegas, Henderson, and Boulder

Table 1-1. Surface Ownership of Lands in Las Vegas BLM District.

County	Acres Administered by BLM	Acres Administered by Other Federal Agencies	Total Patented Acres[1]	Planning Area Total Acres
Clark	2,596,348[2]	908,618	553,716	4,058,682
Nye	735,547	13,628	99,156	848,331
Totals	3,331,895	922,246	652,872	4,907,013

[1]/ Includes private lands and State of Nevada lands (source: Las Vegas Field Office files, 1991).
[2]/ Excludes Red Rock Conservation Area.

Table 1-2. Federal Ownership of the Mineral Estate in Las Vegas BLM District.

Type of Mineral	Acres
All Minerals	3,442,980
All Leasable Minerals	1,332
Oil and Gas	42,576
Sodium and Potassium	20,491
Sodium	2,139
Potassium	480
Geothermal	548
Coal	300
Locatable Minerals	220
Fissionable Minerals	80
Saleable Minerals	1,135
Salable Minerals (except for sand & gravel)	160
Total	3,482,960

Source: BLM, Las Vegas Field Office files, 1991)

City. Much of the planning area, however, remains remote and rural, with the population dispersed over large areas or clustered in small communities. The public lands in the planning area have important scenic, recreational, mineral, archeological, wilderness, wildlife, and vegetative values. Public uses of these resources often have an important role in the growth and development of local communities.

Planning Process Overview

The planning process enables BLM to address issues and concerns of the public, while complying with the laws and policies established by Congress and the Executive Branch of the Federal Government.

The Plan was prepared following the nine planning steps described below. These steps emphasize public participation at several key stages.

Step 1: Issue Identification

Issues determine the focus of the Resource Management Plan process and indicate specific concerns of BLM and the public regarding the planning area. An issue is defined as an opportunity, conflict, or problem pertaining to management of public lands and associated resources. The intent of issue identification is to direct interdisciplinary analysis towards issue resolution. Issue identification for The Plan was initiated by BLM managers and resource specialists.

A Notice of Intent was published in the *Federal Register,* inviting the public and other Federal, state, and county agencies to participate in the planning process. Scoping meetings were held in Beatty, Las Vegas, Laughlin, Mesquite, Pahrump, Searchlight, and Tonopah to receive public input.

Step 2: Development of Planning Criteria

After issues are identified, planning criteria are formulated to guide development of the Resource Management Plan. The criteria are derived from laws, Executive Orders, regulations, planning principles, BLM national and state office guidance, consultation with other agencies, public involvement, and resource data. The criteria help set standards for data collection, development of alternatives, and selection of the preferred alternative and final plan. Planning criteria ensure that the plan addresses identified issues and avoids unnecessary data collection and analysis.

Step 3: Inventory and Data Collection

This step involves collection and compilation of biological, physical, social and economic data in various forms from available sources to help resolve the planning issues. This data provides essential facts for making analysis, evaluations, and decisions.

Step 4: Analysis of the Management Situation

The *Analysis of the Management Situation* (AMS) is a concise assessment of the current situation. The AMS describes current BLM guidance, identifies existing problems and opportunities for their resolution, and consolidates existing data needed to analyze and resolve the identified issues. If sufficiently developed, the portion of the AMS describing present management (no action alternative) and affected environment may be used directly in the plan and environmental impact statement.

Step 5: Formulation of Alternatives

This step involves developing alternatives that consider the issues, planning criteria, and concerns raised during scoping. These alternatives will be presented for management consideration. The No Action Alternative (which represents continuation of present activities) is required. The purpose of the other alternatives is to resolve issues while emphasizing different levels of management intensity.

Step 6: Estimation of Effects of Alternatives

In accordance with the National Environmental Policy Act, the physical, biological, social, and economic effects of implementing each alternative are estimated to compare and evaluate impacts (See Summary Table, Table S-1). This step involves completing a general analysis of the issues and concerns for the planning area. (*Note*: Site-

specific environmental assessments (EAs) will be prepared for specific projects and proposals on an activity plan or project-specific basis.)

Step 7: Selection of Preferred Alternative

A Preferred Alternative is selected after completing the analysis and resolution of the issues, resources affected, and management guidance in the two existing land use plans . This alternative may combine elements from the other alternatives to achieve maximum management flexibility in lands-related actions while continuing to meet the goals and objectives of BLM's multiple-use mandate.

The Preferred Alternative, which will be recommended to the Nevada State Director, is determined based on the issues and concerns identified through the planning process; information obtained from public meetings and written comments; formal coordination and consultation with other agencies; decision criteria developed and considered by management; and impact analyses of the alternatives. The State Director reviews the selected alternative for approval. After State Director approval of the Preferred Alternative, the Draft Plan is distributed to the public, including other government agencies and interest groups, for a 90-day review and comment period.

Step 8: Selection of the Proposed Plan

The District Manager develops a proposed plan based on public comments and other data, including estimation of effects. Following the public review and comment period, the BLM's Las Vegas District Manager recommends a proposed plan to the BLM Nevada State Director for approval. After evaluating public comments, the BLM may retain the preferred alternative as the proposed plan, reassess and modify the preferred alternative to meet management needs, utilize portions of alternatives, or modify an alternative previously analyzed in detail.

The proposed plan should be within the range of alternatives previously selected for detailed study and analysis. After reviewing the recommended proposed plan, the Nevada State Director will issue a Notice of Availability through the *Federal Register*, file The Plan with the Environmental Protection Agency (EPA), and distribute the document to the public.

The Governor of the State of Nevada is given a 60-day consistency review to determine the consistency of The Plan with state and local government plans and policies. This review begins with the Governor's receipt of the document.

A 30-day protest period begins when The Plan is filed with the Environmental Protection Agency. If no protests are received during this time, the BLM State Director approves the plan and publishes an Approved Resource Management Plan/Record of Decision. Any protests that are received are resolved by the BLM State Director before the plan is approved and the Resource Management Plan/Record of Decision is published.

Within 90 days after Resource Management Plan approval, a specific Implementation Plan will be developed to identify program priorities for the Plan's decisions and to determine the sequence and costs associated with their implementation. Site-specific environmental assessments will be prepared prior to initiating resource projects and proposals to analyze potential environmental impacts. Mitigation measures will be developed and incorporated as special stipulations into authorization permits.

Step 9: Monitoring and Evaluation

Monitoring and evaluation is conducted at intervals not to exceed 5 years, for the following purposes:

- Determine effectiveness of the resource management plan in resolving issues.
- Ensure effectiveness of mitigation measures. Verify assumptions used in assessing impacts.
- Review whether changes have occurred in related plans of other Federal agencies, and state or local governments.
- Determine if implementation of The Plan is achieving desired results.

Information gained through this step is incorporated into future planning, including any amendments or revisions to the Resource Management Plan..

Planning Issues and Criteria

Draft Resource Management Plan/Environmental Impact Statement

Issue 1 - Land Tenure

Disposal of public lands through sale, exchange, or other methods was a major issue in the development of The Plan. During recent years, BLM received numerous requests for public land disposal. Many of the proposed actions were in conformance with current land use plans; however, some highly visible and politically sensitive proposals were not addressed in existing plans. Rather than wait for BLM to initiate a plan amendment, proponents of these non-conforming proposals sought legislative relief. Legislative disposals were successful in the case of Aerojet, Summa, Mesquite, Fort Mojave, and Apex. Numerous other legislative proposals were drafted, but not completed. This legislative activity highlighted the inadequacies of existing public land disposal decisions.

The existing land use plans for BLM's Las Vegas District identified public lands for disposal (transfer from Federal ownership). However, the size and location of the identified acreage has not met the demand for large tracts of land for industrial purposes or desired places for community expansion. This situation led to the following questions:

- Which public lands in the planning area should be identified for disposal and by what methods?
- Should BLM acquire non-federal lands in the Las Vegas District, and if so, for what purpose and where?
- How can BLM's planning system best provide for large-scale land transfers involving public lands?

Issue 2 - Desert Tortoise

Over three million acres of desert tortoise habitat occur within the Las Vegas BLM District. On August 4, 1989, the U.S. Fish and Wildlife Service, under its emergency authority, placed the desert tortoise on the Endangered Species List. On April 2, 1990, the U.S. Fish and Wildlife Service issued a final rule listing the desert tortoise as a threatened species. To comply with the *Endangered Species Act*, BLM must consult with the U. S. Fish and Wildlife Service on all Federal actions (including The Plan) that may affect a threatened or endangered species and take actions to aid in -their recovery. Tortoise habitat comprises the overwhelming majority (in excess of 80 percent) of the planning area, affecting to some degree every program administered by the BLM. In some instances, it may be necessary to radically alter the current management situation to accommodate the biological needs of the desert tortoise.

Clark County's long-term Habitat Conservation Plan (HCP) known as the *Clark County Desert Conservation Plan* (CCDCP) was approved on July 12, 1995. The Habitat Conservation Plan was required under the Endangered Species Act to obtain a "Section 10a" permit allowing the "take" of desert tortoises on private lands in the county. The Habitat Conservation Plan propose mitigation for impacts to desert tortoise on, but not limited to, private lands through several means, including providing additional funding for management of "Desert Wildlife Management Areas" (DWMAs).

The BLM will use the term "Area of Critical Environmental Concern" in place of Desert Wildlife Management Area, on approximately 744,000 acres of public lands in the planning area. These Areas of Critical Environmental Concern would be managed to benefit the desert tortoise. Most other uses of the public lands would be strictly curtailed or eliminated. Both the Draft Plan and the Supplement to the Draft analyzed several different scenarios to protect and provide for recovery of the desert tortoise, including designation of Areas of Critical Environmental Concern.

Desert tortoise habitat comprises approximately 80 percent of the planning area; a majority of the programs administered by Las Vegas Field Office occur within that habitat. Listing of the desert tortoise as a threatened species requires management actions and changes in land uses not currently provided by the two existing land use plans. The Endangered Species Act requires that Federal agencies use their authorities to implement programs for the conservation of endangered and threatened species.

To determine which land designation would offer greatest protection for the desert tortoise, the BLM must resolve the following questions:

- Should Areas of Critical Environmental Concern be designated in the BLM Las Vegas District to assist implementation of the desert tortoise recovery plan? If so, what measures should

BLM take to ensure the integrity of the Areas of Critical Environmental Concern?

Issue 3 - Mineral Development

An important component of Nevada's economy is mineral resource development, which is a principal use of the public lands. The extraction of sand and gravel in particular is critical to continued growth and development of the Las Vegas area and other southern Nevada communities. Sand and gravel deposits occur in large quantities throughout the planning area. Many factors (including proximity to developing or residential areas, cost of extraction and hauling, haul routes, and proposed duration of the operation) are involved in determining where sand and gravel can be mined. The rapid urban growth placing demands on the sand and gravel business may eventually extend to the area where such extraction is occurring. Public pressure may then be to relocate the sand and gravel operation away from the new residential area.

A management decision in the *Clark County Management Framework Plan*, which restricted the method of sand and gravel disposal in the Las Vegas Valley, has created a problem. Major producers of sand and gravel prefer to have independent sites that are not shared by competitors. The "community pit" concept forces these operators to share the same source location. Difficulties in managing large scale operations in community pits have resulted in significant mineral trespass and inability to identify trespassers.

Other types of mineral development (including gypsum and limestone mining, gold exploration, oil and gas leasing, and sodium and potassium leasing) have potential to impact sensitive biological and cultural resources and often result in conflicts with other land uses. The filing of mining claims on public lands identified for sale or exchange has become a common practice in southern Nevada, with many individuals making sizable incomes selling "mineral rights" to prospective surface owners. This document includes alternatives to resolve minerals-related conflicts in the planning area.

Although important in the growth of southern Nevada, mineral exploration and development often conflict with other land uses and can adversely impact other natural and recreational values.

The environmental concerns, as well as availability, of mineral resources were voiced by the public throughout the scoping process and require close consideration to ensure that the quality of life is not adversely affected by the continued growth of the Las Vegas Valley.

These mineral development concerns led to the following two questions:

- Which areas within Las Vegas BLM District should be withdrawn from mineral entry, and how should existing mineral operations be addressed if such withdrawals occur?

- How can reliable sources of sand and gravel be made available for local communities and industry?

Issue 4 - Off-Road Vehicle (ORV) Use

Off-road vehicles are commonly associated with desert areas and have traditionally been a major use of the public lands in the Southwest. In the planning area, individual casual off-road vehicle use likely accounts for the single greatest recreational use of public lands. Under existing management, competition off-road vehicle events comprise the largest organized recreational activity administered by the Las Vegas BLM Field Office. More than 50 percent of the planning area is "open" to unrestricted individual off-road vehicle use, and approximately 70 percent of the planning area is available for competitive off-road vehicle events.

These uses can significantly impact the area's physical, biological, and cultural resources. Such activities also often occur in areas believed essential to continued existence of the desert tortoise in Nevada. Various off-road vehicle designations and competitive use areas are proposed and analyzed in The Plan.

The current off-road vehicle use designations are often in direct conflict with management objectives for desert tortoise habitat, air and watershed management, non-motorized recreation, and protection of other resource values. Because of this conflict, the following questions must be resolved to ensure full compliance with all applicable laws and regulations:

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- Should existing open, limited, and closed area designations be changed?

- Should competitive off-road vehicle use be restricted to certain areas, courses, and/or times of the year? If so, when and where?

Issue 5 - Areas of Critical Environmental Concern

Section 202(c)(3) of the Federal Land Policy and Management Act of 1976 directs BLM to give priority to designation and protection of areas of critical environmental concern. These areas contain significant physical, cultural, or biological values that are more than locally significant and warrant special management attention to prevent their degradation or loss. Currently, there are no designated Areas of Critical Environmental Concern in the planning area, although several areas were nominated for Area of Critical Environmental Concern status during the previous land use planning process.

Environmental organizations and many members of the general public are aware of the Congressional direction concerning Areas of Critical Environmental Concern. Many have become increasingly vocal in their demand for more BLM-designated Areas of Critical Environmental Concern. The scoping process for The Plan included a request for nominating Areas of Critical Environmental Concern. As a result, more than 80 nominations for individual Areas of Critical Environmental Concern were received. The Plan analyzes the impacts of designating the nominated areas that meet the designation's "relevance and importance" criteria and warrant special management attention.

Public attention has increasingly been directed toward protection of natural, recreational, and scenic values on public lands. Protection of these values often necessitates a special management designation, such as an Area of Critical Environmental Concern, to minimize or eliminate competing or conflicting uses and to manage for a dominant use. Therefore, a full analysis and identification of clear direction are necessary to ensure that resources are protected while an appropriate level of recreation occurs.

Due to the above reasons, the following questions require full attention during development of the Plan:

- Should existing special management areas be retained?

- Should additional special management areas be designated? If so, what special management is needed to protect the sensitive resource values?

Issue 6 - Utility Corridors

The Las Vegas area is a critical link in the complex network of interstate electrical transmission facilities and other utilities such as oil and gas pipelines and fiber-optic communication lines. Most facilities either provide services to the energy-consuming regions of southern California, or link southern California and the Las Vegas area with the energy-producing Intermountain and Rocky Mountain regions.

There are limited options to locate utility structures in the northeast and east portions of the Las Vegas Valley Land due to use restrictions in several areas (including Lake Mead National Recreation Area, Desert National Wildlife Range, Nellis Air Force Base, and the Sunrise Mountain Instant Wilderness Study Area). Another factor is the increasing public opposition from residents of Las Vegas, North Las Vegas, Henderson, and Clark County to locating additional powerlines within their communities. Future construction of any facility destined to serve southern California depends on the current limited options for their location.

Utility corridors in the planning area include legislatively designated utility corridors managed by BLM in the Aerojet and Apex areas. The *Esmeralda-Southern Nye Resource Management Plan/Environmental Impact Statement* provides for 61 miles of BLM-designated corridors in southern Nye County. The remainder of the planning area has no existing designated corridors. The Draft Plan proposed several possible utility corridors and analyzed the impacts associated with their designation and development.

Even though there is a continuing high demand for rights-of-way (ROWs), utility corridors were not designated in the Clark County Management Framework Plan. The need for corridors is evident,

however, considering the number of proposals identified over the past few years. This need for utility corridors points to a need to address the following questions in the analysis:

- Should utility corridors be designated only where interstate Rights-of Way currently exist, or should new areas be considered?
- What is the best method to achieve maximum consistency with designated corridors in adjacent planning areas, field offices, and states?

Supplement to the Draft Resource Management Plan/Environmental Impact Statement

Supplements to existing draft Environmental Impact Statements are prepared when additional environmental analysis is needed. A supplement is often used to address alternatives not previously analyzed and which may lead to a new decision. A supplement is generally prepared when there are significant new circumstances or facts relevant to environmental concerns and bearing on the proposed action or its impacts which were not addressed in the existing analysis.

In May 1994, the Supplement to the Draft was published to address new issues and expand on previously identified issues.

Issue 1 - Rangeland Classification

Due to comments from the public and other agencies, the rangeland classification was considered as an issue for the Supplement to the Draft. Although rangeland classification is an administrative action, the determination of grazing preference must be analyzed through the National Environmental Policy Act and the planning process. The BLM completed field evaluations of rangelands in its Las Vegas District to provide the technical basis for reclassification of many allotments currently classified as ephemeral range and managed under the Ephemeral Range Rule. Ephemeral range is considered to be predominantly composed of annual species, lacks perennial species, and is generally grazed in the spring. Some allotments that are grazed year-round result in substantial grazing of perennial vegetative species. In 1969, all of Clark County was classified as ephemeral rangeland. This included the highest mountains and areas with up to 800 pounds of perennial forage production per acre. These areas do not fully meet the criteria identified for ephemeral rangeland.

Issue 2 - Utility Corridors

Section 503 of the Federal Land Policy and Management Act (FLPMA) requires BLM to designate utility corridors to prevent their proliferation across public lands. All large utilities would be directed to use designated corridors, if possible. Smaller utilities would have the option to locate within or outside the corridors.

The Draft Plan proposed designation of a corridor network throughout the planning unit. Public input, re-evaluation of expected demand, and the need to resolve resource conflicts generated the identification and analysis of new corridors in the Supplement to the Draft.

Issue 3 - Mineral Management After Congressional Designation of Wilderness Areas

Management of Wilderness Study Areas released by Congress must be addressed in case Congress acts on the designation decision within the life of The Plan. Identifying management for these areas in this document eliminates the need for a future amendment to the Resource Management Plan.

Planning Criteria "J" of The Draft Plan required development of management goals and direction for all Wilderness Study Areas within the planning area in case of the areas' non-designation by Congress as wilderness areas and their release from further study. The Draft Plan identified the Wilderness Study Areas as having inherent semi-primitive non-motorized values for recreational activity. Protection and management of these areas to meet the recreation standards for semi-primitive values (see Glossary for definitions) were included in Wilderness recommendations for all alternatives, except the No Action Alternative. Public comments suggested that the alternatives did not analyze a full range of management options for minerals development within Wilderness Study Areas. Therefore, the Supplement to the Draft offered additional management objectives and direction for

Wilderness Study Areas released by Congress.

Issue 4 - Desert Tortoise Management in Conformance with the Recovery Plan

The U. S. Fish and Wildlife Service published the *Draft Recovery Plan for the Desert Tortoise (Mojave Population)* in April 1993, and on August 30, 1993 (*Federal Register*, Vol. 58, No. 166) proposed Critical Habitat for the desert tortoise. To protect desert tortoise habitat within the planning area, four alternatives in The Draft Plan included designations and management recommendations for Areas of Critical Environmental Concern, as derived from proposals in the *Clark County Habitat Conservation Plan* and in response to public input. These recommendations required evaluation for specific criteria and objectives included in the *Draft Tortoise Recovery Plan.*

Planning Criteria

The planning criteria for The Plan is listed below:

A. The planning area is defined as the Las Vegas District. The Plan will make planning determinations for all public lands located within the planning area boundary, including those public lands administered by other BLM offices.

B. The planning effort will rely on available inventories of the lands and resources in the planning area to reach sound management decisions. Decisions requiring additional inventories will be deferred until the inventories can be conducted.

C. In accordance with BLM Manual 1620.06A, The Plan will not analyze nor make determinations for the following resource:

   Coal - Although coal is potentially present in the planning area, it is not in sufficient quantity or quality to warrant demand or interest by industry or the public. If, in the future, new technology becomes available and/or demand increases, a plan amendment will be prepared before any coal-related activities can be authorized.

D. Valid existing management decisions from the *Clark County Management Framework Plan* and the *Esmeralda-Southern Nye Resource Management Plan/Environmental Impact Statement* will be brought forward into the Draft Resource Management Plan, with relevant objectives and management directions carried forward into The Plan.

E. Decisions about specific range, wildlife, and watershed improvements will not be included in The Plan, but instead deferred to activity-level plans (such as habitat management plans and allotment management plans) designed to implement Plan decisions.

F. Management use and protection of water, water resources, riparian zones, and other related values will be high priority.

G. When digitized information is available, the Geographic Information System (GIS) will be used.

H. Watershed determinations will be based on hydrographic basins.

I. The Plan will incorporate a method for being amended on a regularly scheduled basis.

J. Wilderness Study Areas not designated as wilderness by Congress will be "released" from further study. The Plan makes determinations concerning the management of all Wilderness Study Areas in the planning area, contingent on their release.

K. Approximately 15,000 acres of public lands near the Valley of Fire State Park and Overtone, which were not studied in the initial wilderness inventory, would be inventoried for wilderness values. In addition, any acquired lands or lands where protective withdrawals are removed would be inventoried to determine wilderness character. Any other lands not evaluated for wilderness character would be inventoried. Any areas designated as Wilderness Study Areas through the Resource Management Plan or plan amendment and subsequently recommended for wilderness designation will receive Interim Management Policy (IMP) protection until Congress either designates them as wilderness or releases them for other purposes.

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Concerns Not Addressed

The Las Vegas Water District's water right applications and the proposed Yucca Mountain Project were identified as concerns by the public. Both topics are beyond the scope of BLM's planning process and, therefore, are not addressed in The Plan.

Consistency With Other Plans

Existing plans that address management of lands adjacent to the planning area are:

- *Caliente Management Framework Plan*
- *Esmeralda-Southern Nye Resource Management Plan/Environmental Impact Statement-Planning Area A*
- *California Desert Plan*
- *Shivwits Management Framework Plan*
- *Desert National Wildlife Range Refuge Management Plan*
- *Ash Meadows Refuge Management Plan*
- *Nevada Statewide Policy Plan for Public Lands (Senate Bill 40)*
- *Death Valley National Monument General Management Plan*
- *Lake Mead National Recreation Area General Management Plan*
- *Clark County Desert Conservation Plan.*

Continuing coordination and consultation occurred during the public comment period for the Draft Plan, followed by the Supplement to the Draft and The Plan. As noted above, the Governor of Nevada will have 60 days to review The Plan to determine its consistency with state plans.

Inconsistencies between adopted resource-related policies and programs of other Federal agencies and state and local governments are noted below. These inconsistencies are based primarily on differences in the quality of habitat and recovery of the desert tortoise.

Northeastern Mojave Recovery Unit

In addition, there are a few inconsistencies between other agency plans: however, the rationale described below supports their differences.

Livestock Grazing - The Plan would close the desert tortoise areas of critical environmental concern to livestock grazing. The Arizona Strip is closing the Pakoon Area of Critical Environmental Concern, but will allow winter grazing on the Virgin Slope and Beaver Dam Slope Areas of Critical Environmental Concern. This grazing closure will include livestock grazing in Nevada in the Mesquite Community Allotment (fenced). The Plan allows for retirement of allotments on a voluntary basis. In Ely, winter grazing will be allowed in the Beaver Dam Slope Area of Critical Environmental Concern on any allotments that are not purchased. Dixie will allow winter grazing on Beaver Dam Slope.

Based on the numerous grazing allotments being closed in Nevada, the U.S. Fish and Wildlife Service decided that allowing grazing in Utah and Arizona would still meet recovery objectives for the Recovery Unit.

Mining - Areas of Critical Environmental Concern in the Las Vegas BLM will be:

- Withdrawn from locatable entry.
- Closed to solid leasable.
- Have fluid minerals limited to no surface occupancy.
- Restrict salable minerals to expansion of existing pits within 0.5 mile of highways and certain county roads (Map 2-12 and 2-13).

This management varies slightly from Arizona strip and Dixie, which leaves areas of critical environmental concern open to locatables, has waivable no-surface occupancy and seasonal restrictions on fluids (no activity in tortoise active season), and closes areas of critical environmental concern to salable (except hand collection of rocks for personal use) and solid leasable. Ely will withdraw Kane Springs Area of Critical Environmental Concern from locatable entry; the other ACECs will be open. All Areas of Critical Environmental Concern in Ely BLM District are open to fluid and non-energy leasables subject to timing limitations and controlled surface use constraints. Salable mineral development is restricted to within 0.5 mile of highways and certain county roads.

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Off-Road-Vehicles - Las Vegas BLM District will allow non-speed off-road vehicle events on designated roads and trails subject to restrictions, including size and number of vehicles and the season of use. Arizona Strip allows non-speed events on designated roads and trails during the tortoise inactive season. Ely will allow non-speed events within designated corridors with no seasonal restrictions. Dixie is similar to Arizona. Events crossing county or state lines will be consistent with the most restrictive office.

Wild Burros - The Arizona Strip will manage for an appropriate management level of zero for Tassi Wildhorse Herd Management Area. The Las Vegas BLM Field Office will manage Gold Butte for an Appropriate Management Level of 22-98. If Nevada numbers are managed at the Appropriate Management Level, animal drift into Arizona is not expected to occur.

Eastern Mojave Recovery Unit

The Needles BLM Field Office will designate two areas of critical environmental concern for desert tortoise adjacent to an area of critical environmental concern in Nevada. One wild burro herd area (Shadow Valley) will be zeroed out. Since the National Park Service manages most of the allotments, the allotments will not be closed to grazing. The National Park Service will manage for desert tortoise recovery. It appears that these two management plans will be consistent, with The Plan.

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Chapter 2 - Proposed Plan and Range of Alternatives

Introduction

The Proposed Resource Management Plan/Final Environmental Impact Statement, often referenced herein as The Plan, was developed by a BLM interdisciplinary planning team. The Plan is based primarily on Alternative E presented in the Supplement to the Draft Resource Management Plan (May 1994), and in response to public and internal comments received during the first seven steps of the planning process. Also, some objectives and management directions from the Draft's other alternatives were incorporated, where appropriate, into Alternative E to develop The Plan.

The Plan is written to ensure compliance with provisions of the *Endangered Species Act* (ESA) and subsequent Biological Opinions, as well as the *Desert Tortoise (Mojave Population) Recovery Plan* (often referenced as *Tortoise Recovery Plan*). The Plan will guide future management of public lands in the Las Vegas BLM District.

The Plan consists of a combination of management directions, allocations, and guidelines that will direct where actions may occur, the resource conditions to be maintained, and use limitations required to meet management objectives.

Range of Alternatives

Six alternatives were analyzed in the Draft Resource Management Plan and the Supplement to the Draft Resource Management Plan. The alternatives were developed specifically to respond to issues identified by the public during the initial scoping process and to meet the requirements of the Supplemental Program Guidance. Although no single alternative satisfies all concerns expressed, the concerns are addressed in various ways in the six alternatives.

The alternatives were prepared within the following constraints:

- All alternatives are legally feasible and technically possible. The alternatives present a balance between legal requirements to protect, restore, and enhance natural resource values and to provide for the need to produce food, fiber, minerals, and services.
- The Stateline Draft Resource Management Plan and Supplement to the Draft Resource Management Plan alternatives were formulated to accommodate multiple-use management of resources in Wilderness Study Areas and Instant Study Areas, in the event those study areas are released from wilderness consideration by Congress.
- To provide for management of any new Wilderness Area designations by Congress, the Approved Plan/Record of Decision would be maintained and amended, where necessary, to meet objectives of wilderness management.

Plan Implementation

Land use actions would be implemented after the State Director approves The Plan's Record of Decision. The Plan's decisions become final with issuance of the Record of Decision. Actions immediately effective with the State Director's signature include designations of Areas of Critical Environmental Concern, utility corridors, off-road vehicle designations, and Visual Resource Management classes. Specific management prescriptions for Areas of Critical Environmental Concern and off-road vehicle designations would be implemented when activity-level management plans are developed and appropriate clearances are completed.

Actions that cannot be implemented immediately include mineral withdrawal revocations, which must be approved by the Secretary. Actions such as this that are recommended in this proposed Plan would not be valid until approved by the appropriate authority.

Other actions in The Plan, such as location of powerlines in corridors or location of flood control structures, require further detailed planning and environmental documentation before beginning any on-the-ground activities. For these actions, integrated activity plans would be developed through coordination with the public, other Federal agencies, and state and local agencies.

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An example of an action requiring further public involvement and site-specific analysis is disposal of Federal land. Although The Plan establishes land disposal areas, land cannot be disposed until an environmental analysis is completed that determines its disposal is in the public interest and conforms with the approved Resource Management Plan.

Alternatives Considered but Dropped from Detailed Analysis

Winter Grazing in Desert Tortoise Areas of Critical Environmental Concern

Among the alternatives proposed was one with winter grazing by livestock in desert tortoise Areas of Critical Environmental Concern, contingent that grazing not exceed restrictive utilization levels. Based on the Desert Tortoise Recovery Plan, livestock grazing in desert tortoise Areas of Critical Environmental Concern is not compatible with recovery of the desert tortoise and should be prohibited. Therefore, this alternative was dropped from further consideration.

Range Reclassification

The proposed alternative of range reclassification of 21 ephemeral grazing allotments to ephemeral and/or perennial or to perennial was analyzed in the Supplement to the Draft Resource Management Plan. Since the majority of rangeland within allotments remaining open to livestock grazing is below 3,200 feet elevation and also below the 8-inch precipitation isoline, reclassification was dropped from further consideration.

Alternatives Considered in the Draft and Supplement to the Draft Resource Management Plan

The following six alternatives met the discretionary limits established through applicable laws, regulations, and policies. The alternatives were developed to provide management options that address issues important to the public and management concerns.

No Action Alternative

This alternative represents no change to the current management direction. Management of all resources would be accomplished by following the decisions and objectives in the *Clark County Management Framework Plan* and the *Esmeralda - Southern Nye Resource Management Plan, Planning Area B.*

Alternative A

This alternative provides for a full spectrum of public land uses in the traditional sense of multiple-use and sustained-yield; consumptive and non-consumptive uses would be balanced. Lands would be made available for expansion and development of growing communities.

Alternative B

This alternative provides for maximum opportunities for land-based growth and development needs of the State of Nevada, while continuing to provide for multiple-use and sustained yield of the public lands.

Alternative C

This alternative provides for managing public lands on an ecosystem basis, with an emphasis on biodiversity, non-consumptive uses, and protection and recovery of the desert tortoise in accordance with the *Clark County Habitat Conservation Plan* (Clark County HCP).

Alternative D

This alternative continues multiple use of public lands, permits maximum flexibility in disposal of public lands, and provides for protection and recovery of the desert tortoise.

Alternative E

This alternative provides for public land uses on the basis of multiple-use and sustained-yield, while emphasizing biodiversity and protection and recovery of the desert tortoise, in conformance with the U.S. Fish and Wildlife Service (USFWS) *Tortoise Recovery Plan.*

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Changes from Draft to Final Resource Management Plan and Environmental Impact Statement

This section is included to describe the changes made in format or content due to public and other state or Federal agency comments and concerns, as well as BLM management review to ensure consistency with laws and regulations.

Format Changes Made in Chapter 2

- A specific code, consisting of letters and a number, was assigned for each resource to help identify specific resource sections.
- Specific resource sections were arranged to group similar resources. For example, Lands, Rights-of-Way, and Acquisition are located in sequentially to help locate these realty-related sections.

Resource-Specific Changes Made in The Plan

Air Resource Management

Language was added to ensure conformity with the Clean Air Act.

Soil Resource Management

The reference to completion of an Order III Soil Survey was deleted.

A watershed objective was adjusted to include the following statement: "Maintain those watersheds with a stable and slight erosion condition with a high erosion susceptibility." (The original management direction addressed improving such watersheds.) The wording is incorporated into SL-1-c. Also see Table 2-1.

Actions to maintain these watersheds will be sufficient to maintain or enhance vegetative cover that is key in erosion control.

Water Resource Management

Management direction for identifying native desert vegetation to aid in reducing water consumption was deleted. In the Forestry section, FR-2-a identifies salvage and harvest of desert vegetation from areas where surface disturbance occurs.

Management direction identifying rights-of-way for flood control developments was deleted . Flood control was added to RW-1.

Riparian Management

The objective was changed to read: "Ensure that all riparian areas are in proper functioning condition."

Ensuring that 75 percent of riparian areas is in proper functioning condition by 1997 was an interim goal of the Riparian-Wetland Initiative. The long-term goal is for all riparian areas to be in proper functioning condition, at a minimum. After proper functioning condition is achieved, then manage for an advanced ecological condition.

Reference to completion of a specific number of riparian projects per year was dropped. The BLM will still implement protection of riparian areas, where needed, as funding becomes available.

Reference to Potential Natural Community and Desired Plant Community was dropped, because the Vegetation section sets management objectives of plants for all programs.

Vegetation Management

Objectives and management actions pertaining to special status plant species were moved from the Vegetation Management section to the section on Fish, Wildlife, and Special Status Species. Plant objectives were combined with objectives for special status animals (SS-1 and SS-2) to avoid unnecessary duplication.

The objective to "maintain or improve habitat of threatened, endangered or candidate plant species found on public land" was dropped, because it was considered a management direction. The intent of the objective was incorporated into Objectives SS-1 and SS-2.

Management direction to "develop appropriate mitigation measures through mining plans of operation, Section 7 consultation, and other appropriate actions before allowing construction,

mining activity or off-highway vehicle activity on sites known to be habitat for threatened, endangered or special status species." was moved to the section on Standard Operating Procedures. This management direction is discussed in a general sense under the Fish, Wildlife, and Special Status Species section of the Standard Operating Procedures.

Management direction regarding development of a management plan for Nellis Dunes to address off-highway vehicle management and *Arctomecon californica* was changed to "implementing the Las Vegas Bear Poppy Habitat Management Plan" and moved to the Standard Operating Procedures section. The development of habitat management plans is identified in the Fish, Wildlife, and Special Status Species section of the Standard Operating Procedures.

Areas of Critical Environmental Concern

This section was moved to precede the Fish, Wildlife, and Special Status Species section, because this section is where areas of critical environmental concern are first referenced.

The title "Special Management Areas" was changed to "Areas of Critical Environmental Concern."

The proposed Arden Historic Sites Area of Critical Environmental Concern originally totaled approximately 6,320 acres, the majority of which overlapped the Desert Tortoise Conservation Center. Both areas are proposed for mineral withdrawal (subject to valid existing rights) from locatables, saleables, and leasables. The small portion of the proposed Area of Critical Environmental Concern to the north of the Desert Tortoise Conservation Center would not be afforded the same protection if the Area of Critical Environmental Concern was dropped from further consideration.

Based upon BLM site inventories, the significant sites within the proposed Area of Critical Environmental Concern are north of the Desert Tortoise Conservation Center. However, associated historic cultural resources in the form of contributing elements to the Arden Historic District are within the Desert Tortoise Conservation Center in Section 4 in the form of an historic railroad camp, water pipeline, a portion of a shoofly railroad alignment, and an historic railroad construction site. Therefore, redefining the Area of Critical Environmental Concern by including Section 4, along with that area to the north of the Desert Tortoise Conservation Center, will afford adequate protection for those sites in the Arden area. This modified Area of Critical Environmental Concern proposed boundary change would reduce the total acres of the Area of Critical Environmental Concern to approximately 1,480 acres.

This change would also allow for expansion of the Desert Tortoise Conservation Center and provide needed protection for cultural resources. The original boundary encompassed a few thousand acres of land that had no cultural significance.

Management directions were developed for Wilderness Study Areas within an Area of Critical Environmental Concern and also for those lands relinquished by another Federal agency that are within an Area of Critical Environmental Concern. The intent of these directions is to ensure appropriate protection for these areas.

The area referred to as Gold Butte Area of Critical Environmental Concern, parts A-C, resulted from individual nominations for several smaller areas, including critical tortoise habitat, cultural sites, a natural hazard area, and the Virgin Mountains. Because these nominated areas either overlapped, were located within larger areas, or were immediately adjacent to one another, they were combined into one large area of critical environmental concern and named as Gold Butte Area of Critical Environmental Concern. Management actions within Gold Butte will vary, depending on values in each part of the Area of Critical Environmental Concern (Tables 2-2, 2-4 ,and 2-5).

The Sunrise Mountain Research Natural Area was incorporated into the Rainbow Gardens Areas of Critical Environmental Concern, and the Virgin Mountain Outstanding Natural Area was incorporated into the Gold Butte Area of Critical Environmental Concern, Part C. The Pine Creek Research Natural Area is within the Red Rock Canyon National Conservation Area and is addressed in the Red Rock General Management Plan.

Fish and Wildlife Habitat Management

- The term "Desert Wildlife Management Area" was changed to "Area of Critical Environmental Concern."

- This section's name was changed to "Fish, Wildlife, and Special Status Species Management." Objectives and management direction for all special status species, including plants, were moved to this section. Objectives and management direction for fish and wildlife were labeled FW, and those for special status species were labeled SS.

- The terms "category 1 and category 2 candidate species" are no longer used. Species designated as candidate species by the U.S. Fish and Wildlife Service will be identified as "candidate species." Species of special concern identified by the BLM, including state-listed species, will be referred to as either "sensitive" or "special status" species.

- Management direction was included to allow for drift of elk onto BLM-administered lands. If elk do move onto BLM-administered land, habitat would be monitored to ensure the proper utilization of forage.

- Management direction was included to address development of Conservation Agreements with the U.S. Fish and Wildlife Service. Current policy encourages development of such agreements to reduce the likelihood of future Federal listing of BLM sensitive or State-listed species.

- Management direction was added to cooperate and collaborate with Clark County in development of a county-wide Multiple Species Conservation Plan. This planning effort is currently ongoing, with BLM as a cooperator.

- Boundaries for the Desert Tortoise Areas of Critical Environmental Concern were refined based on information gathered after issuance of the Supplement to the Draft. The area west of Searchlight was included in the Area of Critical Environmental Concern to ensure a protected corridor between Ivanpah and Piute valleys.

- Category 1 and 2 tortoise habitat is no longer used as a basis for management prescriptions. Instead, management actions focus on tortoise Areas of Critical Environmental Concern and/or designated critical habitat.

- References to "potential natural community" and "desired plant community" were removed because the Vegetation section sets management objectives of plants for all programs.

Forestry

Identification of a specific location for Mesquite wood harvest was dropped due to concerns expressed for the dwindling stands. Mesquite wood harvest could be considered in the future if management of the stands requires thinning or removal of dead trees for fire hazard reduction.

Livestock Grazing Management

This section was revised to reflect three main objectives, having associated management direction listed below each objective. Previously identified objectives were included in the management direction section.

The Maintain, Intensive, Custodial (MIC) selective management approach was completed after determining the total number of allotments remaining open to grazing. Any allotment closed to grazing was not categorized.

Revised regulations for grazing administration (43 CFR 4100) of public lands managed by the Bureau of Land Management became effective August 21, 1995. On February 12, 1997, the standards and guidelines for the Mojave-Southern Great Basin area in Nevada were approved by the Secretary of the Interior. These standards for rangeland health and guidelines for grazing administration will be applied to grazing management in the Las Vegas planning area (see Appendix L). (Reference: Published Conformance/Administrative Determination, 1997.) Terms and conditions of permits on allotments open to grazing will be in conformance with the appropriate standards and guidelines.

References to "potential natural community" and "desired plant community" were removed because the Vegetation section addresses management of plants for all programs.

Wild Horse and Burro Management

The format for this section was revised to clarify the actual proposed management.

Wild Horse and Burro Herd Management Areas were changed to include wild horse and burro use areas identified on the original 1971 field maps, and to existing roads and fences for ease of management. The BLM will work closely with Nevada Division of

Wildlife, other State and local agencies, and interested parties to properly manage wild horses and burros.

Reference to "potential natural community" and "desired plant community" was removed because the Vegetation section sets the management of plants for all programs.

Lands

The Las Vegas Valley disposal boundary has slightly changed numerous times due to coordination with congressional representatives, State and County agencies, and the general public.

A disposal area of approximately 985 acres was identified west of Las Vegas to allow exchange of public lands for Blue Diamond Cholla habitat (see Map 2-3).

Management direction was added to ensure that any existing Recreation and Public Purpose lease (located inside the existing disposal boundary but outside the proposed disposal areas) that is identified for sale prior to plan approval would be available for sale. Therefore, existing disposal actions would remain disposal actions.

A management direction was added to allow for repositioning of public lands outside the proposed disposal areas to consolidate public land patterns and to improve public services and BLM management. This direction would be accomplished on a case-by-case basis through exchange only and would be subject to meeting specific criteria identified in LD-1-b.

A management direction was added to terminate two outdated small tract classifications. The small tract lease/sale authority was repealed with the passage of the Federal Land Policy and Management Act of 1976.

A management direction was added to identify competitive bidding procedures and other criteria for processing requests involving new communication sites.

Rights-of-Way Management

The BLM will not designate a corridor on Moapa Indian Reservation lands. The proposed corridors will align with the area identified in the Moapa Legislation.

Recreation Management

Special Recreation Management Areas

Designation of Special Recreation Management Areas in the draft alternatives was not related to existing Special Recreation Management Areas designated in earlier decisions (No Action Alternative). Since none of the draft alternatives proposed to drop or modify existing Special Recreation Management Areas, there would be no Special Recreation Management Areas designated and also no indication of the most logical boundary.

Existing and proposed Special Recreation Management Areas were reviewed to delineate areas that were appropriate for concentrated recreation program efforts and resources. Areas such as Areas of Critical Environmental Concern where recreational uses are significantly restricted were deleted, and areas needing intensive management of recreation use were better defined.

This review also resulted in designation of three Special Recreation Management Areas (Nelson Hills/Eldorado, Laughlin, and Vegas Valley). These area are remainders of two larger existing Special Recreation Management Areas (Clark County and Spring Mountains), which will be deleted. The three smaller Special Recreation Management Areas will allow for more appropriate management focus.

Recreation Opportunity Spectrum

The Recreation Opportunity Spectrum inventory classes described in Chapter 3 of the Draft Environmental Impact Statement are used as management goals in several proposed decisions. However, the recreation opportunities and settings of the various Recreation Opportunity Spectrum classes were not included in the decision matrix. As a result of this omission, some decisions were based on goals not adopted as plan decisions. The problem was corrected by including the Recreation Opportunity Spectrum inventory findings as long-term management goals in the proposed plan.

Off-Highway Vehicle Management

Management Objectives and Recommendations for managing Off-Highway Vehicle uses were scattered throughout the draft document in different subject areas. In The Plan, all management decisions are summarized in the recreation section. The Off-Highway Vehicle section addresses motorized Off-Road Vehicle uses, as well as non-motorized uses. Although many people use the terms "Off-Highway Vehicle" and "off-road vehicle" interchangeably, off-road vehicle is the legal term for motorized vehicles (43 CFR 8340) subject to the BLM's vehicle management regulations.

Specific management direction for non-speed events within desert tortoise areas of critical environmental concern was developed with coordination of various user groups and the U.S. Fish and Wildlife Service

Minerals Management

The desert tortoise Areas of Critical Environmental Concern would be closed to mineral entry. Some smaller Areas of Critical Environmental Concern within the desert tortoise Area of Critical Environmental Concerns would also be closed to mineral entry as shown on Table 2-12.

Hazardous Materials Management

This section was not included in any of the draft alternatives, but was added to The Plan based on public comment and BLM guidance.

Fire Management

This section was revised to ensure that plan amendments would not be required for every adjustment of an initial attack area. The Draft approach for very specific initial attack areas is more appropriate at the activity plan level. Under the Draft approach, any future changes to initial attack areas required a plan amendment.

Other Changes

General editing was done to simplify management objectives, reduce duplication, and improve readability and presentation of information.

The Sunrise Mountain Special Recreation Management Area boundary was increased to match the Rainbow Garden Area of Critical Environmental Concern that covers the same area.

The administrative Virgin River Recreation Lands designation was replaced by the Virgin River Area of Critical Environmental Concern designation, to provide for more protection.

Specific management directions previously listed under most Special Recreation Management Areas have been dropped. These directions are more appropropriately developed in a site-specific recreation area management plan to be prepared for each Special Recreation Management Area.

Appendices A, B, C and D from the Draft Plan were incorporated into Appendix M (Standard Operating Procedures) of The Plan.

Proposed Plan

A code with 2 to 3 capital letters is used to designate each resource program (see list below). Objectives are designated by sequential numbers following the program code, such as AR-1. Management directions are identified by the objective designation followed by a lower case letter, such as AR-1-a. The AR-1-a management direction is linked directly to, and listed below, the AR-1 objective.

Objectives and management direction for the air, soil, water, and riparian resources that are impacted by other resource programs are included in those program sections. To avoid redundancy, these objectives and management direction are not repeated within the air, soil, water, and riparian sections.

Objectives and management direction denoted with an asterisk (*) are common to all alternatives.

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Codes for Each Resource

Air Resource	AR
Soil Resource	SL
Water Resource	WT
Riparian	RP
Vegetation	VG
Visual Resource	VS
Areas of Critical Environmental Concern	AC
Fish and Wildlife Habitat	FW
Special Status Species	SS
Forestry	FR
Livestock Grazing	LG
Wild Horse and Burro	WHB
Cultural Resource	CR
Lands	LD
Rights-of-Way	RW
Acquisitions	AQ
Recreation	RC
Wild and Scenic Rivers	SR
Wilderness	WS
Minerals	MN
Hazardous Materials	HZ
Fire	FE

Air Resource Management

Objective

AR-1 - Ensure that actions occurring on BLM-administered lands do not violate local, state, tribal and Federal air quality laws, regulations, and standards. *

Management Direction

AR-1-a - Ensure that the planning process addresses air quality considerations by incorporating objectives and actions into resource activity plans, such as Allotment Management Plans, Habitat Management Plans, and Watershed Management Plans. Where applicable, include "conformity" demonstration in site-specific activity plans and/or National Environmental Policy Act documentation.

AR-1-b - Permit only those activities on BLM-administered lands that are consistent with Federal, State, and local air quality standards and regulations. Require that all appropriate air quality permits are obtained before BLM approval of an action is granted.* Where applicable, demonstrate how proposed management actions comply with local, state, tribal and Federal air quality laws, regulations, and standards (Conformity; per 40 CFR 93.100 et seq).

Soil Resource Management

Objective :

SL-1 - Reduce erosion and sedimentation while maintaining or where possible enhancing soil productivity through the maintenance and improvement of watershed conditions.*

Management Direction:

SL-1-a. On watersheds that exhibit good potential for recovery, implement protective measures, including but not limited to fencing and removal of tamarisk.

SL-1-b. Improve watersheds that have a critical erosion condition and a moderate erosion condition to have a high erosion susceptibility (See Table 2-1). Give priority to those watersheds within the Colorado River drainage system*.

SL-1-c - Maintain watersheds that have a stable and slight erosion condition with a low moderate or high susceptibility; and maintain watersheds that have a moderate erosion condition with a low or moderate erosion susceptibility (See Table 2-1).

Water Resource Management

Objectives

WT-1. Maintain the quality of waters presently in compliance with State and/or Federal water quality standards. Improve the quality of waters found to be in noncompliance.*

WT-2. Maintain or reduce salt yields originating from public lands to meet State-adopted and Environmental Protection Agency approved water quality standards for the Colorado River.

Management Direction

WT-1a,2a. Using Best Management Practices as identified by the State of Nevada, minimize contributions from both point and non-point sources of pollution (including salts) resulting from public land management actions.

Table 2-1. Erosion condition and susceptibility management objectives.

Condition Class	Susceptibility Class	Action: Maintain	Action: Improve
Critical	High		X
Critical	Moderate		X
Critical	Low		X
Moderate	High		X
Moderate	Moderate	X	
Moderate	Low	X	
Slight	High	X	
Slight	Moderate	X	
Slight	Low	X	
Stable	High	X	
Stable	Moderate	X	
Stable	Low	X	

(Source: BLM, Las Vegas District Office files 1991).

Objective
WT-3 - Ensure availability of adequate water to meet management objectives including the recovery and/or re-establishment of Special Status Species.*

Management Direction:

WT-3-a - Determine water needs to meet management objectives. File for appropriative water rights on public and acquired lands in accordance with the State of Nevada water laws for water sources that are not federally reserved.*

WT-3-b - Determine instream flow requirements and apply for necessary water rights on the Virgin River and Meadow Valley Wash.

Riparian Management

Objective
RP-1. Provide widest variety of vegetation and habitat for wildlife, fish, and watershed protection; ensure that all riparian areas are in proper functioning condition by achieving an advanced ecological status, except where resource management objectives require an earlier successional stage. Manage vegetation consistent with VG-1.*

Management Direction

RP-1-a. Complete assessments on all riparian areas, including development of actions necessary to achieve Proper Functioning Condition on all areas that are functioning at risk.*

RP-1-b. Improve riparian areas, giving priority to areas Functioning at Risk with a downward trend. Implement measures to protect riparian areas, such as fencing and/or alternate water sources away from the riparian area.*

RP-1-c. Ensure that the minimum requirement of Proper Functioning Condition on all riparian areas is maintained or achieved.

RP-1-d. Do not allow competitive off-road vehicle events within 0.25 mile of natural water sources and associated riparian areas.*

RP-1-e. Retain riparian and mesquite woodlands in Federal ownership, unless their disposal is in the public interest.

RP-1-f. Use integrated weed management techniques to control and eradicate tamarisk, such as burning, chemical, biological or mechanical treatments, where potential for treatment is good. Rehabilitate the area with native species to help reduce the potential for tamarisk re-establishment and improve ecosystem health.

Vegetation Management

Objective
VG1 - Maintain or improve the condition of vegetation on public lands to a Desired Plant Community or to a Potential Natural Community (see Appendix N for desert tortoise habitat guidelines for desired plant community).*

Management Direction:

VG1a - Manage to achieve a Desired Plant Community or a Potential Natural Community.

Objective
VG2. Restore plant productivity on disturbed areas of the public lands.*

Management Direction

VG2a. Rehabilitate, reclaim, or revegetate areas subjected to surface-disturbing activities, where feasible. When rehabilitating disturbed areas, manage for optimum species diversity by seeding

native species, except where non-native species are appropriate.*

Visual Resource Management (VRM)

Objective

VS-1. Limit future impacts on the visual and aesthetic character of the public lands.* (See Map 2-9)

Management Direction:

VS-1-a. Designate 968,890 acres of public lands as VRM Class II and manage to retain the landscape's existing character. In these areas, authorized actions may not modify existing landscapes or attract the attention of casual viewers.* (Map 2-9)

VS-1-b. Designate 1,727,870 acres of public lands as VRM Class III for partial retention of the existing character of the landscape. In these areas, authorized actions may alter the existing landscape, but not to the extent that they attract or focus attention of the casual viewer.* (Map 2-9)

VS-1-c. Designate 635,135 acres of public lands as VRM Class IV, which allows activities involving major modification of the landscape's existing character. Authorized actions may create significant landscape alterations and would be obvious to casual viewers.* (Map 2-9)

VS-1-d. Continue to refine the VRM inventory to refine the database, viewsheds, and scenic ratings.*

Areas of Critical Environmental Concern

Objectives

AC-1. Establish areas of critical environmental concern specifically for management of desert tortoise within the Northeastern Mojave and Eastern Mojave recovery units identified in the *Tortoise Recovery Plan* (SS-31a)(see Table 2-2). Manage a sufficient quality and quantity of desert tortoise habitat, which in combination with tortoise habitat on other Federal, State and private land, will meet recovery plan criteria. Maintain functional corridors of habitat between areas of critical environmental concern to increase the chance of long-term persistence of desert tortoise populations within the recovery unit.

AC-2. Protect areas with significant cultural, natural, or geological values by establishing areas of critical environmental concern shown in Tables 2-3 through 2-6.

Management Direction

AC-1a/2a. Designate areas shown in Tables 2-2 through 2-6 and on Map 2-7 as areas of critical environmental concern for a total of approximately 1,005,031 acres. Manage each area based on the specific resource constraints identified in Tables 2-2 through 2-6.

AC-1b/2b. Incorporate Areas of Critical Environmental Concern on lands relinquished from withdrawal to other Federal agencies into the Area of Critical Environmental Concern. Also apply the management guidance, restrictions, and directions appropriate to areas of Critical Environmental Concern to the relinquished lands.

AC-1c/2c. Manage those portions of an Area of Critical Environmental Concern within a Wilderness Study Area under the Interim Management Policy until such time Congress makes further determination on their status. For those areas released from wilderness consideration by Congress, manage under the appropriate Area of Critical Environmental Concern guidance, restrictions and directions.

Fish, Wildlife and Special Status Species Management

Fish and Wildlife

Objectives

FW-1. Maintain or improve approximately 869,800 acres of current and potential bighorn sheep habitat toward full ecological potential. Through management and habitat enhancement projects, allow desert bighorn sheep populations to reach levels consistent with the carrying capacity of their habitat, and consistent with other BLM policy. Table 2-7 shows the potential population estimates of bighorn sheep. Make adjustments to the population estimates as needed, based on the results of monitoring.

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Table 2-2. Desert tortoise Areas of Critical Environmental Concern (ACEC).

ACEC Name		Piute/Eldorado	Coyote Springs	Mormon Mesa	Gold Butte, Part A
Acreage		329,440	75,500	151,360	186,909
Values		Critical tortoise habitat.			
Resource Constraints	Lands	Retain in federal ownership. Designate as ROW avoidance area except within corridors.			
	Minerals	Close to locatable minerals and solid leasables. Open to fluid mineral leasing subject to no surface occupancy stipulations. Allow material site ROW only within 1/2 mile of the centerline of Federal Aid Highways. Designate as a site type ROW exclusion area except within 1/2 mile of either side of Federal Aid Highways. Allow FUP only within 1/2 mile of the centerline of federal and state highways and specified county roads. Issue FUP to governmental entities only.			
	Range	Close to livestock grazing. Manage for zero wild horses and burros.			
	Roads	Require reclamation of temporary roads. Authorize new roads in response to specific proposed actions where no feasible alternative exists. Ensure access to private property.			
	Wildlife	Do not allow commercial collection of flora. Only allow commercial collection of fauna upon completion of a scientifically credible study that demonstrates commercial collection does not adversely impact affected species or their habitat. This action will not affect hunting, trapping or casual collection as permitted by the State.			
	OHV/ORV Designation and Recreation	Designate as "Limited to designated roads and trails" for all motorized and mechanized vehicles. Prohibit ORV speed events, mountain bike races, horse endurance rides, 4WD hill climbs, mini events, publicity rides, high speed testing and similar speed based events. Commercial activities may be permitted on a case-by-case basis if consistent with the recovery of the desert tortoise. Allow non-speed events subject to: 1) Recreation Use Permits shall be required for events with more than 25 vehicles; 2) Events with more than 100 vehicles must be held during the tortoise inactive season (11/1 to 2/28(29). There will be a cap of no more than 300 motorcycles or 300 four-wheeled vehicles on any event with the exception that if an alternative route is not found for the Barstow to Las Vegas, the number of entrants permitted in Nevada will be consistent with that permitted by California. 3) No off-highway vehicle events will be permitted from 4/1 to 6/1 and from 8/15 to 10/15 (dates will vary slightly annually to provide a full weekend if 4/1 falls during the weekend and to provide three full weekends prior to (or including) 11/1); 4) A maximum of 10 permitted non-speed events will be allowed annually during the tortoise active season (3/1 to 10/31) with no more than 3 events per ACEC, with the exception that an event based on historic use patterns will be allowed from Mesquite through the Mormon Mesa ACEC. This event may have 200 entrants, will count as 2 of the 3 events held annually and is limited to a one way route (north-south or south-north); 5) A maximum of 12 permitted non-speed events will be allowed annually during the tortoise inactive season with no more than 4 events per ACEC; 6) Vehicles shall not exceed the legal speed limit (posted or unposted) of the road(s) used during the event. Clark County speed limit for unposted roads is 25 MPH.			

Table 2-3. Archaeological and cultural resources ACECs (not shared with other ACECs).

ACEC Name		Stump Spring	Sloan Rock Art District	Hidden Valley	Keyhole Canyon	Bird Spring ***	Arden Historic Sites	Crescent Townsite
Acreage		641	320	3,360	361	161	1,480	437
Values		Prehistoric camp and historic trail/ camp).	Prehistoric habitation and rock art.				Historic railroad construction, and mining.	
Resource Constraints	Lands		ROW exclusion.					
		Retain in federal ownership. Designate as ROW avoidance areas. Close to mineral material ROWs.						
	Minerals	Close to locatable minerals, salables and solid leasables. Open to fluid minerals subject to no surface occupancy stipulations.						
	Range	Manage consistent with the surrounding allotment and herd management area, if applicable.						
	Roads	Require reclamation of temporary roads. Authorize new roads in response to specific authorized actions only, ensure access to private property.						
	OHV/ORV Designations, Recreation	Limited designation, consistent with OHV designations of surrounding areas, except for Hidden Valley which is closed to OHV.						

Key:
***Within Red Rock Canyon NCA expansion; acreage not included in total ACEC calucations in plan. Already withdrawn from mineral entry under the Red Rock legislation.

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Table 2-4. Archaeological and cultural resources ACECs and a Natural ACEC (shared with Gold Butte ACEC).

ACEC Name		Gold Butte ACEC, Part B		Gold Butte ACEC, Part A		
		Gold Butte ACEC, Part B	Gold Butte Townsites	Red Rock Spring	Whitney Pocket	Devil's Throat
Acreage		119,097*	***160	**640	**160	**640
Values		Cultural resources, scenic, wildlife habitat, sensitive species.	Historic mining	Prehistoric habitation and rock art.		Natural hazard area.
Resource Constraints	**Lands**	Retain in federal ownership. Designate as ROW avoidance area.	Retain in federal ownership. Designate as ROW avoidance area.			
	Minerals	Close to locatable minerals, salables and solid leasables. Open to fluid minerals subject to timing and special use constraints.	Close to locatable minerals, salables and solid leasables. Open to fluid minerals subject to no surface occupancy stipulations. Close to mineral material ROWs.			
	Range	Close to grazing. Manage wild burros at AML = 98.	Manage consistent with the surrounding allotment and herd management area, if applicable.			
	Roads	Require reclamation of temporary roads. Authorize new roads in response to specific authorized actions only, ensure access to private property.				
	OHV/ORV Designations, Recreation	Limited to existing roads and trails. Do not allow speed ORV events. Other events allowed on case-by-case basis.		Limited designation; consistent with OHV designations of surrounding areas.		

Key:
*Includes 160 acres of Gold Butte Townsite; excludes Bureau of Reclamation withdrawn land
**Within Gold Butte ACEC Part A, acreage not included in totals calculations in plan.
**Within Gold Butte ACEC Part B; acreage not included in totals calculations in plan.

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Table 2-5. Special wildlife and riparian ACECs.

ACEC Name		Amargosa Mesquite	Gold Butte ACEC Part C* (Virgin Mountains)	Big Dune	Ash Meadows
Acreage		6,891	38,431	1,920	37,152
Values		Neotropical bird habitat.	Wildlife habitat; scenic and botanical.	Special Status species habitat.	
Resource Constraints	Lands	Retain in federal ownership. Designate as an ROW avoidance area except within corridors. Close to mineral material ROWs.		(and) Designate as ROW exclusion area.	(and) Acquire private land on a willing seller basis.
	Minerals	Close to locatable minerals, salables and solid leasables.			
	Fluid Minerals	Allow fluid mineral leasing, subject to Timing and Surface Use Constraint special stipulations		Allow fluid mineral leasing subject to no surface occupancy stipulations.	Close to geothermal prospecting and leasing, including BLM lands inside the Ash Meadows NWR
	Range	Open to livestock grazing. AML for wild horses and burros = zero.	Close to livestock grazing. N/A for wild horses and burros.	N/A	Close to livestock grazing. AML for wild horses = zero.
	Roads	Require reclamation of temporary roads. Authorize new roads in response to specific authorized actions only, ensure access to private property.			
	OHV/ORV Designations, Recreation	Designate as limited to existing roads and trails. No competitive ORV events.		Designate 10-15% as closed to OHV; designate 85-90% as open to OHV; no competitive ORV events.	Outside the Refuge boundary - Limit to existing roads and trails; within the Refuge boundary - limited, designated roads and trails. No competitive OHV events.
	Key	*Originally called Virgin Mountain ACEC, it was combined with the Gold Butte ACEC to form one contiguous ACEC.			

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Table 2-6. Combination values ACECs

ACEC Name		Arrow Canyon	Rainbow Gardens	River Mountains	Virgin River
Acreage		2,084	37,620	5,617	6,411
Values		Paleontological (Miocene bird tracks); Geological (candidate for the mid-carboniferous boundary stratotype section); cultural (prehistoric rock art).	Geological; scientific; scenic; cultural (320 acres)); sensitive plants.	Bighorn sheep habitat; scenic viewshed for Henderson and Boulder City.	T&E; riparian habitat; cultural resources (5,000 acres only)..
Resource Constraints	Lands	Retain in federal ownership. Designate as ROW avoidance area except within corridors. Close to mineral material ROWs.			(and) Acquire private land w/riparian or aquatic habitat on a willing seller basis.
	Minerals	Close to locatable minerals, salables and solid leasables. Open to fluid minerals subject to no surface occupancy stipulations.			
	Range	Manage consistent with the surrounding allotment and herd management area, if applicable.	Close to livestock grazing. N/A for wild horses and burros.	N/A	Close to livestock grazing. N/A for wild horses and burros.
	Roads	Require reclamation of temporary roads. Authorize new roads in response to specific authorized actions only, ensure access to private property.			
	OHV/ORV Designations, Recreation	Limited designation consistent with OHV designations of surrounding areas.	Designate as limited to designated roads and trails. No speed based vehicle events.	Designate as limited to existing roads and trails. No speed based vehicle events.	

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Table 2-7. Bighorn sheep Habitat Management Areas.

Habitat Management Area	Potential population	Source of Potential Population
Arrow Canyon Range	391-431	MAD HMP
South Spring/Bird Spring Range	150-200	Draft S. Spring HMP
McCullough Mountains	734	Rangewide
Plan		
Highland Range	70-105	Highland HMP
Eldorado Mountains	400-450	census data
Muddy Mountains	500-550	census data
Newberry Mountains	169	Rangewide Plan
River Mountains	230-260	census data
Virgin Mountains	127-145	Draft Virgin/Gold Butte HMP
New York/Castle Peak	140	Rangewide Plan
Gold Buttes	228-252	Draft Virgin/Gold Butte HMP
Last Chance Range	129-157	Southern Nye HMP
Specter Range	116-142	Southern Nye HMP
Bare Mountains	86-105	Southern Nye HMP
Total	**3,470-3,840**	

(Source: *Rangewide Plan for Managing Bighorn Sheep on Public Lands* USDI, BLM 1988, habitat management plans and current population levels. Numbers were not provided by NDOW.)

Management Direction

FW-1-a. Maintain and improve bighorn sheep habitat by maintaining existing water developments, constructing additional water developments, and protecting/improving springs, seeps and riparian habitat, consistent with BLM policy for management of wilderness study areas, in the following areas:

- Arrow Canyon/Elbow Range
- South Spring/Bird Spring Range
- Gold Butte/Virgin Mountains
- Muddy Mountains
- Spring Range
- Eldorado/Newberry Range
- Specter Range/Last Chance Range/Bare Mountains McCullough Range/Highland Range/Crescent Peak.

Limit competition between bighorn, livestock, and wild horses and burros around spring sources by providing separate water sources for each type of user. When possible, provide water at the source for wildlife. If new data indicate that improvements are needed in other areas, do not limit activities to the areas listed above.

FW-1-b. Evaluate discretionary activities proposed in bighorn sheep habitat and on a case-by-case basis. Grant authorization if the proposed actions are consistent with goals and objectives of the *Rangewide Plan for Managing Desert Bighorn Sheep Habitat on Public Lands* (U.S. Dept. of Interior, BLM 1988) and other applicable policies.

Objective

FW-2. Re-establish native fauna (including naturalized species) to historic habitat and improve population numbers in current use areas.

Management Direction

FW-2-a. Cooperate with State and Federal wildlife agencies in implementing introductions, reintroduction, and augmentation releases of native and/or naturalized species (such as desert bighorn sheep, and chukar).

FW-2-b. Design new waters for livestock and wild horses and burros to reduce potential conflicts with bighorn sheep and other wildlife, consistent with BLM policy for management of wilderness study areas.

FW-2-c. Animal damage control activities may be allowed on a temporary basis if necessary for successful re-establishment of native species or to allow for recovery of decimated populations.

Objective

FW-3. Support viable and diverse native wildlife populations by providing and maintaining sufficient quality and quantity of food, water, cover, and space to satisfy needs of wildlife species using habitats on public land.

Management Direction

FW-3-a. Manage mesquite and acacia woodlands for their value as wildlife habitat in the following areas: Amargosa Valley, Meadow Valley Wash, Moapa Valley, Pahrump Valley, Stewart Valley, Hiko Wash, Piute Wash, Crystal and Stump Springs, or any other areas identified as being of significant wildlife value.

FW-3-b. Allow harvesting of green or dead and down Mesquite by permit only and in those areas identified in FW-3-a, where consistent with sustaining plant communities in a healthy and vigorous state and also consistent with sustaining viable wildlife populations.

FW-3-c. Manage habitat to support elk that move onto BLM-managed lands from U.S. Forest Service lands in the Spring Mountains. Determine needed adjustments to population levels through monitoring in cooperation with the U.S. Forest Service and Nevada Division of Wildlife.

FW-3-d. Allow construction and maintenance of additional upland game guzzlers, as needed, consistent with BLM policy, including placement in wilderness study areas.

FW-3-e. Protect artificial and natural waters that provide benefit to wildlife by providing a minimum buffer of 0.25 mile for permitted activities (such as for off-road vehicle events).

FW-3-f. Protect key nesting areas, migration routes, important prey base areas, and concentration areas for birds of prey on public lands by mitigating activities during National Environmental Policy Act compliance.

FW-3-g. Protect important resting/nesting habitat, such as riparian areas and mesquite/acacia woodlands. Do not allow projects that may adversely impact the water table supporting these plant communities.

FW-3-h. Improve disturbed non-game bird habitat, including the water table supporting these habitats, by emphasizing maintenance and enhancement of natural biodiversity.

Special Status Species

Special Status Species include all plant and animal species that are Federally listed as "threatened or endangered" under the Endangered Species Act of 1973, as amended, Candidate species under the Endangered Species Act, State listed species, or species otherwise identified by the BLM State Director.

Objective

SS-1. Manage special status species habitat at the potential natural community or desired plant community, according to the need of the species.

Management Direction

SS-1-a. Improve approximately 400 acres of aquatic and riparian habitat on the Virgin River, Muddy River, and Meadow Valley Wash from its existing poor-to-fair condition to good-or-better condition by replacing *Tamarix* with native species.

SS-1-b. Maintain or improve approximately 37,152 acres of spring, wet meadow, and desert habitats in Ash Meadows Area of Critical Environmental Concern to potential natural community or desired plant community.

Objective

SS-2. Manage habitat to further sustain the populations of Federally listed species so they would no longer need protection of the Endangered Species Act. Manage habitats for non-listed special status species to support viable populations so that future listing would not be necessary.

Management Direction

SS-2-a. Enter into conservation agreements with the U.S. Fish and Wildlife Service and the State of Nevada that, if implemented, could reduce the necessity of future listings of the species in question. Conservation agreements may include, but not be limited to, the following: Blue Diamond cholla, Las Vegas bearpoppy, white-margined penstemon, and *Phainopepla*.

SS-2-b. Manage public lands adjacent to the Ash Meadows Area of critical environmental concern and the Moapa National Wildlife Refuge to complement spring and aquatic habitat for special status species, including projects that may affect ground water levels or spring flows.

SS-2-c. Maintain approximately 1,920 acres of sand dune habitat on Big Dune in a natural condition to support all species dependent upon dune habitat, with emphasis on special status species.

Objective

SS-3. Manage desert tortoise habitat to achieve the recovery criteria defined in the *Tortoise Recovery Plan* (USFWS 1994) and ultimately to achieve delisting of the desert tortoise. When the population in a recovery unit meets the following criteria it may be considered recovered and eligible for delisting (for complete criteria see the *Tortoise Recovery Plan*).

Criterion 1: As determined by a scientifically credible monitoring plan, the population within a recovery unit must exhibit a statistically significant upward trend or remain stationary for at least 25 years (one tortoise generation).

Criterion 2: Enough habitat must be protected within a recovery unit, or the habitat and desert tortoise populations must be managed intensively enough, to ensure long-term population viability. At least one area of critical environmental concern (Desert Wildlife Management Area) must be established in each recovery unit that is, except under unusual circumstances, at least 1,000 square miles in area.

Although the *Tortoise Recovery Plan* recommends establishment of at least one desert wildlife management area of 1,000 square miles in each recovery unit, it is not possible to achieve this on public lands in Nevada. The minimally acceptable situation identified in the *Tortoise Recovery Plan* is to establish several smaller desert wildlife management areas that are connected by corridors of functional tortoise habitat. This is the situation in both the Northeastern Mojave and Eastern Mojave Recovery Units.

In the Northeastern Mojave Recovery Unit, approximately 1,780 square miles of desert tortoise habitat are proposed to be managed for recovery of the desert tortoise. This area includes lands managed by the BLM, U.S. Fish and Wildlife Service, and National Park Service in Nevada, Arizona and Utah. Approximately 648 square miles of these lands are managed by the Las Vegas BLM Field Office. In the Eastern Mojave Recovery Unit, the 514 square miles proposed for designation as an area of critical environmental concern in the Las Vegas District would be combined with additional tortoise habitat in Lake Mead National Recreation Area and in California to meet recovery criteria.

Criterion 3: Provisions must be made for population management at each area of environmental concern (Desert Wildlife Management Area) so that discrete population growth rates (lambdas) are maintained at or above 1.0. A lambda of 1.0 indicates a stable or increasing population.

Criterion 4: Regulatory mechanisms or land management commitments have been implemented that provide for adequate long-term protection of desert tortoises and their habitat. Delisting would be followed by a loss of protection under the Endangered Species Act; therefore, adequate protection through alternative means is essential before delisting can occur. Reasonable assurance must exist that conditions which brought about population stability will be maintained, or as necessary, improved during the foreseeable future.

Criterion 5: The population in the recovery unit is unlikely to need protection under the Endangered Species Act in the foreseeable future.

Management Direction

SS-3-a. Manage 743,209 acres of the four desert tortoise areas of critical environmental concern specifically for desert tortoise recovery (Map 2-7). Implement the management actions listed below, and on Table 2-2, in these areas of critical environmental concern:

a. Minimize impacts to tortoise habitat during fire suppression by minimizing the use of mechanized equipment and, where possible, staying on existing roads and trails. However,

give priority to keeping the wildfire to an absolute minimum.

b. Manage wild horses and burros for zero appropriate management level within desert tortoise areas of critical environmental concern.

c. Implement inventory, monitoring, and research projects dealing with management issues within desert tortoise areas of critical environmental concern.

d. Limit utility corridors to 3,000 feet or less in width.

e. Do not allow new landfills.

f. Do not authorize military maneuvers.

g. Allow development of campgrounds only if consistent with the objectives of the *Tortoise Recovery Plan*.

h. On a case-by-case basis, support fencing of highways and moderately-to-heavily traveled dirt roads with tortoise-proof fencing and installation of culverts to allow tortoises to cross under the highway and roads.

i. Require reclamation of disturbed lands resulting from activities that result in loss or degradation of tortoise habitat with habitat to be reclaimed so that pre-disturbance condition can be reached within a reasonable time frame. Reclamation may include salvage and transplant of cactus and yucca, recontouring of the area, scarification of compacted soil, soil amendments, seeding, and transplant of seedling shrubs. Subsequent seeding or transplanting efforts may be required, if monitoring indicates that the original effort was not successful.

j. Commercial activities may be permitted, on a case-by-case basis, if not in conflict with recovery of the desert tortoise.

k. Designate as "limited to designated roads and trails" for all motorized and mechanized vehicles.

l. Allow non-speed off-highway vehicle events subject to restrictions identified in RC-11-f.

m. Prohibit off-road vehicle speed events, mountain bike races, horse endurance rides, 4-wheel drive hill climbs, mini events, publicity rides, high speed testing, and similar speed-based events.

n. Do not allow commercial collection of flora. Only allow commercial collection of fauna upon completion of a scientifically credible study that demonstrates commercial collection of fauna does not adversely impact affected species or their habitat. This action will not affect hunting or trapping and casual collection as permitted by the State.

o. In accordance with the BLM/Clark County Interlocal Agreement approved July 1, 1997, BLM will regulate and manage organized recreational activities on County RS2477 roads in accordance with 43 CFR, subpart 8372.

p. Campers may pull their vehicles off the edge of the road but must stay within 15 feet of the edge of the road, except in Wilderness Study Areas where the vehicle must remain within the berm of the road.

Objective

SS-4. Encourage the obtainment and dissemination of knowledge regarding the Mojave Desert ecosystem including desert tortoise biology.

Management Direction:

SS-4-a. Manage the Desert Tortoise Conservation Center Management Area (11,014 acres) to support desert tortoise research and other research associated with the Mojave Desert Ecosystem. When feasible, expand the function of the center to include an environmental education/awareness program in close coordination with other Federal agencies and State and local governments.

SS-4-b. If and when funding is available, expand the existing facilities at the Desert Tortoise Conservation Center Management Area as necessary to accommodate future research and educational needs.

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Forestry Management

Objectives

FR-1. Maintain woodland and conifer forest where possible for all-aged stands, with an understory vegetation forage value rating at moderate or better.

Management Direction

FR-1-a. Firewood cutting and gathering is limited to approved areas subject to restrictions developed for protection of Threatened, Endangered and Sensitive species and other sensitive resources.

FR-1-b. Allow harvest of dead and/or down wood or BLM-marked green mesquite "trees" for dwarf mistletoe control only in approved areas.

Objective

FR-2. Limit collection or sale of desert vegetation and other vegetative resources for public use to approved areas including disposal areas, rights-of-way, and gravel pits.

Management Direction

FR-2-a. Assess the potential for salvage and/or harvest of desert vegetation at locations where surface-disturbing activities are authorized.

Table 2-8. Kind of livestock

Horses & Cattle	Cattle
Flat Top Mesa	Arrow Canyon
Lower Mormon Mesa	Jean Lake
Mesa Cliff	Hidden Valley
	Mt. Stirling
	Muddy River
	Roach Lake
	Wheeler Wash
	White Basin

Livestock Grazing Management

Objective

LG-1. Provide for continued grazing of domestic livestock on public lands, consistent with law, regulation, established standards and guidelines and policy on areas open to livestock grazing (see Map 2-8).

Management Direction

LG-1-a. Manage the range resource consistent with the phenological and physiological requirements of key perennial species.

LG-1-b. Livestock grazing on all ephemeral allotments will be permitted if on-the-ground evaluations determine that forage is available, and use is consistent with the Standards and Guidelines and allotment specific objectives.

LG-1-c. Provide for increased plant vigor and reproductive capability of perennial forage on the open allotments through livestock grazing management.

LG-1-e. Maintain static trend or achieve upward trend of key perennial forage species through livestock grazing management.

LG-1-e. Salt and mineral supplement will be placed a minimum of one mile from water.

LG-1-f. Manage grazing allotments outside the desert tortoise Areas of Critical Environmental Concern consistent with grazing Prescription 2 identified in Biological Opinion File No.: 1-5-91-F-36 as amended: Livestock use may occur on open allotments in desert tortoise habitat outside Areas of Critical Environmental Concern/Desert Wildlife Management Areas from March 1 to October 14, as long as forage utilization does not exceed 40 percent on key perennial grasses, forbs, and shrubs. Between October 15 and February 28, forage utilization will not exceed 50 percent on key perennial grasses and 45 percent on key shrubs and perennial forbs.

The BLM will reinitiate formal consultation on a case-by-case basis if any change is identified to Prescription 2 in an allotment grazing system.

LG-1-g. Close all allotments to livestock grazing within the planning unit, with the following exceptions: Hidden Valley, Mount Stirling, Lower Mormon Mesa, Roach Lake, White Basin, Muddy River, Wheeler Wash, Mesa Cliff, Arrow Canyon in Battleship Wash, Flat Top Mesa, Jean Lake, and Arizona administered allotments (see Map 2-8 for locations and boundaries). That portion of the Jean Lake allotment within the desert tortoise Area of Critical Environmental Concern would be closed to grazing. Close all

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land disposal areas to livestock grazing (See Map 2-3).

LG-1-h. Designate allotments that currently have an existing closure as permanently closed. Designate all unallotted areas within southern Nye County as permanently closed to livestock grazing.

LG-1-i. Additional allotment closures could be approved based on voluntary relinquishment of grazing privileges, permits, or leases.

LG-1-j. The type of livestock that will be authorized on each allotment is identified in Table 2-8. Changes to the type of livestock may be made following site-specific environmental analysis.

Objective

LG-2. Establish grazing management systems including rest rotation, deferred rest rotation, or other management approaches as needed to meet specific resource management objectives.

Management Direction

LG-2-a. Include water availability for all uses as part of any grazing system, considering riparian areas, livestock, wildlife, wild horses and burros.

LG-2-b. Develop range improvements, as needed, to reach more uniform distribution of livestock consistent with management objectives.

LG-2-c. Incorporate Standards and Guidelines into all livestock use authorizations, grazing systems, and management plans to ensure rangeland health improved or maintained (see Appendix L).

Objective

LG-3. Manage allotments open to grazing using the "selective management" approach (see Map 2-8 and LG-3-a for open allotments).

Management Direction

LG-3-a. Drop existing categories from allotments closed to livestock grazing. Other direction:

- Arrow Canyon and White Basin will remain "M."
- Hidden Valley, Jean Lake, Wheeler Wash, and Mount Stirling will remain "I."
- Mesa Cliff, Muddy River and Roach Lake will remain "C."
- Change Lower Mormon Mesa from "C" to "I."
- Change Flat Top Mesa from "C" to "M".
- The category for the three allotments administered by Arizona will not be changed.

Wild Horse and Burro Management

Objectives

WHB-1. In Herd Management Areas not constrained by desert tortoise restrictions (see Maps 2-1 and 2-7), manage for healthy, genetically viable herds of wild horses and/or burros in a natural, thriving ecological balance with other rangeland uses (see Table 2-9).

Management Direction

WHB-1-a. Establish Appropriate Management Levels within Herd Management Areas (see Table 2-9).

WHB-1-b. Adjust the Appropriate Management Level identified for each Herd Management Area when monitoring determines the animal population, forage, water, riparian, and other ecosystem management objectives are not being met.

WHB-1-c. Limit utilization of current year's production by all herbivores on key perennial forage species within Herd Management Areas to 50 percent for grasses and 45 percent for shrubs and forbs.

WHB-1-d. Develop and maintain dependable water sources, consistent with BLM policy for wilderness management, to allow more even distribution of horses and burros throughout the Herd Management Areas.

WHB-1-e. Use by wild horses and burros will not be allowed in that portion of the Gold Butte Herd Management Area that overlaps with the desert tortoise Gold Butte Area of Critical Environmental Concern (Gold Butte Part A).

WHB-1-f. No new wild horse or burro ranges will be recommended for approval by the Director.

Objective

WHB-2. Maintain the wild, free-roaming character of the wild horses and burros on the public lands.

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Table 2-9. Wild horse and burro Herd Management Areas.

HMA	Initial Herd Size	Estimated AML
Eldorado	75 burros	0 burros
Gold Butte	600 burros	98 burros
Muddy Mountains	29 horses	0 horses
	110 burros	50 burros
Red Rocks	50 horses	50 horses
	130 burros	50 burros
Johnnie	125 horses	50 horses
	300 burros	75 burros
Amargosa	0	0
Ash Meadows*	0	0

Key:

* Ash Meadows HMA was inadvertently left out of previous planning documents.

Management Direction

WHB-2-a. To facilitate management consistent with distinct population units, realign the following Herd Management Areas (see Map 2-1):

- Red Rocks Herd Management Area (formerly part of Spring Mountains Herd Management Area).
- Wheeler Pass Herd Management Area (formerly part of Spring Mountains Herd Management Area).
- Johnnie Herd Management Area (formerly Last Chance and Mt. Stirling Herd Management Areas).

WHB-2-b. Adopt Herd Management Area boundaries to existing 1971 locations; this will increase the size of some Herd Management Areas but will not decrease any in size (see Map 2-1).

WHB-2-c. Develop/maintain memorandums of understanding for coordinated herd management with the National Park Service and U.S. Forest Service where Herd Management Areas extend across administrative boundaries.

WHB-2-d. Wild horses and burros that become problem animals or traffic hazards on Nevada State Routes 159 + 160 or in urban areas will be removed as soon as possible.

WHB-2-e. Wild horses and burros will be scheduled for removal as expeditiously as possible from fenced private lands within the planning area, after a request is made by the private landowner and reasonable efforts to restrict the animals from private property have failed.

WHB-2-f. Wild horses and burros will be removed when animals are residing on lands outside the Herd Management Area or when the Appropriate Management Level is exceeded.

WHB-2-g. Construct underpasses or other structures within highway rights-of-way to allow safe passage of wild horses and burros. Appropriate locations will be determined by BLM and the Nevada Department of Transportation in coordination with affected interests.

Cultural Resource Management

Objective

CR1. Identify and protect cultural and paleontological resources in conformance with applicable legislation and BLM policy.

Management Direction

The following management directions are based on a variety of attributes for those kinds of sites discussed in Table 2-10. The attributes include the potential for the extraction or preservation of scientific data, site integrity, the isolated nature of certain properties, and an assessed potential for impacts from recreational activities. Each site type possesses one or more uses with applicable prescriptions for management according to that displayed in Table 2-10.

CR-1a. Manage the following for information potential: roasting pit, camp/open lithic scatter, rock feature, and historic trash scatter site types. These kinds of sites should be subject to the following direction:

CR-1a-1. Utilize data recovery efforts through research designs to attempt to mitigate adverse effects to cultural resources and paleontological sites from proposed Federal actions.

CR-1a-2. Study known cultural and paleontological sites not expected to incur impacts from Federal actions as a result of using proactive

research designs. The designs may be initiated by BLM or independent researchers subject to the concurrence of BLM and the State Historic Preservation Office.

CR-1-a3. Representative samples of each site type will be preserved for conservation purposes.

CR-1-a4. Manage cultural resources on 1,500 acres of public lands within the Virgin River Anasazi prehistoric district for the potential to yield scientific or historic information.

CR-1-b. Manage the following for conservation potential: rockshelter, rock art locale, prehistoric and historic remains, mining sites, and historic road/trail site types, which are located in areas that do not receive intensive recreational uses. These kinds of sites should be subjected to the following direction:

CR-1-b1. Manage cultural resources on 11,759 acres of public lands at Red Rock Spring and Stump Springs, the Hidden Valley district, the Sloan rock art site, the Arden Historic Sites, the Crescent and Gold Butte mining town sites, and the South Virgin Peak Ridge District for conservation of their overriding scientific or historic importance.

CR-1-b2. Release cultural resource sites designed for "management for conservation" only after development of a memorandum of agreement between BLM, the State Historic Preservation Office, and the Advisory Council on Historic Preservation. This document would detail efforts to conduct intensive documentation or retrieve the physical remains of the property.

CR-1-b3. Manage paleontological resources on 40 acres of public lands within the Arrow Canyon Bird Track paleontological site for conservation of its overriding scientific or historic importance.

CR-1-b4. Release paleontological sites designated for "management for conservation" uses only after the development of a research design approved by BLM to remove the specimens, create casts of the objects, and provide interpretive exhibits.

CR-1-c. Manage the following for public uses: rockshelter, rock art locale, prehistoric and historic structural remains, mining sites, and historic road/trail site types located in areas that have sustained, or are projected to receive, intensive recreational uses.

CR-1-c1. Manage cultural resources on 3,660 acres of public lands within the Arrow Canyon Rock Art District, Keyhole Canyon, Frenchman Mine, and Gypsum Cave areas for public values that include sociocultural, educational, and recreational uses.

CR-1-c2. Develop programs that use surveillance to monitor resources with public value uses. Where analysis of monitoring results indicates a need for further protection, construct or install physical barriers, as appropriate.

CR-1-d. Manage cultural resources on approximately 200,000 acres of Traditional Lifeway Areas within the Las Vegas BLM District for their sociological values by providing for their protection and preservation (see Map 2-2).

This direction would primarily be accomplished by inviting Native American Traditional cultural groups to provide information to BLM concerning sensitivity of cultural values on Federal lands in Traditional Lifeway Areas. These lands are not available for disposal.

CR-1-e. Selected cultural resources should be designated as priorities for activity planning and determining best use potential. These include historic remains in Gold Butte, Crescent, Goodsprings, and Searchlight mining districts, as well as the Hidden Valley Archeological District in the Muddy Mountains. There are also special cultural resource considerations that may affect the location, timing, or method of development or use of other resources in the planning area. These resources include plants or animals essential to maintaining cultural integrity of a Traditional Lifeway Area.

Lands Management

Objective

Land Disposal Areas:

LD-1. Approximately 175,314 acres of public lands within the disposal areas identified on Map 2-3 are potentially available for disposal through sale, exchange, or Recreation and Public Purpose patent to provide for the orderly expansion and development of southern Nevada.

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Table 2-10. Management direction for archaeological site types and cultural resources in LVD.

Site Type	Management Use	Prescription
Prehistoric		
Rockshelter[1]	Information	Data recovery plan
Rockshelter[2]	Conservation	Monitoring/protection
Rockshelter[3]	Public Uses	Activity plan
Roasting pit[4]	Information	Data recovery plan
Camp/lithic scatter[4]	Information	Data recovery plan
Rock feature[4]	Information	Data recovery plan
Structural remains[1]	Information	Data recovery plan
Structural remains[2]	Conservation	Monitoring/protection
Structural remains[3]	Public Uses	Activity plan
Rock art[1]	Information	Data recovery plan
Rock art[2]	Conservation	Monitoring/protection
Rock art[3]	Public Uses	Activity plan
Historic		
Structural remains[1]	Information	Data recovery plan
Structural remains[2]	Conservation	Monitoring/protection
Structural remains[3]	Public Uses	Activity plan
Trash/debris scatter[4]	Information	Data recovery plan
Road/trail[1]	Information	Recordation
Road/trail[2]	Conservation	Monitoring/protection
Road/trail[3]	Public Uses	Activity plan
Traditional Lifeway Areas	Conservation	Native American consultation Monitoring

Key:
1 Located in area proposed for severe disturbance or total destruction from Federal actions.
2 Located in relatively isolated area, not projected for intensive recreational uses or Federal actions.
3 Located in area projected for intensive recreational uses.
4 Located in any area; representative samples for conservation previously selected.

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Management Direction

LD-1-a. Unauthorized use of public lands outside established disposal areas may be resolved through direct sale, if proven the action was not willful or was due to an erroneous survey; or if remediation of existing hazardous substances on the property would be too costly.

LD-1-b. Public lands located outside established disposal areas would be considered for repositioning to consolidate BLM parcels into a more contiguous land pattern and to improve public services and BLM land management. Repositioning would occur on a case-by-case basis, by exchange only, provided that:

1. The lands would serve the purpose of: a) community expansion and economic development, b) local government needs, or c) to facilitate Federal land management and minimize BLM administrative costs.

2. The lands are not adjacent to Congressionally mandated disposal boundaries.

3. Lands to be disposed are located outside any Area of Critical Environmental Concern, Traditional Lifeway Area, Special Recreation Management Area, Right-of-way corridor, Wilderness Study Area, active communication site, riparian site, or cultural sites eligible for inclusion on the National Register of Historic Places.

4. The public lands are not encumbered by an existing permit or lease that would preclude the disposal action.

5. The lands do not include habitat of Threatened, Endangered, and Special Status

   Species, or other crucial wildlife habitat.

6. Other public uses of the parcel are of less value.

7. The parcel of land is for a specific purpose and is no longer required for any other Federal purpose.

8. Local communities support the exchange, and there is close coordination with the U.S. Fish and Wildlife Service, the Nevada Division of Wildlife, and Clark County.

9. Public access would be improved.

10. Any other specific values or concerns not identified above would be analyzed at the time of the proposal to determine if the disposal would be in the public's best interest.

LD-1-c. Public lands within the Las Vegas BLM District are not suitable for entry under Indian Allotment, Desert Land Entry or the Carey Act, and would not be disposed of through those authorities.

LD-1-d. Recreation and Public Purpose leases identified for sale prior to approval of this plan, which were located inside a disposal area under the current management plan and are outside the proposed disposal areas, would remain available for sale to the current lessee or assignee.

LD-1-e. Approximately 9,423 acres of BLM inholdings within Ash Meadows National Wildlife Refuge are available for withdrawal by the United States Fish and Wildlife Service for inclusion in the refuge.

LD-1-f. Approximately 11,014 acres of the Desert Tortoise Conservation Center Management Area are available for withdrawal by other Federal agencies when such transfer would further objective SS-4.

Objective

Land Use Authorizations

LD-2. All public lands within the planning area, unless otherwise classified, segregated or withdrawn, and with the exception of Areas of Critical Environmental Concern and Wilderness Study Areas, are available at the discretion of the agency, for land use leases and permits under Section 302 of Federal Land Policy and Management Act and for airport leases under the authority of the Act of May 24, 1928, as amended.

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Table 2-11. Disposal areas

Disposal Areas	Acres
Amargosa Valley	27,904
Goodsprings	915
Indian Springs South	1,302
Indian Springs North	420
Jean	2,445
Las Vegas Valley	52,021
Lathrop Wells	3,772
Laughlin	4,720
Mesquite/Bunkerville	14,460
Moapa/Glendale	40,950
Nelson	1,259
Pahrump	14,768
Sandy Valley	6,268
Searchlight	1,944
Primm*	1,181
Valley West	985
Total	**175,314**

*Includes acreage on the west side of the highway adjacent to existing development.
**See Appendix G for exact acreage total

Management Direction

LD-2-a. Land use lease or permit applications and airport lease applications will be addressed on a case-by-case basis, where consistent with other resource management objectives and local land uses. Special terms and conditions regarding use of the public lands involved will be developed as applicable.

Objective

Land Classifications/Segregations

LD-3. Terminate or modify any unused, outdated, or unnecessary classifications/segregations and withdrawals on public lands to reduce the area of segregation in the plan area.

Management Direction

LD-3-a. In consultation with the appropriate Federal agency or applicant, review existing and pending classifications/segregations and withdrawals to determine if there is a continued need for them. Consideration will be given to withdrawal of approximately 1,500 acres of public land adjacent to Nellis Air Force Base in support of the Department of Defense's Ammunition and Explosives Safety Program.

LD-3-b. The following small tract classifications will be terminated:

T. 25 S., R. 59 E. BLM, BLM Order 2/18/63, Small Tract Cl 1

T. 22 S., R. 60 E., BLM, BLM Order 4/28/72, Small Tract Cl 106

Rights-of-Way Management

Objective

RW-1. Meet public demand and reduce impacts to sensitive resources by providing an orderly system of development for transportation, including legal access to private inholdings, communications, flood control, major utility transmission lines, and related facilities.

Management Direction

RW-1-a. Designate the following corridors:

1. A corridor 1,400 feet wide from the north side of the Sunrise Instant Study Area south through Rainbow Gardens to the Lake Mead crossover.

   This corridor is described as west of the east boundary of the IPP-McCullough powerlines. Activation and use of this corridor is contingent upon Congressional action releasing the Instant Study Area from further wilderness consideration and study.

2. See Map 2-4 for the location of the proposed corridor designations in this alternative. An approximate total of 158,806 acres is involved, including legislative designations and the proposed Sunrise Mountain designation. The corridors range in width from 1,400 feet to 3,000 feet, for a total length of approximately 538 miles.

RW-1-b. Do not extend the following corridors :

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1. The corridor entering Nevada at Nipton Road and designated as Contingent Corridor W in the California Desert Conservation Area Plan, dated 1980, will not be carried forward in this alternative. The 1988 *Mojave National Scenic Area Management Plan* recommended elimination of the corridor; this was accomplished by a plan amendment to the California Desert Conservation Area Plan.

2. Corridor K-G described and identified in the *Esmeralda-Southern Nye Resource Management Plan* (1986) will not be carried forward in this alternative. This area is constrained by natural and man-made features including mountains, the Amargosa River, the Low-Level Nuclear Waste Site, and the town of Beatty. An adjacent corridor to the east of this area has the capability to handle foreseeable future powerlines.

3. The corridor designated along the eastern boundary of U.S. Highway 93 between the Aerojet Conveyance Area and the Apex Project Area will not tie into the corridor designated inside the west boundary of the Apex project area. Per an industry request, the corridor will stop approximately 5 miles short of the project area, continue east, and tie into the corridor extending southwesterly from the Moapa Indian Reservation.

RW-1-c. When feasible, and where compatible, major pipeline rights-of-way will be placed within powerline corridors.

RW-1-d. Provide right-of-way access for local flood control agencies to develop or maintain flood control developments, consistent with right-of-way avoidance and exclusion areas.

RW-1-e. Except as identified in RW-1-f and RW-1-g, all Areas of Critical Environmental Concern and all lands within 0.25 mile of significant caves, *exclusive of any designated corridors,* are designated as right-of-way avoidance areas. This management direction also applies to RW-2 below.

RW-1-f. Linear right-of-way exclusion areas are limited to the Hidden Valley District, Sloan Rock Art, and Big Dune Areas of Critical Environmental Concern.

RW-1-g. Site type right-of-way exclusion areas are limited to all areas of critical environmental concern, except within 0.50 mile on either side of Federal Aid Highways. This management direction also applies to RW-2 below.

RW-1-h. All public land within the planning area, except as stated in RW-1-c through RW-1-g, are available at the discretion of the agency for rights-of-way under the authority of the Federal Land Policy Management Act.

Objective

RW-2. Maximize the use of existing communication sites and prevent the proliferation of scattered single user sites.

Management Direction

RW-2-a. See Map 2-4 for the present location of existing established communication sites that will be carried forward in this alternative.

RW-2-b. Authorization of future communication site rights-of-way would be handled as follows:

Communication Sites with a Site Management Plan:

1. Facilities authorized under new rights-of-way will be constructed in accordance with an approved Site Management Plan.

Communication Sites without a Site Management Plan:

2. New rights-of-way will be authorized within and on existing rights-of-way and facilities.

   This direction also includes communication site facilities not ordinarily located on a mountain top, such as AM radio facilities, personal communications service facilities, and cellular telephone sites. Personal communications service facilities will most likely occur along transportation corridors such as interstate highways.

RW-2-c. Requests for new communication sites will generally be processed as follows:

1. Competitive bidding procedures will be utilized.

2. Multi-user facilities will be constructed.

3. Site users will jointly form a committee and develop a Site Management Plan.

See **MN-1-n.** for Objectives and Management Direction regarding material site rights-of-way.

Acquisitions Management

Objective

AQ-1. To acquire private lands to enhance the recovery of special status species, protect valuable resources and facilitate the management of adjacent BLM lands. Secure legal and physical on-the-ground access to otherwise inaccessible public lands.

Management Direction

Land Acquisition Needs

Land acquisition needs will generally be processed through the land exchange program; however, if the opportunity arises lands may be acquired by donations, Congressionally appropriated funds, or compensation funds.

AQ-1-a. The following land acquisition priorities are based on finding willing sellers:

1. Private lands required to meet management objectives within designated Areas of Critical Environmental Concern, Wilderness Study Areas, recommended Wilderness Areas, Congressionally designated areas, Threatened and Endangered Species habitat, and areas containing special status species.

2. Lands located within the district, conveyed into private ownership to Aerojet Corporation through P.L. 100-275. The lands involved are located in Coyote Spring Valley and will be retained in Federal ownership as part of Coyote Springs Area of Critical Environmental Concern.

3. Private lands along the Virgin River, south of Riverside.

4. Lands not specifically identified for acquisition could be acquired on a case-by-case basis for the following reasons:
   a) protect Threatened and Endangered Species and Special Status Species.
   b) provide resource protection.
   c) facilitate implementation of the Resource Management Plan.
   d) provide a more manageable land ownership pattern.
   e) maintain or enhance public uses and values.

AQ-1-b. The BLM will not acquire contaminated property.

Recreation Management

Objective

RC-1. Ensure that a wide range of recreation opportunities are available for recreation users in concert with protecting the natural resources on public lands that attract users.

Management Direction

RC-1-a. Primary management emphasis will be on resource-based uses, not facility-based uses.

RC-1-b. Designate the following Special Recreation Management Areas as areas where BLM will concentrate the majority of its recreation management program effort (see RC-2 through RC-9).

- Muddy Mountains
- Nellis Dunes
- Sunrise Mountain
- Las Vegas Valley
- Nelson Hills
- Jean/Roach Dry Lakes
- Laughlin
- Big Dune

Lands outside the Special Recreation Management Areas will be included within the Southern Nevada Extensive Recreation Management Area (see RC-10 and Map 2-5).

RC-1-c. Limit recreation facility development and special designations to those necessary for resource protection.

RC-1-d. Retain the Recreation Opportunity Spectrum inventory classifications and opportunity settings as a long-term management goal for all actions.

Recreation Opportunity Spectrum designations (as described in detail in Chapter 3, See Map 3-17) include the following:

Designation	*Acres*
Semi-primitive Nonmotorized	276,570
Semi-primitive Motorized	651,414
Roaded Natural	1,928,640
Rural	350,626
Urban	124,645

RC-1-e. Support the Nevada Division of Wildlife in an effort to maintain and improve hunting opportunities in Clark County.

RC-1-f. Designate the desert tortoise Areas of Critical Environmental Concern as Special Areas under 43 CFR 8372 to provide improved management and coordination between recreational uses and tortoise habitat management.

Muddy Mountains Special Recreation Management Area

Objective

RC-2. Manage 123,400 acres of the Muddy Mountain area to provide semi-primitive recreation opportunities and integrated management of wildlife habitat, cultural resources, and other recreational uses. (See Map 2-5)

Management Direction

RC-2-a. Manage the majority of the area (78,480 acres) for semi-primitive non-motorized recreation opportunities.

RC-2-b. Manage the remaining area (44,897 acres) for semi-primitive motorized recreation opportunities.

Nellis Dunes Special Recreation Management Area

Objective

RC-3. Manage 10,000 acres of the Nellis Dunes as an open area for intensive off-road vehicle and other recreation opportunities, including organized off-road vehicle events, casual off-road vehicle freeplay, picnicking, photography, and other non-off-road vehicle commercial and competitive permitted activities. (See Map 2-5)

Management Direction

RC-3-a. Permit off-road vehicle free-play and high-speed, competitive Off-Highway Vehicle events of all types within the Special Recreation Management Area.

RC-3-b. Prohibit recreational and target shooting in the Special Recreation Management Area, to coincide with Clark County's shooting ordinance.

RC-3-c. Consider cooperative ventures, such as concession leases to enhance recreation opportunities.

Sunrise Mountain Special Recreation Management Area

Objective

RC-4. Manage 37,620 acres of the Sunrise/Frenchman Mountain/Rainbow Gardens Special Recreation Management Area for recreation opportunities in concert with sensitive plant, scenic, cultural, and geologic values of the concurrent Area of Critical Environmental Concern. (See Map 2-5).

Management Direction

RC-4-a. Prohibit speed based motorcycle/truck/buggy off-road vehicle events. Limit mountain bike events to designated roads and trails until completion of long-term planning in the Recreation Area Management Plan.

RC-4-b. Allow non-speed events (such as all terrain bicycle events, motorcycle trials, non-competitive off-road vehicle events, and commercial permitted events and activities) on designated roads and trails on a case-by-case basis until completion of long-term planning in the Recreation Area Management Plan .

RC-4-c. Encourage cooperative ventures, such as concession leases, to enhance recreation opportunities.

RC-4-d. Concentrate major powerline transmission rights-of-way within the confines of the designated utility corridor to reduce

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conflicts with recreation and to reduce impacts to scenic resources, such as Rainbow Gardens and Lava Butte.

RC-4-e. This area will be closed to casual recreational shooting in accordance with Clark County's No-shooting for the Las Vegas Valley.

Las Vegas Valley Special Recreation Management Area

Objective

RC-5. Coordinate with county and city governments to manage 197,300 acres in the Las Vegas Valley to facilitate the provision of open space areas, recreational trails, and parks necessary for valley residents. (See Map 2-5)

Management Direction

RC-5-a. Identify land for reserve recreational trail, open space, parks, etc. as needed, prior to land disposals. Reservation should be done through Recreation and Public Purpose applications by local governmental agencies.

RC-5-b. Identify public lands on the perimeter and within the Special Recreation Management Area that are appropriate for recreational uses in support of local government land use plans.

RC-5-c. Prohibit recreational and target shooting on public lands within the Special Recreation Management Area, in accordance with the Clark County and local government shooting ordinances. Prohibit camping on public lands in the Special Recreation Management Area, except where specifically authorized and designated.

RC-5-d. Close the Special Recreation Management Area to individual, organized, and competitive off-road use and vehicle events including off-road casual use. An exception to this closure is the Nellis Dunes off-road vehicle Area and the "Nevada 400" course route to the north. Nevada 400 course limited to one event per year.

Nelson Hills/Eldorado Special Recreation Management Area

Objective

RC-6. Manage 81,600 acres for competitive off-road vehicle events on BLM-administered lands in the Nelson Hills/Eldorado Valley Special Recreation Management Area, in accordance with the applicable Biological Opinion(s) to protect desert tortoise habitat. (See Map 2-5)

Management Direction

RC-6-a. Authorize a maximum of nine speed based events yearly, including five motorcycle/All Terrain Vehicle and four buggy events.

RC-6-b. All permitted events must take place on existing previously used courses.

RC-6-c. Permitted speed-based off-road vehicle events are allowed only between November 1 and February 28 within the parts of the Special Recreation Management Area that are critical tortoise habitat.

Jean/Roach Dry Lakes Special Recreation Management Area

Objective

RC-7. Manage 216,300 acres in the Jean/Roach Dry Lakes area (Map 2-10) for intensive recreation opportunities, including competitive off-road vehicle (in accordance with the U.S. Fish and Wildlife Service Biological Opinion) and other recreational events, as well as dispersed recreational use and commercial activities. Minimize impacts to white-margined penstemon populations in accordance with policies regarding BLM sensitive species. (See Map 2-5)

Management Direction

RC-7-a. Permit high-speed, competitive off-road vehicle events, casual off-road vehicle uses, and other recreational and commercial activities.

RC-7-b. Permitted events will be allowed only on previously disturbed areas in tortoise habitat, existing roads, trails, and dry washes.

RC-7-c. Non-vegetated parts of the dry lake beds will be managed as Open to unrestricted Off-Highway Vehicle use.

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Laughlin Special Recreation Management Area

Objective

RC-8. Provide a higher level of management emphasis through increased use monitoring, ranger patrols, increased BLM presence at permitted events, and increased coordination with local government and businesses for recreational uses on 25,600 acres of public lands around Laughlin, Nevada (See Map 2-5)

Management Direction

RC-8-a. Work closely with the Nevada Division of Wildlife to protect habitat areas and riparian resources of concern.

RC-8-b. Until completion of the Recreation Area Management Plan, allow up to two off-road vehicle events, with the following terms:

- Limit to 200 participants.
- Closed from May 1 to the Saturday following opening of upland game bird season (usually the second Saturday in October).

The seasonal restrictions and the number of events and participants may be modified as a result of the Recreation Area Management Plan process.

Big Dune Special Recreation Management Area

Objective

RC9. Manage 11,600 acres of the Big Dune area for moderate, casual off-road vehicle use, camping, and other casual recreation opportunities. (See Map 2-5)

Management Direction

RC-9-a. Prohibit all Off-Highway Vehicle use within the 200-acre beetle habitat in the Big Dune Area of Critical Environmental Concern (except on the designated route through the area), to ensure continued survival of the native beetle population. Prohibit speed-based competitive off-road vehicle events within the 1,920-acre Big Dune Area of Critical Environmental Concern.

RC-9-b. Allow commercial activities and other permitted events on a case-by-case basis.

RC-9-c. Establish long-term management goals and objectives including consideration of group camping areas. Long-term recreation management within the dunes would be based on the beetles' minimum habitat requirements.

Southern Nevada Extensive Recreation Management Area

Objective

RC-10. Manage public lands not included within Special Recreation Management Areas as the Southern Nevada Extensive Recreation Management Area, emphasizing dispersed and diverse recreation opportunities. (See Map 2-5)

Management Direction

RC-10-a. Manage permitted recreation and commercial events (outside Special Recreation Management Areas) as follows:

Areas of Critical Environmental Concern - Prohibit the following activities: off-road vehicle speed events, 4-wheel drive hill climbs, mini-events, publicity rides, and high speed testing.

Limit non-speed and non-off-road vehicle events to designated roads and trails in tortoise Areas of Critical Environmental Concern; and to existing roads and trails in Areas of Critical Environmental Concern designated for other purposes.

Allow other recreation and/or commercial events on a case-by-case basis. Seasonal restrictions may be imposed, based on tortoise activity.

Other Areas - Permit events on a case-by-case basis. Restrictions and stipulations necessary for protection of the desert tortoise may be imposed within desert tortoise habitat. Close land disposal areas to overnight camping.

RC-10-b. Allow recreation concession leases that enhance resource management objectives.

RC-10-c. As resource conditions and/or use levels warrant, inventory, designate, and manage mountain bicycle and equestrian trails throughout the Extensive Recreation Management Area to meet increasing public demand for these activities.

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Off Highway/Road Vehicle Designations

Objective

RC-11. Provide opportunities for off-road vehicle use while protecting wildlife habitat, cultural resources, hydrological and soil resources, non-motorized recreation opportunities, natural/aesthetic values, and other uses of the public land (See Map 2-10).

Management Direction

RC-11-a. Designate following areas (see Map 2-10) as OPEN to all motorized and mechanized vehicles:

- Nellis Dunes Special Recreation Management Area (approx. 10,000 acres).
- Non-vegetated portions of Big Dune Special Recreation Management Area outside of designated beetle habitat (approx. 11,600 acres).
- Non-vegetated portions of dry lake beds (approx. 3,000 acres).

RC-11-b. Designate following areas (see Map 2-10) as CLOSED to all motorized and mechanized vehicles:

- Hidden Valley (3,360 acres) in the south Muddy Mountains.
- Approximately 200 acres of beetle habitat at Big Dune Special Recreation Management Area (that portion shown on Map 2-10).

The Mojave Road is closed to competitive events along or within the road alignment; however, a race course may cross the road alignment. Except for the Hidden Valley area, lands in Wilderness Study Areas are not included in this designation. This designation would apply to any areas designated by Congress as wilderness in the future. (See Map 2-10.)

RC-11-c. Designate the following areas (See Map 2-10) as LIMITED TO DESIGNATED ROADS AND TRAILS for all motorized and mechanized vehicles:

- Approximately 743,209 acres desert tortoise Areas of Critical Environmental Concern including the Piute/Eldorado, Mormon Mesa, Coyote Springs, and Gold Butte.
- Approximately 327,000 acres adjacent to the Red Rock Canyon National Conservation Area and the United States Forest Service Spring Mountain National Recreation Area (between State Highway 160 and U.S. Highway 95).
- Rainbow Gardens Area of Critical Environmental Concern (37,620 acres).
- BLM inholdings totaling approximately 9,423 acres in Ash Meadows National Wildlife Refuge.
- All land disposal areas.

RC-11-d. Designate approximately 2,186,483 acres as shown on Map 2-10 as LIMITED TO EXISTING ROADS, TRAILS AND DRY WASHES for all motorized and mechanized vehicles. This designation includes:

- All Areas of Critical Environmental Concern designated for purposes other than tortoise habitat protection and all lands not otherwise designated in RC-11-a, b or c.
- All Wilderness Study Areas (or portions) not included in RC-11-c.

Wilderness Study Areas are further limited to "existing trails and ways". This distinction is made because Wilderness Study Areas are by definition (and inventory) "roadless." However, some Wilderness Study Areas have 4-wheel drive jeep trails known as trails or ways that remain open to limited use. Wilderness Study Area Off-Highway Vehicle designations are interim, contingent on Congress making a final decision as to their designation as wilderness.

RC-11-e. *Management of Speed-Based Recreation Events* (See Appendix J.)

Within tortoise Areas of Critical Environmental Concern - Prohibit off-road vehicle speed events, mountain bike races, horse endurance rides, 4-wheel drive hill climbs, mini-events, publicity rides, high-speed testing, and similar speed based events.

Within other Areas of Critical Environmental Concern - Prohibit off-road vehicle speed events, 4-wheel drive hill climbs, mini-events, publicity rides and high speed testing. Mountain bike events and horse endurance rides may be allowed on a case-by-case basis and limited to existing roads and trails.

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Within non-Area of Critical Environmental Concern Critical Habitat - Nine speed-based events can be allowed yearly in the Nelson Hills/Eldorado Valley on existing roads and trails; with racing allowed between November 1 and February 28, and the number of laps limited to a maximum of five. Additional specifics may be included in the U.S.Fish and Wildlife Service Biological Opinion. If the U.S Fish and Wildlife Service changes critical habitat following the designation of tortoise Areas of Critical Environmental Concern, the Off-Highway Vehicle designations and off-road vehicle restrictions will be reviewed and modified if appropriate.

Nellis Dunes and dry lakes - Allow off-road vehicle and other speed events subject to environmental protection and public safety stipulations.

Other Areas - Permit events on a case-by-case basis. No seasonal restrictions. No new courses in critical desert tortoise habitat. No new off-road vehicle events in crucial bighorn sheep habitat.

RC-11-f. Management of Non-Speed Based Recreation Events (including non-speed portions of speed events; See Appendix J and Map 2-10).

Within desert tortoise Areas of Critical Environmental Concern - Allow non-speed events subject to the following limitations:

1. Issue Recreation Use Permits for events with more than 25 vehicles.

2. Events involving more than 100 vehicles must be held during the tortoise inactive season from November 1 to February 28/29. To maintain consistency with California vehicle limit restrictions, there will be a cap of no more than 300 motorcycles or 300 four-wheeled vehicles (including all terrain vehicles) on all events. With the exception that if a alternative route for the Barstow-to-Vegas event is not found, resulting in the need to traverse the Piute Area of Critical Environmental Concern, the number of entrants permitted in Nevada will be consistent with that permitted by California.

3. No Off-Highway Vehicle non-speed events will be permitted between April 1 and June 1 and between August 15 and October 15 (Dates will vary slightly annually due to calendar shifts to provide a full Saturday and Sunday weekend if April 1st falls during the weekend and to provide three full weekends prior to, or including November 1st).

4. A maximum of 10 permitted non-speed events, with a limit of 100 vehicles, will be allowed annually during the tortoise active season (March 1st to October 31, except for dates allowed in #3 above). There will be no more than three events per Area of Critical Environmental Concern, with the exception that an event based on historic use patterns will be allowed from Mesquite through the Mormon Mesa Area of Critical Environmental Concern. This event, which may have 200 entrants, counts as two of the 3 events held annually and is limited to a one-way route (north-south or south-north).

5. A maximum of 12 permitted non-speed events will be allowed annually during the tortoise inactive season (November 1 to February 28/29) with no more than 4 events per Area of Critical Environmental Concern.

6. Vehicles shall not exceed the legal speed limit (posted or unposted) of the roads used during the event. Clark County speed limit for unposted roads is 25 miles per hour. These events include, but are not limited to motorcycle or buggy rallies and mountain bike rides.

7. Authorized non-speed events that cross the Lincoln/Clark County borders will only be allowed in accordance with corridors identified within the approved Caliente Management Framework Plan Amendment.

Within other Areas of Critical Environmental Concern - Non-speed uses such as non-speed off-road vehicle events (road rallies, dual sport rides, and non-speed transfer sections of speed events), mountain bike events, and horse trail rides are allowed on existing roads, trails, and dry washes (RC-11-d).

Within non-Area of Critical Environmental Concern Critical Habitat - Non-speed uses such as non-speed off-road vehicle events (road rallys, dual sport rides, and non-speed transfer sections of speed events), guided commercial scenic tours, and mountain bike tours are allowed on existing roads and trails. If the U.S Fish and Wildlife Service changes critical habitat following the designation of tortoise Areas of Critical Environmental Concern, Off-Highway Vehicle designations will be reviewed and modified if appropriate.

Nellis Dunes and Dry Lake Beds - Allow off-road vehicle and other events subject to environmental protection and public safety stipulations.

Other Areas - Permit events on a case-by-case basis. No seasonal restrictions. No new courses in critical desert tortoise habitat.

Cave Management

Objective
RC-12. Protect significant cave resources including cultural, scientific, biological, geological, hydrological, educational and recreational values; and manage each cave for its primary unique resource opportunity.

Management Direction

RC-12-a. Determine the primary values of each cave and set long-term management goals and objectives.

RC-12-b. Enlist local and national caving organizations to assist in assessment and management of cave resources. Restrict access to cave location data to bonafide scientific studies and experienced cavers.

RC-12-c. Manage all cave resources as wild systems, free from commercial or show cave type developments. Special Recreation Permits for commercially guided trips by qualified cave experts may be considered if environmental studies show that cave resources will not be impacted.

RC-12-d. Establish a registration system for cave entry, where needed.

RC-12-e. Designate all significant cave resources and newly discovered cave resources as right-of-way avoidance areas.

RC-12-f. If necessary, implement closures to protect breading, hibernating, or migrating bats from unnecessary disturbances.

RC-12-g. If necessary, gate cave entrances to protect unique and fragile cave resources from damage or overuse.

Wild and Scenic Rivers Management

Objective
SR-1. Participate in a study of the Virgin River for Wild and Scenic River designation when proposal is initiated by either Arizona or Utah.

Management Direction

SR-1-a. Provide interim management protection for the river by including the area in the Virgin River Area of Critical Environmental Concern and requiring any proposed action to consider the potential affect on the river's classification as Wild and Scenic.

Wilderness Management

Objective
WS-1. Ensure that characteristics on certain lands that caused them to be inventoried and designated as Wilderness Study Areas are maintained and not diminished or lessened in any way that might constrain or limit Congress' final wilderness designation decisions.*

Management Direction

WS-1-a. Manage Wilderness Study Areas in accordance with the Interim Management Policy for Lands Under Wilderness Review.

Objective
WS-2. Provide management direction for new wilderness areas and Wilderness Study Areas not designated as wilderness by Congress and released from interim management.

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Management Direction

WS-2-a. Manage released lands to generally maintain the existing aesthetic qualities through multiple use management of those areas and to provide for semi-primitive recreation opportunities. Adopt limited use Off-Highway Vehicle, Visual Resource Management and Recreation Opportunity Spectrum designations consistent with designations already in place on adjacent non-Wilderness Study Area lands.

WS-2-b. Manage those lands released by Congress to allow opportunities for mineral exploration and development in accordance with current laws and regulations and consistent with decisions for minerals management on adjacent lands.

Objective

WS-3. Release from further wilderness review lands in the Logandale area that were omitted from the original wilderness review that do not meet Wilderness Study Area criteria.

During the BLM's wilderness study, there were 20,299 acres in several parcels inadvertently omitted due to a mapping error showing the lands as State of Nevada property. Because of this error, these lands were in an uncertain status. A subsequent field inventory determined that these lands do not meet the criteria necessary for Wilderness Study Area designation. This objective completes the inventory/decision process.

Management Direction

WS-3-a. Release the Logandale Unit from further consideration as wilderness due to the existing uses of the area as a roaded natural recreation area. These uses have impacted the area's naturalness and comprised its primitive and unconfined recreational opportunities potential.

Minerals Management

See Map 2-3 (Land Disposal Areas) and Map 2-7 (Areas of Critical Environmental Concern) for the locations of the mineral management areas described below.

Objectives

MN-1. Where lands remain open to entry provide for orderly exploration and development of valuable minerals on Federally owned mineral estate whether or not the surface estate is in Federal ownership.

MN-2. Use appropriate environmental safeguards to allow for the preservation and enhancement of fragile and unique resources.

Management Direction

Solid Leasable Minerals

MN-1-a. On split estate lands, private surface that is developed for non-mineral use will not be managed for solid mineral development.

MN-1-b. Allow solid mineral leasing on 1,872,673 acres, which are on lands outside identified disposal and administrative areas, outside riparian and natural spring areas, and outside Areas of Critical Environmental Concern, subject to standard lease terms and conditions (see Appendix M). Proposed Areas of Critical Environmental Concern, Disposal Areas, and Locations and Areas Closed to Authorization/Renewal of Material Site Rights-of-Way and to Mineral Materials Disposal and Locatable Minerals and Solid Leasables are listed in Tables 2-2, 2-3, 2-4, 2-5, 2-6, 2-11 and 2-12. See Maps 2-3 and 2-7.

MN-1-c. After June 1, 1999, do not renew sand and gravel solid mineral leases that lie within lands identified for disposal (Map 2-3). Except as otherwise provided, continued sand and gravel extraction would be considered under 43 Code of Federal Regulations Part 3600, subject to authorized officer approval. No sales under the 3600 regulations would be made until the leases expire.

MN-1-d. Solid mineral leasing will be allowed on lands released from Wilderness review that are not within Areas of Critical Environmental Concern, and not within areas described in MN-1-a, MN-1-b, MN-1-c, above.

Fluid Leasable Minerals

MN-1-e. Allow fluid mineral leasing subject to standard terms and conditions on 1,909,351 acres, which are outside identified disposal and administrative areas and outside Areas of Critical Environmental Concern. (See Appendix M and Maps 2-3 and 2-7.)

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MN-1-f. Allow fluid mineral leasing on lands released from wilderness review, subject to the management direction in MN-1-e, MN-1-g, and MN-1-n. The total acreage released will not be known until Congress acts.

MN-1-g. Allow fluid mineral leasing, subject to No Surface Occupancy stipulations within areas having important cultural, geological, and riparian resources; special status species plant and animal habitat; Areas of Critical Environmental Concern; administrative sites; and Special Recreation Management Areas. The ACECs subject to this No Surface Occupancy provision total approximately 866,000 acres (see list of these ACECs and acreages of each below). For Areas of Critical Environmental Concern noted with **, the acreage *excludes* Bureau of Reclamation withdrawals.

ACEC	*Acres*
Piute/Eldorado Valley	329,440
Coyote Springs Valley	75,500
Mormon Mesa	151,360
Gold Butte, Part A (including Whitney Pockets, Devil's Throat, Red Rock Springs ACEC, Bureau of Reclamation lands.)**	185,469
Arden Historic Sites	1,480
Arrow Canyon	2,084
Ash Meadows (outside Ash Meadows National Wildlife Refuge)	27,729
Big Dune	1,920
Crescent Townsite	437
Hidden Valley	3,360
Keyhole Canyon	361
Rainbow Gardens **	37,620
River Mountains **	5,617
Sloan Rock Art District	320
Stump Spring	641
Virgin River Desert Tortoise Conservation Center Management Area (excluding 475-acre overlap with Arden Historic Sites)	11,014
Nellis Dunes Recreation Area	10,000
Public Domain lands within Ash Meadows National Wildlife Refuge	9,423
Muddy River Riparian zone	205
Virgin River Riparian zone within 0.25 mile of natural springs (See Table 3-3).	805
	8,000
Total Acres:	866,067

MN-1-h. Close the Ash Meadows Area of Critical Environmental Concern, including BLM lands inside the Ash Meadows National Wildlife Refuge to geothermal prospecting and leasing.

MN-1-i. Allow fluid mineral leasing (subject to Timing and Surface Use Constraint special stipulations) on the four Areas of Critical Environmental Concern listed below totaling approximately 112,000 acres. These ACECs have special wildlife habitat, riparian, cultural, and geologic values.

ACEC	*Acres*
Amargosa Mesquite	6,891
Gold Butte, part B, outside of Wilderness Study Areas	66,477
Gold Butte, part C (Virgin Mountains)	38,431
Total acres:	111,799

Locatable Minerals

MN-1-j. An estimated 2,135,146 acres would remain open to the operation of the mining laws after existing withdrawals for military uses, industrial sites, and powersites (see Map 2-7).

MN-2-a. Withdraw the following urban disposal areas, BLM- administrative areas, special plant and animal management areas, sensitive cultural resource sites, and special geologic areas from the operation of the mining laws, subject to valid existing rights. Within desert tortoise areas of critical environmental concern, conduct validity determinations of mining claims prior to approval of a mine plan on pre-existing mining claims.

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Areas to be Segregated and Withdrawn:

Urban Disposal and BLM Administrative Areas	Acres
Amargosa	27,904
Goodsprings	915
Indian Springs	1,303
Jean	2,445
Lathrop Wells	3,773
Las Vegas Valley	54,487
Laughlin	4,720
Mesquite	14,460
Moapa	40,950
Nelson	1,259
Pahrump	14,768
Primm	1,181
Sandy Valley	6,268
Searchlight	1,944
Three Lakes Valley	1,989
Valley West (Blue Diamond)	995
Desert Tortoise Conservation Center Management Area (excludes the 495-acre overlap with Arden Historic Sites)	11,014

Desert Tortoise Habitat Areas, Cultural Resource, and Special Geologic Areas:	*Acres*
Piute /Eldorado Valley ACEC	329,440
Coyote Springs Valley ACEC	75,500
Mormon Mesa ACEC	151,360
Gold Butte ACEC, Part A (including,, Devil's Throat*, Red Rock Springs*, and Whitney Pockets* Areas of Critical Environmental Concern, and Bureau of Reclamation lands.)	185,469
Amargosa Mesquite ACEC	6,891
Arden Historic Sites ACEC	1,480
Arrow Canyon ACEC	2,084
Big Dune ACEC	1,920
Ash Meadows ACEC(outside Refuge)	27,729
Crescent Mining Town ACEC	437
Devils Throat ACEC*	
Gold Butte, Part B (includes Gold Butte Townsite ACEC)	118,536
Hidden Valley ACEC	3,360
Keyhole Canyon ACEC	361
Rainbow Gardens ACEC	37,620
Red Rock Springs ACEC*	
River Mountains ACEC	11,095
Sloan Rock Art District ACEC	320
Stump Springs ACEC	641
Whitney Pockets ACEC*	
Virgin Mountains ACEC	38,341
Virgin River ACEC	6,411

Special Recreation Management Areas:	*Acres*
Nellis Dunes	10,000

Riparian Zones:	*Acres*
Muddy River riparian zone	205
Virgin River Riparian zone	805
Within 0.25 mile of natural springs (See Table 3-3).	8,000
Ash Meadows National Wildlife Refuge (BLM-administered lands)	9,423
ACEC and Special Recreation Management Areas (see Maps 2-7 and 2-5; also see Table 3-3 for spring areas.)	
Total acres:	1,227,226

Salable Minerals

MN-1-k. Allow salable mineral disposal outside the areas listed in Table 2-12, and outside Areas of Critical Environmental Concern (see Tables 2-2 through 2-6). Two exceptions are described below, one for highway maintenance use in desert tortoise management Areas of Critical Environmental Concern, and another for existing Clark County Free-Use and Government Wash Community Pit on the east edge of the Rainbow Gardens Area of Critical Environmental Concern. (*Note*: Legal descriptions are in Appendix M.)

1) Gold Butte A, Coyote Springs, Mormon Mesa and Piute/Eldorado desert tortoise Areas of Critical Environmental Concern remain open to issuance of free-use permits only within 0.50 mile to either side of the State highways and County Roads identified on Maps 2-12 and 2-13. These authorizations would only be issued to governmental entities. Grant permits only for a limited period of time. For expansions of existing pits exceeding a cumulative total of 1,000 acres of new disturbance, the applicant would be responsible for U.S. Fish and Wildlife consultation addressing possible impacts to the Desert Tortoise.

2) Allow existing free-use and community pit authorizations in Township 20 South, Range 64 East, within the Rainbow Gardens Area of Critical Environmental Concern, to

be re-authorized or renewed, but do not allow expansion of the sites.

MN-1l. Mineral material disposal determined to be detrimental to desert tortoise would not be authorized.

MN-1-m. Consultation with the affected town board or advisory council would occur prior to approval of salable minerals disposal that could impact an unincorporated town or community.

Material Site Rights-of Way

MN-1-n. Allow new material site rights-of-way designation outside Areas of Critical Environmental Concern listed in Tables 2-2 through 2-6 and shown on Map 2-7. An exception is described below for material site rights-of-way in desert tortoise Areas of Critical Environmental Concern.

Exception: Gold Butte A, Coyote Springs, Mormon Mesa, and Piute/Eldorado desert tortoise Areas of Critical Environmental Concern would remain open to the granting of material site rights-of-way only within 0.50 mile to either side of those federal aid highways identified on Maps 2-12 and 2-13. These authorizations would only be issued to governmental entities. Apply acreage limitations identified under MN-1-k.

Hazardous Materials Management

Objective
HZ-1. Prevent hazardous materials contamination of public lands.

Management Direction
HZ-1-a. Minimize releases of hazardous materials through compliance with current regulations. When hazardous materials are released into the environment, assess their impacts on each resource and determine the appropriate response, removal, and remedial actions to take.

Objective
HZ-2. Reduce risks associated with hazardous materials on public lands.

Management Direction
HZ-2-a. Evaluate all actions (including land use authorizations and disposals, mining and milling activities, and unauthorized land uses) for hazardous materials, waste minimization and pollution prevention.

HZ-2-b. Complete site-specific inventories when lands are being disposed or acquired. It is departmental policy to minimize potential liability of the Department and its bureaus by acquiring property that is not contaminated unless directed by Congress, court mandate, or as determined by the Secretary." (602 DM 2).

HZ-2-c. Inspect mining and milling sites to determine appropriate management for hazardous materials.

Fire Management

Objective
FE-1. Provide fire suppression on approximately 3,332,000 of public acres, based on suppression areas/zones and resource management needs (Map 2-11).

Management Direction
FE-1-a. Provide fire suppression efforts commensurate with resource and adjacent property values at risk.

FE-1-b. Prevent human-caused fires through an aggressive education, investigation, and public outreach effort.

FE-1-c. Provide for maximum fire protection through a comprehensive fire detection system using a multi-agency approach.

FE-1-d. Use approved fire suppression techniques in areas of critical environmental concern where there are concerns for habitat, cultural resources, threatened and endangered species, wilderness study areas, designated natural areas, and urban/rural/wildland interface zones.

FE-1-e. For fire suppression , follow specific guidance in the Fire Management Action Plan.

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Objective
FE-2. Allow prescribed fire for resource enhancement purposes on those areas identified on Map 2-11.

Management Direction
FE-2-a. Determine specific hazard reduction priorities, including any noxious or invasive species infestations, and implement according to the existing budget.

Objective
FE-3. Provide fuels reduction management for resource protection on those areas identified on Map 2-11.

Management Direction
FE-3-a. Determine specific prescribed burn priorities annually, including any noxious or invasive species infestations, and implement where possible.

Objective
FE-4. Provide fire suppression assistance to other state and federal entities where formal agreements are in place.

Management Direction
FE-4-a. Provide, maintain, and/or upgrade fire management cooperative agreements, memoranda of understanding, and reciprocal agreements to provide maximum protection to resources and or adjacent property values.

Management Areas

Fire Suppression Areas/Zones
The planning area is subject to suppression for wildland fires in three suppression zones (see Map 2-11) based on site-specific resource management needs (such as critical desert tortoise habitat, Wilderness Study Areas and Areas of Critical Environmental Concern).

Develop specific tactics and initial attack schemes in subsequent activity plans.

Zone 1: General Characteristics
This area does not contain critical desert tortoise habitat. The dominant vegetation throughout most of the zone is perennial. There is high recreation and visitor use, high fuel carryover potential, high urban/wildland interface factor, and a high interagency mutual aid assistance factor. Unique vegetative communities exist throughout the zone. Non-attainment air quality is an issue. A higher percentage of human-caused and or related fires occur in Zone 1 than in other areas.

Zones 2A and 2B: General Characteristics
These areas contain critical desert tortoise habitat and bighorn sheep populations. There is a higher percentage of ephemeral/perennial plant communities, which can periodically produce heavy fuel loading of persistent annual species. Areas in these zones are mostly rural/wildland interface where a higher volume of fires are caused by lightening. Historic mining districts are more prevalent. These zones are generally more dry. Interagency mutual aid and assistance is necessary. Non-attainment air quality is an issue to a lesser degree, and unique vegetative communities exist throughout the zones.

Fire Use Areas - Prescribed burning for resource enhancement may occur in the Gold Butte Allotment (where important values are wildlife, watershed, wild horses and burros), South McCullough Range (for wildlife), Virgin River Floodplains (where important values are riparian, wildlife, water quality, and recreation), and the Ash Meadows/Amargosa Flat Area.

Fire Fuels Management Areas - The fuel hazard reduction for resource/property protection will occur in the Virgin Peak White Fir Stands (ladder fuel reduction), South McCullough Range Pinyon-Juniper Woodlands (shaded fuel break), and the Spring Mountain Woodlands (ladder fuel reduction).

Table 2-12. Locations and areas closed to authorization/renewal of material site rights-of-way and to mineral materials disposal, solid mineral leasing and subject to segregation and withdrawal of locatable minerals.

	Acres
Valid Existing Closures	
Amargosa Mesquite ACEC	6,891
Arden Historic Sites ACEC	**1,595
Arrow Canyon Paleontological Site ACEC	2,084
Ash Meadows ACEC	37,152
Big Dune ACEC	1,920
Crescent Mining Townsite ACEC	437
Coyote Springs ACEC	75,500
Devil's Throat ACEC	*640
Gold Butte ACEC, Part A	185,469
Gold Butte ACEC, Part B (including Gold Butte Townsites)	118,937
Gold Butte ACEC, Part C (Virgin Mts)	38,431
Hidden Valley (Muddy Mountains) Archaeological District ACEC	3,360
Keyhole Canyon Rock Art Site ACEC	361
Mormon Mesa ACEC	151,360
Piute-Eldorado ACEC	329,440
Rainbow Gardens ACEC	37,620
Red Rock Spring Archaeological Site ACEC	*640
River Mountains ACEC	5,617
Sloan Rock Art Site ACEC	320
Stump Spring Prehistoric/Historic Site ACEC	641
Virgin River Anasazi Prehistoric District ACEC	6,411
Whitney Pocket Archaeological Complex ACEC	*160
Desert Tortoise Conservation Center	11,489
Nellis Dunes Special Recreation Management Area	10,000
Virgin River riparian zone	805
Muddy River riparian zone	205
Within 1/4 mile of natural springs and associated riparian zones	8,000
Total Acres (excluding overlaps and existing Bureau of Reclamation withdrawals)	1,033,569

**Arden Historic Sites ACEC overlaps 475 acres within the Desert Tortoise Conservation Center.
* Gold Butte ACEC, Part A overlaps Devil's Throat ACEC, Red Rock Spring ACEC, and Whitney Pockets ACEC.

Chapter 3 - Affected Environment

Introduction

This chapter describes environmental components of the planning area potentially affected by implementation of the Proposed Resource Management Plan/Final Environmental Impact Statement. These include lands, minerals, soils, water resources, air quality, vegetation, wildlife habitat, wild horses and burros, livestock grazing, paleontological and cultural resources, visual resources, recreation, wilderness, natural areas, and socio-economic conditions. Much of the data contained within this chapter is drawn from the more detailed *Analysis of the Management Situation*. The existing data was updated where possible to reflect current conditions. The data is available for public review at the Las Vegas BLM Field Office.

Physical Description of the Planning Area

Physiography

The topography and drainage of Clark County and southern Nye County are characteristic of the Basin and Range Province, with internally draining basins separated by ranges, hills, and mesas. The trend of the ranges is not always uniform, but a general north-south orientation is apparent. The Las Vegas Valley cuts diagonally across much of Clark County, following a line of north-trending ridges that bend toward the west at the northern end of the valley and toward the east in the south. The Grand Wash Cliffs, a few miles beyond the eastern edge of Clark County, mark the boundary between the Basin and Range Province and the Colorado Plateau Province. Most of the planning area lies within the Colorado River Basin and is externally drained by the Colorado River and its tributaries. The remaining portions drain either to the Central Region or Death Valley.

The mountain ranges, generally composed of exposed bedrock, are steep and cut by deep ravines. They rise abruptly above smooth and gently sloping basin floors. Erosional forces transport materials downslope from the mountains. This alluvium coalesces into extensive fans along the margins of the valleys and basins. These deposits are now being actively eroded and dissected by many deep gullies. Elevations in the planning area range from approximately 11,900 feet above sea level at Charleston Peak, the fifth highest peak in Nevada, to approximately 500 feet in the vicinity of Laughlin.

Lowlands comprise a large percentage of the total surface area. A few of the large valleys, including the Muddy and Virgin Valleys, drain into the Colorado River system. Others (such as the Amargosa Valley, Indian Springs Valley, Dry Lake Valley, Eldorado Valley, and the upper portion of the Las Vegas Valley) are enclosed basins with no external drainage.

The geologic history of southern Nevada includes repeated periods of deposition, uplift, igneous activity, and erosion since the Paleozoic, which ended approximately 250 million years ago. Thick sequences of marine sedimentary deposits accumulated throughout Paleozoic and Mesozoic times; these strata are exposed in the vividly colored formations of the Red Rock Canyon National Conservation Area Lands, west of Las Vegas.

Approximately 50 million years ago, thick volcanic materials extruded over broad areas of the region, then were uplifted and deformed by faulting. Since the mountain-building periods, southern Nevada has been geologically quiet, with activity restricted largely to depositional and erosional forces.

Climate

The climate in the Las Vegas District is characteristic of southern Nevada. The Sierra Nevada Range of California and the Spring Mountains west of the Las Vegas Valley act as a barrier to moisture-laden storms moving inland from the Pacific Ocean. Air masses are cooled as they ascend the western slopes of these ranges. Precipitation is lost prior to descent of these masses into the warmer valleys. The average annual precipitation ranges from 4 to 8 inches at lower elevations, and from 12 to 20 inches at higher elevations. Maximum precipitation normally falls between November and March, when an average of 40 to 60 percent of annual amounts are received. Minimum precipitation occurs in May, June, September, and October. During July and August, thunderstorms are common, contributing between 25 and 30 percent of annual precipitation. These storms

are often of sufficient intensity to produce localized flash flooding.

Evaporation rates are extremely high in southern Nevada. The area's high temperatures, low humidity, abundant sunshine, and wind cause the amount of surface waters lost to exceed precipitation received. At Lake Mead, for example, the annual loss is nearly 20 times the annual gain from precipitation.

The lowest elevations of the planning area are in the Mojave Desert, one of the few genuine hot desert areas in the United States. The winters are mild, with daytime temperatures reaching an average maximum of 60 degrees Fahrenheit and nighttime temperatures averaging 35 to 45 degrees. Summers are hot, with daytime maximum temperatures averaging 95-105 degrees Fahrenheit and nighttime temperature minimums from 70 to 75 degrees. Southern Nevada also has a high percentage of sunny days per year; in Las Vegas, 85 percent of the year can be expected to be sunny.

Air Resource Management

Air quality is determined by several factors, including landform, amount of contaminants emitted into the atmosphere, and meteorological conditions. In southern Nevada, stable atmospheric conditions, low mixing heights, and light winds during night and morning hours provide opportunities for contaminants to accumulate. Atmospheric dispersion of pollutants generally improves by mid-afternoon.

The effects of ambient air quality within an air basin depend mainly on the characteristics of the receptors and the type, amount, and duration of exposure. As defined in 40 CFR 50.1(e), ambient air is "that portion of the atmosphere, external to buildings, to which the general public has access." As required by the Clean Air Act and established by the Environmental Protection Agency, National Ambient Air Quality Standards specify the concentration and duration for which pollutants may cause adverse health effects. National primary ambient air quality standards define levels of air quality, with an adequate margin of safety to protect the public health. National secondary ambient air quality standards define levels of air quality, with an adequate margin of safety, to protect the public welfare from any known or anticipated adverse effects of a pollutant. Where differences in local and national standards exist, the more stringent standards apply. The National Ambient Air Quality Standards shown in Table 3-1 were adopted by the State of Nevada and Clark County. The National Ambient Air Quality Standards were established for carbon monoxide, nitrogen oxides, ozone, particulate matter, sulfur oxides and lead.

Carbon monoxide is produced primarily by incomplete fuel combustion in motor vehicles. The major effects of carbon monoxide occur near its sources (busy streets and freeways). The highest carbon monoxide measurements usually occur in the winter when winds are light and temperature inversions trap air near the ground surface from early evening through mid-morning, preventing pollutant dispersal. Traffic peaks in early morning and late afternoon produce corresponding peaks in carbon monoxide concentrations, which is a reoccurring trend throughout the year. Although the 1-hour standard for carbon monoxide has never been exceeded, the 8-hour standard is exceeded on a seasonal basis. According to Clark County Comprehensive Planning, the overnight buildup of pollutants causes violations of the carbon monoxide 8-hour air quality standard in a limited area surrounding the East Charleston monitoring station. Carbon monoxide has a toxic potential to human health. When breathed, carbon monoxide impairs oxygen transport, sometimes adversely affecting the cardiovascular system and the central nervous system. The severity of health effects increases with the level and duration of exposure (Seinfeld 1986).

The primary contributor of PM_{10} throughout the Las Vegas BLM District is fugitive dust, both naturally occurring in a desert environment and human caused. The latter are largely responsible for excesses of the PM_{10} National Ambient Air Quality Standards within the Las Vegas Valley. The major sources of PM_{10} emissions in the valley are paved and unpaved roads, construction activities, industrial/commercial facilities, motor vehicle exhaust, and disturbed vacant land. Particulate matter less than 10 microns in size is of special concern because it is inhaled deep into the lungs. The ultimate effects of particles on human health are difficult to determine however. There is little data available regarding the effects of industrial particulates versus those of soil-related dust. Because most health studies have examined only fossil fuel generated particulates, and most of Las Vegas Valley's particulate concentrations are due to soil related dus it is inappropriate at this time to estimate the health effects induced by particulate matter concentrations in the valley.

Table 3-1. Ambient air quality standards.

Pollutant	Averaging Time	Primary	Secondary
NATIONAL AMBIENT AIR QUALITY STANDARDS			
Carbon monoxide (CO)	8-hour concentration[a]	9 ppm	
	1-hour concentration[a]	35 ppm	
PM_{10}	Annual arithmetic mean	50 ug/m^3	50 ug/m^3
	24-hour concentration[a]	150 ug/m^3	150 ug/m^3
Sulfur dioxide (SO_2)	Annual arithmetic mean	0.03 ppm	
	24-hour concentration[a]	0.14 ppm	
	3-hour concentration[a]	0.5 ppm	
Nitrogen dioxide (NO_2)	Annual arithmetic mean	0.053 ppm	0.053 ppm
Ozone (O_3)[b]	1-hour concentration	0.12 ppm	0.12 ppm
Lead (Pb)	Arithmetic mean per calendar quarter	1.5 ug/m^3	1.5 ug/m^3
NEVADA AMBIENT AIR QUALITY STANDARDS			
Total suspended particulates (TSP)	Annual mean	75 ug/m^3	75 ug/m^3
	24-hour concentration for Las Vegas Valley	260 ug/m^3	260 ug/m^3
	24-hour concentration elsewhere in Clark County	150 ug/m^3	150 ug/m^3
Hydrogen sulfide (HS)	1-hour concentration	0.08 ppm	0.08 ppm
Visibility		Maintain the prevailing visibility of greater than 30 miles.	

Key:
a Not to be exceeded more than once per year.
b The number of days with hourly concentrations greater than the standard are not to be exceeded more than once per year.
ppm Parts per million
ug/m^3 Micrograms per cubic meter

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Ozone is produced through a series of chemical reactions. A reaction between reactive hydrocarbons and nitric oxides, both of which are primarily emitted by motor vehicles, forms nitrogen dioxide and other compounds. The formation of nitric oxide and an oxygen atom follows the photodissociation of the nitrogen dioxide by sunlight. The oxygen atom then combines with oxygen molecules to form ozone. Ozone is an irritant of the respiratory system. It inhibits proper functioning of the lungs and can cause symptoms of chest tightness, coughing, and wheezing. These symptoms can occur after short-term exposure of between 294 and 490 ug/m^3 (Clark County Comprehensive Planning 1980).

Lead is primarily emitted through combustion of leaded fuel in motor vehicles. Indications are, however, that lead emissions are on the decline due to reductions in the use of leaded fuel. Once absorbed by the respiratory tract and then into the blood stream, lead is accumulated in the kidneys and liver. The nervous system may also be effected through inhalation of lead in the air (Clark County Comprehensive Planning 1980).

Nitrogen dioxide forms in the high temperature combustion of fuels, motor vehicle exhaust and the burning of organic wastes. At high concentrations, nitrogen dioxide has been shown to cause lung damage. The effects at the current levels both indoors and outdoors are difficult to characterize (Seinfeld 1986).

Sulfur dioxide forms during the combustion of all sulfur-containing fuels, such as coal and oil. Effects of sulfur dioxide on human health is primarily associated with the upper respiratory system, particularly in asthmatics.

Air pollutants not only have the potential to affect humans but also other components of the environment including, wildlife, fish, and vegetation. Wildlife can be affected by air pollutants through inhalation, adsorption and/or ingestion. Their populations can be directly affected through injury or death or indirectly through contamination of their food chain or loss of habitat (USFWS 1980).

Among the several air pollutants that harm vegetation are sulfur dioxide, ethane, and peroxyacetyl nitrate. Chlorine, hydrogen chloride, mercury, and ammonia are also harmful but to a lesser severity. Pollutants enter the plant through the stomata during normal respiration. Once in the leaf, they destroy chlorophyll and disrupt photosynthesis, resulting in damage ranging from growth rate reduction to actual death of the plant (Cooper 1986).

Visibility is generally referred to as the relative ease with which objects can be seen through the atmosphere under various conditions. Particulate matter and gases introduced into the atmosphere either absorb or scatter the light, reducing the amount of light a person can receive from a viewed object. The effect is a degraded aesthetic value of surrounding landscape.

The Clean Air Act specifies preventing pollution that would interfere with visibility in the mandatory Federal Class I areas. Mandatory Federal Class I areas refers to international parks; national wilderness areas, and memorial parks greater than 5,000 acres in size; and national parks greater than 6,000 acres in size. Although there are no Class I areas within the Las Vegas BLM District, there are such areas located downwind. The closest to the planning area is the Grand Canyon National Park in Arizona. Others include Bryce Canyon National Park and Zion National Park , both located in the southern most portion of Utah. No current data definitively indicates that southern Nevada, and in particular the Las Vegas Valley, impacts these parks. The Grand Canyon Visibility Transport Commission, which is managed by the Environmental Protection Agency and the Western Governor's Association, is currently investigating visibility-impairing pollutants and their effect on these and other parks and wilderness areas of the Colorado Plateau (Shivley 1995).

According to the Clark County Health District, a haze day is classified as an average reading for one hour or more between 5:00 AM and 11:00 AM when the visual range is less than 12 miles. If the visual range for one hour is less than 4.8 miles, haze is considered to be intense. The highest haze levels tend to occur in late fall and winter when night and morning inversions are most frequent and stagnant conditions exist. Currently, visibility is measured in two locations in the valley (metropolitan Las Vegas and Henderson). The greatest number of haze days recorded at these locations for a one-year period was 194 and 157, respectively. The greatest number of intense haze days for a one -ear period was 93 and 30, respectively. Data gathered to date indicates visibility improvement in Henderson and a deterioration in Las Vegas. At this time, there is no visibility standard for the rest of Clark County.

Table 3-2. Las Vegas Valley estimated emissions (tons/year) by source categories for 1993.

Source Category	PM_{10}	CO	VOC	NO_x	SO_2
Stationary Point Sources[a]	23,456	4,344	1,011	4,654	1,049
Stationary Area Sources[b]	---	2,198	12,650	1,546	
On-Road Mobile Sources[c]	1,770	156,777	20,317	22,564	---
Non-Road Mobile Sources[d]	---	16,767	3,883	9,515	---
Totals	**25,226**	**180,086**	**37,861**	**38,279**	**1,049**

Key:
PM_{10} Particulate Matter less than 10 microns in size.
CO Carbon monoxide
NO_x Oxides of nitrogen
VOC Volatile organic compounds
SO_2 Sulfur dioxide

a Generally, any stationary source for which individual records are collected and maintained. Point sources are usually defined as any facility which releases more than a specified amount of a pollutant.

b An aggregation of stationary sources too small, difficult, or numerous to classify as point sources. The area source emissions are assumed to be spread over a broad area.

c Any moving source of air pollutants utilizing roadways such as automobiles.

d Any moving source of air pollutants not utilizing roadways such as aircraft, locomotives, and construction equipment.

[Source: Clark County Health District, Hock, 1995; Clark County Comprehensive Planning, Cates, 1995; and Nevada Department of Environmental Protection, Branmueller, 1995]

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Table 3-3. Estimated emissions (tons/year) of primary sources outside the Las Vegas Valley for 1993.

Source	PM_{10}	CO	VOC	NO_x	SO_2
Reid-Gardner Power Plant[a]	2,397.69	---	---	8,739.92	9,651.96
Mojave Generating Station[a]	2,505.21	---	---	21,703.87	35,852
Chemical Lime Company	272.3	259.5	7.8	363.3	138.6
PABCO Gypsum Wallboard Plant	157.5	261.3	7	93.4	3.4
LASCO Bathware	0.3	0	293.8	0	0
Gornowich Sand and Gravel	5	---	---	---	---
Royal Cement Co. Inc.	113.3	32	---	480	63.9
Charles C. Heisen Associates	7.5	---	---	---	---
Las Vegas Paving Corporation (APEX)	39.4	23.6	7.9	84.2	4.1
Western Ash Company	9.6	---	---	---	---
APEX Waste Mgnt. Center Environmental Technologies Solid Waste Landfill	1.4	1.8	0.3	2.4	0.2
APEX Waste Mgnt. Center Environmental Technologies Soil Remediation Facility	3.5	5.8	18.4	3.3	0.3
Kern River Gas Transmission Company	1.16	2.73	6.5	231.7	---
Georgia Pacific Mine	40.06	---	---	---	---
Georgia Pacific Wallboard Plant	10	227.1	---	63.9	8
Colorado Belle Hotel/Casino	0.2	0.75	0.3	3.5	0.1
Total	**5,564.1**	**814.6**	**342**	**31,769.49**	**45,722.56**

Key:
a 1994 emissions

PM_{10} Particulate Matter less than 10 microns in size.
CO Carbon monoxide
NO_x Oxides of nitrogen
VOC Volatile organic compounds
SO_2 Sulfur dioxide

[Source: Clark County Health District, Hoch, 1995; and Nevada Department of Environmental Protection, Branmueller, 1995]

Air quality is generally considered acceptable if pollutant levels are less than or equal to established standards on a continuous basis, as is the case for those areas lying outside Las Vegas Valley. These areas are characterized by a sparse population and few pollution sources. The Las Vegas Valley, however, presently exceeds standards for inhalable particulate matter (PM_{10}) and carbon monoxide and, consequently, has been termed a non-attainment area (an area that exceeds any national ambient air quality standards). Map 3-4a identifies the boundary of the Las Vegas Valley Non-Attainment Area. Table 3-2 identifies source categories and amounts of emissions within the Las Vegas Valley.

Although air quality outside the Las Vegas Valley is in conformance with the National Ambient Air Quality Standards, there are several primary sources of pollutant emissions. These sources, along with the amounts of pollutants they produce are identified in Table 3-3. The largest contributors are the two power generating stations, Reid Gardner Power Plant in the northeastern part of the planning area at Moapa, Nevada and the Mojave Generating Station in the far southern part of the planning area at Laughlin, Nevada. According to 1994 data, the Reid Gardner Power Plant emits 2,398 tons of PM_{10}, 8,740 tons of NO_X and 9,652 tons of SO_2 annually. The Mojave Generating Station is the largest pollutant source with 2,505 tons of PM_{10}, 21,704 tons of NO_X and 35,852 tons of SO_2 emitted annually.

Soils Management

Throughout the Las Vegas District, there is a sharp contrast in physiography between mountainous areas and interior lowlands. Soils in the region developed under different environmental influences. Under the arid conditions that prevail at all except the highest elevations, the soil has little downward leaching. Most leaching is confined to the translocation of soluble material (usually lime) from the surface to the subsoil, with the resultant formation of a hardpan. These soluble salts are usually leached only to a depth of 1 to 2 feet.

In this climate, rocks tend to disintegrate rather than decompose. Mechanical breakdown (spalling) is more common than chemical action. As a result, mountains are covered with a thin veneer of rock fragments. Cloud bursts and showers sweep large quantities of this material into ravines and valleys, forming alluvial fans of the coarser material. Finer-grained sediments are washed into the lowlands.

Wind is also an active agent in soil movement. Wind-blown sand is common, with the greatest accumulations in the lower valleys, often forming dunes. Wind-blown silts, mixed with the fine alluvium washed down from the slopes, comprises the soil mantle of the valleys. The term "blow sand" arises from the fact that much of the surface soil is wind-deposited.

Organic matter in most desert soils is far less than the average 3 to 5 percent by weight contained in soils formed in humid regions. Even in a wet year when spring annuals are abundant, much of the vegetative matter is oxidized by summer heat before it can be turned into humus. A gravelly surface referred to as "desert pavement" is found throughout the planning area. This surface is stable and resistant to erosion. Erosion is normally active on surfaces lacking a desert pavement. The sparse cover of vegetation does little to reduce wind and water velocities. Wind erosion is a major factor in recharging surface soils with carbonates through the movement and deposition of calcareous dusts.

Soils in the Las Vegas BLM District are primarily Entisols and Aridisols; a few Mollisols occur at the upper elevation of mountain ranges and on high plateaus. These are described in detail below. The Entisols have little or no evidence of development of pedogenic horizons. They are located in areas where soils are actively eroding (steep slopes) or receiving new deposits of soil materials (alluvial fans and floodplains).

Aridisols have one or more pedogenic horizons that may have formed in the present environment, or that may be relics from a former pluvial period. These soils do not have water available to plants for long periods of time and the surface is generally bare. Aridisols are often associated with desert pavement.

Mollisols are the very dark colored, base rich soils of high elevations. A few Mollisols are found high in the Spring Mountains and the Sheep Range. They may also occur above approximately 5,000 feet in the Virgin Mountains, the Gold Butte area, and at other locations where environmental conditions permit accumulation of organic materials.

Soil Erosion

Soil erosion involves two processes: (1) a detachment or loosening influence, and (2) transportation by means of floating, rolling, dragging, and splashing. Freezing and thawing; flowing water; and rain impact provide the detaching agents. Raindrop splash and especially running water facilitate the carrying away of loosened soil. On comparatively smooth soil surfaces, the beating of rain drops results in most of the detachment.

During the high intensity, short duration thunderstorms common in the region, raindrop impact tends to destroy soil aggregates, enhance sheet and rill erosion, and encourage considerable transportation by splashing. A hard crust often develops upon drying. This crust impedes seedling emergence, greatly reduces infiltration for the next storm, and limits the possibilities for vegetative shielding which, by absorbing the energy of rain impact, prevents loss of both water and soil and reduces degranulation to a minimum. However, in some desert locations, this surface crust does cover loose, fine soil particles, resulting in limited protection from wind erosion. In the vegetation types offering generally sparse cover, little interception of precipitation or protection from overland flow of water occurs.

As is the case with water erosion, the loss of soil by wind movement also involves detachment and transportation. The abrasive action of the wind results in some detachment of tiny soil grains from the granules or clods of which they are a part. When the wind is laden with soil particles, its abrasive action is greatly increased. The impact of these rapidly moving grains dislodges other particles from soil clods and aggregates. The cutting and abrasive effects, especially of sand, upon tender leaves and vegetation is harmful.

Erosion susceptibility is a measure of the erosion potential of a soil whose surface has been disturbed. Wind and water erosion potential are used to determine susceptibility in an area. Soil surveys conducted by the Soil Conservation Service, now the National Resource Conservation Service, were used to develop erosion susceptibility ratings for the planning area (see Map 3-2).

All of the Las Vegas BLM District is within the low-to- moderate susceptibility range, with the exception of a few relatively small areas rated as high in the northeast. Approximately 90,550 acres in the planning area have a high erosion susceptibility rating; 1,306,620 acres have a moderate rating; and 1,480,440 acres have a low rating.

Wind erosion potential is classified as low, moderate, or high. Soils with a Natural Resources Conservation Service wind erodibility group rating of 1 or 2 are classified as high. A moderate rating is given to soils with a wind erodibility group rating of 3 or 4, and a rating of slight is given to soils with a wind erodibility rating of 5 or more.

Each soil also has a high, moderate, or low water erodibility rating. The "K" value is the soil erodibility factor used in the Universal Soil Loss Equation for estimating erosion. This value is derived from data collected in Natural Resources Conservation Service soil survey field notes and is primarily a combination of soil surface texture, structure, and organic matter content modified with cover such as rock fragments. It is always less than 1.0. Soils with a high "K" value have a soil texture that is more erodible than one with a low "K" value. In general, if the slope multiplied by the "K" value of a soil is 2.5 or less, the soil is in the slight erosion hazard category. If the slope times the "K" value is between 2.5 and 7.5, the soil is rated as having a moderate erosion hazard, and values above 7.5 will place the soil into the severe hazard category. It is emphasized that these break points are only general guidelines and are not the only factors used to place a soil in an erosion susceptibility class. For example, a soil with a slope times "K" value of 2.4 may be placed in either a slight or moderate erosion hazard class, depending on information provided in soil survey field notes. This soil would not, however, be classified as having a severe water erosion potential.

Erosion condition data was compiled from several inventories, including the BLM Watershed Conservation and Development program (1977) and the *BLM Clark County Range Survey* (1979). Determinations of a soil surface factor were used to portray the erosion condition of an area. Erosion condition ranges from slight to critical, with most of the area falling into the slight to moderate erosion condition classes (see Map 3-3). There are 96,994 acres in critical erosion condition; 1,137,968 in moderate erosion condition; 1,286,420 in slight erosion condition; and 36,970 acres in stable erosion condition. The remainder is undetermined. These erosion condition classes are defined as follows:

Table 3-4. Erosion Susceptibility classes and acreage within Grazing Allotments, Herd Management Areas, Right-of-way Corridors and Competitive ORV Areas.

	EROSION SUSCEPTIBILITY CLASS			
GRAZING ALLOTMENT	**Low**	**Moderate**	**High**	**Undetermined**
Action Farrier	2,256	39,461		
Arrow Canyon	28,114	52,404	8,117	
Azure Ridge	3,175	4,161		
Billygoat Peak	23,574	25,304		
Black Butte	29,792	13,775		
Bunkerville	41,969	64,137	23,494	
Christmas Tree Pass	42,741	21,028		
Crescent Peak	62,450	54,517		
Dry Lake	17,474	19,267	270	
Flat Top Mesa	1,375	2,149	2,328	
Glendale	2,477	8,591	10,592	
Gold Butte	107,083	62,169		
Hen Springs	7,018	15,170		
Hidden Valley	18,109	43,258		
Ireteba Peaks	90,991*	119,421*		
Jackrabbit	47		2,596	
Jean Lake	56,320	75,852		
Kyle Canyon	11,941	13,171		
Lime Springs		4,119		
Lower Mormon Mesa		34,798	3,452	
Lucky Strike	72,973	26,910		
McCullough Mountain	113,385*	160,819*		
Mesa Cliff	1,060	6,464	3,980	
Mesquite Community	1,474	7,740		
Muddy Mountain	52,105	115,619	8,114	
Muddy River		1,244	1,018	
Newberry Mountains	18,137	13,140		
Overton Arm		1,723	153	
Pittman Well	25,547	3,209		
Pulsipher Wash		1,135	1,365	
Roach Lake	10,043	8,282		
Mount Stirling				122,163
Rox	529	17,155	8,019	
South Point	10,057	1,883		
Spring Mountain	171,834	104,656		
Stump Springs	47,612	2,895		
Sunrise Mountain	25,628	19,203		
Table Mountain	44,532	39,512		
Toquop Sheep	5,477	18,171	3,058	
Upper Mormon Mesa	9,679	34,443	1,217	

Table 3-4. Erosion Susceptibility classes and acreage within Grazing Allotments, Herd Management Areas, Right-of-way Corridors and Competitive ORV Areas (concluded).

	EROSION SUSCEPTIBILITY CLASS			
GRAZING ALLOTMENT	**Low**	**Moderate**	**High**	**Undetermined**
Ute	8,935	33,683	2,460	
Wheeler Slope	63,103	6,144		
Wheeler Wash	49,259	16,027		
White Basin	41,330	47,751	3,833	
Younts Spring	16,211			
5555 (Indian Springs)	38,711	2,844		10,530
6666 (River Mountains)	1,252	5,140		
7777 (Las Vegas Valley)	97,918	28,238		
9999 (Lake Mead NRA)	—	---	---	---
Virgin River Bottom	90			
Carson Slough				9,769
County Line				8,848
Grapevine-Rock Valley				13,171
Totals:	**1,473,787**	**1,396,782**	**84,066**	**164,481**
* Includes Eldorado Disposal Area				
HERD MANAGEMENT AREA				
Amargosa				9,428
Eldorado		15,492		
Gold Butte	103,642	66,425		
Johnnie	82,761	22,377		173,522
Muddy Mountains	41,962	34,352		
Ash Meadows				97,073
Totals:	**228,365**	**138,646**		**280,023**
RIGHT-OF-WAY CORRIDORS	72,485	40,505	1,793	40,553
Totals:	**72,485**	**40,505**	**1,793**	**40,553**
COMPETITIVE ORV AREAS	335,900	247,168	16,175	344,493
Totals:	**335,900**	**247,168**	**16,175**	**344,493**

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Table 3-5. Erosion Condition classes and acreage within Grazing Allotments, Herd Management Areas, Right-of-way Corridors and Competitive ORV Areas.

	EROSION CONDITION CLASS				
GRAZING ALLOTMENT	**Stable**	**Slight**	**Moderate**	**Critical**	**Undetermined**
Action Farrier		3,167	18,658		20,060
Arrow Canyon		27,209	56,268	5,477	4,209
Azure Ridge		455	6,502		
Billygoat Peak		17,194	31,815		
Black Butte		31,786	14,421	5,814	2,272
Bunkerville		72,736	58,589	669	
Christmas Tree Pass		25,408	37,630		
Crescent Peak		113,909	9,756	319	
Dry Lake		17,119	13,787		5,627
Flat Top Mesa		2,800	833	1,860	
Glendale		6,193	11,677	4,448	
Gold Butte		74,717	77,636	2,489	
Hen Springs		12,153	9,271		
Hidden Valley	3,933	30,148	14,664		10,339
Ireteba Peaks*		68,115	120,550	5,681	6,419
Jackrabbit				4,266	
Jean Lake		73,146	45,083	16,529	2,739
Kyle Canyon		6,586	16,791		724
Lime Springs		4,119			
Lower Mormon Mesa		35,136	6,883	771	
Lucky Strike	2,343	79,223	15,014		3,249
McCullough Mountain*		123,012	76,659	1,148	21,039
Mesa Cliff		2,123	1,102	8,422	
Mesquite Community		7,448	4,745		
Muddy Mountain		68,735	54,807	8,302	33,194
Muddy River		6,167	4,119		4,080
Newberry Mountains		1,487	14,521	3,492	1,328
Overton Arm		2,763			
Pittman Well		16,084	11,025		
Pulsipher Wash		249		2,098	
Roach Lake		13,971	2,233	2,431	2,384
Mount Stirling					123,724
Rox			20,838		1,224
South Point		6,805	1,004	2,680	1,300
Spring Mountain	3,152	110,235	99,863		15,523
Stump Springs		17,174	34,334		
Sunrise Mountain		5,237			41,140
Table Mountain		33,303	50,409		4,347
Toquop Sheep		24,404			
Upper Mormon Mesa		14,824	23,501		7,952
Ute		21,821	14,023	653	7,762
Wheeler Slope	10,387		17,250		4,616

Table 3-5. Erosion Condition classes and acreage within Grazing Allotments, Herd Management Areas, Right-of-way Corridors and Competitive ORV Areas (concluded).

	EROSION CONDITION CLASS				
GRAZING ALLOTMENT	**Stable**	**Slight**	**Moderate**	**Critical**	**Undetermined**
Wheeler Wash		44,412	13,021		7,272
White Basin		11,659	33,250	4,117	40,336
Younts Spring		13,137	2,257		
5555 (Indian Springs)	2,490	24,966	10,833	2,364	10,749
6666 (River Mountains)					4,080
7777 (Las Vegas Valley)		6,947	19,921		99,288
9999 (Lake Mead NRA)**					
Virgin River Bottom					90
Carson Slough					10,236
County Line					9,438
Grapevine-Rock Valley					12,966
Totals:	**22,305**	**1,278,282**	**593,486**	**80,030**	**519,706**
* Includes Eldorado Disposal Area					
** All NPS administered					
HERD MANAGEMENT AREA					
Amargosa					9,460
Eldorado		3,165	10,615	1,469	348
Gold Butte		60,833	84,849	8,994	15,405
Johnnie		57,721	15,916		179,261
Muddy Mountains		13,671	35,866	3,416	19,727
Ash Meadows					98,419
Totals:		**135,390**	**147,246**	**13,879**	**322,620**
RIGHT-OF-WAY CORRIDORS					
	490	64,736	36,758	3,691	35,481
Total:	**490**	**64,736**	**36,758**	**3,691**	**35,481**
COMPETITIVE ORV AREAS					
	5,722	389,848	217,511	28,742	241,165
Totals:	**5,722**	**389,848**	**217,511**	**28,742**	**241,165**

Table 3-6 Potential Soil loss estimates (tons per year).

Grazing Allotment	Acres of Use	Soil Loss Natural	Soil Loss With Grazing	Soil Loss From Grazing
Acton Farrier	1,750	376	376	0
Arrow Canyon	1,320	194	194	0
Azure Ridge	---	---	---	---
Billygoat Peak	10,320	8,277	8,318	41
Black Butte	11,200	4,021	4,032	11
Bunkerville	37,840	17,709	17,747	38
Christmas Tree Pass	39,900	17,795	17,835	40
Crescent Peak	104,160	56,767	56,871	104
Dry Lake	7,360	2,517	2,524	7
Flat Top Mesa	5,000	705	705	0
Glendale	12,160	1,520	1,520	0
Gold Butte	74,440	58,138	58,287	149
Hen Springs	19,830	21,020	21,119	99
Hidden Valley	20,670	9,798	9,818	20
Ireteba Peaks	109,920	49,024	49,134	110
Jackrabbit	5,600	638	666	28
Jean Lake	88,320	40,362	40,451	89
Kyle Canyon	13,440	5,107	5,134	27
Lime Springs	---	---	---	---
Lower Mormon Mesa	31,360	4,829	4,829	0
Lucky Strike	39,200	74,206	74,206	0
McCullough Mountain	114,560	51,094	51,208	114
Mesa Cliff	6,500	1,879	1,885	6
Mesquite Community	---	---	---	---
Muddy Mountain	48,000	18,288	18,336	48
Muddy River	3,200	506	506	0
Mount Stirling	24,320	6,129	6,129	0
Newberry Mountains	18,600	14,899	14,936	37
Overton Arm	10,880	272	294	22
Pittman Well	13,440	5,174	5,188	14
Pulsipher Wash	3,300	432	446	14
Roach Lake	6,400	1,882	1,882	0
Rox	11,520	2,097	2,097	0
South Point	10,560	8,459	8,501	42
Spring Mountain	3,500	662	662	0
Stump Springs	19,840	5,277	5,277	0
Sunrise Mountain	---	---	---	---
Table Mountain	8,960	3,987	3,987	0
Toquop Sheep	4,480	977	981	4
Upper Mormon Mesa	20,200	12,282	12,282	0
Ute	10,880	2,307	2,307	0
Wheeler Slope	---	---	---	---

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Table 3-6. Potential Soil loss estimates (concluded).

Grazing Allotment	Acres of Use	Soil Loss Natural	Soil Loss With Grazing	Soil Loss From Grazing
Wheeler Wash	51,200	78,746	78,848	102
White Basin	6,400	3,238	3,245	7
Younts Spring	8,320	2,213	2,230	17
5555 (Indian Springs)	---	---	---	---
6666 (River Mountains)	---	---	---	---
7777 (Las Vegas Valley)	---	---	---	---
9999 (Lake Mead NRA)	---	---	---	---
Virgin River Bottom	125	2	2	0
Carson Slough	---	---	---	---
County Line	---	---	---	---
Grapevine-Rock Valley	---	---	---	---
Totals	**1,038,975**	**593,805**	**594,995**	**1,190**

Herd Management Area	Acres of Use	Soil Loss Natural	Soil Loss W/WH&B (at AML)	Soil Loss From WH&B (at AML)
Amargosa	---	---	---	---
Eldorado	---	---	---	---
Gold Butte	112,149	87,588	87,701(87,588)	113(0)
Johnnie	108,874	27,436	27,436(27,436)	0(0)
Muddy Mountains	28,077	14,207	14,207(14,207)	0(0)
Ash Meadows	---	---	---	---
Totals	**249,100**	**129,231**	**129,344 (129,231)**	**113 (0)**

Competitive ORV Areas	Acres Disturbed	Soil Loss Natural	Soil Loss W/ORV	Soil Loss From ORV
	3,325	595	3,245	2,650

Mineral Development	Acres Disturbed	Soil Loss Natural	Soil Loss With Mineral Development	Soil Loss From Mineral Development
	1,461	262	1,426	1,164

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Stable (0-20) - There are no signs of soil movement. Surface litter is usually accumulating in place. Surface rock, if present, will be evenly distributed over the area. No pedestaling, rills, or flow patterns are apparent. Gullies may be present in a stable condition.

Slight (21-40) - Some movement of soil particles and surface litter is apparent. Surface rock may be present but collection of small particles may be spotty. No pedestals are apparent. Rills less than one-half inch deep occur at infrequent intervals of more than ten feet. Visible flow patterns have been formed by surface water. Deposition of pavement particles may appear in flow patterns. Gullies may be present, but with little evidence of streambank or streambed erosion.

Moderate (41-60) - Moderate movement of soil is plainly visible and recent. Moderate movement can be recognized by slight terracing caused by the accumulation of material deposited against litter, vegetation or rocks. The terraces will generally be less than one inch in height. Moderate movement of litter is apparent. Some surface rock may be exposed in bare spots where fine soil particles have been recently removed by wind and/or water. Small rocks and plants on pedestals occurring in the flow patterns may be noticed. Small rills are apparent in exposed places. These rills will be between 0.5 and 6 inches deep at intervals of approximately 10 feet. Sediment deposits are visible intermittently in flow patterns and against small obstructions elsewhere.

Critical (61-80) - The soil mantle is in a critically eroded condition. Soil movement occurs with each runoff. Transported soil and debris caused by wind and water is deposited throughout the area against minor surface obstructions. Extreme movement of litter is apparent. Recent exposure of surface rock is common on gravelly and stony soils. Small rocks and plants on pedestals are generally evident and roots are exposed. Large rills are apparent on exposed areas. Flow patterns contain easily noticeable silt and sand deposits and alluvial fans. Actively eroding gullies are present on 10-50 percent of the area being considered.

Severe (81-100) - Subsoil is exposed over much of the area. Embryonic dunes and wind-scoured depressions may be evident. Only minimal traces of surface litter remain. Surface rock or fragments are dissected by rills and gullies. Most rocks and plants are pedestaled, and rocks are exposed. Flow patterns are numerous and readily noticeable, showing large barren fan deposits. Large rills are apparent on exposed areas at intervals of less than five feet. Actively eroding gullies are present on more than 50 percent of the area.

Tables 3-4 and 3-5 show the Erosion Susceptibility and Erosion Condition Classes within various use areas. These include grazing allotments, wild horse and burro Herd Management Areas, rights-of-way, and competitive off-road vehicle areas.

Soil loss, both naturally occurring and that resulting from land uses, was estimated using the Revised Universal Soil Loss Equation (see Table 3-6). This equation is a revision and update of the time tested Universal Soil Loss Equation. The equation is stated as **A = R K L S C P** where **A** is annual soil loss from sheet and rill erosion caused by rainfall and its associated overland flow, **R** is the factor for climatic erosivity, **K** is the factor for soil erodibility, **L** is the factor for slope length, **S** is the factor for slope steepness, **C** is the factor for cover management, and **P** is the factor for support practices. These factors represent the effect of climate, soil, topography, and land use on sheet and rill erosion.

Water Resource Management

The planning area contains portions of three hydrographic regions or basins: the Central Region, the Colorado River Basin, and the Death Valley Basin. As shown in Table 3-7, these three regions are further divided into 29 hydrographic areas that are totally or partially within the planning area (Map 3-4b).

The Central Region is a topographically closed drainage system primarily located in Nevada. The eight hydrographic areas within this region are, for the most part, internally drained.

All but three of the 15 hydrographic areas within the Colorado River Basin are tributary to the Colorado River. Garnet Valley (area 216) and Hidden Valley (area 217) are topographically closed, but are totally surrounded by areas that drain to the Colorado River. The southern part of Three Lakes Valley (area 211), the third non-contributing hydrographic area,

Table 3-7. Hydrographic areas.

Central Region		**Colorado River Basin**	
161	Indian Springs Valley	205	Lower Meadow Valley Wash
162	Pahrump Valley	210	Coyote Spring Valley
163	Mesquite Valley	211	Three Lakes Valley-Southern Part
164a	Ivanpah Valley - Northern Part		
164b	Ivanpah Valley - Southern Part	212	Las Vegas Valley
165	Jean Lake Valley	213	Colorado River Valley
166	Hidden Valley South	214	Piute Valley
167	Eldorado Valley	215	Black Mountains Area
		216	Garnet Valley
Death Valley Basin		217	Hidden Valley - North Part
225	Mercury Valley	218	California Wash
226	Rock Valley	219	Muddy River Springs Area
227a	Forty-Mile Canyon-Jackass Flats	220	Lower Moapa Valley
		222	Virgin River Valley
229	Crater Flat	223	Gold Butte Area
230	Amargosa Desert	224	Greasewood Basin
		228	Oasis Valley

discharges flood water out of Lee Canyon onto an alluvial fan. Depending on which channel the flood water enters, the flow goes either to the Colorado River or to the dry lake within the southern part of Three Lakes Valley.

Within the Las Vegas BLM District, six hydrographic areas occur within the Death Valley Basin. These are all tributary to Death Valley in California.

Surface Water

Surface water sources are far less abundant than groundwater in the planning area. There are only four major perennial streams (greater than 0.5 mile in length)on public lands: Meadow Valley Wash, Muddy River, Virgin River, and the Las Vegas Wash. All of these streams are in the Colorado River drainage. Meadow Valley Wash originates in Lincoln County and joins the Muddy River near Glendale, Nevada. It is characterized by peak flows in February and March when snow melt occurs. Mean annual flow, measured at the Rox gaging station, is recorded at 3.39 cubic feet per second (cfs) with a peak flow of 1,620 recorded in 1993 and a low flow of 0.14 cfs in 1987 for the period of record (Emett 1993).

Perennial flow in the Muddy River originates in springs located southeast of Arrow Canyon, a distance of approximately 25 miles from Lake Mead. Mean annual flow, measured at the Glendale gaging station is 44 cfs, with a recorded low flow of 7.6 cfs (1964) and peak flow of 16,400 cfs in 1981 (Emett 1993).

The Virgin River is fed by tributaries from the Tule Desert, Beaver Dam, and Sand Hollow Washes, as well as many drainages in the Virgin and Mormon Mountains. Streamflow of the Virgin River is measured at a gaging station in Littlefield, Arizona and shows a mean annual stream flow of 241 cfs, peak flow of 61,000 cfs and a low flow of 38 cfs (Emett 1993). Within Nevada, the river is intermittent with no flow in some sections during certain times of the year. The gaging station at Riverside has minimal records but indicates a mean annual flow of 309 cfs and peak and low flows of 17,400 cfs and 0 cfs respectively (Emett 1993). The Virgin River, due to the amount of its flow as well as its proximity to Las Vegas Valley, is being considered as a possible water supply to help meet the ever growing water demands of the Las Vegas Valley.

Las Vegas Wash is supplied with water from springs, runoff channeled during rains, and water from the Las Vegas Sewage Treatment Plant. Heaviest flow occurs during the winter months, when the most precipitation falls and evapotranspiration rates are lowest. Mean annual flow has been measured at 57.6 cfs, with a peak discharge of 6,510 cfs recorded in 1975 and a low flow of 4.8 cfs in 1960 (Emett 1993).

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Numerous ephemeral washes transect the planning area, conveying flows only after storms. High intensity thunderstorms often produce rapid runoff and "flash" flooding, which can result in floodwater and sediment damage within the region. Most damage on BLM-administered lands is in the form of gully cutting and sheet erosion. Destruction on state and private lands is more severe, including damage to roads and highways, croplands, and residential areas. Loss of life has occurred in some areas from the flooding.

Flash flooding, which is on the increase, usually occurs from tropical depressions out of the south or southwest. The increase in this flooding can be attributable to both increased recording of flood events, as well as a result of population growth expanding into previously undeveloped areas (USDI BLM 1990). In an effort to improve the long-term safety of the public and protection of property from flooding, the Clark County Regional Flood Control District is implementing a master plan program that includes siting, design and installation of flood control facilities. Most of the existing and proposed control facilities, including detention basins and conveyances, are located on public land.

Springs are important water sources in the Las Vegas BLM District. The Las Vegas District Water Resource Inventory identified 149 springs on public lands within the boundaries of the Las Vegas BLM District. Table 3-9 lists the locations and discharge for each spring source. The average flow of these springs is 5.5 gallons per minute (gpm), with some springs being nothing more than a seep area with no discernible flow, and others measuring as high as 75 gpm.

Ground Water

The importance of ground water is obvious in this region of few surface water sources. With the exception of communities that obtain water from major surface water sources such as the Colorado River, developments are restricted by the availability of suitable ground water supplies. Table 3-8 presents ground water statistics for the 29 hydrographic areas within the planning area, including recharge and interbasin flows. The most developed and utilized water-bearing stratum is valley fill alluvium. Although numerous springs are associated with carbonate rock or sandstone layers, development of these aquifers is relatively difficult. The carbonate rock system is composed of primarily limestone and dolomite deposited during the period that the area was covered by water. The rocks are usually very fractured and locally contain solution channels (openings that occur from the dissolving of soluble materials by water moving through pre-existing interstices or fractures). The carbonate system is regional in nature and provides an avenue for interbasin flow. The ability of the carbonate aquifers to store and transmit water is known to differ depending on location, but characteristics of the carbonate aquifers are largely undetermined at this time. The permeability of sandstone is much less than the valley fill alluvium releasing its stored water very slowly. The carbonate aquifer, as well as the alluvial aquifers of several hydrographic basins, are currently being reviewed by water purveyors within the Las Vegas Valley as an alternative to meeting future water demands.

Depth to water varies throughout the planning area, but can be generally characterized as ranging from at or near the surface to several thousand feet, as in the case of the carbonate system.

Most ground water recharge in southern Nevada is derived from winter and spring precipitation, which represents approximately 50 percent of the total annual precipitation. The moisture is stored in snowpack, at elevations of 7,000 to 8,000 feet and higher. Precipitation reaches the groundwater reservoirs by way of streams, which eventually discharge onto alluvial aprons, or by infiltrating directly into consolidated rock and percolating vertically and laterally to the valley fill aquifer. Additional inflow is received from localized intense storms and ground water discharge from adjacent areas. Such interbasin movement is described in Table 3-8. Natural discharge of ground water in the basins occurs as a result of transpiration from phreatophytes (deeply rooted plants that obtain water from the water table or the soil layer just above it), spring discharge, evaporation from bare soil, interbasin flow, and base flow to streams such as the Virgin River, Muddy River, and Las Vegas Wash.

As is the case throughout most areas of the arid West, water is a limited resource in southern Nevada and its availability is impacted by human population growth. Of the 29 hydrographic basins wholly or partially within the Las Vegas BLM District, all have committed resources which exceed perennial yield (Coche 1995). These basins, including Las Vegas Valley, are in a water overdraft situation.

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Table 3-8. Groundwater Statistics.

Basin	Recharge	Groundwater Inflow AF	Groundwater Inflow From	Groundwater Outflow AF	Groundwater Outflow To
161	10,000	22,000	158,168,211	32,000	160
162	37,000	---	---	18,000	240,241
163	1,400	---	---	---	---
164	2,200	---	---	2,000	165
165	100	2,000	164	Minor	212
166	<100	---	---	Minor	167,212
167	1,100	Minor	166	1,000	213
205	1,500	Minor	203	700	218
210	2,100	35,000	209,169B 206,212	37,000	219
211	6,000	5,000	212	11,000	161
212	30,000	Minor	165,166	6,200	210,211
213	1,100*	1,000	167	Minor*	Colorado
River					
214	1,200*	---	---	1,000	213,CA
215	<100	1,200	212	---	---
216	400	Minor	217	1,000	218
217	<400	---	---	Minor	216
218	<100	8,000	216,205	Minor	220
219	<100	37,000	210	---	---
220	<100	Minor	218	---	---
222	3,600	?	221	?	Lake Mead
223	1,000*	---	---	1,000	Lake Mead
224	200*	---	---	600*	AZ
225	200	---	---	17,000	226
226	<100	Minor	227A	17,000	230
227	2,300	6,000	147,157	8,100	226,230
229	200	2,000	228	2,000	230
230	5,000	44,000	227A,229,228 225,226	3,500	242CA,243CA
228	1,000	3,000	147	2,000	229,230

Key:
(Source: Harrill, 1988.)
* Data from State of Nevada, 1971.

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The Las Vegas Valley is currently experiencing rapid growth and development. Heavy demands are being placed on an already over-utilized water resource. Entities within the valley obtain water from both groundwater sources and the Colorado River. The groundwater system within Las Vegas Valley has been in an overdraft condition since 1945. In 1993, approximately 67,356 acre feet of groundwater was extracted from the principal aquifer, far exceeding the estimated recharge of 30,000 acre feet (Barrick 1995).

This overdrafting has resulted in most of the groundwater problems currently in the Las Vegas Valley including declining water levels, land subsidence, declining water quality by incursion of water possessing higher concentrations of dissolved solids and nitrate, and the loss of vegetation dependent on groundwater (Morgan 1994). These problems, resulting from overdrafting of the groundwater resource, are not limited to the Las Vegas Valley. Although not to the same degree as that occurring in the Las Vegas Valley, all overdrafted basins realize some if not all of the problems previously identified.

An artificial recharge project was initiated in 1987 and in 1993 resulted in the injection of 24,535 acre feet of Colorado River water back into the Valley's groundwater basin (Barrick 1995). The project offset some of the groundwater withdrawal, resulting in a net pumpage of 42,821 acre feet in 1993, still exceeding annual recharge. This groundwater withdrawal represents 13 percent of Las Vegas Valley's water withdrawals, with the remaining 87 percent (292,803 acre feet) obtained from surface waters, as Nevada's entitlement to waters of the Colorado River (SNWA 1995).

Of particular concern because of the damage caused to property is land subsidence. It is primarily associated with over pumping and resultant water level declines and has continued to be a problem in the Las Vegas Valley since the mid 1940s. The decline in water levels and consequential reduction in artesian pressure has resulted in an increase in the stresses imposed upon the sediments from which the water is extracted. In areas containing fine-grained deposits (silt and clay), the increase in effective stress has resulted in compaction of the sediments. This sedimentary compaction is seen on the land surface as subsidence. Although a good portion of the valley is sinking, it is at a uniform rate and most structures are not impacted. Where pre-existing faults occur, however, more damage results as fissures are formed and large differential settlement occurs (Bell 1991). Through artificial recharge, the rate of subsidence in the valley has decreased.

The BLM Water Resources Inventory identified 67 wells drilled on public lands within the boundaries of the Las Vegas BLM District. These wells provide permanent and reliable water in an arid environment where natural water sources, such as springs and seeps, are often unpredictable or intermittent. Since the inventory, the Las Vegas Valley Water District drilled production and/or recharge wells on public lands within Las Vegas Valley in an effort to optimize distribution of artificial recharge and pumpage in sufficient amounts to meet future demands.

Water Quality

In southern Nevada, one critical water resource problem is the poor quality of much of the surface and ground water. Several factors contribute to the high quantities of chemicals and solids in the regional water. High evaporation rates leave concentrations of salts at or near the soil surface after rainfall. Water quality is also affected by the composition of rocks and soils, including calcium, magnesium, carbonates, silicates, metallic and nonmetallic minerals. As it moves slowly into and through the soil profile, water dissolves and acquires these constituents. In addition, dust containing salts is blown from playas onto standing surface water and onto soil where it enters both surface and groundwater.

A water quality sampling program was initiated in 1979 to obtain baseline water quality data for Clark County. Samples were collected in spring, summer, and fall and analyzed for biological, chemical, and physical parameters. The primary and secondary drinking water standards (Appendix G), as defined by EPA, were applied to these samples. These standards refer to the maximum contaminant levels allowable for public water supplies, which if exceeded, could adversely affect public health. It is important to note that these drinking water standards are for public water supplies, not necessarily springs, seeps, and others found in the natural environment. These standards may, however, be used to evaluate the quality of naturally occurring untreated waters in terms of suitability for consumption by humans.

Results of the three sampling periods indicate that water at many springs does not meet the Federal Drinking Water Standards. The major contaminant in the water from 60 of the 64 springs was fecal

coliform bacteria, which is generally considered to be an indicator of fecal contamination. Fecal coliform bacteria, which form a portion of the total coliform group, are restricted to the intestinal tracts of warm-blooded animals and carry disease-causing organisms.

Levels for turbidity, total dissolved solids, sulfate, chloride, manganese, iron, and nitrate nitrogen also exceeded Federal standards in several springs. Many of these levels do not pose health hazards; only nitrate nitrogen is potentially dangerous. This chemical was found to react with hemoglobin in the blood to produce an anemic condition commonly known as "blue baby" in infants under three months of age.

In addition to the Federal Drinking Water Standards, the State of Nevada has established various water quality standards for designated beneficial uses within the planning area. As identified in Appendix H, quality standards and beneficial uses have been set for the Colorado, Virgin, Muddy Rivers, Meadow Valley Wash, Las Vegas Wash, and Lake Mead. Beneficial uses include irrigation; watering of livestock; recreation involving contact with the water; recreation not involving contact with the water; industrial supply; propagation of wildlife, aquatic life, aquatic life excluding fish, and aquatic life including a warm water fishery; maintenance of fresh water marsh; and municipal or domestic supply or both.

Water quality information for the Virgin River, Muddy River, Meadow Valley Wash, and Las Vegas Wash was collected by United States Geologic Service (Emett 1993). Of those constituents monitored, the Virgin River, Muddy River, and Las Vegas Wash were found to exceed Federal Drinking Water Standards for total dissolved solids and sulfate. The Virgin River also exceeded the standard for coliform bacteria. Coliform bacteria levels were not determined for Meadow Valley Wash, Las Vegas Wash, or the Muddy River but it is suspected that their waters probably exceed Federal Drinking Water Standards for this pollutant.

Salinity contributions to the Colorado River have become a concern both nationally and internationally. The Colorado River currently carries approximately 6.6 million tons of dissolved solids annually. Of this total load, only an estimated 38,000 tons come from the approximately 6 million acres of public lands within southeastern Nevada (Westenburg 1995). The contribution from the public lands within the Las Vegas District is a fraction of the 38,000 tons.

The quality of ground water varies throughout the planning area, as it does in the remainder of the state. In general, groundwater in areas of recharge has low chemical concentrations, but as it moves through the ground water system to discharge areas (such as valley bottoms), it dissolves sediments and rock materials. The extent to which chemical constituents are dissolved is largely determined by the following factors:

- Solubility, volume, and distribution of the materials.
- Length of time that water is in contact with the materials.
- Distance that water travels from point of recharge.
- Temperature and pressure within the ground water system.

Little is known about ground water quality in much of the Las Vegas BLM District. Several hydrographic basins were investigated at varying levels of intensity. Due to its large urban population, prior research focused primarily on the Las Vegas Valley. The shallow aquifers within the Las Vegas Valley are generally in poor quality. Total dissolved solids concentrations are as high as 8,000 milligrams per liter (mg/l). Such high concentrations are suspected to be the result of recharge from landscape irrigation and possible seasonal fluctuations in the water levels of the shallow aquifers. The concentrations of total dissolved solids have increased over the last few years.

High nitrate concentrations also contribute to the poor quality of the more shallow aquifers. In the deeper aquifers (200 to 450 foot depths) of Las Vegas Valley, water quality varies by geographic location. In the northern and western portions of the valley, the total dissolved solids concentrations range from 200 to 400 mg/l, with a calcium-magnesium-bicarbonate consistence. Groundwater in the southern and southwestern portions of the valley is a sodium-potassium-bicarbonate type with total dissolved solids concentrations ranging from 700 to 1,500 mg/l. A mixed-cation sulfate type water of generally poor quality characterizes the remainder of the deep aquifer system in the Las Vegas Valley. Further degradation of this system can be anticipated, as the lowering of the water table accelerates the infiltration of poor quality water into adjacent aquifers (USDI BLM 1990).

The other hydrographic basins in the Las Vegas BLM District exhibit groundwater quality characteristics similar to the Las Vegas Valley (that is, water quality

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deteriorates from the higher areas to the valley bottoms). In the carbonate and volcanic rock aquifers to the northwest of Las Vegas, water quality is generally acceptable. Water of a calcium-magnesium-bicarbonate composition is found in the carbonate aquifers, whereas a sodium-potassium-bicarbonate composition is associated with the waters of the volcanic rock aquifer. East and southeast of Las Vegas there is unacceptable water with a mixed cation-sulfate composition. The area west of the Arrow Canyon Range shows a marked increase in water quality and with further investigation may be a good water supply. Although little or no data exists for it, the area west of the Sheep Range is assumed to generally possess good-to-fair water quality with the exception of isolated areas of poor quality water (Lyles 1987).

Riparian Resources

A riparian/wetland area is an area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lakeshores and streambanks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil. Such areas vary from one location to another, depending on water availability and quality, elevation, climate, soils, and topography. Despite this variability, all riparian areas share the following characteristics

- Small in comparison with the overall area.
- Create a well-defined zone within a much drier ecosystem.
- Support a great diversity of plant and animal species.

A riparian area in good condition can help moderate flows by reducing peaks and increasing minimum flows; improve water quality; stabilize soils; reduce sediment loads; and contribute a significant and critical component to ecological diversity and productivity.

Riparian areas in the Las Vegas BLM District are primarily associated with perennial streams and springs. Only four perennial streams (greater than 0.5 mile in length) are found on public lands in the planning area. These include the Muddy and Virgin Rivers, Meadow Valley Wash, and Las Vegas Wash. Of these four streams, only the Virgin River has a significant riparian area located on public lands. This area, totaling approximately 194 acres, covers 9 miles of the river's length. Conditions range from poor to fair, depending on the location along the river (USDI BLM 1988). Vegetation within the riparian area consists primarily of tamarisk (*Tamarix sp.)* and saltgrass (*Distichlis sp.*) Tamarisk, commonly known as salt cedar, is a problem within the Virgin River floodplain due to its high water consumption, salt concentrating abilities, and its characteristic rapid spread. Any control efforts of tamarisk would be tiered to the Final EIS *Vegetation Treatment on BLM Lands in 13 Western States.*

In 1989, an inventory was started on the current extent and condition of riparian areas associated with springs; to date, 50 springs have been inventoried. Under this inventory, condition was determined based primarily on existing riparian vegetation with condition classes defined as:

Excellent: There is little or no disturbance of the plant community and succession is progressing or stable. There is an abundance of both new and old plants.

Good Succession is progressing or is stable with new and old growth common. There is a potential for increased plant density. There are some patches of clipped vegetation; seedstalks are readily observable and some woody plants are hedged.

Fair There is noticeable disturbance with medium-to-high successional availability. Most woody plants are hedged; grass is clipped to the ground in places; and there is a fair possibility of riparian habitat regression.

Poor Extreme disturbance exists with large patches of bare soil and grass having a mown appearance. There is little or no production of key plant species. Woody species are hedged or broken, and riparian vegetation is regressing or nearly so.

Data from this inventory is presented in Table 3-10. These 50 springs comprise a total riparian area of 25 acres, with the average associated area comprising 0.5 acres. The condition of the springs ranges from poor to good, with 40 percent (20 springs) in poor condition and 30 percent (15 springs) in good condition.

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A list of spring-associated riparian areas yet to be inventoried are included in Table 3-9. Given an average riparian area of 0.5 acres, it is anticipated that the remaining 99 springs will represent a total of approximately 49.5 acres. This, combined with those springs already inventoried (25 acres), indicates a total spring-associated riparian area of almost 75 acres. This is a relatively small figure, when compared to areas with ample water sources. This fact makes these spring-associated riparian areas extremely important in an area such as the Las Vegas BLM District, which has limited water resources and associated riparian ecosystems.

In 1991, the *Riparian-Wetland Initiative for the 1990s* established national goals and objectives for managing riparian-wetland resources on public lands. A chief goal of this initiative is to restore and maintain riparian-wetland areas to proper functioning condition. Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to:

- Dissipate stream energy associated with high waterflows, consequently reducing erosion and improving water quality.
- Filter sediment.
- Capture bedload.
- Aid floodplain development.
- Improve flood-water retention and groundwater recharge.
- Develop root masses that stabilize streambanks against cutting action.
- Develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity.

The functioning condition of riparian-wetland areas is a result of interaction among geology, soil, water, and vegetation. A proper functioning condition inventory of all riparian areas within the planning area was initiated.

Vegetation Management

All vegetation communities contain herbaceous species classified as annual (ephemeral), biennial, or perennial. Annual forbs and grasses are those species that complete their entire life cycle within one growing season. Seeds of annual species may lie dormant in the soil for years until the proper combinations of precipitation and temperature are present. When these conditions occur, a significant amount of growth can be produced in a very short time. Winter precipitation from Pacific frontal storms stimulates the widespread production of winter/spring annuals that stay green for several months, if temperatures remain cool. Summer thunderstorms generally result in scattered occurrences of annuals, which tend to dry out quickly due to higher temperatures.

Biennials are those species that complete their life cycle over two years; some produce vegetative growth during one season and seed during the second season while others produce seed at the end of each of the two growing seasons. Perennials are plants that are long-lived, producing both vegetative growth and seed each growing season, depending on temperature and precipitation.

Vegetation Communities

All vegetation communities in the Las Vegas BLM District are within the Sonoran Basin and Range Province or Mojave Desert Shrub Biotic Communities, with a small inclusion of the Colorado and Green River Plateau Biomes. Table 3-11 lists the communities and acreages in the Las Vegas BLM District that are described below.

Salt Desert Shrub

This vegetation community is found throughout the Las Vegas BLM District at lower elevations in valley bottoms, around playas, and on bajadas. Soils are saline or alkaline and fine-textured (silts and/or clays). Dominant species are four-wing saltbush (*Atriplex canescens*), shadscale (*Atriplex confertifolia*), green ephedra (*Ephedra viridis*), seep weed (*Suaeda torreyana* var. *ramosissima*), and bud sage (*Artemisia spinescens*). Common forbs and grasses include halogeton (*Halogeton glomeratus*), Russian thistle (*Salsola* sp.) and Indian rice grass (*Oryzopsis hymenoides*).

Southern Desert Shrub

This community occurs throughout the planning area, primarily at elevations below 4,000 feet where annual rainfall is unreliable and averages less than six inches. Temperature extremes range from over 100 degrees Fahrenheit in the summer, to 25 degrees Fahrenheit the winter.

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Table 3-9. Known springs within Las Vegas District.

Name	Township	Range	Section	Discharge (gpm)
Hough	15S	65E	11	1.0
Juanita	15S	69E	15	0.75
Seep	15S	70E	2	—
Rabbit	15S	70E	9	1.0
Government	15S	70E	9	2.4
Dud	15S	70E	12	—
Jumps	15S	70E	14	12.0
North Key West	15S	70E	16	0.1
South Key West	15S	70E	21	0.1
N. Fork/Nickel Creek	15S	70E	30	9.0
Cabin Canyon 2	15S	71E	4	10.0
Hen	15S	71E	6	—
Cabin Canyon 1	15S	71E	9	12.0
Unnamed	15S	71E	16	—
Wiregrass	15S	71E	16	2.0
Cedar	15S	71E	17	3.0
Nickel Creek	15S	71E	18	15.0
Black Rock	15S	71E	19	7.5
White Rock	15S	71E	19	1.0
Lime 2	15S	71E	21	75.0
Indian	15S	71E	33	10.5
Lime	15S	71E	34	37.5
Unnamed	16S	71E	8	—
Cabin	16S	71E	17	0.1
Unnamed	16S	71E	19	2.5
Billygoat	16S	71E	21	2.0
Rattlesnake	16S	71E	28	0.1
Pussy Willow	16S	71E	33	0.1
South	16S	71E	34	2.0
Ash Tree	17S	49E	35	3.0
Dozer	17S	50E	10	2.0
Soda	17S	50E	10	45.0
Artesian	17S	50E	14	10.0
Chalk	17S	50E	26	1.0
Scruggs 2	17S	50E	35	60.0
Scruggs 1	17S	50E	35	40.0
Unnamed	17S	50E	35	8.0
Marsh	17S	50E	35	50.0
Mexican Seep	17S	50E	35	0.1
School	17S	50E	35	5.0
Kwichup	17S	53E	17	0.4

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Table 3-9. Known Springs within the Las Vegas District (continued).

Name	Township	Range	Section	Discharge (gpm)
Unnamed	17S	67E	2	0.1
Red Bluff	17S	69E	14	5.0
Red Rock	17S	70E	7	---
Salt	17S	70E	19	1.0
Jackrabbit	18S	51E	18	1.0
Unnamed	18S	51E	29	2.8
Bole	18S	51E	30	0.15
Unnamed	18S	51E	30	0.5
Last Chance	18S	51E	30	0.1
Unnamed	18S	51E	30	0.1
Horse	18S	70E	24	0.5
Grapevine	19S	50E	2	0.03
Bitter	19S	67E	16	5.0
Unnamed	19S	67E	18	0.1
Perkins	19S	69E	1	0.5
Maynard	19S	69E	20	2.0
Mockingbird	19S	69E	21	---
Quail	19S	69E	22	1.0
Agua Chiquita	19S	69E	29	1.0
Catclaw	19S	69E	30	1.0
Bills	19S	70E	10	---
Granite	19S	70E	17	0.1
Falls	19S	70E	33	2.2
Grapevine	19S	70E	34	0.5
Julie's	19S	71E	6	1.25
Summit	19S	71E	18	0.1
New	19S	71E	29	0.2
Connoly (Diamond)	19S	71E	30	0.5
Unnamed	19S	71E	31	2.0
Klup	20S	56E	31	6.0
Gypsum	20S	63E	14	1.0
Fairbanks	20S	69E	3	0.25
Cataract	20S	69E	6	---
Rattlesnake	20S	69E	13	---
Taylor	20S	69E	15	0.1
Gann	20S	69E	15	5.0
Walker	20S	69E	21	5.0
Turkey	20S	69E	24	---
Ruby	20S	69E	25	1.5
Willow	20S	70E	8	2.0
Jumbo	20S	70E	16	3.0

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Table 3-9. Known Springs within the Las Vegas District (continued)

Name	Township	Range	Section	Discharge (gpm)
Twin	20S	70E	19	15.0
Unnamed	21S	53E	15	---
Appaloosa	21S	56E	19	60.0
Unnamed	21S	56E	19	11.0
Unnamed	22S	54E	15	---
Bighorn	22S	58E	29	0.1
Stump	23S	55E	5	---
Unnamed	23S	62E	27	---
Unnamed	23S	62E	27	---
Unnamed	23S	62E	27	---
Eagle Water	25S	63E	36	0.1
Forlorn Hope	25S	64E	1	0.1
Unnamed	25S	64E	34	0.2
Bridge	25S	64E	34	0.1
McClanahan	26S	61E	8	0.3
Catclaw	26S	61E	17	0.1
Mesquite	26S	61E	22	0.1
Lone Pine	26S	61E	22	---
McCullough	26S	61E	26	0.3
North Railroad	26S	61E	31	0.25
Unnamed	26S	61E	31	0.75
Rock	26S	62E	27	---
Horse	26S	62E	28	---
Rock Seep	26S	62E	34	0.1
Desert Queen	26S	63E	13	---
Huse	26S	64E	11	20.0
Prospect	26S	64E	22	0.1
Knob Hill	26S	64E	29	0.12
Unnamed	26S	64E	29	0.1
Tule	26S	64E	33	---
Unnamed	26S	64E	8	0.3
Lucy Grey 1	27S	60E	36	---
Unnamed	27S	61E	4	4.5
South Railroad	27S	61E	18	1.0
Tubbs	27S	61E	18	---
Granite	27S	61E	20	0.5
Pine	27S	61E	28	0.5
Big Pine	27S	61E	28	0.1
Lucy Grey 3	27S	61E	30	0.5
Unnamed	27S	61E	33	1.0
Ora Hanna	27S	62E	5	0.3

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Table 3-9. Known Springs within the Las Vegas District (concluded).

Name	Township	Range	Section	Discharge (gpm)
Highland	27S	62E	16	0.75
Deadhorse	27S	62E	21	0.1
Thomas	27S	62E	23	0.1
Unnamed	27S	62E	23	0.1
Cow	27S	62E	26	0.1
Unnamed	27S	62E	26	0.1
Grasshopper	27S	64E	5	0.25
Unnamed	27S	64E	11	4.0
Unnamed	27S	64E	12	20.0
Unnamed	27S	64E	12	---
Jonah	27S	64E	14	15.0
Unnamed	27S	64E	14	10.0
Scotts Well	28S	60E	1	---
Bullion	28S	61E	20	0.1
Burro	28S	61E	26	---
Summit	28S	64E	31	---
Lewis Holes	30S	62E	15	0.1
Roman	31S	65E	4	1.0
Yellowstone	31S	65E	4	0.75
Unnamed	31S	65E	16	0.25
Rattlesnake	31S	65E	16	2.0
Cottonwood	31S	65E	17	6.0
Cottonwood	31S	65E	28	0.1
Hiko	32S	65E	12	3.0
Quail	32S	65E	14	0.5
Granite	33S	65E	15	0.25

Creosote bush (*Larrea tridentata*) is the dominant species of this community, occurring as a distinct community or as an understory species with yucca (*Yucca schidigera*), depending on elevation. White bursage (*Ambrosia dumosa*) is the usual co-dominant with creosote bush. Dry washes at lower elevations often support catclaw acacia (*Acacia greggii*). Common forbs and grasses include Indian ricegrass, Russian thistle, big galleta (*Hilaria rigida*), desert needlegrass (*Stipa speciosa*), and filaree (*Erodium cicutarium*).

Mojave Desert Shrub

This grouping consists of a mixture of shrubs characteristic of mid-elevations of the Mojave desert. These species generally occur on tuff or alluvial deposits at elevations between 4,000-5,000 feet throughout the planning area. Joshua tree (*Yucca brevifolia*) is a conspicuous overstory in this community. Common shrubs are smooth horsebrush (*Tetradymia glabrata*), spiny menodora (*Menodora spinescens*), burrobrush (*Hymenoclea salsola*), box thorn (*Lycium andersonii*), green ephedra, green rabbitbrush (*Chrysothamnus viscidiflorus*), Mormon tea (*Ephedra nevadensis*), and four-wing saltbush. Blackbrush (*Coleogyne ramossissima*) becomes the dominant shrub at higher elevations, often forming pure stands on drier south or southwest-facing slopes. Blackbrush intergrades with sagebrush (*Artemisia* sp.) at higher elevations. Common grasses are big galleta, Indian ricegrass, and fluffgrass. Cacti are also common in this community; conspicuous species are cottontop barrel cactus (*Echinocactus polycephalus*), prickly pear (*Opuntia echinocarpa*), and various cholla species (*Opuntia* sp.). When blackbrush is

Table 3-10. Riparian inventory.

Spring Name	Location	Acreage	Riparian Condition	Improvement Potential
Jackass	T.14S., R.65E. sec. 27 NW¼SW¼	2.0	Good	High
Juanita	T.15S., R.69E. sec. 15 NE¼ NE¼	0.7	Fair	Moderate
Seep	T.15S., R.70E. sec. 02 SE¼SW¼	0.1	Poor	High
Government	T.15S., R.70E. sec. 09 SW¼NW¼	0.01	---	Low
Jump	T.15S., R.70E. sec. 14 SW¼SE¼	2.0	Good	Low
Rabbit	T.15S., R.70E. sec. 09 NW¼	0.1	Poor	Low
No. Key West	T.15S., R.70E. sec. 16 SE¼SE¼	0.2	Poor	Low
So. Key West	T.15S., R.70E. sec. 21 NE¼SW¼	0.03	Poor	Low
Hen	T.15S., R.71E. sec. 06 NE¼	0.1	Poor	Low
Cabin Canyon	T.15S., R.71E. sec. 09 SE¼NW¼	3.0	Good	None
Cedar	T.15S., R.71E. sec. 16 NW¼NW¼	0.9	Good	None
Black Rock	T.15S., R.71E. sec. 19 NE¼NE¼	0.01	Good	None
White Rock	T.15S., R.71E. sec. 19 NW¼NW¼	0.02	Good	None
Salt*	T.15S., R.71E. sec. 19	0.05	Fair	High*
Kwichup	T.17S., R.53E. sec. 17 SE¼	0.1	Poor	Moderate
Red Bluff	T.17S., R.69E. sec. 14 NW¼NW¼	2.3	Fair	High
Red Rock	T.17S., R.70E. sec. 6,7,18	5.0	Fair	High
Mud*	T.17S., R.70E. sec. 25 SE¼SW¼	0.01	---	Moderate
Horse*	T.18S., R.70E. sec. 24 SW¼SE¼	0.1	Fair	Moderate
Bitter*	T.19S., R.67E. sec. 17 NE¼NE¼	1.0	Poor	Moderate
Maynard	T.19S., R.69E. sec. 20 NW¼SW¼	0.2	Poor	High
Quail*	T.19S., R.69E. sec. 22	0.01	Poor	High
Bill's	T.19S., R.70E. sec. 10 NE¼SW¼	0.01	Poor	Moderate
Granite	T.19S., R.70E. sec. 17 SE¼NE¼	0.0	---	Moderate
Falls	T.19S., R.70E. sec. 33 NW¼NW¼	0.05	Poor	Moderate
Grapevine	T.19S., R.70E. sec. 34 SW¼NW¼	0.02	Fair	Low
Julie's	T.19S., R.71E. sec. 06 SE¼	0.14	Good	None
Summit*	T.19S., E.71E. sec. 18 NW¼SW¼	0.4	Good	Moderate*
Connoly*	T.19S., R.71E. sec. 31 NE¼	0.01	Poor	Moderate*
Klup	T.20S., R.56E. sec. 31 SE¼SE¼	1.4	Good	Moderate
Cataract	T.20S., R.69E. sec. 06 NE¼NE¼	1.0	Fair	Low
Gann	T.20S., R.69E. sec. 15 NE¼SW¼	1.0	Good	Low
Taylor	T.20S., R.69E. sec. 15 NW¼	0.1	Poor	Low
Walker	T.20S., R.69E. sec. 21 SE¼NW¼	0.02	Poor	High
Ruby	T.20S., R.69E. sec. 25 NW¼NW¼	0.02	Good	Low
West Willow	T.20S., R.70E. sec. 08 SW¼SE¼	0.0	Poor	None
Twin	T.20S., R.70E. sec. 19 SW¼SE¼	0.07	Fair	Low
Forlorn Hope	T.25S., R.64E. sec. 01	0.2	Good	None

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Table 3-10. Riparian Inventory (concluded).

Spring Name	Location	Acreage	Riparian Condition	Improvement Potential
McClanahan	T.26S., R.61E. sec. 08 SW¼	0.1	--	Low
McCullough	T.26S., R.61E. sec. 26 SE¼SW¼	0.1	Poor	Moderate
Willow	T.26S., R.61E. sec. 31 NE¼NE¼	0.1	Poor	Low
Ora Hanna	T.27S., R.62E. sec. 05 NE¼SE¼	0.2	Poor	Moderate
Highland	T.27S., R.62E. sec. 16 SW¼NW¼	0.5	Poor	High
Cow	T.27S., R.62E. sec. 26 NE¼SW¼	0.1	Poor	Moderate
Rattlesnake	T.31S., R.65E. sec. 16 SE¼NE¼	0.5	Good	None
Unnamed	T.31S., R.65E. sec. 16 SW¼	0.3	Good	None
Cottonwood	T.31S., R.65E. sec. 17 NW¼	0.2	Fair	High
Cottonwood	T.31S., R.65E. sec. 28 SE¼NW¼	0.01	Good	Low
Hiko	T.32S., R.65E. sec. 12 SE¼SE¼	0.4	Fair	High
Quail	T.32S., R.65E. sec. 15 SE¼NW¼	0	--	None

Key:
* Enclosure and/or development completed..

disturbed by fire, overgrazing, or other mechanisms, purple threeawn (*Aristida purpurea*) invades the site.

Mountain Shrub

The mountain shrub or northern desert shrub community occurs at elevations between 4,500-6,000 feet in the planning area. Common shrubs include mountain mahogany (*Cercocarpus ledifolius*), manzanita (*Arctostaphylos pungens*), desert bitterbrush (*Purshia glandulosa*), various sagebrush species, Mormon tea, and green rabbitbrush. Grass cover tends to be quite low in this group, with dominants being squirreltail (*Sitanion hystrix*) and Indian ricegrass. Several prickly pear species are common in this association.

At elevations above 5,000 feet where annual precipitation exceeds eight inches, the mountain shrub community is characterized by a mosaic of black sage (*Artemisia nova*), and big sagebrush (*Artemisia tridentata*), depending on soil types and aspect. Big sagebrush occurs on deeper, sandy soils on mesas and in drainages and valley bottoms. Black sagebrush prefers the shallower, rocky soils of ridges and hillsides.

Pinyon-Juniper Woodland

The state tree of Nevada, singleleaf pinyon pine (*Pinus monophylla*), and Utah juniper (*Juniperus osteosperma*) are the dominant components of this community which is found in the Newberry,

McCullough, Virgin, Mormon, and Spring Mountains. Pinyon-juniper woodland occurs at elevations above 6,000 feet, where average precipitation exceeds 8 inches. Understory shrubs are black sagebrush, big sagebrush, desert bitterbrush, green rabbitbrush, and cliffrose (*Cowania mexicana*). Grass species include black grama (*Bouteloua eriopoda*) and squirreltail.

Conifer

In the planning area, the conifer community has a very limited distribution, consisting of a remnant stand of white fir (*Abies concolor*), found near the summit of Virgin Peak at 8,000 feet, and relic stands of ponderosa pine (*Pinus ponderosa*) in isolated areas of Red Rock Canyon National Conservation Area. Also present in this community is singleleaf pinyon pine; the understory is dominated by big sagebrush, and, to a lesser extent, by muttongrass (*Poa fendleriana*).

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Riparian: The riparian community is uncommon in the planning area, being restricted of areas of perennial water around springs, seeps, and along stream channels. Ash Meadows and the Virgin River floodplain support riparian vegetation. Typical species are willow (*Salix sp.*), cottonwood (*Populus fremontii*), ash (*Fraxinus* sp.), rushes (*Juncus sp.*), cattails (*Typha latifolia*), and inland saltgrass (*Distichlis* sp.). Saltcedar (*Tamarix pentandra*) has invaded many of the streambank riparian areas, displacing native plants.

Grassland: This community is extremely restricted in distribution within the planning area, occurring in Hidden Valley, the Las Vegas Dunes area, and Amargosa Valley. The grassland community is typified by native grass species, primarily big galleta and Indian ricegrass; shrubs are generally absent.

Mesquite: The mesquite (*Prosopis* sp.) community is found near springs and seeps and in areas where the water table is high enough to assure a reliable source of water. Large stands of mesquite occur in Meadow Valley Wash, north of Glendale, and in the Crystal area in the Amargosa Valley. Small, scattered stands or *bosques* grow in ephemeral drainages and on sand dunes throughout the Las Vegas BLM District.

Table 3-11. Vegetation communities in Las Vegas District.

Vegetation Community	Acres
Southern desert shrub	1,900,720
Mojave shrub	1,221,316
Pinyon-juniper	128,957
Salt desert shrub	55,115
Mountain shrub	10,872
Grassland	6,916
Mesquite	5,358
Conifer	678
Riparian	1,963
Total	**3,331,895**

(Source: BLM, Las Vegas District Office files, 1991; Range Survey, 1978, 1979.)

Vegetation Condition

Vegetation condition in the planning area was evaluated during past decades by several methods, with each method using different variables to determine vegetation condition. BLM traditionally selected forage species as indicators of condition and trend, using relative values such as "good" or "poor" range condition. Condition data is generally gathered only in areas where livestock grazing is permitted. Forage condition denotes the relative abundance of preferred forage species found in the vegetation type as compared to other vegetation types found throughout the public lands. For example, grasslands would always be evaluated in better "condition" than shrublands.

This method was primarily replaced by an examination of ecological condition or status, which is defined as the present state of the vegetation and soil protection of an ecological site in relation to the potential natural community. Ecological condition compares the present status to a standard for a specific "range site", rather than other vegetation types. Ecological condition is expressed in terms of four successional stages progressing from early seral stage to a potential natural community. A detailed soil survey (Order 3) is a prerequisite for such an analysis; this survey is complete for the Las Vegas Valley, the Virgin River Valley, the Eldorado Valley and southwest Nye County. Although the Order 3 soil survey is near completion for remaining areas in Clark County, it may not be finished due to a lack of funding.

A third method of assessing ecologic condition is based on professional judgement in interpreting the ecological site index. Staff specialists trained in range management, wildlife management, agronomy, or botany visually rate an area, using knowledge of the plant species, soil types, climatic factors and site index descriptions.

The BLM is required to report the condition of its rangelands on an annual basis. The 1989 the Las Vegas District report provided data on both range condition and ecological status; the acres reported were adjusted to reflect the actual acreage of the planning area (see Tables 3-12 and 3-13). Federally-managed acreage scheduled for disposal under Congressional mandate within the boundaries of the city of Las Vegas was not reported. BLM also provided data on ecological status (based on professional judgement) to the General Accounting Office in response to a request in 1990 (see Table 3-14).

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Visual Resource Management

The planning area contains a variety of scenic values, which can be separated into seven distinct areas:

- Gold Butte area
- Mormon Mesa
- Muddy Mountains
- Spring Mountains
- Amargosa Valley
- South of Las Vegas Valley.

The Visual Resource Management program manages these values with the objectives of retaining the quality of the visual environment and reducing the visual impact of development activities. Scenic areas that warrant protection through special management attention are also identified.

Approximately 195,610 acres of highly scenic lands occur within Red Rock Canyon National Conservation Area and along the foothills of the Spring Mountains; this area is managed primarily for its visual resources. The remainder of the resource area (comprised primarily of desert, mountains, playas, and bajadas) are managed to avoid resource uses and surface disturbance from dominating the landscape.

The Gold Butte area (located south of Mesquite, Nevada and northeast of Lake Mead) is dominated by the Virgin Mountains and characterized by exceptional panoramic desert views. The northern portion of the area is covered by sparse creosote bushes, grasses, and shrubs. Dense stands of joshua trees, pinyon and juniper, as well as desert vegetation types, are found at the southern extreme of Gold Butte. There are few water sources and riparian areas. The proximity of the tree-clad Virgin Mountains to sandstone formations and desert vegetation creates a stark visual contrast.

The Mormon Mesa area is north of Interstate 15 and east of the Desert Wildlife Range. The predominate landscapes in the area are Mormon Mesa, Mormon Mountain, and the Arrow Range. The primary water sources in the area are the Muddy River and Meadow Valley Wash; both contain riparian vegetation and arable lands. Vegetation consists of creosote bush communities in the lower elevations and pinyon/juniper woodlands on Mormon Mountain. Scenic values are found in the transition between the Mesa's floor and Mormon Mountain and in the geologically unique Arrow Canyon.

The Muddy Mountains are south of Interstate 15, north of Lake Mead, and east of Las Vegas. The Muddy Mountains offer a backdrop of color and (from the top of Muddy Peak,)outstanding views of Lake Mead and nearby basins. Specific areas of high scenic quality in the area include Buffington Pockets, Anniversary Narrows, and Hidden Valley. A few springs with riparian vegetation intersperse the creosote bush communities of the lower elevation. The Valley of Fire State Park and Sunrise Mountain are other areas of scenic value in the region.

The Spring Mountains area includes all the landforms adjacent to Mount Charleston and the Toiyabe National Forest. The area is dissected with several moderate sized canyons, several major highways, an desert to mountain transition zone vegetation. The most dramatic feature is the back drop of Mount Charleston which dominates the entire landscape.

The Amargosa Valley area is found north and west of Las Vegas between the municipalities of Pahrump and Beatty. Most of the landscape is not remarkable, characterized by flat bajada type desert country with creosote bush communities and some minor hills and mountains. The eastern portion of the area borders NTS and exhibits colorful and rugged mountain ranges that breakup the monotony of the valley floor. Several cinder cones and Big Dune offer a unique scenic contrast to the Amargosa Valley.

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Table 3-12. Range forage condition.

	Forage Condition				
Federal Acres	**Excellent**	**Good**	**Fair**	**Poor**	**Not Classified**
3,331,895	0	99,957	366,508	2,842,106	24,324

(Source: USDI, BLM 1989)

Table 3-13. Ecological status.

	Ecological Status				
Federal Acres	**Potential Natural Community**	**Late Seral**	**Mid Seral**	**Early Seral**	**Not Classified**
3,331,895	90,742	75,112	4,749	0	3,161,292

Unsurveyed acres: 3,352,747

(Source: USDI, BLM 1989)

Table 3-14. Professional judgement of ecological status.

	Ecological Status*				
Federal Acres	**Potential Natural Community**	**Late Seral**	**Mid Seral**	**Early Seral**	**Not Classified**
3,331,895**	899,612	2,199,050	199,914	33,319	0

* Derived from inventory data and professional judgement based on data from similar types
** Acreage reflects lands transferred to the U.S. Forest Service

(Source: USDI, BLM 1990).

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Fish and Wildlife and Special Status Species Resources

The Las Vegas BLM District encompasses an ecologically diverse region with a variety of landforms, soil types, moisture regimes, and vegetation communities. This variability creates habitat for numerous wildlife species (see Appendix A). Appendix B lists special status species that may occur in the planning area. Species of concern include the following:

Desert Bighorn Sheep
(Ovis canadensis nelsoni)

Archeological evidence indicates that desert bighorn sheep have occurred in Nevada for the past 11,000 years (McQuivey 1978); the state currently supports one of the largest modern populations in the United States. In the planning area, bighorn sheep are found in 17 mountain ranges, with two additional ranges capable of supporting sheep herds (see Map 3-7). Table 3-15 lists historic and current bighorn sheep habitat and populations.

Over the past 12 years, bighorn numbers have stabilized or increased slightly as a result of reintroduction to former habitat, water developments, and favorable land use decisions. The apparent decline of bighorn sheep populations in some areas can be attributed to the recent drought, as well as the inability of the data to support a long-term downward population trend. In 1989, the McCullough and Highland ranges (Area 84) were reopened to hunting for the first time in several years. Bighorn sheep compete with domestic sheep, livestock, wild horses, and burros for forage and water. Urban growth is also impacting sheep habitat by reducing acreage and disrupting migration routes.

Mule Deer
(Odocoileus hemionus)

Historic evidence suggests that mule deer numbers were relatively low in Nevada prior to the turn of the century. In the Las Vegas BLM District, mule deer numbers have remained low and their distribution is limited by the amount of suitable habitat. Much of the planning area does not support the vegetation types preferred by mule deer. Water, too, is a limiting factor, with competition occurring at spring sources between livestock, wild horses and burros, and mule deer. Low density deer populations are restricted to several mountain ranges, including the Spring, McCullough, Newberry, and Virgin Mountains (see Map 3-8). Some deer use occurs in the Gold Butte area located south of the Virgin Mountains. Mule deer populations are so low in the planning area that Nevada Division of Wildlife does not conduct population census.

Gambel's Quail
(Callipepla gambelli)

In Nevada, good quail habitat is generally located on alluvial fans dissected by numerous washes, at elevations between 2,000-4,500 feet. Quail habitat totals approximately 3.4 million acres in Clark County; additional habitat is found in Nye County at the north end of the Spring Mountains and at Ash Meadows (see Map 3-9). Population density is difficult to estimate due to large annual fluctuations in quail numbers. Habitat conditions vary from excellent to poor, depending upon water availability, precipitation, and forage conditions. All springs, seeps, rivers, lakes, and water catchments are important use areas for these birds.

Special Status Animal Species

The Las Vegas BLM District is home for many special status species, which include Federally-listed threatened and endangered, candidate, state listed, and sensitive species (see Map 3-10). It is BLM policy to manage the habitats of all special status species, to prevent future listing of species, to ensure the recovery of listed species, and to ensure that any Federal actions authorized, funded, or carried out are not likely to jeopardize the continued existence of any such species (BLM Manual 6840).

Species lists and other information are included in the following appendices:

- Appendix A lists species found or potentially found in the Las Vegas BLM District.
- Appendix B includes special status species known to occur on BLM or adjacent lands.

The BLM conserves Federally listed species and their habitats and uses existing authorities to further the purpose of the Endangered Species Act. All actions authorized, funded, or carried out by the

BLM must comply with the requirements of the Endangered Species Act. Species proposed for Federal listing are managed with the same level of protection as listed species.

Further, the BLM policy requires management of habitats of candidate and BLM sensitive species in such a manner that Future federal listing will not be required. The planning unit supports numerous BLM sensitive species (see Appendix B).

Table 3-15. Current/historic bighorn sheep habitat and populations based upon data from 1976-1994.

Mountain Range	Population 1976	Estimates 1994	Total acres	Watered acres
Arrow Canyon Range	103	137	48,500	7,100
Las Vegas Range****	277	87	7,800	0
South Spring/Bird Spring Ranges	70	51	78,200	15,400
Red Rock/La Madre	162	73	116,100	49,600
McCullough Mountains	158	118	118,500	32,800
Highland Range	56	14	25,100	15,200
Eldorado Range	410	356	50,100	23,500
Muddy Mountains/N. Muddy Range	122	489	111,900	22,300
Newberry Mountains	55	26	29,200	10,900
River Mountains	210	257	12,700	200
Virgin Mountains	0	68	39,100	10,400
New York/Castle Peak	25*	25*	14,000	9,500
Gold Buttes	0	68	63,400	11,300
Last Chance Range**	0	141	38,000	7,000
Specter Range**	0	75	25,200	13,000
Bare Mountains**	0	60	8,200	7,200
Meadow Valley Mtns****	155	79	12,400	0
Mormon Mountains****	385	392	3,200	0
Dry Lake Range***	0	0	11,500	0
Lucy Grey Mountains***	0	0	17,300	0
North Spring Range***	0	0	39,400	10,600
Totals	**2,188**	**2,516**	**869,800**	**246,000**

Key:

* Watered habitat is within 2 miles of water. Acres are rounded to the nearest 100 acres. Nevada portion of the population only. Most of the New York Mountains are located in California. The animals move back and forth between California and Nevada.

** Recent transplant; estimate is based upon actual numbers released, and observed reproduction, less known mortality.

*** Unoccupied historic habitat.

**** Portions of the Mormon, Meadow Valley and Las Vegas (Elbow) Ranges are located in the planning unit. The majority of the habitat and all existing waters are located outside the Resource Area. Population estimates are for the entire mountain ranges.

(Source: NDOW survey data 1976-1994 and unpublished BLM data).

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Special Status Fish

Several Federally-listed endangered fish are found in the Colorado River drainage system, which crosses the eastern edge of the Las Vegas BLM District. Each of these species is threatened by habitat destruction (such as water removal, sedimentation, pollution, and channelization) and predation, particularly from exotic species. These threats are magnified by the low population numbers and the limited range of each species. The *Recovery Plan for the Virgin River Fishes* (USDI USFWS 1995b) and the *Recovery Plan for the Rare Aquatic Species of the Muddy River Ecosystem* (USDI USFWS 1995a), guide BLM management strategies for Federally- listed endangered species in the Muddy and Virgin rivers. Other BLM special status fish species in the Muddy River includes the Moapa Whiteriver springfish (*Crenichthys baileyi moapae*), Moapa speckled dace (*Rhinichthys osculus moapae*).

Woundfin - Federally-Listed Endangered (*Plagopterus argentissimus*). The woundfin was originally native to the Salt, Gila, Colorado, Moapa, and Virgin Rivers. Current distribution is limited to the Virgin River drainage in Arizona, Nevada, and Utah, from LaVerkin Springs and the lower portion of LaVerkin Creek near Hurricane, Utah down to Lake Mead, Nevada. The Las Vegas BLM District manages approximately 194 acres of riparian habitat along the Virgin River in Nevada.

Virgin River Chub-Federally-Listed Endangered (*Gila robusta*). The Virgin River population of the Virgin River chub was listed in August 1989. Historically, this species was endemic to the Virgin River system in southwestern Utah, northwestern Arizona, and southern Nevada and the Muddy River in southern Nevada. Its current distribution is limited to the mainstream Virgin River from Pah Tempe Springs down to the Mesquite Diversion and reaches of the Muddy River. At one time, it was thought that the chub in the Muddy River was a separate species from that in the Virgin River. Current research has shown that the Moapa River Chub is not a separate subspecies, but instead should be considered a distinct population segment of the Virgin River Chub. A large percentage of the chub's historic habitat has been eliminated, restricting its current distribution to 50 miles of the Virgin River between Mesquite, Nevada and LaVerkin Creek, Utah and the Muddy River between the Warm Springs Bridge and the Narrows.

Moapa Dace - Federally-Listed Endangered (*Moapa coriacea*). Moapa dace habitat is restricted to thermal springs at the headwaters of the Muddy River. While the Moapa dace do not currently occur on lands managed by BLM, their survival could be affected by activities that occur on BLM-administered lands in the Moapa Valley. Also, the Muddy River was identified as an area where BLM may acquire lands through exchange. Most of the springs that originally supported this species were extensively modified for private developments. The introduction of exotic fish and their associated parasites and diseases has also negatively impacted the Moapa dace population. Currently, the Moapa National Wildlife Refuge provides some spawning habitat for the Moapa dace. However, habitat for the adult fish is currently unprotected and occurs primarily on private property.

Virgin River Spinedace - BLM sensitive (*Lepidomeda m. mollispinis*). The Virgin River spinedace was proposed for listing as threatened (*Federal Register*, Vol. 59, No. 95, Wednesday, May 18, 1994). This species is endemic to the Virgin River drainage of southwestern Utah, northwestern Arizona, and southeastern Nevada. An estimated 40 percent of its historical habitat was degraded from human impacts, including habitat fragmentation, introduction of nonnative fishes, and dewatering. Recent surveys show that the species occurs in Nevada only in very low numbers. Because the state of Utah developed and began implementation of a conservation agreement for the spinedace, the USFWS has withdrawn the proposed rule to list the species as threatened (*Federal Register*, Vol. 61, No. 25, Tuesday, February 6, 1996).

Razorback sucker - Federally-listed Endangered (*Xyrauchen texanus*). The razorback sucker historically occurred in the Colorado River drainage (*Federal Register*, Vol. 56, No. 205, Wednesday, October 23, 1991). Its current distribution in the lower basin is limited to Lake Mojave and sporadic occurrences in Lake Mead, the Grand Canyon, and downstream on the mainstream and associated impoundments. No razorback sucker habitat occurs on BLM-managed lands.

Fishes of Ash Meadows National Wildlife Refuge and Devil's Hole National Monument. Four Federally-listed endangered species occur in Nye

County at the Ash Meadows National Wildlife Refuge and Devils Hole National Monument. The three species occurring on the refuge are the Ash Meadows Amargosa pupfish (*Cyprinodon nevadensis mionectes*), Warm springs pupfish (*C. n. pectoralis*), and Ash Meadows speckled dace (*Rhinichthys osculus nevadensis*). Devils Hole pupfish (*C.diabolis*) occurs on Devil's Hole National Monument, which is managed by the National Park Service. The BLM cooperatively manages several inholdings within the Ash Meadows National Wildlife Refuge with the U.S. Fish and Wildlife Service. Some of these inholdings provide habitat for endangered fish. However, the U.S. Fish and Wildlife Service has applied to withdraw the remaining BLM inholdings for inclusion within the refuge.

Special Status Birds

Peregrine Falcon - Federally-listed endangered (*Falco peregrinus*). The Peregrine falcon has been sighted along the Colorado River drainage from the Overton State Wildlife Management Area south to Lake Mead, in Red Rock Canyon, in the Pahrump Valley, the Desert National Wildlife Range, and the Christmas Tree Pass area. Preferred Peregrine habitat include regions of sheer cliffs located in close proximity to riparian zones or other water sources where prey are readily available. Some areas in the Las Vegas BLM District (especially the Spring, Virgin, and Newberry Mountains) contain potentially suitable habitat for this species.

In 1989, the Nevada Division of Wildlife established an Urban Peregrine Hack Program. Through this program, several nestling falcons were raised and released from a hack box on top the Las Vegas Hilton Hotel. These and subsequent hack-reared birds may select nesting sites on BLM-administered lands surrounding Las Vegas Valley, thus establishing a breeding Peregrine falcon population within the Las Vegas District.

Southwest Willow Flycatcher - Federally-listed endangered (*Empidonax trailii extimus*). The Southwest willow flycatcher was listed on February 27, 1995 (*Federal Register*, Vol. 60, No. 38). The breeding range of the species includes southern California, southern Nevada, southern Utah, Arizona, New Mexico, western Texas, southwestern Colorado, and extreme northwestern Mexico. The species is restricted to dense riparian associations of willow, cottonwood, buttonbush, and other deciduous trees and shrubs although they will use Tamarisk habitat as well. The Southwest willow flycatcher was listed due to extensive loss and modification of habitat and brood parasitism by the brown-headed cowbird. Nesting habitat for the Southwest willow flycatcher is found along the Virgin River.

Western Burrowing Owl - BLM Sensitive (*Athene cunicularia hypugea*). Burrowing owls are found in suitable habitat throughout southern Nevada. The owls use burrows constructed by other animals, such as desert tortoise and badgers, for nesting. Available habitat for owls has declined in southern Nevada because of loss of habitat to urban expansion, particularly in the Vegas Valley.

Ferruginous hawk - BLM Sensitive (*Buteo regalis*). No suitable nesting habitat occurs in the planning area. However, ferruginous hawks may winter in the planning area.

Special Status Reptiles

Desert Tortoise - Federally-listed threatened (*Gopherus agassizii*).

Management Background. Approximately 3 million acres of tortoise habitat in Clark and Nye counties are administered by BLM. Tortoises are year-long residents of the planning area, generally inhabiting the creosote-bursage or creosote-yucca communities at elevations below 5,000 feet. Their forage base consists of native annuals, perennial grasses, cacti, shrubs, and some exotic species. Tortoises are a biologically sensitive species, being long-lived with a slow maturation rate and low reproduction rates. The species is unable to adapt to rapid environmental changes. Since tortoises spend the majority of their lives underground, they are particularly susceptible to surface-disturbing activities.

In 1988, BLM developed the *Desert Tortoise Habitat Management on Public Lands: A Rangewide Plan* (USDI BLM 1988) to improve the status of the tortoise on public lands and to maintain viable populations in perpetuity. Emphasis was focused on increasing public awareness of tortoise populations and habitats, and on the categorization of tortoise habitat. Other management objectives and goals of the *Rangewide Plan* emphasized research, inventory, and monitoring programs to enlarge the scientific data base relating to the desert tortoise. Under this plan, there is high priority to

consistency within BLM programs to achieve the objectives of tortoise habitat management and coordination with other agencies. This plan categorized tortoise habitat into category I, II and III habitat areas. This categorization of habitat was a method of identifying which areas were most important for desert tortoise and which areas had the most potential for long-term management of desert tortoise populations. The intent of the *Rangewide Plan* was to prevent the Federal-listing of the desert tortoise as threatened or endangered. However, the plan was unsuccessful in this regard.

Under its emergency authority, the U.S. Fish and Wildlife Service placed the desert tortoise on the Endangered Species List on August 4, 1989 (*Federal Register*, Vol. 54. No. 149 Friday Aug 4). On April 2, 1990, the U.S. Fish and Wildlife Service issued a final rule listing the desert tortoise as a threatened species under the provisions of the Endangered Species Act. This act requires that the BLM not authorize, fund, or conduct any activity that threatens the continued existence of a listed species.

After listing of the desert tortoise, Clark County prepared a *Short-Term Habitat Conservation Plan* for desert tortoise in conjunction with other local governments to obtain a Section 10 (a)(1)(B) permit allowing incidental take of desert tortoise on private land. As mitigation for incidental take on private land, the Piute Valley/Eldorado Tortoise Management Area was established in the southern part of Clark County. The Section10 (a) Permit associated with the *Short-Term Habitat Conservation Plan* expired July 31, 1995 and was replaced by a long-term plan and associated permit. The *Clark County Desert Conservation Plan* addresses implementation of the *Tortoise Recovery Plan* in Clark County. For the most part, the *Desert Conservation Plan* does not depend on the Las Vegas BLM District Resource Management Plan for implementation of mitigation measures. Those mitigation measures of the *Desert Conservation Plan* dependent on approval of the Las Vegas BLM District Resource Management Plan are incorporated into the proposed decision.

In 1993, several environmental groups sued the Department of Interior to compel designation of critical habitat for desert tortoise. Final critical habitat designation for the Mojave population was published in the Federal Register on February 8, 1994 (*Federal Register* Vol. 59, No. 26). Three areas of critical habitat were designated in the Las Vegas BLM District

- Piute/Eldorado, Nevada Critical Habitat Unit
- Gold Butte, Nevada Critical Habitat Unit
- Mormon Mesa Critical Habitat Unit.

The *Tortoise Recovery Plan*, finalized in 1994, identifies several recovery units for desert tortoise. The Eastern Mojave Recovery Unit and the Northeastern Mojave Recovery Unit are located partially within Nevada. The *Tortoise Recovery Plan* recommends establishment of Desert Wildlife Management Areas to be managed for recovery of the species. (*Note*: The BLM is using the term Area of Critical Environmental Concern rather than a Desert Wildlife Management Area.)

At least one Area of Critical Environmental Concern should be established in each recovery unit. These Areas of Critical Environmental Concern would be managed for recovery of the desert tortoise. Each Area of Critical Environmental Concern should be 1,000 square miles in extent. Multiple smaller and more intensively managed Areas of Critical Environmental Concern with a combined 1,000 square miles may be necessary in recovery units where individual Areas of Critical Environmental Concern of 1,000 square miles are not possible.

Tortoise Areas of Critical Environmental Concern should be designed to meet the established principles of reserve design discussed below (USFWS 1994).

Reserve Design

1. Reserves should be well distributed across a species' native range.

2. Large blocks of habitat containing large populations of the target species are superior to small blocks of habitat containing small populations.

3. Blocks of habitat that are closer together are better than blocks that are far apart.

4. Habitat that occurs in less fragmented, contiguous blocks is preferable to fragmented habitat.

5. Habitat patches that minimize edge-to-area ratios are superior to those that do not.

6. Interconnected blocks of habitat are better than isolated blocks, and corridors or linkages function better when the habitat within them is represented by protected, preferred habitat for the target species.

7. Blocks of habitat that are roadless or otherwise inaccessible to humans are better than roaded and accessible habitat blocks.

Tortoise Population Status. One method of surveying desert tortoise habitat is to walk standard tortoise transects. Standard tortoise transacts consist of a 1.5 mile triangular transect (0.5 mile per side). All sign of tortoise within five meters of either side of the transect is counted. Tortoise sign includes tortoises (alive or dead), burrows, scat, egg shells, tracks, and courtship rings. The amount of sign per transect can be correlated with tortoise abundance by conducting transects on areas with known population levels. The relative abundance of tortoises in other areas can then be estimated by conducting tortoise transects.

Since 1979, more than 2,000 standard tortoise transects have been conducted in southern Nevada. The transect technique generally indicates the relative abundance of larger tortoises and their sign. Transects tend to underestimate tortoise density for a specific location, although they clearly can differentiate good habitat from poor habitat (Turner et al. 1982).

A second method of estimating tortoise densities and population trend is to conduct mark-recapture studies. In the Las Vegas BLM District, a total of eight permanent, one square mile study plots were established between 1979 and 1994 (two more were established in Caliente). These plots are read about every four years. Plot surveys consist of a 30 field-day capture period followed by a 30 field-day recapture period, for a total effort of 60 field-days per study plot. The *Tortoise Recovery Plan* (USFWS 1994) recommends the removal method of population estimation (Southwood 1978; Zippin 1956, 1958) for assessing density of large immature and adult tortoises. Surveys would be conducted on kilometer square plots for 3 to 7 days. Improved survey techniques will be tested in future studies. The most appropriate method will be used to monitor tortoise populations in the future.

Between 1990 and 1992, five permanent study plots were resampled. Data was analyzed using the Bailey binomial method outlined by Caughely (1977). Of the five plots resampled between 1990 and 1992, the data indicates the following:

- Two populations of adult tortoises have remained relatively stable or increased slightly (Sheep Mountain and Coyote Springs)
- Two populations declined slightly (Christmas Tree Pass and Trout Canyon)
- One populations dramatically declined (Gold Butte).

In 1994, four existing plots were resampled (Piute Valley, Christmas Tree Pass, Mormon Mesa and Gold Butte). Using the Chi Square Test at the 0.01 level, the population on the Piute Valley plot appears to have increased slightly. Data indicates that populations remained relatively stable on the other three plots between 1992 to 1994.

The Piute Valley study plot was surveyed five times between 1979 and 1994. The data indicate that a significant decrease in the number of adult tortoises occurred between 1979 and 1983, likely due to drought conditions. Between 1983 and 1987, numbers of adults remained constant, but the number of tortoises with less than 180 millimeter mid-carapace length declined by approximately 50 percent. The total estimated number of tortoises on the plot decreased between 1987 and 1989, although the actual numbers of subadult and adult tortoises captured were approximately the same. By 1989, it appeared that the density of tortoises on the Piute Valley Study plot had begun to stabilize. Data from 1994 further supports a stable population, but at a lower population density than that estimated in 1979.

Since 1990, signs of upper respiratory tract disease were documented on five permanent study plots (Coyote Springs, Christmas Tree Pass, Piute Valley, Mormon Mesa and Gold Butte). None of the animals observed showed chronic signs of the respiratory disease, and none were tested for the presence of *Pasteurella* or *Mycoplasma*.

Osteoporosis is described as the thinning of bone and is exemplified by the concavity of tortoise scutes. Sunken scutes in young tortoises is generally considered to be a sign of malnutrition. This condition was documented on all permanent study plots sampled between 1990 and 1994. Shell disease was documented on all permanent study plots sampled between 1990 and 1994.

Proposed Areas of Critical Environmental Concerns. One goal of the Proposed Resource

Management Plan/Final Environmental Impact Statement is to manage for the recovery of the desert tortoise, as defined in the *Tortoise Recovery Plan* (USFWS 1994). As outlined in the *Tortoise Recovery Plan*, Desert Wildlife Management Areas were proposed. Because this is not an official BLM designation, they were identified as Areas of Critical Environmental Concern.

The proposed Areas of Critical Environmental Concern were developed to closely coincide with proposed critical habitat for desert tortoise, the Piute-Eldorado Tortoise Management Area identified in the *Clark County Short-Term Habitat Conservation Plan* and the recovery areas outlined in the *Tortoise Recovery Plan.*

Densities of tortoises within the Areas of Critical Environmental Concern were estimated using strip-transect data and study plot data. The following assumptions were made:

1. Estimated densities were based on methods described by Karl (1981) for Lincoln and Nye counties, and selected sites in Southern Nevada (Schneider and Turner 1982). The strip transect methods cited above use the total adjusted sign values shown in Table 3-16.

2. A high and low density estimate was calculated based upon strip-transect data.

3. For analytic purposes, a range of 140 to 160 tortoises per square mile was assigned to transects with total adjusted sign of greater than or equal to 12.

Table 3-17 displays proposed Areas of Critical Environmental Concern, adjacent habitats, and estimated tortoise densities within those areas.

"The desert tortoise spends approximately ninety eight percent of its life in a subterranean environment where the burrow protects it from the cold winters, hot summers, and predators (Nagy and Medica 1986). During its active periods, the desert tortoise requires vegetation for forage and cover. Certain plants provide forage and nutritive requirements and surface cover for protection from the hot summer sun and predators (Jennings 1993; Weinstein et al. 1987). The soil and vegetation and their related properties including microenvironment are expected to play an important role in the density and distribution of tortoise within an area (Wilson and Stager 1992; Weinstein et al. 1987; Woodbury and Hardy 1948; Miller and Stebbins 1964).

Table 3-16. Estimated densities of tortoise, based on total adjusted sign.

Total Adjusted Sign	Estimated Density Per Square mile
0	1-10
1-3	10-45
4-7	45-90
8-11	90-140
12	>140

[Methodology: Karl (1981), Schneider and Turner (1982)]

It is likely that a combination of soil temperature, soil properties, landform/micro environment, and vegetative community characteristics offer a method to interpret habitat suitability and quality for the desert tortoise (Lato and Stager 1997). Soil temperature is measured at a depth of 20 inches, which is the average depth of a tortoise winter burrow. A soil that is too cold or too hot on an average annual basis for a reptile such as the tortoise to regulate its body temperature would not offer a suitable habitat for large populations and could be restrictive. Soil properties that would be considered include rock (gravel) content and size, soil texture, consistence, pH, color, effervescence, cementation, and depth to a restrictive layer. These properties could restrict or enhance burrowing or digging by the tortoise providing more or less habitat, respectively.

The landform and associated micro environments would also effect habitat. Whether a landform is dissected or non-dissected by drainages (the dissected landform would offer more micro environment potential than the non-dissected), north or south facing slopes on a macro or micro-environment basis (a south slope being hotter and drier), presence of coppice dunes or boulders with underground pockets for burrowing etc. would be important considerations.

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Table 3-17. Estimated tortoise numbers in proposed ACECs and adjacent habitats.

Area Landowner or Manager	Square Miles of Habitat	Relative Density (Adults)	Estimated Number of Tortoises (Adults)	Median Number of Tortoises (Adults)
Mormon Mesa Clark County BLM	236	25-45	5,900-10,620	8,260
Mormon Mesa Lincoln County BLM	154	10-20	1,540-3,080	2,310
Total - Mormon Mesa	**390**		**7,440-13,700**	**10,570**
Arrow Canyon Clark County BLM	118	25-75	2,950-8,850	5,900
Coyote Spring/Kane Spring Lincoln County BLM	105	25-75	2,625-7,875	5,250
Coyote Spring Aerojet	63	25-75	1,575-4,725	3,150
Coyote Spring USFWS	115	10-45	1,150-5,175	3,163
Total -Coyote Spring	401		8,300-26,625	17,463
Gold Butte NV BLM	293	10-20	2,930-5,860	4,395
Gold Butte AZ BLM	319	1-20	319-6,380	3,350
Gold Butte AZ BLM	144	20-50	2,880-7,200	5,040
Gold Butte NPS	130	10-20	1,300-2,600	1,950
Total - Gold Butte	**886**		**7,429-22,040**	**14,735**
Piute Valley NV BLM	358	40-63	14,320-22,554	18,437
Eldorado Valley NV BLM	156	6-17	936-2,652	1,794
Lake Mead NRA	293	10-20	2,930-5,860	4,395
*Piute/Eldorado Valley CA, CHU, CA BLM	709	40-90	28,360-63,810	46,085

Table 3-17. Estimated tortoise numbers in proposed ACECs and adjacent habitats (concluded).

Area	Square Miles of Habitat	Relative Density (Adults)	Estimated Number of Tortoises (Adults)	Median Number of Tortoises (Adults)
*Ivanpah CHU CA BLM	988	15	14,820	14,820
Boulder City Conservation Easement	133	6-17	798-2,261	1,530
Total - Eldorado/ Piute Valley	**2,637**		**62,164-111,957**	**87,061**
Totals	**4,314**		**85,333-174,322**	**129,829**

* Square miles of habitat for California based on designated critical habitat and may include acreage within the Western Mojave RU.

Existing plant community characteristics (such as canopy cover, perennial grass composition by air dry weight, species diversity, and nutritional value.) would play a role in habitat assessment.

It should be clarified that the potential vegetation in a particular location depends on the soils present there while the reverse does not hold true. This equates to vegetation being the dependent variable. Additionally, soils and landforms are considered stable factors that do not vary in their inherent characteristics under normal circumstances. Therefore, the soil temperature, soil properties, and landform/micro environment would receive a heavier weighting or consideration in habitat consideration for burrowing animals. Vegetation characteristics (such as cover, production, nitrogen content, rare elements present) would be used to understand when soils of similar characteristics have significantly different measured populations of desert tortoise and/or overall animal health and fitness."

Special Status Reptiles: Others

Chuckwalla - BLM sensitive: (*Sauromalus obesus*). Chuckwallas are a large, herbivorous lizard. They are generally found below 5,000 feet in elevation, in rock outcrops and rocky slopes. Chuckwallas generally are not found on the valley floors. Detailed geographic distribution within the Las Vegas District is not well described and is generally patchy, based upon suitable habitat. Suitable habitat may be found in most mountain ranges in the Las Vegas BLM District.

Gila Monster (*Heloderma suspectum cinctum*). The gila monster is a State of Nevada protected, and rare species (NAC 503.080 and 503.090). The gila monster inhabits the Colorado River Basin and Central Region Hydrographic units (See Map 3-4a). Within the Las Vegas District, gila monsters are known to occur in the Spring Mountains, McCullough Mountains, Highland Range, River Mountains, Eldorado Mountains, Newberry Mountains, Arrow Canyon Range, North Muddy Mountains, Nelson Hills, the Virgin River floodplain, and Meadow Valley Wash.

Gila monsters are often found in association with springs and major ephemeral and perennial tributaries of the Colorado River. It is found primarily below 5,000 feet in elevation, particularly near the interfaces of complex rocky slopes, washes, riparian-xerophyll woodland and loose textured soils. These areas provide the biotic productivity necessary for prey availability during the spring and early summer, and also nesting sites and thermal cover. The gila monster spends up to 90 percent of its time underground and thus is not often observed.

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Special Status Mammals

Bats. The U.S. Fish and Wildlife Service identified 12 special status bat species as potentially occurring in the planning area (USDI USFWS, File no. 1-5-95-SP-066, February 9, 1995). Generally, very little information is available on the distribution, abundance, or habitat needs of these species within Nevada. Potential nesting and roosting habitat occurs sporadically throughout the Las Vegas BLM District in caves, crevices, and abandoned mine tunnels. The species of bats are listed in Appendix B.

Special Status Invertebrates

Numerous invertebrate species are found on Ash Meadows National Wildlife Refuge. However, BLM has little management authority for the area. Currently, the U.S. Fish and Wildlife Service is working to withdraw the remaining BLM inholdings in the refuge.

Four special status invertebrates species occur on Big Dune and Lava Dune in Nye County. These are all BLM sensitive species and include:

- Giuliani's dune scarab beetle (*Pseudocotalpa giulianii*)
- Aegialian dune scarab beetle (*Aegialia magnifica*)
- Big Dune aphodius beetle (*Aphodius* sp.)
- Rulien's miloderes weevil (*Miloderes rulieni*).

Lava Dune is partially located on patented land while Big Dune is public land.

Two special status invertebrates occur in the Muddy River system:

- Moapa pebblesnail (*Fluminicola avernalis*)
- Moapa Warm Springs riffle beetle (*Stenelimis calida moapa*).

The Moapa Warm Springs riffle beetle is a BLM sensitive species. Both are located primarily in the springs at the headwaters of the Muddy River. Currently, BLM has no management responsibility for habitat for these species.

Special Status Amphibians

The Virgin and Muddy rivers contain potential habitat for the Arizona southwestern toad (*Bufo microscaphus*), a BLM sensitive species; and the relict leopard frog (*Rana onca*). The relict leopard frog was considered to be extinct. However, this classification is currently under investigation after discovery of what appears to be relict leopard frogs in two springs on Lake Mead National Recreation Area.

Special Status Plant Species

The Las Vegas BLM District is home for many special status species that include Federally-listed threatened, endangered, candidate, state-listed and BLM sensitive species (Map 3-6). It is BLM policy (BLM Manual 6840) to:

- Manage the habitats of all special status species.
- Prevent future federal listing of species.
- Ensure the recovery of listed species.
- Ensure that any federal actions authorized, funded or carried out are not likely to jeopardize the existence of any such species

Seven plant species known to occur in the planning area were designated as Federally-listed threatened or endangered; all of these species are found in the Ash Meadows area. Table 3-18 lists these special status plants.

Table 3-18 also documents the species within the Las Vegas BLM District that are officially recognized by the U.S. Fish and Wildlife Service as candidates for listing as threatened or endangered species (*Federal Register, Notice of Review,* 2/28/96).

Table 3-19 lists other special status species that are of special management concern due to restricted habitats, limited distribution, or lack of information. Special status species include those listed by the Nevada Division of Forestry as critically endangered. Map 3-6 shows the general locations for special status plant species within the Las Vegas BLM District.

Forestry Resources

Woodland Products

As a result of the *Forest Enhancement Act* of 1989, the number of acres of harvestable woodlands in the Las Vegas BLM District was greatly reduced. All pinyon-juniper woodlands in the Spring Mountains are now included in the Charleston District of the

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Table 3-18. Federally listed threatened and endangered, and candidate plants. Note: all species listed below are also listed as Critically Endangered by the State of Nevada.

Endangered	Ash Meadows niterwort	*Nitrophila mohavensis*
Threatened	Ash Meadows milkvetch	*Astragalus phoenix*
	Spring-loving centuary	*Centaurium namaphilum*
	Ash Meadows gumplant	*Grindelia fraxino-pratensis*
	Ash Meadows ivesia	*Ivesia kingii var. eremica*
	Ash Meadows blazing star	*Mentzelia leucophylla*
	Ash Meadows sunray	*Enceliopsis nudicaulis var. corrugata*
Candidate	Blue Diamond Cholla	*Opuntia whipplei multigeniculata*

(Source: File No. 1-5-95-SP-066 USFWS, Nevada Ecological Services, Office, 2/13/95 and Federal Register Notice of Review, February 28, 1996, pp 7596. See also State of Nevada NRS 527.260-.300 for Critically Endangered Flora.)

Table 3-19. BLM special status plant species, including those listed as Critically Endangered by the State of Nevada Division of Forestry (marked with (*)) .

Scientific Name	Scientific Name
Angelica scabrida	*Epilobium nevadense*
*Arctomecon californica**	*Erigeron ovinus*
Arctomecon merriamii	*Eriogonum bifurcatum*
Astragalus aequalis	*Eriogonum corymbosum* var. *aureum*
Astragalus amphioxys var. *musimonum*	*Eriogonum heermannii var. clokeyi*
Astragalus funereus	*Eriogonum viscidulum**
Astragalus geyeri var *triquetrus**	*Glossopetalon pungens* var *glabra*
Astragalus mohavensis var *hemigyrus**	*Ionactis caelestis*
Astragalus mokiacensis	*Ivesia jaegeri*
Astragalus remotus	*Lomatium graveolens* var. *clarkii*
Botrychium crenulatum	*Penstemon albomarginatus*
Calochortus striatus	*Penstemon bicolor* ssp *bicolor*
Chrysothamnus eremobius	*Penstemon fruticiformis* ssp *amargosae*
Cordylanthus tecopensis	*Phacelia parishii*
Cryptantha insolita+*	*Salvia dorrii* var *clokeyi*
Cymopterus ripleyi var. *saniculoides*	*Spiranthes infernalis*
Didymodon nevadensis	*Townsendia jonesii* var *tumulosa*
Enceliopsis argophylla	
Epilobium nevadense	

Key:
+ Presumed extinct in Nevada
(Source: Nevada BLM Special Status Species list March 1997, and State of Nevada NRS 527.260-.300 for Critically Endangered Flora).

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Toiyabe National Forest. The Virgin Mountains support pinyon-juniper woodland, but a lack of roads make the areas inaccessible for harvesting. Pinyon-juniper stands in the planning area are decadent, even-age stands, with minimal evident regeneration. Very little understory is present due to shading and competition for nutrients and available moisture. The Virgin Mountains contain a small, relict stand of white fir; no harvest of this species is permitted in the Las Vegas BLM District.

Mesquite wood was harvested in an area located approximately 70 miles west of Las Vegas, in the eastern Amargosa Desert. This area partially surrounds a large playa and has little potential for additional production or improvement. The mesquite "stands" are thin and uneven-aged, with little or no regeneration. The stand was closed to wood harvest due to the conflict with identified sensitive resources.

Other Vegetative Resources

Although the Las Vegas BLM District has no formal program for harvest of desert vegetation, many species are made available to the public when destruction of plants is imminent as a result of construction or development (such as powerline installations and mining activities). Salvage permits are issued to individuals, nursery owners, and landscapers for collection of Joshua trees, barrel cactus, beavertail cactus, prickly pear, and other small cacti. Free-use permits authorizing collection of desert vegetation have also been issued for educational or scientific research purposes.

Non-sale Disposals-Recreation Use

Recreationists collect limited amounts of vegetative products for personal use, including but not limited to dead and downed timber for campfires, flowers, berries, nuts, seeds, cones and leaves, in accordance with 43 CFR 8000 and BLM Manual 5500.

Livestock Grazing

The Las Vegas BLM District is divided into 53 grazing allotments comprising approximately 2,867,508 acres of public lands (see Map 2-8), with 689,852 acres of unalloted public lands. Of that total, only 19 allotments could be considered active over the past seven years. Grazing allotments were originally delineated in 1934; allotment boundaries, grazing preference (number of animal unit months), season of use, and base property (private land or water rights) were established. Active grazing use was authorized through Term Desert Permits, generally issued for a period of 10 years.

In 1969, all grazing allotments in Clark County were designated as ephemeral in response to the Ephemeral Range Rule of 1968. This rule provides a description of rangelands characterized as ephemeral or annual in nature, as well as special rules for administering those ephemeral rangelands. The complete text of the Ephemeral Range Rule is provided in Appendix E. The special rules in the Ephemeral Range Rule take precedence over certain requirements in the grazing regulations in 43 CFR 4000. On the ephemeral allotments, grazing preference was totally eliminated and season of use became contingent on the availability of ephemeral forage.

As a result of development of Clark County's *Short-Term Habitat Conservation Plan* for the Desert Tortoise (1991), six active grazing allotments were purchased in cooperation with or by The Nature Conservancy. Additional allotments may be purchased by The Nature Conservancy in cooperation with Clark County in the future.

The U.S. Fish and Wildlife Service issued a Biological Opinion (File No. 1-5-91-F-36), which identified restrictions on livestock grazing throughout the Las Vegas BLM District. These restrictions are, and will remain, in effect until the BLM reinitiates consultation with the U.S. Fish and Wildlife Service. Each allotment was divided into prescription areas based on the importance of the tortoise habitat. On all Prescription 1 areas, grazing is not allowed from March 1st to June 14th. On Prescription 2 areas, grazing use can be season-long with restrictions on the utilization level of key forage species. On the Prescription 3 areas, which do not have any restrictions based on desert tortoise, grazing occurs contingent on existing livestock grazing management practices.

Allotments range in size from 90 to 312,000 acres. Ten allotments contain lands within the Lake Mead National Recreation Area; grazing is administered by BLM on public lands and on Lake Mead National Recreation Area, under a cooperative agreement with the National Park Service. The *Clark County Management Framework Plan* and *Esmeralda-Southern Nye Resource Management Plan* designated the types of livestock authorized to graze each allotment within the planning areas.

Table 3-20 provides additional information on the status of the allotments.

Revised regulations for grazing administration (43 CFR 4100) of public lands managed by the Bureau of Land Management became effective August 21, 1995. Subpart 4180 of the regulations requires the BLM State Directors, in consultation with Resource Advisory Councils, to develop standards for rangeland health and guidelines for grazing administration for BLM lands within a region or state. Standards and guidelines are developed to identify characteristics of healthy ecosystems on public lands and the management actions to promote them. Standards and guidelines for a region or state must be approved by the Secretary of the Interior.

On February 12, 1997, the standards and guidelines for three regions in Nevada were approved by the Secretary of the Interior. The standards and guidelines developed through the Resource Advisory Council process for the Mojave-Southern Great Basin Area apply to livestock grazing in the Las Vegas BLM Resource Management Plan planning area. These standards for rangeland health and guideline for grazing administration are in Appendix L of this document.

Grazing allotments were categorized according to their potential to respond to management. The three categories of management priority for allotments include:

- "I" for improve - These allotments have the highest need and priority for intensive management.
- "M" for maintain - These are allotments where present conditions and management are satisfactory
- "C" for custodial - These allotments, for a variety of reasons, have low management priority.

Most livestock operators in the planning area have breeding herds rather than stocker-feeder operations. Numbers of livestock ranged from as few as 12 cows, to as many as 625. All permittees were dependent on Federal range for grazing, because the majority of use occurred on water-leased allotments. Notable exceptions are Mt. Stirling, Bunkerville, and Upper Mormon Mesa, which are land base allotments.

The season of grazing use (authorized grazing period) is normally designated through land use planning and can range from a few days to a full year. On ephemeral range, however, the season of use depends on the production of ephemeral forage, which can change from year to year. A season of use is not, therefore, formally designated on ephemeral range. In the planning area, 15 allotments were grazed year-long with the permittees making applications to graze at regular intervals throughout the year. Range inspections are made prior to grazing authorizations to determine if adequate forage is available, or if the potential to produce forage exists. Measurements of soil moisture and volume of forage produced provide the basis for issuing a grazing authorization.

Activity level planning, in the form of Allotment Management Plans, is undertaken to ensure that land use planning decisions are correctly applied on a site-specific basis. An Allotment Management Plan generally establishes a formal grazing system, designating the type and number of livestock and the season of use.

Management of grazing use on the non-Allotment Management Plan allotments generally occurs through an informal system by which the permittee uses the location and availability of water to control the movement of livestock within the allotment. Weather conditions can also influence the location and movement of the animals. During the summer, for example, high temperatures and the lack of shade in some areas will cause livestock to seek cover and forage at higher elevations. Range improvements such as fences, spring developments, wells, pipelines, and troughs can be owned either by the permittee or the BLM. In many cases, BLM furnishes materials and the permittee provides labor for construction of projects under a cooperative management agreement.

The National Park Service issued a two-year notice closing National Park Service administered lands in the Gold Butte Allotment. The U.S. Forest Service did not renew grazing permits/leases for the Wheeler Wash and Mt. Stirling allotments.

Monitoring and evaluation of the effects of livestock grazing occurred on 18 allotments. Only those allotments placed in the "Improve" or "Maintain" categories have intensive monitoring studies at this time. Other allotments have minimal studies are conducted (example: use pattern mapping)

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Table 3-20. Livestock allotment use.

Allotment Name	Class	Average Licensed Use (AUMs) 1984-93*1	Operator(s)	Period of Use *2	Kind of Livestock	Acres (BLM)
Acton-Farrier	C	39	C.A. Lewis	Mar-May Sep-Nov	Cattle	41,465
Arrow Canyon	M	225	G. Perkins	Mar-May Sep-Nov	Cattle	88,108
Azure Ridge*3	I	240	J. Whitmore	Y/L	Cattle	7,295
Billy Goat Peak	I	1515		Y/L	Cattle/Horses	48,962
Bunkerville*5	I	2180	M. Jensen C. Adams Hughes Bros.	Y/L	Cattle Cattle	118,298 (P) 16,120
Dry Lake	C	0	J. Hendricks	Mar-May	Cattle	43,873
Flat Top Mesa	C	76	H. Wittwer	Mar-May Sep-Nov	Cattle Horses	5,338
Glendale	C	0	C. Hester	No Use	Cattle	23,595
Gold Butte*5/*9	I	3297	TNC	Y/L	Cattle	172,859 (P) 92,264
Hen Springs	M	723	R. Jensen J. Wittwer	Mar-May Sep-Nov	Cattle	21,330
Jack Rabbit	C	51	L. Hardy V. Knight C. Simmons W. Pulsipher	Mar-May Sep-Nov	Cattle	2,000
Lime Spring	C	0	B. Jensen	No Use	Cattle	3,140
Lower Mormon Mesa	C	0 404	D. Whitney	Mar-May Sep-Nov	Cattle Horses	37,048 (R) 8,077
Mesa Cliff	C	87	J.-J. Hayworth	Mar-May	Cattle/Horses	13,681
Mesquite Community*3	I	1440	B. Jensen	Y/L	Cattle	8,702
Muddy Mtns.*5/4	C	0	P.Clough K. Searles	Mar-May	Cattle Horses	157,451 (P) 45,545
Muddy River	C	0	P. Lewis	No Use	Cattle	17,888
Overton Arm*5	C	0	P. Lewis	No Use	Cattle	1,822 (P) 2,716
Pittman Well	C	0	K. Searles	No Use	Cattle	34,192
Pulsipher Wash	C	0	B. Hafen	No Use	Cattle	3,451
Rox	C	191	Keith Cutler	Oct-May	Cattle	18,062
Sunrise Mt.	C	0	Unalloted	No Use	---	34,272
Toquop Sheep	C	634	E. Larson R. Lundgren D. Lamoreau	Mar-May	Sheep	24,557
Upper Mormon Mesa	I	372	J. Riggs D.- M. Gates P. Lewis	Mar-May Sep-Nov Oct-May	Cattle	46,325
Ute*4	C	0	G. Perkins K. Searles	Mar-May	Cattle	45,231

Table 3-20. Livestock allotment use (concluded)

Allotment Name	Class	Average Licensed Use (AUMs) 1984-93*1	Operator(s)	Period of Use *2	Kind of Livestock	Acres (BLM)
White Basin*5	M	498	E. Leavitt L. Leavitt	Mar-May Sep-Nov	Cattle	97,454 (P) 78,631
Virgin River	C	0	V. Knight C. Simmons	Y/L	Cattle	90
Bottom Mt. Stirling	I	517	Bow and Arrow Cattle Co.	Y/L	Cattle	126,888
Ireteba Pks.*5/*9	I	1455	TNC	Y/L	Cattle	201,544 (P)109,332
Hidden Valley	I	438	Leon Sprouse	Mar-May Nov-Feb	Cattle	63,621
McCullough Mtns.*9	I	-----	TNC	-----	Cattle	169,175
Christmas Tree*5/*9	I	-----	TNC	-----	Cattle	69,233
Newberry Mtn*5	C	0	-----	No Use	-----	31,764 (P) 37,981
Jean Lake	I	-----	TNC	-----	Cattle	141,082
South Point*4	C	0	E. Soto	No Use	-----	16,739
Crescent Peak*9 (AMP)	I	-----	TNC	No Use	Cattle	119,320
Roach Lake	C	195	Whipple,Davis Dawson	Y/L	Cattle	20,752
Kyle Canyon	C	0	K. Kindred	No Use	Cattle	17,514
Black Butte	C	0	R. Spurlock	No Use	Cattle	40,861
Table Mountain	C	0	Whipple-Davis	No Use	Cattle	83,102
Stump Springs*4	C	0	R. Wiley	No Use	Horses	49,557
Younts Spring	C	0	BLM	No Use	---	14,502
Lucky Strike*10	M	187	V. Young	Y/L	Horses	99,839
Wheeler Wash	I	670	P. Bowman	May-Nov	Cattle	64,701
Spring Mtn*6	C	0	-----	-----	-----	237,890
Wheeler Slope*7	C	0	-----	-----	-----	72,277
Unallotted	C	0	-----	-----	-----	3,732
Unallotted	C	0	-----	-----	-----	6,786
Unallotted	C	0	-----	-----	-----	62,243
Ash Meadows*8	C	0	-----	-----	-----	120
Carson Slough	C	0	-----	-----	-----	13,842
County Line	C	0	-----	-----	-----	6,720
Grapevine-Rock*8	C	0	-----	-----	-----	6,844
Totals						**2,867,508** **(P/R) 411,576**

Key: Allotment Classes: I-Improve, M-Maintain, C-Custodial; (P) LMNRA acres; (R) BOR withdrawal.

*1 Numbers fluctuated due to ephemeral classification averages used.

*2 Not formally designated; categories reflect past 10 years use.

*3 Administered by Arizona Strip District.

*4 Used only 1 year since 1976.

*5 Includes acreage inside Lake Mead NRA.

*6 No operator, base owners not in livestock business.

*7 Grazing not allowed; base waters not on allotment.

Table 3-21. Livestock-range studies.

Allotment Name and Category	Dates Studies Established	Number of Years of Data	Types of Studies
Arrow Canyon (M)	1986	3	U, UM,A,EPT
Azure Ridge (I)	1981(AZ)	6	U,PT,PACE FREQ,5'x5'PT
Billy Goat Peak (I)	1987	2	EP,EPT,U,UM,A
Bunkerville (I)	1982	4	U,PT,F,EPT,A,UM,Veg. T.
Christmas Tree Pass (I)	1985	4	U,F,EP,EPT,A,PT,CC,UM
Crescent Peak (I)(AMP)	1972	16	U,EP,A,PT,PPT,CC,F,EPT
Gold Butte (I)	1982	5	F,U,PT,EP,EPT,A,UM,Veg. T.
Hen Springs(M)	1987	2	U,UM,A,EP
Hidden Valley (I)	1987	2	U,EP,A,PT,UM
Ireteba Peaks (I)	1982	5	F,PT,EPT,EP,A,UM
Jean Lake (I)	1977,82	7	U,F,EP,A,EPT,CC,PT,UM
Lucky Strike (M)	1988	1	U,UM,A
McCullough Mtn (I)	1982	5	U,EP,A,PT,CC,F,EPT,UM
Mesquite Community (I)	1981(AZ)	7	U,PT,A,Pace Freq.,5'x5' PT
Spring Mtn.	1988	2	F,PPT,UM
Upper Mormon Mesa (I)	1987	2	EP,EPT,U,UM,A
Wheeler Wash (I)	1988	1	EP,U,UM,A
White Basin (M)	1988	1	U,UM,A,EP
Mount Stirling (I)	1988	1	U,UM,A

Note: Only those allotments categorized as "Improve" or "Maintain" have studies.

Key:

U	Key area utilization.
EP	Ephemeral Production. Allotments evaluated upon receipt of grazing application.
EPT	Ephemeral production for crucial tortoise habitat.
PT	Photo Trend; usually in a key area at trend or frequency plot.
CC	Cover Composition; percent cover and plant composition based on transects.
F	Frequency Trend.
A	Actual Use.
PPT	Precipitation.
UM	Use Map.
Veg. T.	Vegetation Trend Plot other than 5'x5'.

(Source: BLM, Las Vegas District Office files, 1991.)

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Monitoring includes the following range studies: current year's utilization, condition and trend, cover composition, frequency, actual use, and ephemeral production. Table 3-21 indicates which allotments have been monitored and the types of studies conducted.

Wild Horse and Burro Management

Background

On December 15, 1971, Congress enacted the *Wild and Free-Roaming Horse and Burro Act*, authorizing BLM to manage wild horses and burros on public lands. The *Act* mandated that wild and free-roaming horses and burros be protected from unauthorized capture, branding, harassment, or death. These animals are to be considered an integral part of the natural system, based on their distribution at the time the law was enacted.

Wild horses and burros are found in eight Herd Management Areas throughout the Las Vegas BLM District, including the Spring Mountains, the Muddy Mountains, the Eldorado Mountains, and in the Gold Butte region (see Map 2-1). Management of six Herd Management Areas is identified in this plan, with Wheeler Pass Herd Management Area managed by the U.S. Forest Service. The Red Rocks Herd Management Area will be analyzed in the Red Rock Canyon National Conservation Area, General Management Plan. The wild horse population is estimated at approximately 65 animals. In addition, the planning area supports approximately 108 burros. The number of wild horses and burros occurring within the Las Vegas BLM District represents less than one percent of Nevada's wild horse population and approximately 20 percent of the state's burro numbers.

Burros inhabit the lower desert areas throughout the year. Wild horses are found at lower elevations during the winter, then retreat to the mountains during the summer months. Both wild horses and burros have been observed at distances over 10 miles from permanent water sources. In the Spring Mountains, waters are found high in the foothills, allowing wild horses and burros year-round use of the same sources. Burros found in the Muddy Mountains, Eldorado, and Gold Butte Herd Management Areas have historically used Lake Mead and Mohave as the most reliable water sources during the summer months.

It is assumed that the wild horses and burros in the planning area were influenced by the domestic animals that either escaped from, or were released by, their owners, possibly dating back to those animals brought by the Spanish.

Many of today's wild horses were altered by registered animals released by local ranchers to "upgrade" the wild herds by introducing new genetic characteristics into the gene pool of the herd. The object of this upgrading was to produce better wild horses for eventual capture and sale or for use by the ranchers.

The colors of wild horses in the Las Vegas BLM District range from white or light gray to black, with all colors except appaloosa represented. Most of the wild horses are bay, brown, or sorrel, but other colors such as chestnut, pinto, roan, palomino, grulla, and buckskin are well represented in the various herds. Some color patterns are beginning to emerge among herds in the Spring Mountains. A larger proportion of pintos are found near the west end of this range, and more buckskins and palominos occur in the wild horse herds in the eastern Spring Mountains. Burro colors grade from tan or gray to black, brown, red or pink, and occasionally white. The gray or fawn color is predominant, with brown, black, pink/red, and white found in decreasing percentages. Gray or fawn burros have a black dorsal and shoulder stripe, with a few showing leg stripes as well. Some of the brown burros also have a faint shoulder and dorsal stripe.

The diets of wild horses and burros show a moderately low degree of overlap, with wild horses consuming more grasses and burros utilizing more shrubs. Both species consume forbs when these plants are available, although burros tend to eat more dry forbs, and wild horses prefer more dry grasses. The diets of both have a moderate-to-high overlap with cattle. Burros compete more directly than do wild horses with wildlife for forage.

Urban expansion and increased recreational use of Red Rock Canyon National Conservation Area and Lake Mead National Recreation Area are impacting wild horse and burro herds in the Spring Mountains and the Muddy Mountains Herd Management Areas.

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Table 3-22. Wild horse and burro herd management areas.

Herd Area Name	Current Population Estimate		Current Herd Area Status	BLM Acres	Other Federal Acres
	Horses	Burros			
Ash Meadows	0	0	HMA	90,466	24,512
Amargosa*	0	0	HMA	8,489	0
Eldorado Mtns.	0	10	HMA	15,568	79,188
Gold Butte	0	26	HMAP	177,871	93,303
Johnnie	49	37	HMA	177,662	34,908
Muddy Mtns.	16	35	HMA	77,040	100,865
Totals	**65**	**108**		**547,096**	**332,776**

Key:
* Amargosa is retained as an HMA, but with 0 animals due to a lack of forage and water on the public lands.
(Source: BLM, Las Vegas District Office files 1991).

Table 3-22 shows wild horse herd information and includes the Ash Meadows Herd Management Area, which was inadvertently omitted from prior planning documents. Due to conflicts with private lands and Federally-listed threatened and endangered species, the Appropriate Management Level was set at zero for this Herd Management Area. Any wild horses or burros that move into this Herd Management Area will be scheduled for removal. In 1985, approximately 215 horses (which represents the entire population at that time) were removed from the Ash Meadows Herd Management Area. Subsequent wild horse and burro removals will maintain Herd Management Area at the Appropriate Management Level.

The National Park Service recommended that all wild burros be removed from the Eldorado Herd Management Area to lessen impacts on the environment and conflicts with developments within Lake Mead National Recreation Area. Through a cooperative agreement with the BLM, the U.S. Forest Service manages the Wheeler Pass Herd Management Area, which includes lands of both agencies.

State Route 160 was fenced in 1995 to provide additional safety for the public, as well as the wild horses and burros along the route. BLM coordinated with the Nevada Department of Transportation to ensure that underpasses were constructed where horses and burros could access the Herd Management Area on both sides of the right-of-way fence.

Cultural and Paleontological Resources Management

Cultural Resources

Cultural resources are the tangible remains of past human activities. The Las Vegas BLM District encompasses a unique region, being located at the interface of three distinct geographical zones:

- Colorado Plateau
- Mojave Desert
- Great Basin.

Each zone shows evidence of the distinctive cultural groups who adapted to the natural resources of the area. All prehistoric Native Americans employed hunting and gathering methods to acquire at least some of their foods; these resource collection practices are reflected in the archeological record. Seeds, nuts, roots, and pods were collected from a variety of plants, including cacti, agave, yucca, grasses, mesquite, and pinyon pine. Stone tools such as manos and metates used to grind the seeds and nuts, knives, sharpened stone flakes, and chopping

tools are found in archeological sites that record these plant procurement and processing activities.

Rabbits, desert tortoises, coyotes, rodents, bighorn sheep, and mule deer were prey for prehistoric hunters. The atlatl, a wooden device used to throw long, stone-tipped darts, was used prior to A.D. 500. After that time, the bow and arrow was the preferred hunting weapon. Projectile points, associated debris from stone tool making, and hunting blinds mark the locations of these past events.

Hunter-gatherers moved seasonally within a series of environmental zones, living in open camps, brush structures, and caves. Extended family groups collected maturing plant resources and hunted seasonally abundant game. This adaptation to arid land resources is placed by archaeologists within the period called the Archaic. Such hunter-gatherer occupations in southern Nevada begin about 11,000 B.C., as documented by the prehistoric site of Tule Springs in the northwest Las Vegas Valley (Wormington and Ellis 1967). Heaviest use of the region occurred within the last 5,000 years. Gypsum Cave, located northeast of Las Vegas, has yielded evidence of continual use by different cultural groups from about 3,000 B.C. into historic times (Harrington 1933). Due to the variety of resources, availability of water, and the accessibility of shelter caves, Red Rock Canyon was also extensively used.

Specific artifacts and features indicate the kinds of activities that occurred in the process of the seasonal round. Roasting pits, which are circular pits used primarily to roast bulbs from the agave plant, are common in limestone geologic zones. In addition to agave, Blair (1986) notes that other plants and animals were cooked in these pits. Roasting pits are often associated with milling stones or other food processing equipment, lithic materials, and sometimes ceramics. Excavations were conducted at several roasting pits in Hidden Valley, west of Valley of Fire. These field investigations yielded numerous artifacts, but problems with their internal stratigraphy makes dating of these features difficult.

Roasting pits are often found in association with caves or rockshelters. Aboriginal peoples commonly used these natural formations as shelters and as storage areas for small quantities of collected resources, tools, and other personal possessions. Evidence of their fires can be found in the blackened staining on the walls and ceilings of such caves. The remnants of food processing equipment and toolmaking activities, as well as seeds, baskets, sandals, and other perishable items, are often preserved within habitation sites.

Large numbers of rockshelters and caves have been recorded in the Muddy Mountains and the Arrow Canyon Range. Shelters that were extensively used often contain layers of organic deposition, called midden, within the floor and surrounding the entrance. This midden usually shows blackened soil and is filled with artifacts; a midden that has not been disturbed has excellent potential for yielding significant information on the prehistory of the region.

A campsite is an area that possesses quantities of lithic material such as stone flakes or formed tools, ceramics, animal bone or plant materials, milling equipment, and often the remains of a cooking fire within a hearth. These are generally reflective of temporary locations, on a path from spring to spring or resource to resource. Campsites are found in all areas, but are most prevalent on terraces overlooking major drainages and surrounding springs.

Other types of prehistoric archeological sites include stone features such as rock rings and rock art locales. Rock art is defined as the modification of a rock face by pecking (petroglyphs) or painting (pictographs) figures or designs. Rock art panels are common in certain areas, generally near water sources, along game trails, or near resource procurement locations. Sandstone with a stained or patinated surface is perhaps the best medium for illustrating this kind of aboriginal visual creativity, but limestone, basalt, and other volcanic materials were also commonly used. Although rock art designs have been attributed to all prehistoric groups, there is presently no positive method for dating these kinds of sites. Keyhole Canyon is one site complex within the Las Vegas BLM District that was fenced for protection and signed for interpretation.

This portion of southern Nevada was utilized by three later distinctive groups (Lower Colorado or Yuman, Virgin Anasazi, and Southern Paiute peoples). Lower Colorado tribes such as the Mojave conducted floodwater farming along the Colorado River south of Las Vegas Valley. They also exploited resources in the surrounding ranges and

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Table 3-23. Distribution of the numbers of presently identified archaeological sites in LVD considered eligible.

Zones	Site Types								
	RP	RS	RA*	RA	CP	ST	HT	RR	Total
Muddy Mountains	1	13	1	3	4	0	2	1	25
Las Vegas Valley	0	1	0	0	9	0	4	1	15
Arrow Canyon Range	1	10	1	0	2	0	9	1	24
Virgin Mountains	3	6	1	2	1	0	4	1	18
Indian Springs V	0	1	0	0	2	1	9	1	14
Muddy River	0	2	0	1	2	4	3	1	13
Meadow Valley Mtns	0	0	0	1	4	0	0	0	5
Virgin River	0	1	0	0	1	9	1	1	13
Meadow Valley Wash	0	1	0	1	2	0	1	1	6
Goodsprings V	1	2	1	0	1	0	5	1	11
Newberry Mtns	0	1	0	1	2	0	1	0	5
McCullough Mtns	0	1	0	1	2	0	3	1	8
Mormon Mesa	0	1	0	0	2	0	1	1	5
Pahrump Valley	2	1	0	1	1	0	1	1	7
Roach/Jean Lakes	0	1	0	0	2	0	2	1	6
Eldorado Valley[a]	0	1	0	1	2	0	3	1	8
Piute Valley	0	1	0	0	1	0	4	1	7
Rainbow Gardens	0	1	0	0	1	0	1	0	3
Totals	**8**	**45**	**4**	**12**	**41**	**14**	**54**	**15**	**193**

Key:

RP	Roasting Pit	ST	Prehistoric structural remains
RS	Rockshelter	HT	Historic remains
RA*	Rock Art component at Rockshelter	RR	Rock ring/feature
CP	Camp site	[a]	40% of acreage sold in 1995 sale

valleys, including the Piute, Eldorado and Las Vegas valleys. The Lower Colorado peoples lived in open camps and rancherias, which is why their sites appear in the archeological record much like those of the earlier Archaic hunter/gatherers. The Lower Colorado people made pottery.

The Virgin Anasazi were concentrated along the Muddy and Virgin Rivers to the north of Las Vegas. Their population increased after A.D. 500, which coincides with the beginning of farming and the introduction of the bow and arrow in this region. The Virgin Anasazi lived in isolated hamlets or small villages, with semi-permanent sedentary pithouses or pueblo structures constructed of rock rubble and adobe. Although they supplemented their diet with hunted animals and gathered wild seeds from the region, much of their staple food came from corn, beans, and squash grown in the floodplains of the rivers. This cultural group abandoned the region around A.D. 1150. Although the reasons for this abandonment are not conclusive, archaeologists hypothesize that a number of factors (including an increased population size, a heavy dependence on farming, and a long drought) may have forced the Virgin Anasazi from the area.

The contemporary southern Paiute are considered the descendants of the Archaic hunter-gatherers in southern Nevada. When the first Anglo-European explorers reached this area in the late 18th-early 19th century, they observed small groups of

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Table 3-24. Estimated numbers of identified and unidentified archaeological sites in LVD.

Zones	Site Types								
	RP	RS	RA*	RA	CP	ST	HT	RR	Total
Muddy Mountains	17	217	17	50	67	0	33	17	418
Las Vegas Valley**	0	1	0	0	10	0	4	1	16
Arrow Canyon Range	13	125	13	0	25	0	113	13	302
Virgin Mountains	60	120	20	40	20	0	80	20	360
Indian Springs Valley	0	100	0	0	200	100	900	100	1400
Muddy River	0	100	0	50	100	200	150	50	650
Meadow Valley Mtns	0	0	0	17	67	0	0	0	84
Virgin River	0	50	0	0	50	450	50	50	650
Meadow Valley Wash	0	14	0	14	28	0	14	14	84
Goodsprings Valley	100	200	100	0	100	0	500	100	1100
Newberry Mtns	0	100	0	100	200	0	100	0	500
McCullough Mtns	0	50	0	50	100	0	150	50	400
Mormon Mesa**	0	1	0	0	2	0	1	1	5
Pahrump Valley	200	100	0	100	100	0	100	100	700
Roach/Jean Lakes	0	33	0	0	66	0	66	33	198
Eldorado Valley@	0	50	0	50	100	0	150	50	400
Piute Valley	0	50	0	0	50	0	200	50	350
Rainbow Gardens	0	50	0	0	50	0	50	0	150
Totals	**390**	**1361**	**150**	**471**	**1335**	**750**	**2661**	**649**	**7767**

Key:

RP	Roasting Pit	HT	Historic remains
RS	Rockshelter	RR	Rock ring/feature
RA*	Rock Art component at Rockshelter	**	Estimated number of eligible sites in zone calculated using 90% survey
CP	Camp site		
ST	Prehistoric structural remains	@	40% of acreage sold in 1995 sale

Southern Paiutes living in temporary brush structures and foraging among the diverse environmental zones of the region. Mesquite flowers, agave "hearts", small grass seeds such as Indian rice grass, berries, roots, and pinyon nuts formed the staples of their diet. Animal protein came from small game, especially rabbits, desert tortoise, rodents, and lizards. Bighorn sheep, deer, and pronghorn were hunted by individuals and as group activities. The artifacts associated with Paiute sites are reminiscent of Archaic campsites, consisting of milling stones, stone tools, and projectile points. Basketry and fiber cordage, rabbitskin robes, snares, and sandals have also been observed in dry shelters where preservation of these organic materials was possible. Brownware pottery was manufactured by the Southern Paiute; sherds of this type are used to identify archeological sites associated with this cultural group. The Southern Paiute were observed to practice limited horticulture around spring sources and along river bottoms such as the Muddy and Virgin Rivers. They grew a variety of crops, including corn, beans, squash, sunflowers, and amaranths, often constructing small dams and channels to divert water to their garden plots.

Historic use of southern Nevada began with the exploration of routes such as the *Old Spanish Trail/Mormon Road* (1844 to the early 1900s).

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Potosi Mine, the first mine in the region, dates back to 1861. Ranching was well underway by the late 1800s; completion of railroad construction in 1905 established Las Vegas as a vital Nevada community.

Historic foundations from mining sites, ranches, and quarries are found within the planning area. These site types are often difficult to identify and interpret; a trash heap and fragments of tent platforms are the only remnants of the mining tent town at Gold Butte. What appears as an old dirt road crossing the southern Nevada desert is the rutted path of the *Old Spanish Trail/Mormon Road.* These historic resources have the potential to document adaptations and technological changes not often recorded in the archival record of this region.

A Class I Cultural Resource Inventory was conducted in 1990. The research resulted in the orderly listing of identified archaeological sites in the Las Vegas BLM District. The inventory included Red Rock Canyon National Conservation Area, a zone in the planning area in 1990. The data for Red Rock is not reflected in the following discussion, but is considered in the Red Rock General Management Plan. Because the 1990 data reflected a minimal amount of surveyed acreage, as well as recorded sites, for the Eldorado Valley zone, the 1995 sale of the Eldorado Valley Sale lands also had minimal adjustments on results in the zone and planning area. Consequently, the Eldorado Valley zone data was not recalculated.

Two of the 18 geographic zones described in the inventory document, with Red Rock Canyon zone removed, had sufficient inventory to make the determination that most eligible sites have already been recorded. These zones are Mormon Mesa (61 percent surveyed) and Las Vegas Valley (18 percent surveyed). The data on percentage of acreage inventoried and the results of the reviews in the inventory report discussed above are used as a basis to argue that most eligible sites have already been identified in these two zones. A proposal (Myhrer 1991) to limit survey in all but two subzones in Las Vegas Valley was reviewed and accepted by State Historic Preservation Office in 1991. With the exception of Mormon Mesa and Las Vegas Valley zones, the percentage of acreage surveyed and the number of recorded properties was used to estimate the number of eligible sites, known and unknown, in the Las Vegas BLM District. For example, a total of 10 eligible rockshelter sites have been recorded from survey of 8 percent of acreage in the Arrow Canyon Range zone. To determine the estimated number of undiscovered eligible rockshelter sites in that zone, a calculation using percentages was used (10/X = 8/100 or 1000 = 8X or X = 1,000 divided by 8 = 125). The number of presently identified eligible sites in the Mormon Mesa and Las Vegas Valley zones are considered to represent 90 percent of the total potential. Table 3-23 lists the number of known eligible sites in the Las Vegas BLM District, and Table 3-24 lists the number of known and projected eligible sites in the Las Vegas BLM District.

Of the 855 archaeological sites recorded on BLM-managed land in the Las Vegas District, 193 are considered to be eligible for nomination to the National Register of Historic Places or are at present listed on the Register. Based on the calculations using the percentage of surveyed acreage times the number of known sites considered to be eligible in each zone, an estimated total of 7,767 eligible sites are present within the Las Vegas BLM District.

At present, 31,000 acres have been determined as potential Traditional Lifeway Areas and it is expected that within the life of the Resource Management Plan, an additional 150,000 acres will be identified. Portions of these areas would be subject to treatment as Traditional Cultural Properties and eligible for nomination to the National Register of Historic Places.

A Traditional Cultural Property refers to a more specific location, in contrast to the general nature of a Traditional Lifeway Area where a community has traditionally conducted exclusive or special activities, or has a unique value in its spiritual or religious world. A Traditional Cultural Property may be encompassed by a Traditional Lifeway Area. The Traditional Cultural Property concept was developed by the Advisory Council on Historic Preservation, an agency created by the National Historic Preservation Act, as a method to evaluate intangible cultural properties such as ceremonial areas. Native Americans are historically recognized as the original traditional users of the public lands.

Paleontological Resources

Paleontological resources (fossils) are remains or traces of plants and animals that existed during the 600 million year geological history of southern Nevada. Fossils are unique, non-renewable resources that provide clues to the history of life on earth and, as such, have scientific value. A minimal

amount of Paleontological research has been conducted in this region. In the 1930s, the Southwest Museum conducted an excavation of Gypsum Cave, located northeast of Las Vegas, recovering the skeletal remains of an extinct ground sloth and horse (Harrington 1933). The early 1960s scientific explorations at the Tule Springs locality (northwest of Las Vegas) yielded data on archeology, the Quaternary geology of the area, and specimens of extinct Pleistocene vertebrates (Wormington and Ellis 1967). These specimens comprised the fossilized bones of camel, horse, mammoth, and bison. Since all of the recovered species would have utilized abundant grasses and brush in open country, this information provided important clues about past environmental conditions in the Las Vegas Valley.

A recent Paleontological survey on the Eglington Escarpment (in the north Las Vegas Valley, about five miles east of the Tule Springs investigations) discovered one significant Paleontological site. This site contained numerous specimens, including a camel jaw. In 1991, construction activities along the Kern River pipeline uncovered a mammoth tusk and tooth in this escarpment. Other potential areas for paleontological finds are the dry lake beds and shorelines of Pleistocene age Ivanpah and Roach Lakes, located southwest of Las Vegas.

Trace fossilized imprints in limestone sediment at the north end of the Arrow Canyon Range are considered evidence of 20 million year old large birds (pers. comm., Don Higgens 1990). There are also unconfirmed reports of fossilized mammoths in this area. The complete skeleton of a 20,000-year-old Shasta ground sloth was discovered in May 1991 near the California-Nevada border. A scientific data and specimen recovery was conducted by Robert Reynolds of the San Bernardino County Museum. A cast of the skeletal materials is on display at the Nevada State Museum in Las Vegas.

Invertebrate fossils occur in several limestone formations, including the Spring, Dry Lake, Arrow Canyon, Las Vegas, Mormon and Virgin Mountain ranges. Fossilized trees in the form of petrified wood are found at the base of the Aztec Sandstone in the Chinle Formation outcrops; the east base of the Red Rock Escarpment and in the Muddy Mountains adjacent to Valley of Fire State Park.

Lands Management

Land Status

The planning area for the Las Vegas BLM District Resource Management Plan/Environmental Impact Statement comprises approximately 3.3 million acres of public lands managed by BLM in southern Nevada. Of that total, approximately 2.6 million acres are in Clark County and 700,000 acres in southern Nye County (see Map 1-2).

Clark County contains 5,173,760 acres and is the sixth largest county in Nevada. It is the state's most populated county, with two-thirds of Nevada's population living within its boundaries (USDI, BLM 1990a). Las Vegas Valley is the site of explosive development, with approximately 4,900 people moving into the urban area monthly. The cities of Henderson, Las Vegas, North Las Vegas, and the unincorporated areas surrounding these municipalities comprise one of the fastest growing metropolitan areas in the United States. The remainder of Clark County continues to be predominantly rural, typified by a number of small communities. Several outlying "boom towns," such as Laughlin and Mesquite, are now experiencing dynamic population growth. The problems with rapid urbanization, formerly applicable only to the Las Vegas Valley, are now affecting these new cities. Sixty-seven percent of Clark County is public land administered by the BLM.

Nye County consists of 11,560,960 acres and is Nevada's largest county. Although BLM manages a total of 6,697,321 acres of public land in Nye County, only 696,421 acres, outside of Nellis and the Nevada Test Site, located in the southern portion of the county, are administered by the Las Vegas BLM Field Office.

Most public lands in southern Nye County occur in large blocks; private holdings are relatively small. The population of the county is concentrated at four locations: Pahrump, Amargosa, Ash Meadows, and Lathrop Wells. The two largest communities are Pahrump, population approximately 17,500 with a 15% annual growth rate (Pahrump Valley Chamber of Commerce, 1994), and Amargosa with approximately 1,800 inhabitants. Historically, the lands have been used for grazing, mining, and agricultural purposes; modern use is generally restricted to agriculture and private residences

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(USDI BLM 1984), although some mining still occurs. Other Federally-administered lands situated either within or contiguous to the Las Vegas District include those in Nellis Air Force Base, Nellis Air Force Range, Nevada Test Site, Lake Mead National Recreation Area, lands managed by the Bureau of Reclamation, Death Valley National Park, Toiyabe National Forest, Moapa Indian Reservation, Desert National Wildlife Refuge, and Ash Meadows National Wildlife Refuge.

Public Land Disposal

Land Available for Recreation and Other Public Purposes

Since passage of the *Recreation and Public Purposes Act* in 1926, local governments and non-profit organizations may acquire Federal land at minimal cost for various purposes. Within the Las Vegas BLM District, common Recreation and Public Purpose uses are parks, community centers, schools, libraries, fire stations, public golf courses, law enforcement facilities, correctional institutions, and water and sewage treatment facilities.

Land Exchanges

Section 206 of the Federal Land Policy and Management Act provides for the exchange of public lands administered by BLM and may involve private landowners, non-Federal entities, and Federal departments or agencies. In recent years, eight private exchanges occurred within the planning area. There were 21 exchanges proposed to the BLM as of March 26, 1996. Selected lands are limited to existing disposal areas.

Public lands were acquired by the U.S. Forest Service for the Tahoe National Forest in the Lake Tahoe area. The Howard Hughes Properties Exchange added lands to the BLM-administered Red Rock (now Red Rock Canyon National Conservation Area) in exchange for adjacent public lands more appropriate for development. The American Land Conservancy exchanges acquired lands for the U.S. Forest Service in the Pyramid Lake and Galena Creek areas in Carson City. The Olympic Management and Mary's River exchanges added to BLM-administered riparian areas along the Virgin River, and lands within the Red Rock Canyon National Conservation Area. Lands in Tonopah were acquired by BLM for a resource area office through the Gilbert Exchange, and the Rhodes Exchange added lands to BLM-administered Calico Basin within the Red Rock Canyon National Conservation Area.

Other exchanges in the Las Vegas BLM District were processed through legislative action. The Aerojet Exchange involved exchange of public lands within Las Vegas Valley for riparian lands in Florida that are administered by the U.S. FISH and Wildlife Service. There are exchange proposals pending evaluation that would add public lands to the U.S. Forest Service-administered lands, Ruby Lake Wildlife Refuge, Red Rock Canyon National Conservation Area, or to other BLM districts.

The Las Vegas BLM District has exchanged approximately 31,400 acres over the past 24 years.

Land Sales

The sale of public lands can occur by two methods: through legislative action or as a result of land use planning. Legislative actions to sell public lands are usually in response to special circumstances and are site-specific with strictly identified goals, procedures, and duration. Public land sales that result from land use planning must meet specific criteria identified in Section 203 of the Federal Land Policy and Management Act and the tracts of public lands must be specifically identified by legal description or on a map.

Public land sales were conducted under the authority of the *Small Tract Act* of 1938 during the 1950s and 1960s; BLM disposed of several thousand acres of public land throughout Las Vegas Valley. All the 1.25, 2.5, and 5 acre tracts were not sold, resulting in a severely fragmented ownership pattern that precludes efficient and effective public land management. This situation has affected the orderly growth of the metropolitan area. This land ownership problem in Las Vegas Valley, in concert with the rapid growth of the area, are the major influences on the public land disposal program in the Las Vegas BLM District.

On December 23, 1980, Congress enacted Public Law (PL) 96-586, commonly known as the *Santini-Burton Act*, which provides for the disposal of certain public lands in Clark County (Las Vegas Valley), thereby generating revenues, 85 per cent of which are deposited in the General Fund. Congress has discretionary power to appropriate these funds and to reimburse the Soil and Water Conservation Fund for the acquisition of environmentally sensitive lands in the Lake Tahoe Basin. Other

distribution of the funds would include 10 percent to the county or city in whose jurisdiction the lands are located and 5 per cent to the state. The Act requires that both BLM and the local governmental entity having jurisdiction on the land agree on those lands to be offered for sale; without agreement, the land cannot be offered. The Act also required that the first sale offering occur within one year of enactment of the law.

The BLM and local governmental entities affected by Santini-Burton (Clark County, City of Las Vegas, City of North Las Vegas) adopted the regulations promulgated for Section 203 of the Federal Land Policy and Management Act to implement the provisions of PL 96-586. At the time of enactment, there was in excess of 9,300 acres of public land identified for disposal.

The *Clark County Management Framework Plan* provides for disposal of approximately 108,107 acres of public land within the Las Vegas Valley, with priority to the *Santini-Burton Act* area. It provides for disposal of all public parcels of land (totaling 3,494 acres) within the settled limits of the communities of Indian Springs, Goodsprings, Searchlight, Nelson, and Laughlin. All isolated parcels of public land of 640 or less coterminous acres (totaling 11,851 acres) in the general settlement areas of Eastern Pahrump Valley, Mountain Springs Community, Sandy (Mesquite Valley) Community, Jean, Sloan, Blue Diamond, Moapa Valley Area, Virgin Valley Area, and Kyle Canyon Road Small Tract Area were also designated for disposal.

Under the Management Framework Plan, 1,754 acres of public land in Las Vegas Valley were sold through Federal Land Policy and Management Act sale and 3,597 acres through Recreation and Public Purpose sale. Since the enactment of the *Santini-Burton Act*, 2,700 acres of public land were sold through Santini-Burton sale. The majority of the 1,280 acres of public land identified for sale in Laughlin (1,210 acres) is under Recreation and Public Purpose lease or right-of-way to different Clark County entities. The uses are varied and include sewage treatment facilities, a fire station, school site and a public golf course.

The *Nevada Land Transfer and Authorization Act* of 1989 (PL 101-67-Apex Project) provides for the sale of certain public lands in Clark County to meet national defense and heavy-use industrial purposes. There were 21,000 acres of public land originally withdrawn for the sale. Kerr-McGee Chemical Corporation purchased approximately 3,351 acres of these lands for an ammonium perchlorate production facility, and Silver State Disposal purchased 2,185 acres for a sanitary landfill. Clark County zoned the area as a heavy-use industrial zone.

On November 27, 1990, BLM approved the conceptual Master Plan for the Apex Heavy Industrial Park, fulfilling the requirement of the Apex legislation. The Secretary of the Interior is in the process of establishing a sales agreement, not to exceed 10 years, for disposal of the remaining lands.

Public Law 85-339 (dated March 6, 1958) provided for and directed the sale of certain public lands within Eldorado Valley to the Colorado River Commission, acting for the State of Nevada. On July 9, 1995, the Colorado River Commission received patent to 107,412 acres, and simultaneously transferred title to the lands to the City of Boulder City. Exhibit C in the patent and subsequent title reserved to the United States certain right-of-way corridors for transportation and public utilities.

Public Law 99-548 (October 27, 1986) withdrew for a period of ten years, all public lands within the city limits of Mesquite from all forms of entry and appropriation under the public land laws, including the mining laws, and from operation under the mineral leasing and geothermal leasing laws. The act provided a six-year exclusive right to the City of Mesquite to identify which lands it wished to purchase. Prior to expiration of the exclusive right to purchase, the City of Mesquite received patent to approximately 2,750 acres.

The Record of Decision for the *Esmeralda-Southern Nye Resource Management Plan-Planning Area B* (October 9, 1986) identifies a pool of 47,200 acres of public land for disposal during the life of the plan. This land is to meet urban-suburban expansion or agricultural development needs for the communities within the Resource Management Plan area. The 47,200 acres identified for disposal includes 26,880 acres in Amargosa, 5,240 acres in Lathrop Wells. and 15,080 acres in Pahrump.

Leases/Permits

Private and commercial use of public lands administered by BLM are provided for under

Section 302 of the Federal Land Policy and Management Act. This section addresses leases for long-term use of public lands, including development and amortization of capital investment; permits for short-term use and little or no development of lands; and easements to assure that uses of public lands are compatible with non-federal lands. Land uses authorized within the Las Vegas District included a motor-cross site in Eldorado Valley, an apiary site in Searchlight, and geotechnical and groundwater study sites in the Moapa, Dry Lake Valley, Blue Diamond, and Goodsprings areas.

Land use authorizations are processed on a case-by-case basis as proposals are received. The authorization process involves analysis of potential impacts to the environment that could result from the proposed action. An Environmental Assessment or an Environmental Impact Statement, if appropriate, is prepared and resource protection stipulations are developed prior to the approval of such uses.

Airports

Several airports and numerous airstrips within the planning area are located on public lands under lease agreements authorized pursuant to the *Airport Act* of 1928. The Las Vegas area is serviced by three private airports (McCarran, North Las Vegas, and Sky Harbor).

Landing strips or smaller airports with limited facilities, authorized under the Airport Act of 1928, are found on public lands within the planning area in both Clark and Nye counties. Public airport facilities are located in Searchlight, Mesquite, Sandy Valley, Ash Meadows, and Lathrop Wells. Within Clark County, airport lease applications are pending for use of public lands to expand the Sky Harbor airport and the existing airport at Jean, to modify the existing airport in Searchlight to exclude the private lands within the runway area and for airport facilities in North Las Vegas and Cal-Nev-Ari. Nye County has expressed a need for additional airport facilities and has filed an application to expand an existing facility in Pahrump.

Lands Cases Pending and Authorized

The Las Vegas BLM District currently has 855 pending case actions and 2,258 authorized case actions. These actions include applications for rights-of-way, Recreation and Public Purpose leases/sales, airport leases, color-of-title, desert land entries, Indian allotments and Section 302 permits, as well as trespass actions, exchange and sale proposals, and amendments and modifications to existing grants and permits.

Classifications, Withdrawals, and Segregations

Classifications, withdrawals, and segregations place restrictions on the use of the public lands. Appendix D contains the legal description of the existing Public Land classifications, withdrawals, and segregations in effect as of May 31, 1990.

Rghts-of-Way Management

Right-of-Way Development

The BLM authorizes rights-of-Way on public lands for a variety of uses including roads, electrical transmission lines, telephone lines, sewer lines, culinary water lines, natural gas pipelines, communication sites, electrical power plants and substations, and related power distribution lines. Material site rights-of-way are authorized to the Nevada Department of Transportation, providing sand and gravel for road maintenance and construction. Right-of-way authorizations are processed on a case-by-case basis as proposals for use are received.

The authorization process involves analysis of potential impacts to the environment as a result of the proposed action and preparation of an Environmental Assessment or Environmental Impact Statement if appropriate; resource protection stipulations are developed prior to approval.

Right-of-Way Corridors

The only BLM-designated corridors within the planning area are in Nye County (see Map 2-4). The ROD for the *Esmeralda-Southern Nye Resource Management Plan/Environmental Impact Statement*, Planning Area B, approved in 1986, designated 61 miles of utility corridors on public land, including existing facilities and/or rights-of-way. The designations consist of a corridor running north-south, which encompasses a right-of-way held by Western Area Power Administration for a 750-kV direct current line and corridors running north-south along U.S. 95, containing existing facilities not included in the Western Area Power Administration right-of-way corridor.

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In Clark County, the only corridors reserved for the U.S. Government are the result of special legislation (see Map 2-4). Public Law 101-67, the Apex legislation, reserved numerous corridors within the sale area, including existing powerline rights-of-way, ranging from 300 to 1,800 feet in width, for a total length of approximately 32 miles. The Aerojet legislation established a corridor in Coyote Springs Valley, with a total length of 4 miles.

This plan proposes modification to the *Esmeralda-Southern Nye Resource Management Plan/Environmental Impact Statement*, Planning Area B corridors and designates a network of additional corridors throughout the planning area. The corridors follow the routes of numerous large (345-kV to 500-kV) electric transmission lines, which began to traverse the region as early as the 1940s following completion of Hoover Dam and the rapid population growth in California. The Mead substation, which was established for Hoover Dam, was subsequently followed by the McCullough and Eldorado substations in Eldorado Valley.

In recent years, the difficulty of locating sites for new power plants in California, coupled with the cost efficiency of locating power plants closer to western coal sources in Utah, has spawned numerous power projects and a proliferation of large transmission lines in southern Nevada. There are nine major utility projects (including the multiple 345-kV lines constructed by the Bureau of Reclamation) in the Las Vegas BLM District, which were either constructed or authorized for construction. In addition, there are four major power projects pending either completion of the environmental analysis process or the approval and issuance of a right-of-way.

Cogeneration power plants were completed at Apex and Pabco; other proposals are being considered for pumped storage and gas-fired plants within the city of Las Vegas. These facilities would require new lines ranging from 69 kV to 230 kV, or access to existing systems. Where feasible, such smaller utilities would be encouraged to use designated corridors. Other regional utilities are preparing to or currently constructing new 230-kV lines: Valley Electric will build from Pahrump to Mead substation; Overton Power from Overton to Mesquite.

Nevada Power Company, in cooperation with Los Angeles Department of Water and Power, completed an initial analysis of the Marketplace-Allen 500-kV transmission project. This project would consist of two 500-kV transmission circuits from the Harry Allen substation near Dry Lake to a new substation called Marketplace, near the Eldorado/McCullough substation in Eldorado Valley. The Marketplace substation would be interconnected to the proposed Mead-Phoenix and Mead-Adelanto 500-kV projects and to the existing McCullough substation. The Harry Allen 500-kV substation would be interconnected with the proposed Southwest Intertie Project and Utah/Nevada 500-kV (second IPP line). The White Pine Power Project (two 500-kV lines) could also participate in the project, as well as other interested companies. This interconnection would replace lines through the area, with two larger (3,500 megawatt each) transmission lines.

Natural Areas Management

The areas described below are shown on Map 2-6 as Instant Study Areas, which were designated as "Natural Areas" in 1970. Each contains special values in wildlife, recreation, and other resources. Section 603 (a) of the Federal Land Policy and Management Act mandated areas designated as natural or primitive prior to November 1, 1975, be studied for wilderness values.

Virgin Mountains Natural Area

This area encompasses 6,560 acres at the upper elevations of the Virgin Mountains, south and east of Mesquite, Nevada. The Virgin Mountains are of particular scientific interest since their features are representative of three major North American desert life zones. The southern Great Basin, eastern Mojave, and northern Sonoran deserts merge within the boundaries of the Natural Area. Several vegetation communities combine in this range and plant species considered to be at the outer edges of their ranges are found in this natural interface zone.

Sunrise Mountain Natural Area

The Sunrise Mountain Natural Area is comprised of 10,240 acres, located 8 miles east of Las Vegas. The area was designated for its unique geologic values. Frenchman Mountain, a widely recognized landmark on the eastern Las Vegas horizon, forms a

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dominant feature of this Natural Area. Lyndon Limestone and Pioche Shale deposits are exposed along the slopes of Sunrise and Frenchman Mountains. The olive green, brown, and reddish purple beds of Pioche Shale contain fossil trilobites of the Lower Cambrian genus *Olenellus*. Two candidate plants, the bear paw poppy (*Arctomecon californica*) and Utah agave (*Agave utahensis* var. *eborispina*) are present in the area.

Recreation Management

Public lands within the planning area contain ecologically diverse landscapes that include mountains, dry lake playas, joshua tree forests, sand dunes, sandstone bluffs, and riparian areas. This diversity offers outstanding opportunities for casual and organized recreational activities. Demand for such opportunities is increasing due to the expansion of the Las Vegas metropolitan area.

Casual or dispersed recreation, the principal opportunities available to visitors within the planning area, require a variety of sites yet need no special facilities. These opportunities include caving, photography, automobile touring, backpacking, birdwatching, hunting, primitive camping, hiking, rock climbing, and competitive and non-competitive off-road vehicle events. Water-based recreation is limited to a few desert streams and springs. Table 3-25 provides the best available estimates for these activities in the planning area, and Table 3-26 lists the number and types of Special Recreation Permits issued each year.

Organized competitive events include model airplane fly-ins, model rocketry launches, dog field trials, horse endurance rides, and all-terrain bicycle events. Off-road vehicle use accounts for the greatest single recreational use of the public lands. Competitive off-road vehicle events are the largest organized recreational activity managed in the planning area.

Areas of Recreational and Scenic Importance

The areas described below are recognized for their recreational values.

Red Rock Canyon National Conservation Area

Red Rock Canyon, formerly Red Rock Canyon Recreation Lands, was designated in 1990 as a

Table 3-25. Estimated visitor use in LVD (1994).

Activity	Visits	Visitor Hours
ORV Travel	73,300	4,088,000
Other Motorized	665,000	2,450,000
Non-Motorized	260,000	2,080,000
Camping	13,300	478,800
Hunting	32,800	393,600
Site Based	106,400	1,276,800
Totals	**1,150,800**	**10,767,200**

(Source: BLM, Las Vegas District files, 1994.)

Natural Conservation Area. It is located on the eastern slope of the Spring Mountains approximately 15 miles west of Las Vegas (see Map 1-2). The Red Rock Canyon National Conservation Area General Management Plan, which is in preparation, will identify management goals and objectives within the National Conservation Area.

Virgin River Recreation Lands

In 1970, the 4,930-acre Virgin River Recreation Lands were designated for their open-space, wildlife, and river access values. The area contains scenic sandstone bluffs, flowing water, riparian vegetation, and important waterfowl and fish habitats. Recreational opportunities include camping, photography, rock climbing, nature study, and hiking. Several species of native fish and waterfowl depend on the habitat provided by the Virgin River, which is the focal point of the recreation area. These wildlife resources are managed under a Habitat Management Plan that limits off-highway vehicle use to existing roads, trails, and washes and restricts competitive events to non-speed events throughout the area. (*Note*: This area is being included in the larger Virgin River Area of Critical Environmental Concern.)

Las Vegas Dunes Recreation Lands

Las Vegas Dunes Recreation Lands, also known as Nellis Dunes, encompasses approximately 10,000 acres formally designated as an Off-Road Vehicle play area (see Map 2-5). This area, located 15 miles northeast of Las Vegas, is easily accessible from that metropolitan area.

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The topography of the Las Vegas Dunes Recreation Lands is comprised of rolling sand dunes, small limestone bluffs, and numerous washes. The area is extensively used for recreational off-road vehicle riding, 4x4 touring, and competitive events. Approximately four all-terrain vehicle events, two motorcycle events and two buggy events use all or portions of the off-road vehicle area yearly.

Back Country Byways

Two nationally designated back country byways have been designated in the planning area. Back Country Byways are a component of the National

Scenic Byway system and are located along back country roads that offer scenic and recreational opportunities. The range of road types may vary from a single track bike trail to a narrow, low speed, paved road that traverses back country areas of high scenic and public interest value. The two byways have entrance, interpretive, and directional signs and are regularly patrolled.

The Gold Butte Back Country Byway contains approximately 60 miles of paved, graded dirt, and jeep trail roads within an area of highly scenic desert landscapes. Recreational opportunities include pleasure driving, hiking, rock climbing, camping, photography, and nature study.

The Bitter Spring Back Country Byway includes 28 miles of high clearance/four-wheel drive road located in highly scenic geologic formations, and abandoned historic mining sites. Recreational opportunities include exploring, hiking, camping, hunting, nature study, and pleasure driving.

Caves

The resource area has approximately 12 caves of regional or national importance. The most significant is Gypsum Cave, which is eligible for nomination to the National Register of Historic Places based on the important information on prehistory of the region previously obtained. An archaeological excavation of the cave was conducted by Southwest Museum in the 1930s. The research yielded information concerning continuous aboriginal hunter-gatherer uses for about 3,000 years. The scientific data that the cave yielded continues to be important in reconstructing the prehistory of the region.

Table 3-26. Special Recreation Permits (1994).

Activity	Visits	Visitor Hours
Motorcycle Races	8	.16
ATV Races	13	.26
Truck & Buggy Races	8	.16
Dual Sport Touring	2	.04
Motorcycle Rally	1	.01
Gyrocopter Rides	1	.01
Black Powder Shoots	2	.04
Guides & Outfitters	2	.04
Model Airplane Fly-In	3	.05
Horse Endurance Rides	2	.04
Dog Field Trials	3	.05
Ultralight Flying	1	.01
Commercial Photography	2	.04
Jeep Tours	2	.04
Model Rocketry	3	.05
Totals	**53**	**100**

(Source: BLM, Las Vegas District files, 1994.)

Devil's Throat is an unusual geologic formation, located near Gold Butte (see Map 2-7). Devil's Throat is regarded as a collapsed sink, a type of sinkhole. The sink is approximately 120 feet wide and 130 feet deep.

Recreation Management Areas

The planning area has two previously designated Special Recreation Management Areas and one Extensive Recreation Management Area. These Recreation Management Areas are described below.

Clark County Special Recreation Management Area: This area encompasses 1,326,864 acres in southern Nevada south of Las Vegas, between the California border and Lake Mead National Recreation Area. Its primary purpose for being designated was to provide for off-road vehicle recreation opportunities with the following management objectives:

- Manage Off-Road Vehicle events in a manner that reduces impacts to other resource values such as wilderness, desert

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tortoise and bighorn sheep habitat, and cultural resources.

- Provide a wide variety of recreation opportunities, including Off-Road Vehicle freeplay and touring, hunting, camping, landsailing, picnicking, hiking, and sightseeing.
- Monitor and mitigate the effects that Off-Road Vehicle activities have on other resources and values.
- Educate the public with regard to the appropriate uses of the Public Land including Off-Road Vehicle etiquette.

The primary management issues in this Special Recreation Management Area include resource protection, visitor safety, impacts to the local and regional economy, and area administration and use supervision.

The viability of the Special Recreation Management Area as an area of recreation program emphasis has been seriously eroded over the last few years due to use limits and restrictions imposed as part of the desert tortoise management and protection program. Large areas are now virtually off limits to Off-Road Vehicle events, and other users are restricted to designated roads to protect tortoise habitat.

Due to the above management objectives and concerns, the proposed Resource Management Plan designates three smaller Special Recreation Management Areas. These areas are where more intense recreation use occurs, and the BLM is concentrating its manpower and funding. Long-term monitoring of the desert tortoise areas will be a function of the wildlife program in concert with Clark County and the U.S.Fish and Wildlife Service.

Spring Mountain Special Recreation Management Area: This area encompasses approximately 566,701 acres in southern Nevada, west of Las Vegas and southeast of the Nevada Test Site. Its primary purpose for designation was to provide both extensive and intensive recreation opportunities in the Desert View National Environmental Area and around the Spring Mountains with the following management objectives:

- Provide for a wide variety of recreation opportunities, including off-road vehicle touring, hunting, camping, picnicking hiking, horseback riding, and sightseeing.
- Educate the public with regard to appropriate uses of the public land including off-road vehicle etiquette and appreciation of desert resources.
- Reduce conflicts between users seeking a variety of recreational opportunities.
- Reduce conflicts and impacts to other resources caused by recreation-related activities.

The primary management issues in the Spring Mountain Special Recreation Management Area include environmental education, resource protection, and area administration and use supervision.

This area is no longer viable as a management unit. All of the Desert View Natural Environment Area is included within either the expanded Red Rock Canyon National Conservation Area or the Spring Mountain National Recreation Area (U.S. Forest Service). The Las Vegas Valley Special Recreation Management Area includes lands formerly within this Special Recreation Management Area.

Stateline Extensive Recreation Management Area: The Extensive Recreation Management Area encompasses approximately 2,243,358 acres of public land in southern Nevada, to the east and west of Las Vegas. It essentially includes all lands not covered by Red Rock Canyon Special Recreation Management Area, Clark County Special Recreation Management Area, and Spring Mountain Special Recreation Management Area. The primary management issues in the Stateline Extensive Recreation Management Area include resource protection, visitor safety, monitoring, area administration and use supervision, and meeting recreation opportunity demands. Originally, its primary purpose for designation was to provide for suitable recreation opportunities dispersed throughout the planning area with the following objectives:

- Manage Off-Road Vehicle events in a manner that reduces impacts to other resource values such as wilderness, desert

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tortoise and bighorn sheep habitat, and cultural resources.

- Manage and protect cultural resources in Arrow Canyon through interpretation, site protection, and user awareness.
- Manage the Las Vegas Dunes and Big Dune for Off-Road Vehicle free-play opportunities.
- Manage the Gold Butte area, including Whitney Pockets and Virgin Mountain, for semi-primitive recreation opportunities including hiking, camping, vehicle touring, and sightseeing.
- Manage the Muddy Mountains for primitive and semi-primitive recreation opportunities including hiking, camping, sightseeing, and interpretation.
- Manage the Sunrise Mountain area for its natural values and to modify visitor use to protect natural values.
- Provide a wide variety of dispersed recreation opportunities throughout the Extensive Recreation Management Area, including off-road vehicle free-play, touring, hunting, camping, picnicking, hiking, and sightseeing.
- Inventory and plan for additional back country byways.

The Extensive Recreation Management Area mapped in the proposed plan is substantially larger than the one currently designated. This enlargement is due to the addition of desert tortoise Areas of Critical Environmental Concern and other lands where recreation management emphasis is being reduced due to restrictions on recreational activities.

Conversely, several areas within the original Extensive Recreation Management Area are now designated as Special Recreation Management Areas due to shifting visitor use and program emphasis.

Recreation Opportunity Spectrum

All public lands in the planning area have inherent recreational value and offer some level of opportunities for recreational activity. The Recreation Opportunity Spectrum process identifies recreation opportunities on the basis of the area's setting and activities. Five recreation opportunities are available in the planning area: semi-primitive nonmotorized, semi-primitive motorized, roaded natural, rural, and modern urban.

Semi-Primitive Nonmotorized

Eleven areas were identified as having Semi-Primitive Nonmotorized recreation opportunities. These areas are primarily wilderness study areas that have retained a predominantly unmodified environment. The areas do not receive high visitor use and therefore have few managerial controls or restrictions. Motorized use does not occur because of ruggedness of terrain. Recreational activities in these areas include hiking, camping, climbing, enjoying scenery, nature study, and hunting.

Semi-Primitive Motorized

Semi-Primitive Motorized recreation opportunities have been identified in 18 areas, including some that are remote. These areas primarily include Wilderness Study Area or adjacent acreage and locations that have a high degree of naturalness and lack roads. Because these areas receive low to moderate visitor use, few managerial controls and restrictions apply. Motorized use occurs in these areas to a limited degree. Recreational activities that occur include off-road vehicle touring on existing roads, trails, and dry washes, hiking, camping, enjoying scenery, climbing, nature study, and hunting.

Roaded Natural

The majority of the planning area was identified as having Roaded Natural recreation opportunities. These areas include most of the valleys and basins such as the Jean and Roach Dry Lake area, Eldorado Valley, the northern portions and along the Gold Butte Road in the area south of Mesquite, below the sandstone escarpment along State Route 160 in Red Rock Canyon National Conservation Area, and the majority of the Amargosa Valley. Visitor use can be moderate to high with managerial controls being low to high. Specific opportunities include picnicking, hiking, Off-Road Vehicle touring, free-play, and events, camping, nature study, enjoying scenery, and interpretive activities.

Rural

Five areas have Rural Recreation opportunities. These are areas where group affiliation is prevalent, recreation facilities are more available, and the natural environment is less important. Characteristic of these areas are the Pahrump Valley, Sandy Valley, and the Sunrise Mountain/Rainbow Gardens/Nellis Dunes area. These areas are characterized by a modified environment where the sights and sounds of humans are readily available. Visitor use can be moderate to high. Recreational activities can include picnicking, hiking, off-road vehicle touring and free-play, target shooting, enjoying scenery, bicycling, spectator sports, competitive games and events, and interpretive activities.

Modern Urban

The two areas that have Modern Urban recreational opportunities are Las Vegas Valley and lands near Laughlin. These areas offer opportunities to experience affiliation with individuals and groups. To these users, experiencing the natural environment and using outdoor skills is not important. These areas have highly modified environments where the sights and sounds of human use predominate. Generally, modern facilities (such as those found in a county or city park) are provided for the convenience of large groups of people.

Wild and Scenic Rivers Management

No wild and scenic rivers are designated in the planning area. The Virgin River through Utah, Arizona and Nevada has, however, been identified as having outstandingly remarkable scenic, geologic, fisheries and wildlife values. Although the river was removed from the National Park Service National Rivers 1982 Inventory, the values for which it was originally included are considered in this eligibility and classification process.

The Virgin River traverses three states, originating north and east of Zion National Park and flowing through southwestern Utah, the Virgin River Gorge in Arizona, and finally entering Lake Mead in Nevada. The total river segment covers 76 miles (from just above Hurricane, Utah to Lake Mead), with a 25-mile section in Nevada. Table 3-27 lists land tenure for the Virgin River by agency; data in the table were obtained from *Virgin River Habitat Management Plan* (USDI BLM 1984), Las Vegas BLM District.

Study Process - The wild and scenic river study process consists of three steps:

- Determine if the river segment is eligible for wild and scenic river designation.
- Determine the potential classification of the river segment as wild, scenic, recreational, or any combination thereof.
- Conduct a suitability study/legislative Environmental Impact Statement To determine if the river segment is suitable for designation to the Wild and Scenic Rivers System.

Specific study procedures are found in BLM Manual 8351, in the final revised U.S. Departments of Agriculture and Interior Guidelines, and in *Federal Register*, Vol. 7, No. 173, September 7, 1982. The guidance recommends that all three steps be completed during development of a Resource Management Plan. If this evaluation cannot be completed during the identified time period, the study/Environmental Impact Statement step may be deferred for up to five years. Minimum determinations in a Resource Management Plan involving a potential wild and scenic river must include decisions on eligibility and classification.

Study Criteria - To be eligible for inclusion in the national system, a river segment must be free-flowing, and the river and its adjacent area must possess at least one outstandingly remarkable value. There are no specific requirements regarding the length or flow of an eligible river segment. Length and flow are sufficient if they sustain or complement the outstandingly remarkable values for which the river would be designated. The minimum study corridor includes the river and the adjacent lands to 0.25 miles from the river's edge. A wider corridor may be studied if inclusion could facilitate resource management in the river area. If a river segment is determined to be noneligible during the planning process, further study should be discontinued. Planning records must document the basis for determination of a lack of eligibility. A river segment's potential classification depends on the condition of the river and adjacent lands as they exist at the time of the study.

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Table 3-27. Land status within the Virgin River habitat management area.

Status	Acres	Percent
Private	6,923	41
Nevada Department of Wildlife	2,323	14
BLM-Virgin River Recreation Lands	4,582	27
BLM-Other	1,934	12
Lake Mead National Recreation Area	827	5
Bureau of Reclamation	206	1
Total	**16,795**	**100**

(Source: BLM, Las Vegas District files, 1995.)

The *Wild and Scenic Rivers Act* specifies three classifications for eligible rivers: wild, scenic and recreational.

- To be classified wild, a river segment must be free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and water unpolluted.

- To be classified scenic, a river segment must be free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads. The area must not show substantial evidence of human activity.

- To be classified recreational, a river segment may be readily accessible by road or railroad, may have some development along the shoreline, and may have undergone some impoundment or diversion in the past.

The *Arizona Statewide Wild & Scenic Rivers Final Legislative Environmental Impact Statement* (USDI BLM 1994), the *Arizona Strip District Resource Management Plan/Environmental Impact Statement* (USDI BLM 1990), and the *Virgin River Habitat Management Plan* (USDI BLM 1984) identified the Virgin River as possessing remarkable scenic, geologic, fisheries, and wildlife values. Each of these documents stipulates special management considerations be applied; none of the recommendations have been implemented for the Nevada portion as of this date.

Wilderness Management

Background

In compliance with the Federal Land Policy and Management Act, BLM evaluated lands within the planning area for the presence of wilderness characteristics (Map 2-6). Recommendations as to the suitability of those lands for inclusion in the National Wilderness Preservation System were forwarded in a report to the President in 1991, and subsequently, to Congress in 1992. Lands identified through the inventory process as Wilderness Study Areas, listed in Table 3-28, are managed according to the *Interim Management Policy for Lands Under Wilderness Review* (IMP), BLM Manual H-8550-1.

Management according to these guidelines requires non-degradation of wilderness values and, thus, imposes constraints on the types of activities that can occur in Wilderness Study Areas. There is no specific timeline under which Congress must act on the wilderness recommendations. A more complete discussion of the wilderness values of each Wilderness Study Area is described in the *Clark County Final Wilderness Recommendations/Environmental Impact Statement* (USDI BLM 1987) and the *Nevada Contiguous Lands/Final Environmental Impact Statement* (USDI BLM 1990c).

Table 3-28. Wilderness Study Areas.

Wilderness Study	Acreage	Acres Recommended Suitable
Arrow Canyon Range	32,853	0
Muddy Mountains	96,170	36,850
Mt. Stirling	5,600	750
No. McCullough Mtns.	47,166	0
So. McCullough Mtns.	56,623	19,558
Resting Spring	3,850	0
Fish & Wildlife 1,2,3	50,334	0
Lime Canyon	34,680	13,895
Million Hills	21,296	0
Garrett Buttes	11,835	0
Quail Springs	12,145	0
Eldorado	12,290	0
Ireteba	14,994	0
Jumbo Springs	3,466	0
Nellis ABC	5,718	0
Sunrise Mountain	10,240	0
Virgin Mountain	6,560	0
La Madre Mountain	41,306	23,050*
Pine Creek	19,722	18,344*
Total	**425,820**	**71,053**

*Managed under the Redrock Canyon National Conservation Area Management Plan. Not part of total acreage

Arrow Canyon Range Wilderness Study Area

Arrow Canyon Range Wilderness Study Area (NV-050-215) is located in the northern extremity of the narrow, north-south trending Arrow Canyon Range. The 32,853-acre Wilderness Study Area is located 35 miles north of Las Vegas, Nevada and is approximately 12 miles long and 6 miles wide.

Energy and Mineral Resource Values

The Arrow Canyon Range shows no evidence indicating metallic mineral favorability. It has moderate-to-high favorability for nonmetallics, including silica, montmorillonite, gypsum, diatomite, limestone, dolomite, and aggregate The eastern portion of the Wilderness Study Area has been identified by the U.S. Geological Survey (1979) as moderately favorable for potential geothermal resources.

The favorability for oil and gas resources is moderate because this area is part of the Overthrust Belt. Although no wells have been drilled in the study area, several that have been drilled to the south have been unsuccessful. Development of energy resources is not expected because of a history of nonproduction.

Eldorado Wilderness Study Area

Eldorado Wilderness Study Area (NV-050-423) lies in the southeastern portion of

Clark County, Nevada, approximately one hour's drive from Las Vegas. The Eldorado Wilderness is located immediately north of the old mining town of Nelson, Nevada. The study area contains 12,290 acres of public land and surrounds a private inholding of 87 acres in a roughly rectangular configuration. It is 5 miles long and 4 miles wide and is contiguous with the Lake Mead National Recreation Area.

Energy and Mineral Resource Values

Based upon available data, the entire El Dorado Wilderness Study Area is classified as having low favorability for metallic and non-metallic minerals and moderate favorability for the occurrence of uranium (GEM 1083). There are no known deposits of these resources in the study area. The entire Wilderness Study Area has a low favorability for occurrence of sand and gravel (USDI BLM 1983c). No material sites occur within the study area at present.

Fish and Wildlife No. 1, 2, 3 Wilderness Study Areas

Fish and Wildlife Nos. 1, 2 and 3 Wilderness Study Areas (NV-050-201, 216, and 217) are located in northern Clark and southern Lincoln counties, approximately 35 miles north of Las Vegas. To their west is the Desert National Wildlife Refuge, and to their east is U.S. Highway 93.

The Wilderness Study Area total 50,334 acres:
- No. 1 - (11,090 acres)
- No. 2 - (17,242 acres)
- No. 3 - (22,002 acres)

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This Wilderness Study Area has a long, narrow configuration, running north-south for about 45 miles in length, and measuring 3 miles in width at the broadest point. Two heavily traveled roads divide the three individual Wilderness Study Areas. However, for the purpose of this report, they are being considered as one unit.

Energy and Mineral Resource Values

Fish and Wildlife Nos. 1, 2, and 3 have high nonmetallic mineral potential for sand and gravel through the entire Wilderness Study Areas, and have two existing Nevada Department of Transportation sand and gravel pits within them. The availability of increasingly fewer, favorable locations for sand and gravel closer to the Las Vegas market, or along State Highway 93, has created some demand for materials within and immediately adjacent to the Wilderness Study Areas. Because of these conditions, these deposits may be economic for commercial exploitation. All three Wilderness Study Areas have low-to-moderate potential for metallic and other nonmetallic minerals. All of Fish and Wildlife Nos. 1 and 2, and the portion of Fish and Wildlife No.3 in Clark County, have moderate potential for oil and gas.

Garrett Buttes Wilderness Study Area

Garrett Buttes Wilderness Study Area (NV-050-235) is located in eastern Clark County, approximately 45 miles due east of Las Vegas. The study area contains approximately 11,835 acres of public land. The boundary begins at the intersection of the Catclaw Road and the Scalon Ferry Road. It proceeds to the west along the Catclaw Road to the boundary of the Lake Mead National Recreation Area and heads south along this boundary for almost four miles. It then meets land reserved by the Bureau of Reclamation and follows the northern edge of this land in a southeasterly direction until it meets the Lakeside Mine Road. The boundary then follows this road easterly to the Scalon Ferry Road and then to the north until it meets the Catclaw Road, the starting point. The Wilderness Study Area is square in shape, measuring approximately 5 miles each side.

Energy and Mineral Resource Values

Available data for the 1983 Geology and Energy Minerals assessment indicate that approximately 55 percent of the Wilderness Study Area (6,509 acres) has moderate potential for nonmetallic minerals (sand and gravel). The entire study area has low favorability for precious metals, but moderate favorability for accumulation of base metals. There are indications that the area has moderate favorability for accumulation of uranium and thorium in the northern portion and moderate favorability for titanium along the southeast corner of the study area. Although a few mining claims have been staked within the Wilderness Study Area, intensive exploration of and development for potential minerals is not expected to occur within the Wilderness Study Area due to the remoteness of the region, lack of good transportation routes, and distance from possible markets.

The Wilderness Study Area is rated as having low potential for energy resources. Neither exploration nor development of potential energy resources is projected to occur, because the rock strata of the Wilderness Study Area are not suitable reservoirs for hydrocarbon accumulation.

Ireteba Peaks Wilderness Study Area

Ireteba Peaks Wilderness Study Area (NV-050-438) is located south of the old mining town of Nelson in Clark County, Nevada, approximately an hour's drive south of Las Vegas. The study area contains approximately 14,994 acres of public land in a rectangular configuration nearly 7.5 miles long and 3.5 miles wide and is contiguous with the Lake Mead National Recreation Area.

Energy and Mineral Resource Values

Approximately 6 percent (900 acres) of the Wilderness Study Area is considered to have moderate favorability for occurrence of metallic minerals and has four known occurrences of precious metals at the study area perimeter; the remaining portion is considered to have low favorability for metallic minerals. Ireteba Peaks Wilderness Study Area is classified as having low favorability for non-metallic minerals and moderate favorability for occurrence of uranium. There are no known deposits of non-metallic or uranium resources in the study area (USDI BLM 1983c). The entire Wilderness Study Area is a continuous exposure weathered bedrock that could be used for

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stone or aggregate. There is low potential for energy resources.

Jumbo Springs Wilderness Study Area

Jumbo Springs Wilderness Study Area (NV-050-236) is located in eastern Clark County, near Lake Mead National Recreation Area, approximately 50 miles east of Las Vegas and encompasses approximately 3,466 acres of public lands. The Wilderness Study Area boundary is defined by physical features and common boundaries with the Lake Mead National Recreation Area to the east and Bureau of Reclamation-withdrawn lands to the south. The western and northern boundaries are defined by a progression of peak to peak lines and ridgelines. Section lines common with Lake Mead National Recreation Area define the east boundary. A section line common with Bureau of Reclamation-withdrawn land, immediately south of the Wilderness Study Area, is the southern boundary. Jumbo Springs Wilderness Study Area is approximately 3.5 miles long in a north-south direction and 1.5 miles in an east-west direction.

Energy and Mineral Resource Values

Based upon available information, the study area has moderate potential for occurrence of metallic minerals (titanium) in a narrow strip on the western edge of the Wilderness Study Area, which is roughly 25 percent of the area (866 acres). The entire area has moderate favorability for accumulation of uranium or thorium. The favorability for other base metals and precious metals is low. Intensive exploration for, or development of, potential metallic or nonmetallic minerals is not expected to occur due to the remoteness of the region, lack of good transportation routes, and a generally depressed market situation for titanium, uranium, and thorium. The Wilderness Study Area has a low favorability for occurrence of energy resources.

La Madre Mountains Wilderness Study Area

The La Madre Wilderness Study Area (NV-050-412) encompasses approximately 41,306 acres of public land, with no split estate or private inholdings. It is located on the east side of the Spring Mountains, approximately 12 miles west of Las Vegas within the Red Rock Canyon National Conservation Area. The Wilderness Study Area is generally rectangular in shape, ranging from 2 to 8 miles north-south to approximately 17 miles in the east-west dimension. The Pine Creek Wilderness Study Area (NV-050-414) is immediately adjacent to the southern border of the Wilderness Study Area, separated by the Red Rock Summit road, an improved dirt road in the bottom of the canyon between the two Wilderness Study Areas.

The recommendation was to designate 23,050 acres as wilderness. Due to the fact that all but approximately 200 acres of the Wilderness Study Area is within the Toiyabe National Forest and the Red Rock Canyon National Conservation Area, outside the planning area, the La Madre Wilderness Study Area is discussed in and is managed through the Interim General Management Plan for the Red Rock Canyon National Conservation Area.

Energy and Mineral Resource Values

A geology and energy minerals assessment was prepared in 1983. Later, between 1985-87, the U.S. Geological Survey and Bureau of Mines surveyed 34,010 acres of the La Madre Mountain Wilderness Study Area recommended for wilderness and prepared a mineral assessment. According to their report no mineral or energy resources were identified within the study area.

U.S. Geological Survey *Bulletin* 1730-A, the assessment of the mineral potential for that portion of the La Madre Mountain Wilderness Study Area recommended for wilderness, noted that geochemical sampling of stream sediments within the Wilderness Study Area delineated a zone of slight silver, lead and zinc anomalies. However, the report concluded that the entire area recommended for wilderness designation had low mineral resource potential for silver, lead, and zinc. No known deposits of nonmetallic minerals occur within the recommended wilderness area, and a discovery of significant near-surface deposits would be unlikely. Sand and gravel and limestone suitable for construction materials are abundant within the area recommended for wilderness designation. Since similar materials are available closer to major markets, occurrences in the area recommended for wilderness were not classified as resources. The potential for petroleum resources is rated as low.

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Lime Canyon Wilderness Study Area

Lime Canyon Wilderness Study Area (NV-050-231) is located in the Overton Arm region, near Lake Mead, northwest of Gold Butte in eastern Clark County, Nevada. The study area includes 34,680 acres of public land and surrounds 838 acres of patented mining claims. The Wilderness Study Area has a generally elongated shape that is north-south oriented. It is about 13 miles long and varies between 3 and 7 miles wide. Lake Mead National Recreation Area borders the Wilderness Study Area on the west and the boundary is the western boundary of the Wilderness Study Area. The recommendation was to designate 13,895 acres as wilderness.

Energy and Mineral Resource Values

Energy and mineral potential of the Wilderness Study Area was rated using the following information:

- Mineral report submitted by the U.S. Bureau of Mines (MLA 34-88), which studied 9,599 acres of the Wilderness Study Area.
- Literature search.
- Evaluation of the mineral setting.
- Field verification by BLM and Bureau of Mines geologists (included chemical analysis of rock samples).
- GEM Report of 1983 (USDI BLM 1983e).
- Past and/or present mining activities.

A small portion of the Wilderness Study Area has moderate potential for occurrence of gypsum. The remaining area is moderately favorable for deposits of industrial limestone and dolomite, although they have low development potential due to the remote aspect of the area. The study area is classified as moderately favorable for uranium and thorium in all but the southwestern part. The Lime Canyon Wilderness Study Area has low favorability for occurrence of energy resources.

Million Hills Wilderness Study Area

Million Hills Wilderness Study Area (NV-050-233) is located in northeastern Clark County, approximately 45 miles east of Las Vegas, across Lake Mead in an area known as Gold Butte. Although relatively close to Las Vegas, Million Hills Wilderness Study Area is more than two hours driving time away. The study area contains 21,296 acres of public land.

Energy and Mineral Resource Values

Energy and mineral potential of the Wilderness Study Area was rated using the following information:

- Mineral report submitted by the U.S. Bureau of Mines (MLA 34-88).
- Literature search.
- Evaluation of the mineral setting
- Field verification by BLM and Bureau of Mines geologists (included chemical analysis of rock samples).
- GEM Report of 1983 (GRA No. NV-35).
- Past and/or present mining activities.

The entire Wilderness Study Area has moderate nonmetallic mineral potential (dolomite and limestone), and 20 per cent of the Wilderness Study Area has moderate metallic mineral potential (base metals). Field review of the area by the U.S. Bureau of Mines identified the presence of cobalt (strategic mineral) associated with manganese deposits. The presence of cobalt is of special significance, because the grade is comparable to that in the Blackbird Mining district in Idaho (the nation's only primary cobalt deposit). Million Hills Wilderness Study Area is considered to have low favorability for the occurrence of energy resources.

Mount Stirling Wilderness Study Area

Mount Stirling Wilderness Study Area (NV-050-401) is located 45 miles west of Las Vegas,, in Clark and Nye counties. Encompassing the northern most portion of the Spring Mountain Range, the Wilderness Study Area contains 69,650 acres of U.S. Forest Service and BLM lands.

The *National Forest and Public Lands of Nevada Enhancement Act* (Public Law 100-550) adjusted the administrative boundaries for the Toiyabe National Forest, placing approximately 91 percent of the Mount Stirling Wilderness Study Area within the new Forest boundary, leaving only 750 acres under BLM administration.

Approximately 50,000 acres of the total 64,000 within the Wilderness Study Area that is managed by the United States Forest Service is now part of

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the Spring Mountains National Recreation Area and is withdrawn from mineral entry.

Energy and Mineral Resource Values

Between 1983-85, U.S. Geological Survey and Nevada Bureau of Mines prepared a mineral assessment for the 40,275 acres of the Mount Stirling Wilderness Study Area recommended for wilderness. According to the report (USDI GS 1987), a high resource potential for gold was assigned to the Grapevine fault system, running north-south along the Wilderness Study Area's western border. Moderate potential for gold was assigned to the Wheeler Pass thrust system along the eastern boundary of the study area. The area south of Big Timber Spring has an unknown mineral resource potential for gold along a poorly exposed normal fault system.

The area northwest of Gold Spring and along the crest of the range south of Mount Stirling, and east of Mount Stirling has low potential for accumulation of base metals such as lead, zinc, manganese, and copper. Extensive exposures of limestone and dolomite in the area result in a classification of moderate favorability for non-metallics. Potential for oil and gas within the study area is low.

Muddy Mountains Wilderness Study Area

Muddy Mountains Wilderness Study Area (NV-050-229) is located in Clark County, approximately 20 miles northeast of Las Vegas. The study area includes 96,170 acres of public land. It is irregular in shape, approximately 14 miles across in a north-south direction at its widest point, and approximately 18 miles from east to west.

Energy and Mineral Resource Values

Energy and mineral potential of the Wilderness Study Area was rated using the following information:

- Review of existing documentation and mine production records.
- Reconnaissance sampling and analysis of selected areas within the Wilderness Study Area.
- Geologic setting of the area.

The U.S. Geological Survey and U.S. Bureau of Mines cooperated in preparing a *Mineral Resource Potential of the Muddy Mountains Wilderness Study Area, Clark County, Nevada* (1982). The report identified the Muddy Mountains Wilderness Study Area as having high potential for mineral deposits of calcium borates and lithium. Known and potential mineral deposits are concentrated in the east-central and south-central parts of the study area. Zeolites (in particular clinoptilolite) are present in some tuff beds throughout much of the study area, with the majority of the deposits external to the Wilderness Study Area in the northeast, suggesting a moderate to high mineral potential. Stream-sediment sampling indicates that the Muddy Mountains area has little potential for mineral deposits of metals other (than lithium). Building stone and silica sand have moderate to low potential.

Oil and gas potential within the study area is low. Five exploratory oil and gas test holes have been drilled in the vicinity of the Wilderness Study Area, one within the cherry-stem road in the Buffington Pockets area in the north end of the Wilderness Study Area. None of the explorations encountered producible amounts of petroleum. The local tertiary stratigraphic section within the Wilderness Study Area is not considered to have good potential for oil exploration (USGS 1982). These rocks are not part of the Overthrust belt, were deposited in closed evaporitic basins, and contain little or no organic matter. The high degree of structural complexity of the study area suggests there are probably no buried Overthrust-related traps that are undisturbed by tertiary structures. The U.S. Geological Survey determined that the petroleum potential for the study area is regarded as poor, chiefly because of the lack of known potential source rocks.

Nellis ABC Wilderness Study Areas

Nellis ABC Wilderness Study Area (NV-050-04R-15) is located at the north edges of the cities of Las Vegas and North Las Vegas, within the corporate boundary of the city of North Las Vegas. The study area is divided into three small sub-areas separated by roads. For the purpose of this report, all of the sections will be considered as one. The study area has a combined total of 5,718 acres, with sub-areas as follows:

- Sub-area A (1,971 acres)
- Sub-area B (2,713 acres)
- Sub-area C (1,024 acres)

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The Wilderness Study Area was originally inventoried as part of a 13,400-acre parcel. The study area comprises the natural portion of the original parcel that was contiguous to the U.S. Fish and Wildlife Service Desert National Wildlife Refuge.

Energy and Mineral Resource Values

The entire Wilderness Study Area (5,718 acres) was rated as having moderate potential for nonmetallic minerals (sand and gravel) and low potential for oil and gas. Moderate potential for geothermal resources exists within the Wilderness Study Area.

North McCullough Mountains Wilderness Study Area

North McCullough Wilderness Study Area (NV-050-425) is located in the south-central portion of Clark county, Nevada, less than 15 miles south of Las Vegas and includes 47,166 acres. The entire Wilderness Study Area is comprised of public land with no private in-holdings and is roughly rectangular in shape, approximately 9-10 miles on the north-south axis and 7-8 miles on the east-west axis. The eastern boundary is located at the base of the escarpment, slightly west of a large utility corridor in Eldorado Valley. An additional 640 acres within the Eldorado Valley Lands Act that was not acquired by Boulder City will be managed under the IMP until those lands have been evaluated and released.

Energy and Mineral Resource Values

Energy and mineral potential of the Wilderness Study Area was rated using the following information:

- Literature search.
- The 1982 *Barringer Report* (a federally contracted mineral survey of the Wilderness Study Areas to identify mineral resources and incorporating extensive sampling).
- The *Geology, Energy, and Minerals Report* (1983).
- Evaluation of the geologic setting and consultation with energy and mining companies as well as local prospector.
- Minor field verification by BLM geologists.
- Past and present mining activities.

The Wilderness Study Area was evaluated as having low favorability for accumulation of metal and nonmetal resources, except at the edges of the Wilderness Study Area, which have moderate to high potential for sand and gravel. Energy resources were of low potential. The area is not favorable for oil and gas and geothermal resource accumulation.

Pine Creek Wilderness Study Area

The Pine Creek Wilderness Study Area (NV-050-414) is located approximately 15 miles west of Las Vegas. The Wilderness Study Area contains approximately 19,722 acres of public lands, with no split estate or private inholdings. The Wilderness Study Area is roughly rectangular in shape, approximately 11 miles long and 5 miles wide. Immediately adjacent its northern border is the La Madre Wilderness Study Area (NV-050-412). The two Wilderness Study Areas are separated by the Red Rock Summit road, an improved dirt road in the bottom of the canyon.

The recommendation was to designate 18,344 acres as wilderness. Due to the fact that all of the Wilderness Study Area is contained within the Toiyabe National Forest and the Red Rock Canyon National Conservation Area, outside the planning area, the Pine Creek Wilderness Study Area is discussed in and is managed through the Interim General Management Plan for the Red Rock Canyon National Conservation Area.

Energy and Mineral Resource Values

The "La Madre Mountains/Pine Creek G-E-M Resource Area (GRA No. NV-32) Technical Report" classified the Wilderness Study Area as having moderate favorability for oil and gas, low favorability for geothermal, and low favorability to unfavorable for metallic minerals. The entire Wilderness Study Area is moderately favorable for sand and gravel resources.

The geology of the area is primarily Paleozoic and Mesozoic carbonate units, which are known regionally to be hosts for replacement lead-zinc-copper deposits. Overall, the mineral potential of the area is low.

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Quail Springs Wilderness Study Area

Quail Springs Wilderness Study Area (NV-050-411) is located in northwestern Clark County, at the north edge of the city of Las Vegas. The study area includes 12,145 acres of public land. The boundary is a combination of roads, a shared boundary with Floyd Lamb State Park, the Desert National Wildlife Refuge, corporate boundary for the City of Las Vegas, a common border with the Moapa Indian Reservation, and an abandoned railroad grade.

Energy and Mineral Resource Values

All of the Wilderness Study Area was rated as having moderate nonmetallic mineral potential for sand and gravel (USDI BLM 1983g). Geologic formations are not considered to be favorable for location of metallic minerals or energy resources.

Resting Spring Wilderness Study Area

Resting Spring Range Wilderness Study Area (NV-050-460) is approximately 15 miles west of Pahrump and 60 miles west of Las Vegas, along the California-Nevada border, in Nye County, Nevada. Access is via Ash Meadows Road several miles to the east. Except for the western boundary, which is the Nevada-California border, the boundaries of the Wilderness Study Area are poorly defined. Boundaries meander along the base of the foothills of the Resting Spring Range, set back from the effects of the Ash Meadows and Stewart Valley Roads. The 3,850-acre Wilderness Study Area is divided into two unequal parts by a maintained dirt road which branches off the Ash Meadows Road. The northern portion is 1,050 acres, and the southern portion is 2,800 acres.

Resting Springs Wilderness Study Area is contiguous to the California Desert Conservation Area's Resting Spring Range Wilderness Study Area #145, which covers 89,772 acres in California. The 1980 Wilderness Inventory determined that the Nevada portion of the Wilderness Study Area did not meet wilderness criteria for size, solitude, and primitive recreation, except when considered in conjunction with the California Wilderness Study Area. California BLM has recommended that the California Desert Conservation Area Resting Springs Wilderness Study Area not be designated for wilderness status.

Energy and Mineral Resource Values

Resting Spring Wilderness Study Area is largely composed of Precambrian and Cambrian marine sediments, which have been displaced by normal faults, usually less than 1 mile in length. Quaternary alluvial fan deposits cover much of the lower slopes. Miocene tufaceous lake beds occur north of the Wilderness Study Area and in small areas inside the north boundary.

Although the rock units within the Resting Spring Wilderness Study area are known to be favorable for metallic mineral deposits elsewhere in the region, the entire Wilderness Study Area is classified as having low favorability for metallic mineral resources due to the lack of known mineral deposits in the area. Nonmetallic minerals resources also have low favorability due to the geology of the area. The United States Geological Survey *Open File Report* 90-638 indicated that the Wilderness Study Area has high mineral potential for industrial clay deposits and moderate potential for geothermal resources. The Wilderness Study Area has no favorability for oil and gas, or uranium, based on a lack of source rocks.

South McCullough Mountains Wilderness Study Area

South McCullough Mountains Wilderness Study Area (NV-050-435) is located approximately 35 miles south of Las Vegas, just north of the California-Nevada border, and 13 miles west of Searchlight, Nevada. Encompassing the southern portion of the McCullough Mountain Range, the Wilderness Study Area is approximately 15 miles long and 6 to 9 miles wide. It encompasses 56,623 acres.

Energy and Mineral Resource Values

A report on the mineral potential of the Wilderness Study Area was published in the United States Geological Survey *Bulletin* 1730-C (1989). According to that report, the Wilderness Study Area contains no identified mineral resources and has no areas of high mineral resource potential. Five areas that make up 20 percent of the study area have a moderate potential either for undiscovered silver, gold, lead, copper, and zinc resources in small vein deposits, for lanthanum and other rare-earth elements, uranium, thorium, and niobium in medium-size carbonatite bodies and dikes, for

tungsten and copper in small to medium size vein deposits, or for silver and gold in small vein or breccia-pipe deposits. There is moderate favorability for sand and gravel and stone, although the area is some distance from any markets. The entire study area has no resource potential for oil and gas or coal, as well as a low resource potential for geothermal resources, and for nonmetallic pegmatite minerals such as feldspar and mica.

Sunrise Mountain Instant Study Area

The Sunrise Mountain Instant Study Area (NV-050-420) is located at the eastern edge of Las Vegas and was designated in 1970 as Sunrise Mountain Natural Area. The area was identified as having unique geologic, biologic, and aesthetic values. Section 603 (a) of the Federal Land Policy and Management Act directed that all areas designated as "natural or primitive areas" prior to November 1, 1975 be studied for their wilderness values. A total of 29,475 acres were studied, and the area determined to lack wilderness characteristics.

The BLM recommended that the study area be dropped from the wilderness review process. The original 10,240 acres of the Natural Area continues to be managed as an Instant Study Area until the non-wilderness recommendation is adopted by Congress.

No specific mineral study was done for the Sunrise Mountain Instant Study Area due to the earlier recommendation that the area be dropped from further wilderness review.

Virgin Mountain Instant Study Area

The Virgin Mountain Instant Study Area (NV-050-222) is located approximately 85 miles northeast of Las Vegas, and southeast of Mesquite, Nevada. The Instant Study Area encompasses 6,560 acres. This range is of particular scientific interest because it encompasses features representative of three North American desert life zones. The dense vegetation, in conjunction with the steep gradients of the terrain, limit access roads to two four-wheel drive roads, one from the south and one from the northeast. Recreational activities occurring in the Instant Study Area include hiking, camping, hunting, off-road vehicle touring, and nature study.

Logandale Supplemental Inventory Area

The Federal Land Policy and Management Act of 1976 mandated that the BLM inventory all public lands for possible inclusion in the National Wilderness Preservation System. Initial inventories were undertaken from 1976 to 1979 to identify areas for further study. However, certain parcels of land near Logandale, Nevada were left out of the inventory due to a base mapping error that showed most of the lands to be the property of the State of Nevada or private. The State had applied for lands near the Valley of Fire State Park under the Recreation and Public Purposes Act and although the case was not (and has yet to be) adjudicated, someone had changed the base map to indicate the lands were State property. This error was not discovered until the late 1980s. To complete the review process, these lands are included in this plan for final decision.

The omitted lands are in seven parcels totaling approximately 20,299 acres. Six scattered parcels, including approximately 6,400 acres, do not meet the minimum acreage requirement (5,000 acres) and lack wilderness characteristics of outstanding solitude or primitive and unconfined recreation opportunities. These areas were not studied further following this assessment.

The remaining 13,899 acres are evaluated as follows.

Description

The lands are located in a roughly rectangular shaped area north of the Valley of Fire State Park and west of Logandale, Nevada. The area is encircled by roads that vary from well maintained gravel to rough dirt and rock trails. Several dead-end roads penetrate the unit. There is a gypsum mine and County flood diversion structure adjacent to the northwest corner.

Naturalness

The area exhibits a generally natural aspect. Most notable impacts are the roads that surround the area. The area is not well known to the public although use is increasing.

Outstanding Opportunities for Primitive and Unconfined Recreation

The area offers many opportunities for recreational activities in an undeveloped area with minimal management control and limitations. The size of the area does not lend itself to multi-day uses; however, day trips, short hikes and short off-road-vehicle routes are available. Because these opportunities are not unique or rare to the general area, they are not rated as outstanding.

Outstanding Opportunities for Solitude

It is possible to escape the sights and sounds of civilization in parts of the area. However, the size, shape and influence of surrounding roads and nearby uses, opportunities for solitude are not outstanding.

Summary Evaluation

The area is largely in a natural condition, but is influenced by adjacent human impacts. The area's limited size prevents it from offering outstanding opportunities for primitive and unconfined recreation or solitude.

Minerals Management

Federally-owned minerals in the public domain fall into one of the following categories (as defined by the Supplemental Program Guidance - BLM Manual 1624), depending on the kind of mineral:

Locatable Minerals (disposal is nondiscretionary)
- Uncommon varieties of sand, gravel, stone, pumice, pumicite, cinders, and exceptional clay.
- All "valuable mineral deposits" are locatable under the General Mining Law of 1872, except those specifically excluded below.

Leasable Minerals (disposal is discretionary)
- *Fluid Minerals*
  - Geothermal resources and associated by-products.
  - Oil and gas
  - Oil shale, native asphalt, solid and semi-solid bitumen, and bituminous rock, including oil impregnated rock or sands from which oil is recoverable only by special treatment after the deposit is mined or quarried.
- *Solid Minerals*
  - All minerals on acquired lands, except saleable minerals.
  - All minerals on the outer continental shelf.
  - Coal and phosphate.
  - Chlorides, sulfates, carbonates, borates, silicates, and nitrates of sodium and potassium.
  - Sulphur in the states of Louisiana and New Mexico.

Salable Minerals (disposal is discretionary)
- Petrified wood and common varieties of sand, gravel, stone, pumice, pumicite, cinders, and clay.
- All minerals not defined as locatable or leasable.

Metallic mineral commodities currently being produced or processed in the planning area are gold and silver. Other metallic minerals known to occur include cobalt, copper, lead, manganese, mercury, nickel, palladium, platinum, thorium, tungsten, uranium, vanadium, and zinc.

Nonmetallic mineral production now exceeds metallics in both tonnage and value within the Las Vegas BLM District. These commodities include alum, alunite, barite, bentonite, industrial and common clays, borates, feldspar, fluorspar, glauberite, gypsum, limestone, dolomite, magnesite, marble, mica and beryl, nitrate, perlite, quartz, salt, silica, sand and gravel, stone, turquoise, vermiculite, and zeolite. Among the commodities that are currently or have been commercially extracted are: Bentonite, borates, feldspar, fluorspar, gypsum, limestone, and dolomite, magnesium bentonite clays, magnesium hormite clays, marble, mica and beryl, perlite, turquoise. salt, silica, stone, sand and gravel, vermiculite, and zeolite. Only those commodities having commercial production history are detailed in the following.

Portions of southern Nevada are classified as prospectively valuable for deposits of oil, gas, sodium, and potassium. Occurrences of coal, phosphate, and oil shale are not known in the Las Vegas BLM District.

Leasable Minerals

The *Minerals Leasing Act* (1920) as amended, the *Acquired Lands Act* (1947), the *Geothermal Steam Act* (1970), and 43 CFR 3100-3599 provide the

legal and regulatory framework for issuance and management of mineral leases. These regulations apply where public interest exists for development of oil, gas, geothermal, coal, and non-energy leasable mineral resources. Stipulations are attached to leases and permits to assure protection of nonmineral resources that are susceptible to impacts resulting from the exploration and development of leasable mineral resources. In response to the desert tortoise being listed as a threatened species in 1990, no new leases have been issued in Clark County since 1990, pending completion of this Resource Management Plan.

Fluid Leasable Minerals

Oil and Gas - The first known exploration well drilled in Clark County occurred in 1929 near Arden, 15 miles southwest of Las Vegas (Garside et al. 1988). An area near Mesquite in the northeastern part of the county was touted as a prospective oil area, but no known wells were drilled on the Nevada side of the Utah-Nevada border as a result of the promotion.

Some sporadic drilling occurred in the 1940s, but more serious efforts began in 1950 when exploration throughout Nevada increased significantly. Although numerous wells have reported oil shows, the lack of a discovery and the general decrease in Nevada drilling in the late 1960s and early 1970s resulted in few wells being drilled in Clark County until the early 1980s. Some of these recent wells were drilled to test the possibility of "overthrust belt" oil fields like those in western Wyoming and northeastern Utah.

The deepest well drilled in Nevada is in Clark County on Mormon Mesa. In 1980, the Virgin River U.S.A. No. 1-A was drilled by Mobil Oil Corporation in SE¼SW¼, Sec. 9, T. 15 S., R. 68 E., to a depth of 19,562 feet. It was an unsuccessful overthrust test. Map 3-11 shows those areas within the Las Vegas BLM District classified as having high, moderate, and low potential for development of oil and gas. To date, 70 permits for drilling of oil and gas wells have been issued and 65 wells have been drilled. A total of 33 geophysical exploration permits, totaling 33 have been issued in the planning area. There has been no oil and gas production within the Las Vegas BLM District.

Geothermal Resources - Based upon available data, southern Nevada contains no known favorable locations for development of geothermal energy. A water temperature of 145 degrees Fahrenheit (the hottest water in Clark County) occurs at Black Canyon Springs near Hoover Dam. Commercial development requires temperatures of at least 194 degrees Fahrenheit. Higher temperatures of not less than 350 degrees Fahrenheit are needed for direct application uses (such as power generation). The low temperatures of waters in southern Nevada preclude their use as a geothermal energy source, except for small scale uses (such as space heating, swimming pools, and spas). There are no existing geothermal leases within the planning area.

Solid Leasable Minerals

Map 3-12 displays those areas within the Las Vegas BLM District classified as having moderate and low potential for development of sodium and potassium. However, there are no existing leases for these two compounds within the Las Vegas BLM District, and no areas are classified as having high potential for their development.

Salable Minerals

The *Materials Act* (1947), as amended, and 43 CFR 3600-3622 provide for regulation and disposal of mineral materials. Disposal is administered on a case-by-case basis.

Salable minerals are sold at fair market values. Free use permits are issued to Federal and state agencies, local communities, and nonprofit groups as the need arises. Map 3-13 shows those areas within the Las Vegas BLM District classified as having high, moderate, and low potential for development of mineral materials.

Locatable Minerals

Exploration for and development of locatable mineral resources is authorized by the *General Mining Law* of May 10, 1872, as amended. Federal regulations (43 CFR 3802 and 3809) provide protection to nonmineral resources, provide for reclamation of disturbed areas and for mineral exploration and development, while assuring that activities are conducted in a manner that prevents unnecessary or undue degradation.

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Currently, approximately 95 percent of the planning area is open to entry under the locatable minerals laws. Map 3-14 shows those areas within the Las Vegas BLM District classified as having high, moderate, and low potential for development of locatable minerals. Maps 3-15 and 3-16 show areas where Plans of Operation and Mining Notices have been filed, respectively.

Many mining districts in southern Nevada have yielded significant production in the past, and some are currently producing large quantities of material. It is difficult to give a general description of these deposits, because of their variety and number and also the diversity of geological settings in the various districts. Deposits are therefore divided into two groups, metals and nonmetals. The metals are discussed by separate districts. The nonmetals are discussed by commodities, because kindred deposits are not confined to districts (see Mineral Potential Report for details).

Mining in southern Nevada began in 1857 with discovery of lead ore at the Potosi mine, which later became the area's second largest producer of zinc (Hewett 1931). In 1892, the discovery of gold in the Keystone mine greatly stimulated activity in the Goodsprings district and southern Nevada. Subsequent development of metallic and nonmetallic deposits continues, but nonmetallic mineral production in the area far exceeds metallic mineral production in both tonnage and value.

Mining Districts

The principal mining districts of the Las Vegas BLM District are described below, including a brief overview of the history, production, and resources of each district.

Ash Meadows District - The Ash Meadows bentonite district has the largest clay production of any clay district in Nevada. Production began about 1918, and an estimated $3 million worth of clay was extracted during the first 50 years of the district (Kral 1951). Clays were used to filter and clarify mineral oils and also used as an absorbent. In the 1960s, interest in the bentonite deposits dropped significantly, although major oil companies still retained mineral rights for portions of the district. In the early 1970s, Industrial Mineral Venture, Inc. (IMV) began to produce bentonite clays from the district. This operation continues clay production under new management as IMV/Florida.

Bare Mountain (Fluorine) District- The Bare Mountain Fluorine district is located in the extreme northern portion of the planning area and extends beyond the boundary of the Las Vegas District. Gold was discovered in 1905, and the early limits of the district were confined to the northern part of Bare Mountain. In the 1950s, the district expanded to include the southern part of Bare Mountain (Kral 1951). This district is best known for its production of fluorspar. In the late 1970s, new production within the district shifted from fluorspar to gold when the Sterling Mine opened. Until this time, gold was known to occur within the district, but only limited production occurred. The Sterling Mine is the only active large-scale heap leach operation in the Las Vegas BLM District.

Eldorado Canyon District - The Eldorado Canyon district, located in the Eldorado and Opal Mountains, is one of the oldest in Nevada. Mining began in the area in 1857, with discovery of gold ore on the Honest John claim. Reports indicate that old arrastras and prospect pits, dating prior to the 1860s, were found in the area. Estimates of production between 1861 and 1906 totaled between $2 and $5 million (Ransome 1907). Significant production from the district ended in 1942 with closure of the Techatticup Mine. Since then, limited exploration and production has taken place in the district.

Goodsprings (Potosi, Yellow Pine) District - The Goodsprings (Potosi, Yellow Pine) district was the principal source of zinc in Nevada during World War I and II. Located in the Spring Mountains, the district was first described in 1856 by Nathaniel Jones, who was verifying Indian reports of a lead occurrence for the Mormon Church (Hewett 1931). The Potosi Mine was the first Nevada mine, with ores smelted by Jones in 1857; production has been intermittent since that date. Significant production in the district occurred from 1912 to about 1920, and at a reduced rate by steady pace until the 1950s.

Today, interest in the district continues with limited exploration and processing of tailings from the Keystone Mine by Durvada, Inc. Zinc, lead, copper, cobalt, silver, gold, and other minerals were extracted between 1856 and 1957, for an estimated value of $31,000,000.

Searchlight District - The Searchlight district was discovered in 1897 and has a recorded production of over $6 million. The district lies in the western

Opal Mountains and has yielded gold, silver, copper, and lead. Since the early 1950s, interest in the district has been intermittent with some exploration and limited production at the older mines.

Other mining districts with lesser productions within the planning area include the Bare Mountain (Fluorine), Bunkerville (Copper King), Big Dune (Lee), Charleston, Crescent, Dike, Gass Peak, Gold Butte, Johnnie, Las Vegas, Newberry, Railroad Pass, and Sunset districts. Minerals extracted were alunite, copper, gold, lead, manganese, silver, and zinc, as well as minor amounts of other materials. Map 3-19 depicts general locations of mineral activities conducted under the auspices of the 1872 *Mining Law* during the last 10 years in the Las Vegas District.

Nonmetallic Mineral Deposits

Nonmetallic mineral production now exceeds metallics in both tonnage and value within the Stateline Resource Area. These commodities include alum, alunite, barite, bentonite and clay, borates, feldspar, fluorspar, glauberite, gypsum, limestone and dolomite, magnesite, marble, mica and beryl, nitrate, perlite, quartz, salt, silica, sand and gravel, stone, turquoise, and vermiculite. vermiculite. Among the commodities that are currently or have been commercially extracted are bentonite, borates, feldspar, fluorspar, gypsum, limestone and dolomite, marble, mica and beryl, perlite, turquoise, salt, silica, stone, sand and gravel. Only those commodities with a commercial production history are detailed in the following.

Alunite - The Railroad Pass (Alunite) district is located approximately 5 miles east of Boulder City. The Alunite Mining Company was organized in 1908, but company operations ceased after a short period of activity. The area was considered as a possible source of potash and alumina during the two World Wars, but the grade and distribution of the alunitized rock proved unfavorable for commercial exploitation.

The Quo Vadis Mining Company began operation in 1915, but has had only intermittent activity. Little production has been recorded for the district (Vanderburg 1937). Figures from the *Minerals Yearbook* of 1936 show production of 925 ounces of gold, 749 ounces of silver, and 1,832 pounds of lead, valued at $33,035.

Bentonite - Several deposits of bentonitic type clay occur in Clark County, but only a small amount of clay has been mined from them. Richfield Oil Company mined 2,960 tons of the clay in 1929, presumably from altered rocks near Las Vegas (Fulton and Smith 1932). Clay has been mined near the Wall Street mine (T. 26 S., R. 64 E.,Section 4) and trucked to Whitney, for use in making bricks. Bentonite has also been located in the vicinity of Overton, Moapa, and Searchlight. Some development has been done on these deposits, and small quantities are occasionally mined. No recent exploration or development for bentonite are known from Clark County.

Borate - Borate deposits occur in White Basin in the central part of the Muddy Mountains in northeastern Clark County. A large group of patented mining claims, including the Anniversary Mine and the old workings of the American Borax Company, are located in the eastern part of White Basin.

Feldspar - Feldspar of commercial quality is abundant in the Virgin Mountains and in the ranges of the southern part of Clark County; these deposits have received slight attention due to inaccessibility and distance from markets. The only production reported is from a deposit located on the west slope of Crescent Peak with an estimated 1,000 tons of feldspar having been mined and shipped (Hewett et al. 1936).

Fluorspar - Fluorspar veins occur in the McCullough Range. Development work, consisting of a short adit and several open cuts, has explored the veins, but only a few tons of fluorspar have been shipped (Vanderburg 1937).

Gypsum - Extensive deposits of gypsum occur in the Virgin Mountains, in the Muddy Mountains southward to Frenchman Mountain and vicinity, and in the Spring Mountains west and southwest of Las Vegas (Longwell et al. 1965). Five mines are currently producing gypsum from private and public lands within the Las Vegas District. Significant exploration for gypsum is also occurring.

Limestone and Dolomite - Deposits of carbonate rocks are widely distributed in all parts of southern Nevada, with the exception of a wide belt west of the Colorado River south of Lake Mead. The carbonate rocks range in age from Early Cambrian to Tertiary. To date, the only extensively developed sites are the Devonian limestone at Apex

(high calcium limestone) and the Mississippian dolomite at Sloan (dolomitic limestone).

Chemstar, Inc. owns and operates a limestone quarry and a crushing, and calcining plant at Apex, 19 miles northeast of Las Vegas and one mile northeast of the Georgia Pacific gypsum plant. Limestone and dolomite have been mined since 1910 at Sloan, which is approximately 19 miles south of Las Vegas. Dolomite was not mined commercially before 1928, but since then has become the principal product. The main markets for limestone and dolomite products are sugar beet, oil, and iron industries in southern California. Potential for development of limestone and dolomitic deposits within the Las Vegas District is quite high. Production could be for lime or portland cement. Other development work includes the current construction of a Portland cement plant near Logandale. The plant is anticipated to be producing cement within the next 2 years.

Marble - Marble has been quarried at the south end of the Las Vegas Range, 14 miles north of Las Vegas (Burchard 1914). The marble is derived from limestone of Mississippian Age, recrystallized during secondary dolomitization. According to Cornwall (1972), unsuccessful attempts have been made to quarry marble at Carrara Canyon, 7 miles southeast of Beatty.

Magnesium Bentonite Clays, Magnesium Hormite Clays - Clay is currently mined at two sites in the Ash Meadows region in southern Nye County. The company's annual production ranges from 25,200 to 45,500 tons of clay per year. Clays also occur in abandoned clay mines in the Clay Camp, Nevada area, in the central portion of the Ash Meadows wetlands area.

Mica and Beryl - Deposits of mica and beryl occur in pegmatite dikes in the Virgin Mountains, 9 miles southeast of Bunkerville; in the South Virgin Mountains east and south of Gold Butte; in the Opal Mountains; and in the southern McCullough Range. Production of mica and beryl has been small, although a few shipments of mica were made from properties in the South Virgin Mountains at the turn of the century (Parker 1894); the principal property is the Santa Cruz mine.

Perlite - The perlite deposits developed in southern Nevada are in the McCullough and Highland Spring Ranges in the southern part of the Spring Mountains (Cochran 1951). The majority of these deposits are interlayered with other volcanic rocks such as dacite and obsidian.

Quartz - Some optical quality quartz crystals occur in pegmatite dikes of the Gold Butte District. No production figures are available, although a small amount of quartz was produced from mines in the region.

Salt - Large deposits of rock salt once cropped out in the Virgin River Valley in eastern Clark County. Except for several small domes near Salt Cove, all the outcrops were covered when Lake Mead was filled in the 1930s. Common salt was one of the earliest materials mined in Nevada. Prehistoric Indians are known to have mined rock salt, creating the remarkable "salt cave" with two large underground chambers observed by Harrington in 1926. The Virgin Valley salt was later mined by white settlers.

Silica - According to Longwell et al. (1965), the high purity silica raw materials of economic significance are the Eureka Quartzite, Supai Formation, Aztec Sandstone, Baseline Sandstone, and recent deposits of eolian sand. Although practically all of these materials have been exploited, only the Baseline Sandstone and eolian sand are currently used. Simplot Silica Products in Overton ships both crude and dry finished products that are utilized by the foundry, glass, and chemical industries.

The most commonly used high purity silica raw materials are: sand, sandstone, gravel, quartzite, conglomerate, and massive quartz that contain 95 percent SiO_2 or better. Market specifications favor the present utilization of Clark County sands for glass melting, but a substantial tonnage is consumed by the West Coast foundry trade. The Eureka Quartzite may be considered a potential source for refractory and metallurgical use.

Stone, Sand, and Gravel - Deposits of stone, sand, and gravel for use as construction and building material have been developed throughout the planning area (Maps 3-20 and 3-21). The most significant development of sand and gravel deposits is in the greater Las Vegas area to support the building boom that started about 1984. Production of sand and gravel from non-Title 23 sources in the Las Vegas District is in excess of 1.2 million cubic yards of material. Another significant development of sand and gravel is the Nevada Department of

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Transportation, which currently maintains 181 material site rights-of-way.

Dimension stone has been quarried in the vicinity of the Red Bluff Mine and Rainbow Quarries since the late 1940s. Recent production at this site has been significant, with current operations being conducted by the Las Vegas Rock Shop. Dimension stone has also been produced from other quarries in the Las Vegas BLM District, but the Rainbow Quarries site is the only active area in the planning unit.

Turquoise - The Crescent district is in the extreme southern part of the McCullough Range about 12 miles west of Searchlight, Nevada. Turquoise was prehistorically mined in the this area by Indians. In 1894, the deposits were rediscovered and have been intermittently active since. A considerable amount of turquoise was produced, especially from 1894 to 1906, but recorded production figures are lacking. The turquoise is light to dark blue and has a dense texture. Vanderburg (1937) reports that in 1906 a single specimen was found in the Toltec mine that weighed 320 carats and was valued at $2,600.

Vermiculite - A vermiculite mine is located in T. 19 S., R. 70 E., Sec. 35, approximately 0.5 mile north of the Snowflake mica mine. Deposits occur as veins, stringers, pockets, and scattered flakes. The vermiculites are considered to have been formed when biotite was altered by action of hydrothermal solutions (Leighton 1954). Remains of a mill are on the property, but no record of production or recent activity is available.

Zeolite - An active zeolite mine and other known zeolite resources are present in the Ash Meadows area in southern Nye County, Nevada near the California border. The zeolites are used for industrial applications in odor control, heavy metal ion removal, agricultural use, and sewage and waste treatment. In addition, zeolitized rhyolitic tuffs have been quarried for many years for use in stone and lightweight aggregate industries. Increases in domestic sales and production of natural zeolites were seen between 1988 to the present largely due to growth in pet litter, agricultural and odor control products, and locally due to continued rapid population growth and booming construction industry.

Hazardous Materials Management

The Hazardous Materials Program has the responsibility for compliance with Federal, State, interstate and local management requirements. All non-Interior groups whose activities are on BLM-managed lands and facilities (such as claimants, concessionaires, contractors, permittees, and lessees) will be held responsible for compliance with Federal, State, interstate, and local waste management requirements. Waste is defined to include solid and hazardous waste, hazardous materials, and hazardous substances, as defined by the statutes referenced in 518 DM 2.3.

The Hazardous Materials Program is also responsible for aggressively pursuing potentially responsible parties to correct their contamination of BLM lands and facilities or to recover the costs of cleanup. Land use decisions incorporate consideration whether hazardous materials would be used. Site-specific hazardous material inventories are completed when lands are either acquired or disposed. BLM cannot acquire contaminated lands unless directed by Congress, court mandate, or as determined by the Secretary (602 DM 2). Land disposal actions must comply with disclosure requirements found in 40 CFR 373. Mining and milling sites are inspected to determine appropriate management for hazardous materials. Knowledge of the locations of these activities alerts the agency concerning existing and potential problems. The agency attempts to minimize releases of hazardous materials through compliance with current regulations. When hazardous materials are released into the environment, impacts on resources are assessed and appropriate response, removal or remedial actions are taken.

Fire Management

Fire management activities are conducted under an Initial Attack Management system, which links the level of fire fighting response to the resource values within a specific geographic area or suppression area/zone (refer to Map 2-11). The designations developed for initial attack response will be used to efficiently organize and distribute fire personnel and equipment to those areas of highest resource priority. Baseline management goals are suggested for the following Initial Attack Management Levels:

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1. Suppress all wildfires at 500 acres or less 90 percent of the time.

2. Suppress all wildfires at 100 acres or less 90 percent of the time.

3. Suppress all wildfires at 10 acres or less 90 percent of the time.

If future resource needs change, initial attack management levels may require adjustment. This could be accomplished through coordination with fire management.

Between 1978 and 1988, approximately 78,212 acres of BLM-managed land burned within the old Stateline Resource Area. A total of 64 percent of all wildfires that were greater in size than 100 acres occurred in the Spring Mountains. A fire occurrence map is available at the Las Vegas BLM Field Office. Table 3-29 summarizes the 11-year fire history.

From 1988 through 1994, fire occurrence was documented for the Las Vegas BLM District. The frequency of fires in the Gold Butte and Searchlight areas increased considerably. The increase warrants concern over impacts to critical desert tortoise habitat.

The public lands managed by the Las Vegas BLM District have numerous rural/urban/wildland interface zones, defined as those areas where both rural and urban sprawl has occurred in wildland areas. These zones require a special response mode that includes as a priority the immediate protection of life and property until arrival of a structural fire agency. Then, the fire reverts to a wildland priority, that of protecting the natural resources.

The use of certain fire suppression techniques are incorporated into pre-attack scenarios so that fire suppression strategies and tactics are acceptable to protect the various special environments. These special areas include riparian areas, designated natural areas, Wilderness Study Areas, mining districts, cultural resource districts including both prehistoric and historic, desert tortoise habitat areas, airshed management areas, designated research areas, and rural/urban/wildland interface zones.

The fire prevention and education program is responsible for wildland fire prevention, prescribed fire education, fire trespass and investigations, and compiling fire statistics. The function of the program is to provide and maintain a viable and effective fire prevention and education program to educate the public concerning fire prevention concerns, fire management activities, and fire statistics for public education. Special emphasis is given to use of fireworks, abandoned campfires, railroad fires, children playing with fire, and prescribed fire and fire occurrence data. The fire trespass and investigations team of the fire prevention program is responsible for investigating human-caused fire to determine the origin, ignition source, and the identity of the responsible persons. After the cause is determined, proper documentation and billing will occur.

There are two major uses of prescribed fire to achieve specific fire and resource goals in southern Nevada. Wildland fire hazard reduction involves decreasing a quantity of accumulated fuel that could through natural means become a devastating event. Prescribed burns also facilitate vegetative manipulation to benefit habitat.

The range of wildfires does not follow jurisdictional boundaries. The use of cooperative agreements promotes the common goals for the agency to manage incidents in a cost-effective manner for the protection of life, property, and natural resources. It is in the interests of city, county, state, tribal, and Federal agencies to work toward a common goal concerning an incident.

There are eight identified resource concerns described below.

1. *Wilderness Study Areas*
   Fire suppression efforts in Wilderness Study Areas strive to maintain the qualities of the existing environment and must be conducted to comply with the non-impairment criteria in the Interim Management Policy. This includes implementation of minimum handline construction, engine crew hose lay deployment, limited or no off-road vehicle driving, use of existing open areas for heliports and drop zones, an emphasis on use of smokejumpers or helitack crews and use of natural barriers, and a prohibition on bulldozer lines. In some cases, fire line rehabilitation may be necessary following the conclusion of an incident.

2. *Designated Natural Areas*
   Values that constitute a Natural Area, including unique visual resources, vegetative community uniqueness, and specific biological qualities, are

described in those documents that prescribed the designation. Fire suppression strategies are set in those documents. In most situations, a resource advisor is required during implementation of fire suppression field strategies.

3. *Cultural Resources and Historical Properties*
In areas where important cultural resources, including both prehistoric and historic features were identified, a qualified archaeologist is required to assist the incident commander on possible fire suppression equipment restrictions. Historic structures, such as mining fixtures and ranching line cabins, are fragile and should receive maximum protection.

4. *Desert Tortoise Habitat Areas*
Fire suppression tactics focus on protection of tortoise habitat, while minimizing impacts to the species. At present, the strategy is to conduct immediate suppression efforts.

5. *Riparian Areas*
The strategy in riparian areas is to protect habitat and species. Because protection of species is important, the use of ground and/or aerial retardants and foams are restricted.

Table 3-29. Summary of 10 year fire history.

Year	Number	BLM Acres	Other Acres
1978	75	2481	6
1979	83	2221	40
1980	136	16,070	2563
1981	146	7651	197
1982	175	14,503	1
1983	117	4074	2204
1984	119	377	75
1985	138	668	256
1986	134	211	11
1987	159	7172	884
1988	133	22,784	9350
Totals	**1,415**	**78,212**	**15,587**

(Source: BLM, Las Vegas District Office files, 1991)

6. *Mining Districts*
The nature of mining often involves use of toxic and hazardous chemicals. Special training with fire department and environmental protection agencies is necessary for personnel involved in directing suppression activities. The tactics should be a result of consideration of a "back-off and protect" policy.

7. *Air Shed Management*
Fire suppression strategies should emphasize immediate limitation of conflagrations in the Las Vegas Valley "air shed" due to the negative impact on air quality in the urban area.

8. *Special Vegetative Communities*
To protect the range of special vegetative communities, such as desert biomes with mesquite and certain cacti, fire suppression actions should be immediate in these designated areas.

The use of fire suppression equipment and techniques to the maximum design capabilities will be modified as necessary to assure impacts from suppression activities are not greater than effects from the fire. In areas or locations where special resource concerns have been identified, a resource advisor will be requested to assist the incident commander.

Socioeconomic Values

Area and Population

Las Vegas Valley, a highly developed urban area where the majority of the state's population (66 percent in 1996) resides, is the hub of Clark County and southern Nevada. According to the Nevada State Demographers Office (1997), Clark County's population was estimated at more than one million in July 1996; it is expected to more than double by the year 2010 and then to exceed 2.5 million by 2017. In recent years, estimates are that as many as 6,000 people move into the Las Vegas Valley each month, some as retirees, others for employment opportunities (Lee 1995). This in-migration pushed Clark County's population to over one million in mid-1995, and the phenomenal growth has continued. According to the Census Bureau's data for 1990 to 1996, the fastest growing U.S. city with a population over 100,000 is Henderson, and the sixth fastest growing city is Las Vegas. The

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Nevada Department of Employment, Training and Rehabilitation reported, in October 1997, that the city of North Las Vegas is growing even faster than Las Vegas, but its population was not above 100,000 and was therefore not reported by the Census Bureau. One of the county's fast growing rural communities is the city of Mesquite, which has a population of 7,460 but is expected to double by year 2010. Clark County will continue to be a majority of the Nevada population over the next 20 years, assuming that current economic growth and in-migration trends continue (UNLV 1994),

Situated within Clark County are two Indian reservations (Moapa Paiute and Las Vegas). The Moapa Paiute Reservation comprises 71,961 acres off Interstate Highway 15, about 45 miles northeast of Las Vegas. Its resident population is an estimated 330 persons. The Las Vegas Tribe has 3,856 acres, incorporating two land bases, one within the Las Vegas City limits and the other about 15 miles northwest of Las Vegas, off Interstate Highway 95. The resident population of the Las Vegas Tribe is 114. The annual growth rate of both tribes is three percent (BIA 1993).

The population density in Clark County is estimated at 141 persons per square mile. The majority of that county's population resides within Las Vegas Valley. Most of the county is sparsely populated and similar in character to the rural southern portion.

Nye County, the largest in the State, is rural and sparsely populated. With an estimated population of 25,240 in 1996 (Nevada State Demographer's Office) and a total area of 18,147.2 square miles, population density for Nye County is about 1.4 persons per square mile. Federal ownership of land within Nye County totals 8,560,733 acres, or nearly 74 percent of the 11,568,558-acre land base. An estimated 700,000 acres of this public land is managed by the Las Vegas BLM Field Office.

At the end of 1996, approximately 17,000 persons lived in the southern portion of Nye County in the Las Vegas BLM District. An estimated 13,761 persons lived in Pahrump Township, a primarily residential rural community. Pahrump is the fastest growing town in Nye County and its population is projected to reach 17,091 in the year 2001. Its present annual growth is about 6 percent.

Income and Employment

Tables 3-30 and 3-31 show earnings and employment, by major industries, in 1995 for both counties. The service industries are the single most important employers and income producers for the two counties, with Federal and State Government providing the second largest source of income for Clark County, and the third most important source for Nye County. The high incidence of mining in Nye County makes mineral production that county's second most important source of income, and its third most important employer.

The predominance of service industries is explained primarily by gaming employment in Clark County. In Nye County, it is attributed to civilian employment of private firms providing contractual services to the U.S. military facilities.

Approximately 28.3 million tourists and conventioneers from all over the world came to the Las Vegas Valley in 1994, and the numbers continue to increase. Visitors are attracted by the gaming and resort industry, which has made Las Vegas one of the nation's most impressive economic growth phenomenons. In 1994, visitor expenditures provided $19.2 billion to the southern Nevada economy. The gaming and resort industry of southern Nevada, as well as the favorable tax climate, induced growth in the services, manufacturing, construction, and retail industries. In all, these industries created over 39,000 new jobs in 1994 (Lee 1995). The gaming and resort industry is undoubtedly the driving force for community and economic development in southern Nevada (Acruso 1995).

The Nye County economy is based on Federal facility employment, mining, recreation, tourist/highway travelers, and retiree income (Nye County 1993). The service industry is the number one employer and income producer in both Pahrump and Amargosa Valley. In Pahrump, the service industry is followed by the retail trade and manufacturing industries in producing income and employment. Due to its reputation as a retirement center and its close proximity to Las Vegas, Pahrump is expected to continue attracting new residents. In Amargosa Valley, the service industry is followed by mining, retail trade, and agriculture in producing income and employment (Nye County OEDP 1993). As the community nearest to the proposed Department of Energy Yucca Mountain

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Repository, Amargosa Valley would receive population growth from construction and operation if that facility is authorized.

Unemployment rates, by county for December 1997 were 3.9 percent for Clark, and 3.7 percent for Nye. These rates compare very favorably with the previous year's unemployment rates of 5.1 and 4.5 percent, respectively. Both counties reported an expanding labor force and a decline in the numbers of unemployed. The Nevada Department of Employment, Training, and Rehabilitation reports that Clark County, with about 66 percent of the state's total employment, created over 80 percent of the net new jobs in the last year.

Annual per capita personal income figures for 1995 show Clark ($23,812) and Nye ($18,462) counties are below the average of $24,361 for the state's 17 counties. Clark and Nye Counties ranked 4th and 15th, respectively.

Social Setting, Attitudes, and Values

The State of Nevada is characterized as an individualistic state that affords and favors income-earning opportunities to miners, farmers, ranchers, and merchants; and more recently to those employed in the gaming entertainment, recreation, and construction industries. This assessment holds true for southern Nevada. These activities are seen as attracting individuals who wish to pursue their economic objectives relatively free from government interference (Sodin 1994). However, "water allocations,... and a significant defense establishment all suggest that the role of the government bears heavily on Nevada" (Sodin 1994).

A 1995 social research survey conducted by the University of Nevada Las Vegas revealed social attitudes and values of the southern Nevada urban and rural populations. Rural residents are less tolerant of outside influence in their lives and value personal independence, responsibility, and self-reliance. These characteristics are typical of ranchers and miners who cherish their traditional and historical lifestyles. Economic development, industrial growth, and community expansion are generally favored by both populations. However, the Las Vegas urban population recorded its need for environmental protection actions in relation to water demand, air quality, and traffic congestion. Urbanites related a higher concern than rural counterparts about wildlife and ecosystem values when recording their risk assessment for the proposed Department of Energy nuclear waste storage facility at Yucca Mountain. Dennis Sodin, a University of Nevada Las Vegas Social Science Professor, explained that rural closeness to the natural system may account for this value disparity in contrast to urbanites who yearn for the rural experience and day-to-day closeness with a more healthy ecosystem having a higher quality of life. The rural population, including Native American Reservation communities, is more concerned about urban water use, outside government control of their destinies, and intrusions into their territory. In general, Clark and Nye county populations favor growth, contingent on consideration for planned growth to support their desire for development of new and diversified employment and income opportunities. Both populations are concerned about the economics of developing their physical infrastructures to support their future community and economic growth needs.

The Las Vegas and Moapa Paiute Indian governments and tribal members have special recognition from the Federal government concerning their land, cultural, and economic resources. Another tribe, The Mojave (situated on the Colorado River in the vicinity of Northern Arizona, Southern Nevada, and California borders) lays claim to the Spirit Mountain Area. This area, known as the Newberry Mountain Range, is approximately 15 miles south of Searchlight, Nevada. The tribe's claim is based on their traditional and historic cultural relationship with The Mountain.

Secretarial Order 3175 detailed the Department of the Interior's responsibility to maintain a government-to-government relationship to fulfill its legal obligations to identify, protect, and conserve the land, cultural, and economic resources of Federally recognized Indian tribes and tribal members. Consideration must be given whenever land use plans, activities or actions affect tribal trust resources, trust assets, or tribal health and safety. In addition, Executive Order 12898 underscores the BLM's responsibility to consider whether its program policies and activities have a disproportionally high and adverse effect on the health or environment of minority and low-income populations (Rivers-Council 1995).

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Clark County Desert Conservation Plan

In July 1995, Clark County entered into a long-term agreement with the U.S. Fish and Wildlife Service and other Federal agencies (including BLM), as well as State and municipal agencies, for a Desert Tortoise Habitat Conservation Plan. This plan is officially known as the *Clark County Desert Conservation Plan*. The plan's purpose is to establish rules, policies, and procedures that permit continued development in Clark County, while providing extensive measures to minimize and mitigate impacts that might result from incidental taking of desert tortoise.

The Habitat Conservation Plan imposes a $550 per acre mitigation fee on all land disturbed within Clark County below 5,000 feet in elevation, which is subject to permitting requirements of Clark County and the cooperating municipalities. These fees provide a fund for mitigation of impacts on desert tortoise habitat. The Habitat Conservation Plan further provides for Clark County to negotiate with individuals for purchase and exchange of grazing privileges to offset developed land and to achieve conservation objectives.

Affected Sectors

Livestock Grazing

Livestock-oriented agriculture and mining are the major basic industries to be affected by management proposals. Future livestock grazing and mining activities will be affected by decisions providing constraints and prescriptions to protect wildlife, principally in desert tortoise habitats identified in the BLM's proposed Areas of Critical Environmental Concern, which closely coincide with the U.S. Fish and Wildlife Service's designated critical habitat for desert tortoise. Any grazing or mining activities proposed within desert tortoise habitat areas will require Section 7 consultation.

Land disposal proposals and rights-of-way corridors, which may also be constrained by the proposed Areas of Critical Environmental Concern, will be subject to Section 7 consultation. There is need to mediate the conflict between the demand for inexpensive and accessible sources of sand and gravel for the construction industry, and the encroachment on those sources by the rapidly expanding development of housing and light industry within the Las Vegas Valley.

Agriculture

Agricultural production in the planning area consists of cattle, sheep, alfalfa, hay, and cotton. Livestock predominates. Cash receipts from marketings in 1995 totaled $20.1 million in Clark County, including $18.1 million from livestock and livestock products and the remainder from crops. Total farm labor and proprietors income for Clark County is estimated at $3.2 million. Nye County cash receipts from agriculture totaled $13.2 million in 1995, with the majority ($9.1 million) from livestock and livestock products and the remainder from crops.

Regionally, however, agricultural production in Clark and Nye counties is not considered significant. Agriculture accounts for less than one-tenth of one percent of total income and employment in Clark County, and 0.9 percent of income and 1.9 percent of employment in Nye County. Within the planning area, agriculture contributes little indirect income to either Clark or Nye counties because most, if not all, farm and ranch inputs are purchased outside the counties, in St. George, Utah, or Bishop, California.

Though of little or no economic significance, the viability and success of the livestock grazing industry remains linked to public lands because livestock operators continue to hold a strong commitment to their traditions and lifestyle. In 1990, livestock used an average of 22,600 animal unit months in the planning area. In the last five years, however, the average dropped by more than half to 10,037 animal unit months with only 13 permittees remaining in active grazing use on public lands. This decrease is attributed to poor forage production on ephemeral range, listing of the Desert Tortoise, and transactions associated with the Clark County Habitat Conservation Plan. Although typical ranch budgets are difficult to determine for various reasons (including the area's diversity, differences in individual operations, forage seasons, and high dependence on ephemeral range), the net ranch income is estimated at $4.77 per animal unit month.

Historically, the economic benefits that area ranchers received from using public range exceeded assessed fees. This market imbalance or "consumer surplus" inferred that ranchers were willing to pay

extra for the opportunity to use public lands, thereby causing grazing permits to acquire a market value (Vale 1979, Neilson and Workman 1971). The permits can either be bought or sold in the market place, or used as collateral for loans (Corbett 1978). Although not officially recognized as real property, BLM permits have nonetheless become an integral element in the capital and credit structure of area ranchers. Currently, the market value of Federal animal unit months ranges from $25 to $60 per animal unit month. Recent appraisals by Pacific Agribusiness Service for the Clark County Habitat Conservation Plan estimated the values for several of these operations at about $45 per animal unit month. Assuming this value, BLM grazing licenses (which have averaged 10,037 animal unit months in the affected area) contribute close to half a million dollars ($451,665) to the wealth of area ranchers.

Mining

Mining is an important industry in the Nye County economy, providing the county's third largest source of employment and its second most important source of income. In 1995, mining in Nye County provided 1,376 jobs (almost 13 percent of the county's total), which generated total earnings of $64 million (almost 18 percent of all earnings in the county).

In Clark County, mining provided 1,189 jobs (0.2 percent of county employment) and produced $25.2 million in earnings (0.2 percent of total county income).

The BLM geologists estimate that 95 percent of the mining activity from BLM-administered lands in the two counties occurs in that portion on Nye County outside of the Las Vegas District and that mining production and income comes primarily from patented mining claims. There has been very low production from BLM-administered lands in Clark County in the last 30 years, except for sand, gravel, and silt. Public lands in the resource area continue to provide important and economic material sources for sand, gravel, and silt, in support of the construction industry. However, due to the very growth and development they have supported, the sand and gravel operations are conflicting both economically and environmentally with air quality and aesthetics.

The encroachment of new construction (including residential developments) on material site locations necessitates locating alternative and economic sources for sand, gravel, and silt. An important cost consideration in doing so is haul costs. There will be a continuing need by the construction industry for inexpensive and accessible sources of sand and gravel close to housing and business facility development opportunities.

Lands

Potential changes in the amount of public compared to private lands could affect both the tax base and BLM payments to the counties in lieu of property taxes.

Release of BLM-administered land for disposal by sale, exchange, or lease, and any resulting development will put further demands on existing public infrastructure. Such disposals will have a cumulative impact on rural ecosystems, water availability, and air quality in relation to housing, community, and industrial development opportunities. Land use planning offices of Clark and Nye counties, including unincorporated cities and utility companies, will be tasked as always to provide appropriate infrastructure.

Rights-of-Way Corridors

Designation of additional corridors will enable more efficient planning of future energy, communication, and transportation facilities. A lack of designated corridors sustains high planning costs to utility companies and results in longer processing time for right-of-way applications. Such additional costs translate into higher costs to the consumer.

Recreation

Expenditures for recreation in the planning area contribute to the regional economy through the purchase of lodging, services, equipment, fuel, and food. Public land resources associated with recreation and affected by this plan include wildlife, wild horses and burros, wilderness, lands, and riparian areas.

Formal off-highway vehicle events on public lands provide substantial economic benefits to the local economy. These activities include the Nissan 400, Nevada 500, and Gold Coast 300, among others. Additional events, such as motorcycle racing and

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Radio Controlled Aircraft activities, generate further expenditures and income. The recreation staff of BLM's Las Vegas Field Office, in consultation with the Off-Road Vehicle Association and other recreational organizations, estimates that the associated income produced by these various recreation events is between $76.6 and $114.9 million per year.

Section 7 Consultation Costs

Section 7 of the Endangered Species Act of 1973 requires Federal agencies to consult with the U.S. Fish and Wildlife Service on actions that may jeopardize a threatened or endangered species, or destroy or adversely modify critical habitat.

Section 7 directs agencies to submit to the U.S. Fish and Wildlife Service a complete description of any proposed action and their anticipated effects (biological assessment). The U.S. Fish and Wildlife Service then has up to 135 days (with an additional 60-day extension, when necessary) to review the proposal and prepare a biological opinion, which may enable the project to go forward and, in some cases, provide for incidental take of the subject species, while providing certain conditions of operation, or modification of plans, or means to mitigate adverse effects.

Private individuals, companies, or corporations are frequently the proponents of projects or proposals to utilize the public lands for such uses as minerals developments, land exchanges or transfers, and utility corridors. The Federal agency is responsible for initiating the proposed action to prepare the description of the action and the anticipated effects (the biological assessment). However, as is the case for the Bureau of Land Management, the Federal agency oftentimes lacks sufficient staff or funding to process a private party request in a sufficiently timely manner to meet needs of the project proponent. In such cases, the project proponent may prepare the biological assessment under BLM's direction to facilitate initiation of the required consultation and expedite scheduling.

These documents may be quite simple or very complex, depending upon the nature and extent of the proposed public land use and the species involved. Private individuals sometimes hire a consultant or consult an attorney to guide them through the process. Large companies or corporations often employ an Environmental Coordinator or a Project Manager on a permanent full-time basis for just these types of activities. If the proposed project is quite extensive, a third party Environmental Consulting firm may be employed to undertake the necessary studies and documentation.

The costs of Section 7 consultation may be quite variable due to the various cost factors, including the nature of the project, biological requirements of the species, extent of analytical detail required, and time and expertise employed in preparing the analysis and documentation. Additional costs could be incurred for any additional mitigation measures required to ameliorate potential effects on the species or for any delays imposed on initiating project development.

At the present time, Section 7 consultation is required throughout the area covered by this Plan. The establishment of a framework for land-use proposals and management decisions, which is the purpose of the Plan, will provide sufficient guidelines to effectively focus potential land-use proposals and ameliorate or reduce Section 7 consultation and mitigation costs.

Environmental Justice

Executive Order 122898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* requires that Federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects that impact low-income and minority populations as a result of Federal programs, policies, or activities. Demographic analysis is the first step in this determination. Such analysis includes defining the region of influence, census block groups, low-income populations, minority communities, and the thresholds for calculating a low-income or minority community census block group (USDOE 1996: 4-0223). Minority communities are identified by the four racial classifications recognized by the U.S. Bureau of the Census (White; Black; American Indian, Eskimo or Aleut; and Asian or Pacific Islander). Hispanic is considered to be an origin, rather than a racial classification by the U.S. Bureau of the Census.

The Plan addresses management action for public lands in Clark and Nye counties, the two counties comprising the region of influence for this Plan and Environmental Impact Statement. Census block

Table 3-30. Clark and Nye Counties, 1995 Earnings by Major Industries.

EARNINGS BY MAJOR INDUSTRY ($1,000)				
INDUSTRY	**CLARK CO.**	**PERCENT**	**NYE COUNTY**	**PERCENT**
Agriculture	3,254	0.0	3,350	0.9
Agricultural Services	107,351	0.6	447	0.1
Mining	25,214	0.2	64,036	17.6
Construction	1,885,528	10.4	11,327	3.1
Manufacturing	543,511	3.3	3,128	0.9
Transportation & Public Utilities	1,047,864	5.8	10,463	2.9
Wholesale Trade	687,547	3.8	2,368	0.6
Retail Trade	1,758,058	9.7	18,539	5.1
Finance, Insurance & Real Estate	1,120,117	6.2	6,271	1.7
Services	8,688,453	48.0	197,492	54.3
Government	2,176,439	12.0	46,503	12.8
TOTAL	18,093,336	100.0	363,924	100.0

Earnings include wages and salaries, other labor income, and proprietor income. Earnings represent the principle component of total income which is further comprised of dividends, interest, rent and transfer payments, less personal contributions for social insurance.

(Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, August 1997).

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groups are defined as clusters of blocks within the same census tract. The census block groups do not cross county or census tract boundaries and generally are comprised of between 250 and 550 housing units (U.S. Bureau of the Census 1993; USDOE 1996: 4-223). For analytic purposes, low-income populations are defined as individuals living within a census block group whose income is below the poverty level. Households are classified as being below the poverty level if the total family income or unrelated individual income is less than the poverty threshold specified for the applicable family size (Ibid). As an example, the weighted average threshold for a 4-person family was $12,674 for the 1990 census (U.S. Bureau of the Census 1994). Percentages of low-income and minority communities can be calculated within each census block group, using thresholds developed to avoid biasing the designation of poverty areas.

No low-income or minority populations have been identified to experience disproportionately high and adverse human health or environmental effects as a result of this Plan.

Table 3-31. Clark and Nye Counties, 1995 Employment by Major Industries.

EMPLOYMENT BY MAJOR INDUSTRY

INDUSTRY	CLARK CO.	PERCENT	NYE COUNTY	PERCENT
Agriculture	302	0.0	209	1.9
Agricultural Services	5,996	1.0	90	0.8
Mining	1,189	0.2	1,376	12.7
Construction	52,437	8.6	493	4.6
Manufacturing	17,832	2.9	218	2.0
Transportation & Public Utilities	28,614	4.7	269	2.5
Wholesale Trade	18,743	3.1	91	0.9
Retail Trade	96,320	15.8	1,086	10.0
Finance, Insurance & Real Estate	43,200	7.1	435	4.0
Services	282,746	46.4	5,102	47.1
Government	62,305	10.2	1,456	13.5
TOTAL	609,684	100.0	10,825	100.0

(Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, August 1997).

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Chapter 4 - Environmental Consequences

Introduction

This chapter is organized into four sections. The first part assesses the anticipated physical, biological, social, and economic consequences of implementing the Proposed Resource Management Plan/Final Environmental Impact Statement, hereafter known as The Plan, as described in Chapter 2. The second part analyzes the cumulative effects from The Plan implementation on both BLM, other public, and private lands. Certain impacts are considered unavoidable and are discussed by resource in the third part. The final part addresses the irreversible and irretrievable commitment of specific resources, and short-term uses and long-term productivity. The guidelines and assumptions for analysis are discussed below.

Analysis Guidelines

The baseline for comparing impacts is the No Action Alternative, which represents a continuation of the existing management situation. Impacts expected to occur by 2018 that are identified for The Plan are compared to this baseline. The analysis of environmental consequences includes identification and discussion of long-term, short-term, direct, indirect, and cumulative impacts. Unavoidable, irreversible, and irretrievable impacts, as well as the relationship between short-term uses and long-term productivity, are identified at the end of this chapter.

Assumptions for Analysis

An interdisciplinary approach was used to analyze the environmental consequences. The following general assumptions were applied:

- Funding and staffing will be adequate to fully implement all management actions associated with each alternative.
- Any Resource Management Plan recommendations requiring authorization beyond the level of the Division Chief , District Manager, or State Director will be accepted and implemented. For example, Resource Management Plan recommendations for establishing new withdrawals in excess of 5,000 acres will be favorably acted upon by the Secretary of the Interior and Congressional concurrence will be obtained.
- The effective life of The Plan is anticipated to be 20 years.
- Short-term impacts are those that would occur within five years of implementation of any given management action. Long-term impacts are those that would occur between 5 and 20 years or longer after implementation of an action.
- Impacts are considered to be direct, unless otherwise indicated.
- In some cases, minor impacts are presented to better illustrate the scope and effect of a management action.
- Most public lands identified as available for disposal would not go into private ownership. Those lands encumbered by other Federal actions, mining claims, or economic constraints could remain in Federal ownership.
- Any Resource Management Plan decisions that would affect a Wilderness Study Area and result in non-compliance with the *Interim Management Policy and Guidelines for Lands Under Wilderness Review* would not be implemented unless or until Congress releases any Wilderness Study Areas from further consideration for designation as wilderness.
- Site-specific reviews would be conducted for: specific livestock range improvement projects; wild horse and burro habitat enhancement projects; wildlife habitat enhancement projects; recreation facility construction projects; off-road vehicle events not in conformance with stipulations and limitations included herein and in Appendix J; issuance of rights-of-way and other land use authorizations and leases; disposal of specific public lands; plans of operation for 43 CFR 3802 and 3809 actions; applications for permit to drill (APD); and mine plans for sand and gravel extraction. These reviews will generally result in preparation of administrative determinations,

categorical exclusions, environmental assessments (EAs), or environmental impact statements (EISs).

- Acreage figures and other numbers used in this analysis are approximate projections for comparison and analytic purposes only. Readers should not infer that they reflect exact measurements or precise calculations.

- The discussion of impacts is based on the best available data. Knowledge of the planning area and professional judgement, based on observation and analysis of conditions and responses in similar areas, were used to infer environmental impacts where data is limited.

- The definition of impacts to cultural resources has a conceptual range from maximum to minimum disturbance. The maximum concept states that the qualities that give a site its eligibility potential must be destroyed to constitute an impact. Even in such a case, adverse impacts can be mitigated through consultation under Section 106. For example, casual collection of a few artifacts on the surface within an aboriginally used shelter that possesses a meter of stratigraphic deposition would not affect the eligibility potential for yielding important data that can add to the knowledge of regional prehistory. If the shelter would be destroyed through permitting a Federal action, then a data recovery plan would mitigate those adverse affects.

- The minimal point of view states that any change to a cultural resource, no matter how seemingly small, as a consequence of human actions constitutes an affect. For instance, when an archeological property is discovered by people, a cycle of impacts is initiated. These impacts may simply consist of disturbing spiritual or cultural values considered by Native Americans or other interested parties as belonging to the objects, features, or the surrounding area. The impact may also include removing artifacts and in so doing dismembering the cultural property. Conducting a data recovery of the artifacts, charcoal samples, and biological materials at the shelter site proposed for destruction would not mitigate the adverse affects, but merely attempt to reduce the degree of impact. Section 106 consultation provides professional guidance in salvaging a sample of physical items, but does not erase the fact that the site has been destroyed.

The assessment of impacts for cultural resources in this plan assumes a minimal concept of disturbance.

A cycle of impacts begins after a site is changed by removal or disturbance as a consequence of the evaluation or disposal phase involved in processing a Federal action. The only situation where impacts are considered positive are those that provide direct benefits through preservation and stabilization. All other changes are considered to be negative effects or impacts. Significant impacts are those where an action or a group of similar actions resulting from an environmental policy, such as processing and approving all Plans of Operations within Las Vegas BLM District for the life of the plan, affecting a relatively large number of eligible cultural resource properties. This assessment was determined through the professional judgement of the cultural resource manager.

Assessment of the Physical, Biological, Social and Economic Consequences

The anticipated physical, biological, social, and economic consequences of implementing The Plan are described for individual resources. The discussion of the environmental consequences is in proportion to the effect of the anticipated impacts. When a determination indicated that an in-depth analysis of a resource or resource use was unnecessary, that resource was not addressed. For example, no impacts in the Forestry program were determined to be significant. Mitigation measures designed to avoid or reduce the degree of anticipated impacts are incorporated, where appropriate, into management directions in the proposed action. A good example is, keep permitted events 0.25 mile away from artificial and natural water sources.

Air Resource Management

The air resource would be impacted by improving watershed conditions. The improvement of approximately 96,994 acres of soil with a critical erosion condition and 37,670 acres with a moderate erosion condition and high erosion susceptibility would reduce the ability of wind to move soil and produce airborne particulates.

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From Vegetation Management
Actions to maintain or improve the condition of vegetation on 3,331,895 acres to a Desired Plant Community or to Potential Natural Community would improve protective ground cover and soil holding capability. Soil erosion resulting in windblown particulates would be reduced.

From Lands Management
Air resources within the Las Vegas Valley Non-Attainment Area have been degraded by pollutant levels, primarily particulates (PM_{10}) and carbon monoxide (CO), which are in excess of National Ambient Air Quality Standards (NAAQS). Air quality in the remainder of the planning area is acceptable, meaning that pollutant levels are less than or equal to established standards on a continuous basis.

Within the Las Vegas Valley, approximately 25,540 acres would be disposed over the next 20 years to provide for orderly expansion, development, and public services. Land disposals would indirectly impact the air resource by providing land that may be developed resulting from an increased growth rate within the valley. Pollutant sources and emissions are expected to increase along with the increased rate of population growth. An estimated increase of 243 tons per year in airborne PM_{10} (particles less than 10 microns in size) particulate emissions would result from subsequent development of disposed lands. Because it is unlikely that all disposed lands will be developed, the actual increase in PM_{10} would be somewhat less than that indicated. The production figure is based on an annual disposal rate of 1,277 acres over the life of the Resource Management Plan (20 years) and an average PM_{10} production figure of 0.19 tons per acre per year (calculated from current acres of development and PM_{10} emissions in the valley). After construction activities on a given site are completed, PM_{10} resulting from these activities will generally diminish. PM_{10} emissions resulting from sources other than construction activities would continue to increase proportionately with continued land development.

Carbon monoxide levels would be expected to rise, along with increases in the population and the number of vehicles (the two primary sources of carbon monoxide in the valley). Based on the annual disposal acreage and an average carbon monoxide production of 1.37 tons per acre per year (calculated the same as PM_{10}) from all sources, the expected increase of carbon monoxide would be 1,750 tons per year.

Increases would also be expected in volatile organic compounds (VOC), oxides of nitrogen (NO_X) and sulfur dioxide (SO_2). Based on an average production of 0.29 tons/acre/year of VOC, 0.29 tons/acre/year of NO_X and 0.008 tons/acre/year of SO_2, the estimated increase would be 370, 370, and 10.2 tons/year, respectively. The Las Vegas BLM Field Office Hazardous Materials Incident Contingency Plan will be followed in the event of a hazardous materials incident where a toxic air plume is emitted. This includes appropriate coordination with the Local Emergency Planning Committee (LEPC).

Although an increase in visibility impairing pollutants would be expected, the actual impact on visibility is not known. Currently, there is no definitive information indicating that pollutants generated in the Las Vegas Valley are impacting downwind Class I receptors such as the Grand Canyon. A description of Federal Class I areas can be found in Chapter 3 under Air Resource Management.

From Recreation Management
Air resource management would be enhanced by limiting future off-road vehicle activity to existing roads and trails within 99.9% of the planning area. Under this plan, future competitive off-road activities are restricted to existing courses so the acres of disturbance is not expected to increase beyond the existing 3,325 acres of disturbance inventoried (courses, pit/staging areas, roads/trails and washes). Competitive off-road vehicle activity has the potential to produce airborne particulate matter (PM_{10}), especially if events are conducted in areas where soils are susceptible to erosion. It is unknown how much of the existing 3,325 acres of disturbance is actually located within areas containing susceptible soils.

Continued surface disturbance would leave soils vulnerable to wind erosion, resulting in wind-blown dust production in these areas. With the exception of the Nellis Sand dunes Open Use Area, competitive off-road events would no longer be allowed within the Las Vegas Valley Non-Attainment Area, where windblown dust is a concern and levels of PM_{10} already exceed National Ambient Air Quality Standards (NAAQS).

Under this plan, the only events allowed within the Las Vegas Valley are those that occur at Nellis Dunes located at the northeast, downwind, boundary of the

Non-Attainment Area. Dust generated from off-road vehicle activities at this location is not expected to impact the valley. Events held upwind of the valley would potentially contribute to short-term degradation of Las Vegas Valley's air quality if the wind blew dust into the valley. Compliance with local regulatory agencies permitting requirements would help minimize impacts to the air resource and ensure conformity with the State Implementation for PM_{10} and CO.

From Wilderness Management
Wilderness designation would eliminate the potential for surface disturbance on lands susceptible to erosion. If the acreage recommended for wilderness designation is approved by Congress, 7,424 acres in critical erosion condition would be protected under the restrictions of a Wilderness Area. The remaining Wilderness Study Areas acres with a critical erosion condition (24,754 acres) and all of the areas containing soil highly susceptible to erosion would be protected from Off-Road vehicle impact due to the limits on vehicles use to existing/designated roads. Since no roads exist in Wilderness Study Areas currently, no new Off-Road vehicle use would be possible.

From Minerals Management
Mineral exploration has the potential to produce short-term impacts to the air resource through temporary generation of airborne particulates (PM_{10}). Impacts resulting from PM_{10} generated from mineral development (approximately 1,461 acres currently disturbed) would be generally long-term in nature lasting through the life of the various mineral operations. This is particularly true within areas with highly (17,499 acres) and moderately (126,040 acres) susceptible soils, and the Las Vegas Valley Non-Attainment Area.

Within the Las Vegas Valley, the primary mineral activity is sand and gravel operations. Based on information provided by the Clark County Health District, sand and gravel operations are responsible for the production of approximately 743 tons of PM_{10} annually. During the life of the Resource Management Plan, it is estimated that there would be no appreciable change from what currently exists in the acreage that would be in sand and gravel production at any given time. Under this plan, the only area having sand and gravel operations would be the Salt Lake Community Pit located in the northeast and downwind portion of the Non-Attainment Area. This limitation should aid in reducing the impact of PM_{10} emissions on the Non-Attainment Area from tl source category.

From Fire Management
Wildfire suppression efforts would result in reduced particulate (PM_{10}) production and visibility impairment from smoke and windblown dust. This is especially of benefit within and upwind from the Las Vegas Valley Non-attainment Area, which currently has PM_{10} levels in excess of National Ambient Air Quality Standards. Wildfire suppression efforts would potentially result in a short-term increase in windblown dust due to surface disturbance by fire fighting equipment and operations. However, successful suppression efforts would minimize the number of acres impacted as a result of vegetative cover loss.

Following fire suppression, the successful implementation of the Las Vegas District Normal Fire Rehabilitation Plan would minimize the period during which soils would be vulnerable to increased wind erosion and windblown dust due to reduced vegetative cover. See the Soil Resource Management (from Fire Management) section of this Chapter for a description of the Normal Fire Rehabilitation Plan.

Use of prescribed burns as a vegetative manipulation tool could result in an increase in airborne particulate matter (smoke and dust). As with wildfires, given proper meteorological conditions, prescribed burns could impact the Las Vegas Valley Non-Attainment Area if they occur within or upwind of the valley. Although particulate emissions would be expected to increase and visibility decrease, this impact would be short-term in duration. Currently, there is no data available indicating PM_{10} contributions from fires occurring on vacant land. Proper timing (best meteorological conditions) and compliance with local regulatory agencies permitting requirements would help to minimize impacts to the air resource resulting from prescribed burns.

From Hazardous Materials
The air resource would be impacted from an incident where a toxic air plume is emitted. In the event a toxic air plume does pollute the air resource, proposed actions taken would minimize the impact and ensure that air quality is maintained or restored to protective levels as prescribed under regulatory requirements.

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Soils Resource Management

From Riparian Management
A reduction in soil loss would be expected with the improvement of spring-associated riparian areas and those associated with perennial streams to proper functioning condition (PFC). The reduction would result from better vegetative cover on riparian meadows and on streambanks.

From Vegetation Management
Actions to maintain or improve the condition of vegetation on 3,331,895 acres to a Desired Plant Community or to Potential Natural Community would improve protective ground cover and soil holding capability. Soil erosion and loss would be minimized through the dissipation of energy associated with stormwater runoff.

From Areas of Critical Environmental Concern
The proposed plan designates 23 Areas of Critical Environmental Concern (approximately 1,005,031 acres) in which livestock grazing, wild horse and burro use, and competitive off-road vehicle use would not be allowed and mineral activities would be intensively managed. These restrictions would improve protective ground cover and soil holding capability. Soil erosion and loss would be minimized through the dissipation of energy associated with stormwater runoff. See the specific discussions above for estimated soil losses attributable to livestock grazing, wild horse and burro use, off-road vehicle use, and mineral activities.

From Fish and Wildlife Habitat Management
Designation of 743,209 acres as Areas of Critical Environmental Concern for recovery of the desert tortoise would place restrictions on livestock grazing, wild horse and burro use, off-road vehicle use, and mineral activities. Within the boundaries of the Areas of Critical Environmental Concern, 27,735 acres of soil that are highly susceptible and 420,195 acres of soil that are moderately susceptible to erosion would be protected from the previously referenced soil-disturbing activities and resultant potential soil loss. See the specific discussions below for estimated soil losses attributable to livestock grazing, wild horse and burro use, off-road vehicle use, and mineral activities.

From Livestock Grazing Management
Livestock grazing impacts the soil resource primarily through reduction of vegetative and litter cover that protects the soil from erosional processes and, to some degree, soil compaction that channels and concentrates storm water runoff. There are 22,728 acres of soil highly susceptible and 288,229 acres of soil moderately susceptible to erosion within those allotments remaining open to livestock grazing (Table 3-4). Of this, there are only 7,268 acres of soil highly susceptible and 61,969 acres of soil moderately susceptible to erosion within the areas actually utilized by livestock. Although within the estimated boundary of cattle utilization, all this acreage is not actually visited by livestock and is therefore not directly impacted through their activity. The actual extent of disturbance is not known at this time; therefore, the soil loss figures presented below should be considered as a worst case. Although based on a worst case, soil losses are minimal when compared to that occurring naturally.

Under this plan, 11 of the 53 allotments within the planning area would be open to all livestock grazing. Soil resources in allotments closed to grazing would improve through preservation of vegetative cover and resultant decrease in erosion and soil loss. Table 4-1 lists the active allotments remaining open with estimated potential soil loss (tons/year), both natural and that expected as a result of continued livestock grazing. Table 3-6 presents soil loss estimates from all allotments within the planning area. An explanation of soil loss calculations can be found in Chapter 3.

The estimated potential soil loss of 224 tons per year (4480 tons over 20 years) from those allotments remaining open is less than any other alternative. The savings results in 966 tons per year (19,320 tons over 20 years), which is less soil loss than if all 53 allotments remained open.

From Wild Horse and Burro Management
Wild horse and burro grazing, as with livestock grazing, impacts the soil resource primarily through the reduction of vegetative and litter cover that protects the soil from erosional processes and, to some degree, soil compaction that channels and concentrates storm water runoff. There are 138,646 acres of soil moderately susceptible to erosion (Table 3-4) within the existing Herd Management Areas. Of this, there are approximately 26,774 acres of soil moderately susceptible to erosion within the areas actually utilized by wild horses and burros. Although within the estimated boundary of utilization, all of this soil is not actually visited by horses and burros and is therefore not directly impacted through disturbance from their presence. The actual extent of disturbance is not known at this time; therefore, the soil loss

Table 4-1. Soil Losses Within Grazing Allotments.

Allotment	Natural Soil Loss	Soil Loss Due to Grazing
Arrow Canyon	194	0
Flat Top Mesa	705	0
Hidden Valley	9,798	20
Jean Lake	40,362	89
Lower Mormon Mesa	4,829	0
Mesa Cliff	1,879	6
Mount Stirling	6,129	0
Muddy River	506	0
Roach Lake	1,882	0
Wheeler Wash	78,746	102
White Basin	3,238	7
Total	**148,268**	**224**

figures presented below should be considered as a worst case. Although based on a worst case, the soil losses are minimal when compared to that which occurs naturally.

Under this plan, three of the six Herd Management Areas within the planning area would have an Appropriate Management Level of 0 established. Soil resources within the Herd Management Areas managed at 0 Appropriate Management Level would improve through the preservation of vegetative cover and resultant decrease in erosion and soil loss. Table 4-2 lists the remaining active Herd Management Areas, including the natural and estimated potential soil losses (tons/year) occurring at present from horses and burro. Also included is the expected soil loss that will occur at the Appropriate Management Level. Table 3-6 presents soil loss estimates from all the Herd Management Areas within the planning area. An explanation of soil loss calculations can be found in Chapter 3.

The expected estimated soil loss of 0 ton per year attributable to horses and burro use at the Appropriate Management Level under this plan would result in a reduction of 113 tons per year (2,260 tons over 20 years) if animal numbers remained at current levels.

From Recreation Management
Since competitive off-road vehicle activity would only occur in previously disturbed areas, the soil resource is expected to benefit through the preservation of areas presently undisturbed. Soil losses resulting from continued use of previously disturbed areas are expected to be approximately 2,650 tons per year, for a total soil loss over the life of the Resource Management Plan (20 years) of 53,000 tons.

Actual impact to the soil resource from casual off-road vehicle use is not known. However, when considering the increasing population in southern Nevada, that activity would proportionately increase. Under this plan, limiting off-road vehicle activity to existing roads and trails would benefit the soil resource through the prevention of new disturbance and potential soil loss.

Soil surface disturbance due to off-road vehicle activity, on existing roads/trails and off-road, would leave soils vulnerable to both water and wind erosion. Off-road vehicle use, both competitive and casual, has potential to impact the soil resource, particularly if the activity occurs within areas with highly susceptible soils. It is unknown at this time how much of the existing 3,325 acres of disturbance is actually located within areas containing susceptible soils. The actual extent of disturbance, however, will be limited because use will be restricted to existing courses, pit/staging areas, roads/trails and washes (approximately 3,325 acres).

From Wilderness Management
Wilderness designation would eliminate the potential for surface disturbance on lands susceptible to erosion. If the acreage recommended for wilderness designation is approved by Congress, 7,424 acres in critical erosion condition would be protected under the restrictions of a Wilderness Area. The remaining Wilderness Study Area acres with a critical erosion condition (24,754 acres) and all of the areas containing soil highly susceptible to erosion would be protected from off-road vehicle impact due to the limits on vehicles use to existing/designated roads. Since no roads exist in Wilderness Study Areas currently, no new off-road vehicle use would be possible.

From Minerals Management
Impacts to the soil resource from mineral exploration and development are both short term and long term in nature. With proper mitigation and reclamation, mineral exploration activities would not impact the soils in the short term. Mineral development would be a long-term impact to soils if mitigation measures and reclamation are unsuccessful. The arid vegetation communities are not readily amenable to standard

Table 4-2. Soil Losses Within Herd Management Areas.

Herd Management Area	Natural Soil Loss	Soil Loss Due to WH&B (at AML)
Gold Butte	87,588	113(0)
Johnnie	27,436	0(0)
Muddy Mountains	14,207	0(0)
Total	**129,231**	**113(0)**

rehabilitation efforts as a result of the low precipitation in the planning area. Even after abandonment of mineral developments, accelerated soil erosion may continue.

Fluid mineral activities could create impacts, primarily associated with road travel and drill pad construction. Because little activity of this type occurs within the Las Vegas BLM District, no increases are anticipated. Locatable minerals, mineral material sales, and non-energy leasable activities could result in soil erosion impacts. Soil disturbance could result from both mineral exploration and development activities, including access and haul road construction, stockpiling of topsoil, and pit construction. Areas with soils susceptible to erosion would be particularly vulnerable. Under this plan, 41,649 acres of soil highly susceptible and 511,796 acres of soil moderately susceptible to erosion would be open to mineral activity. Currently, there are approximately 1,461 acres of disturbance associated with mineral activities. This is not expected to increase and may actually decrease somewhat. Considering the disturbed acreage, the estimated soil loss expected would be 1,164 tons per year, for a total of 23,280 tons over the life of the Resource Management Plan (20 years).

From Hazardous Materials Management
The soil resource would be impacted through hazardous materials entering the environment and potentially contaminating soils, thereby reducing soil productivity. In the event these materials do contaminate the soil resource, the soil would likely be removed for treatment and/or disposal. This would result in a loss of productivity of the impacted soil, but would protect nearby soils from damage.

From Fire Management
Wildfire suppression efforts would potentially result in a short-term increase in erosion and soil loss due to surface disturbance by fire fighting equipment and operations. However, successful suppression efforts would minimize the number of acres impacted as a result of vegetative cover loss. Following fire suppression, the successful implementation of the Las Vegas BLM District Normal Fire Rehabilitation Plan would minimize the period during that soils would be exposed to increased wind and water erosion. The period would be reduced by re-establishing a vegetative cover and implementing other erosion prevention measures immediately following a fire.

The purpose of the Normal Fire Rehabilitation Plan is to expedite the emergency fire rehabilitation process for the completion of emergency land treatments, on public land, that are consistent with the urgent nature of fire rehabilitation. The objective of emergency fire rehabilitation is to implement a combination of planned actions in a time frame necessary to reduce watershed degradation as a result of wildfires. The outcome of these actions will be to minimize:

- Damage to property, on and off site, from increased runoff and sediment yields.
- Loss of water control and deterioration of water quality.
- Loss of watershed cover (vegetation).
- Loss of soil and on-site productivity.
- Invasion of burned areas by highly flammable plants and noxious weeds.
- Loss of wildlife habitat.

The use of prescribed burns as a vegetative manipulation tool could result in a short-term increase in wind and water erosion. In the long-term, the improved vegetative cover gained would be expected to reduce the potential for erosion.

Water Resources

From Soil Resource Management
Erosion, soil loss ,and resultant sediment production would be expected to decrease as a result of a decrease in surface-disturbing activities. There would be soil losses as a result of actions imposed under this plan to livestock grazing, wild horse and burro use, off-road vehicle use, and mineral exploration and development . These activities are expected to result in approximately 80,760 tons of soil loss over the 20-year life of the Resource Management Plan. This is 21,580 tons less than that

estimated under current management (102,340 tons). Regardless of what actions occur on lands other than public, actions taken under this plan would result in a net improvement to the soil resource and resultant water quality.

From Riparian Management
Riparian areas would be managed to improve where practical or to maintain these areas in proper functioning condition (PFC). Proper functioning riparian areas would result in improved water quality. Improvement would result through streambank stabilization, sediment reduction, decreased water temperatures, moderation of peak flows, and the stabilization of base flows. Also, water quality is expected to improve as a result of protecting the 29 springs in the 11 allotments remaining open to livestock grazing and the 3 Herd Management Areas containing horses and burro. Prohibiting competitive off-road vehicle activity within 0.25 mile of a water source would protect water resources from potential direct impacts (such as sedimentation).

From Vegetation Management
Actions to maintain or improve the condition of vegetation on 3,331,895 acres to a Desired Plant Community or to Potential Natural Community would improve protective ground cover and soil holding capability. Vegetation is a key component of a healthy watershed and as a result of improved dissipation of energy associated with stormwater runoff, erosion, and soil loss would be minimized improving water quality.,An improvement in water quantity would be expected through better floodwater retention and groundwater recharge.

From Areas of Critical Environmental Concern
The proposed plan designates 1,005,031 acres of Areas of Critical Environmental Concern. On these areas livestock grazing, wild horse and burro use (except for Gold Butte Part B, 119,097 acres), and competitive off-road vehicle use would not be allowed and mineral activities would be intensively managed. These restrictions are expected to reduce contaminants (such as sediments and coliform) entering the 106 springs and 1.7 miles of perennial streams within their boundaries.

The elimination of livestock, wild horse and burro grazing would improve vegetative condition and consequently result in better protective ground cover and soil-holding capability. Erosion and soil loss would be reduced and water quality improved as a result of better dissipation of energy that is associated with stormwater runoff. Improved water quantity would be expected through better floodwater retention and groundwater recharge.

From Fish and Wildlife Habitat Management
Designation of 743,209 acres as Areas of Critical Environmental Concern for recovery of the desert tortoise would place restrictions on livestock grazing, wild horse and burro use, off-road vehicle use, and mineral activities. Within the boundaries of the Areas of Critical Environmental Concern there are 82 springs and 1.7 miles of perennial streams that would realize an improved degree of protection. In addition, there are 27,735 acres of soil highly susceptible and 420,195 acres of soil moderately susceptible to erosion that would be protected from the previously referenced soil- disturbing activities and resultant potential soil loss and sedimentation. Direct contamination of water sources from cattle, horses and burros would also be expected to diminish. See the specific discussions below for estimated soil losses attributable to livestock grazing, wild horse and burro use, off-road vehicle use, and mineral activities.

Actions to maintain or improve the condition of vegetation on 869,800 acres of bighorn sheep habitat to full ecological potential or the Desired Plant Community would help improve protective ground cover and soil-holding capability. Vegetation is a key component of a healthy watershed and as a result of improved dissipation of energy associated with stormwater runoff, erosion and soil loss would be minimized and water quality improved. An increase in water quantity would be expected through better floodwater retention and groundwater recharge.

The maintenance or improvement of 5 acres of spring-associated riparian area at Ash Meadows and the improvement of 200 acres of aquatic and riparian habitat on the Virgin River would result in improved water quality. The Improvement would be associated with streambank stabilization, sediment reduction, decreased water temperatures, moderation of peak flows, and the stabilization of base flows.

From Livestock Grazing Management
An impact on surface water would be expected, resulting in potential changes in water quality, quantity, and timing. Livestock grazing is considered to be a major contributor of coliform bacteria contamination occurring in most surface water sourc of the planning area. Approximately 94 percent of spring sources are currently contaminated. Under this plan, water quality improvement on 117 spring

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sources would be expected as a result of reduced grazing activity. There would continue to be contamination on those springs (19) within the open allotments but this would be short term, occurring for a period until the completion of protective measures. Through the closure of the Virgin River and Meadow Valley Wash to cattle grazing, coliform contamination from this source would be eliminated. Some contamination would occur on the Muddy River, where grazing would continue to be authorized, until appropriate protective measures are taken (such as fencing).

The water resource is also impacted through soil compaction and the reduction of vegetative and litter cover that reduces infiltration and increases storm water runoff and sedimentation. Livestock grazing would be associated with an estimated potential soil loss of 224 tons per year, or a total of 4,480 tons over the life of the plan (20 years), in the allotments remaining open to grazing. Some of the displaced soil is expected to be in the form of sediments that would enter stream channels. However, due to the variability in the physical features and hydrologic characteristics of each watershed, actual amounts are not known at this time.

From Wild Horse and Burro Management
Impacts to the water resource from wild horse and burros would be similar to those resulting from livestock grazing. As with livestock, horses and burros are considered to be a major contributor of coliform bacteria contamination occurring in most surface water sources of the planning area. Under this plan, water quality improvement on 34 spring sources would be expected as a result of the removal of horses and burros from 3 of the 6 Herd Management Areas. There would continue to be contamination on those springs (28) within the Herd Management Areas containing animals, but this would be short term, occurring for a period until completion of protective measures. Within the Las Vegas BLM District, horses and/or burros do not frequent the area of the Virgin River, Meadow Valley Wash or the Muddy River; therefore, impacts to those systems are not expected.

The water resource is also impacted through soil compaction and the reduction of vegetative and litter cover that reduces infiltration and increases storm water runoff and sedimentation. Water resources within the Herd Management Areas managed at a 0 Appropriate Management Level would improve through the preservation of vegetative cover and resultant decrease in erosion, soil loss, and sediment production.

There are presently 113 tons/year of soil loss occurring in the Herd Management Areas remaining active in this plan (See Table 4-2). When these Herd Management Areas reach the Appropriate Management Level, the soil loss and sediment production would be 0.

From Lands Management
Within the Las Vegas Valley, approximately 25,540 acres would be disposed to provide for orderly expansion, development, and public services. Growth and development have already resulted in a groundwater overdraft situation and the rapid depletion of Nevada's allocation of Colorado River water. Land disposals would indirectly impact the water resource by providing land that may be developed resulting in an increased growth rate and demand on an already taxed water supply. Additional water requirements could lead to further over-drafting of available ground water and resultant water quality deterioration.

An increase in annual water usage of 3,193 acre-feet per year is estimated to result from subsequent development of disposed lands. All of the disposed of lands will probably not be developed;, therefore, the actual increase in water use would be somewhat less than that indicated. The water use figure is based on an annual disposal rate of 1,277 acres over the life of the Resource Management Plan (20 years) and an average water use figure of 2.5 acre-feet per acre per year (calculated from current acres of development and water use in the Valley).

Increased growth and development in the valley would result in more acres of impermeable surface, creating additional storm water runoff, accelerated erosion, and greater peak flow rates. Increased sedimentation and erosion could be expected within the Las Vegas Wash, where much of the riparian/wetland area has already been impacted by floodwater runoff. Other communities within the planning area could also experience increased amounts of runoff, soil erosion and consumptive demand, but to a lesser extent than in the Las Vegas Valley.

Subsidence resulting from continued overdrafting of groundwater within the Las Vegas Valley has continued to be a problem since 1940. If groundwater is relied upon to meet additional water needs in response to further development of disposed of lands,

subsidence would be expected to occur to some degree depending on the remedial efforts taken. The groundwater recharge system currently in place by local purveyors may offset any potential subsidence impacts.

From Rights-of-Way Management
The potential for impacts to the water resource would be present throughout the planning area, depending on the location and purpose of a right-of-way. This would be particularly true if the associated disturbance occurred within areas containing soil with high erosion susceptibility (90,550 acres). Impacts would result from soil disturbance and the resulting vegetative removal. As a result of this disturbance, the soils would be left in a vulnerable state (bare soil) with an increased potential for erosion. Depending on the location of a water source in relation to a right-of-way, it could be impacted through reduced water quality/quantity. The impact would be short term, lasting until rehabilitation efforts (including the re-establishment of vegetative cover and its soil holding capability) stabilize the soil. The low precipitation and resultant arid vegetation communities of the planning area are not readily amenable to standard rehabilitation efforts, so the time period necessary to adequately rehabilitate an area may be longer than under non-arid conditions.

Few established right-of-way corridors are currently designated within the Las Vegas BLM District. Under this plan, 538 miles (157,761 acres) of utility/transportation corridors would be designated within the planning area. The potential impacts to those water sources outside the corridors, from transmission facilities, would be reduced. As identified in Table 3-4, these corridors would contain 1,793 acres of soil highly susceptible and 40,505 acres of soil moderately susceptible to erosion. There are 3 springs and 0.01 miles of perennial streams within the boundaries of the corridors, however minimal impact would be expected as a result of avoidance and implementation of mitigation on a site specific basis.

From Recreation Management
Since competitive off-road vehicle activity would only occur in previously disturbed areas, it is expected the soil, water and air resource would benefit through the preservation of areas presently undisturbed. The potential for direct impact to four springs (approximately 2 acres) would be reduced through the exclusion of competitive off-road vehicle activity within 0.25 mile of a natural water source. These are the only riparian areas located within the area open to competitive off-road vehicle activity.

The water resource would be impacted as a result of soil surface disturbance due to competitive and casual off-road vehicle activity, both on existing roads/trails and off-road. This disturbance would leave soils vulnerable to erosion and soil loss; sedimentation to water sources such as springs and perennial streams may occur. This is particularly true if off-road vehicle activity occurs in areas with soil susceptible to erosion. It is not known at this time how much of the existing 3,325 acres of disturbance is actually located within areas containing susceptible soils. The actual extent of disturbance, however, will be limited because use will be restricted to existing courses, pit/staging areas, roads/trails and washes (approximately 3,325 acres).

From Wild and Scenic Rivers Management
The Virgin River would have added protection through interim management that considers the potential effect of proposed actions on the river's classification as a Recreation River. If the river is so classified, actions that would threaten its eligibility would be prohibited, including impacts to its flow and water quality.

From Wilderness Management
If the acreage recommended for wilderness designation is approved by Congress, 7,424 acres in critical erosion condition would be protected under the restrictions of a Wilderness Area. The remaining Wilderness Study Area acres with a critical erosion condition (24,754 acres) and all of the areas containing soil highly susceptible to erosion would be protected from off-road vehicle impact due to the limits on vehicles use to existing/designated roads. Since no roads exist in Wilderness Study Areas currently, no new off-road vehicle use would be possible.

From Minerals Management
Impacts to the water resource from mineral exploration and development are both temporary and potentially long term. With proper mitigation and reclamation, mineral exploration activities would not degrade water sources in the long term. Mineral development, however, could potentially be longer-term. The low precipitation and resultant arid vegetation communities of the planning area are not readily amenable to standard rehabilitation efforts, as the establishment of a soil holding vegetative cover is slow. Even after abandonment of mineral

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developments, potential soil erosion and sedimentation to springs and streams may occur, depending on their location in relation to the activity.

Fluid mineral activities could create impacts, primarily associated with road travel and drill pad construction. Little activity of this type occurs within the Las Vegas BLM District, and no increases are anticipated.

Locatable mineral, mineral material sales, and non-energy leasable activities could present potential water resource impacts, depending on their proximity to springs and streams. Soil disturbance and potential sedimentation could result from both mineral exploration and development activities, including access and haul road construction, stockpiling of topsoil, and pit construction. Water resources in areas with soils susceptible to erosion would be particularly vulnerable.

Under this plan, 41,649 acres of soil highly susceptible to erosion and 511,796 acres of soil moderately susceptible to erosion would be open to mineral activity. Within the area open to mineral activity, 90 springs and approximately 12.05 miles of perennial streams would be potentially impacted. Closure to all mineral activity, except fluid minerals, within 0.25 mile of natural springs and associated riparian areas would help to mitigate potential impacts. Currently, there are approximately 1,461 acres of disturbance associated with mineral activities; this acreage is not expected to increase and may actually decrease somewhat. Stipulations incorporated into mining plans of operation, project design, reclamation, and compliance checks would eliminate or minimize potential impacts to the water resource.

From Hazardous Materials Management
The water resource would be impacted through hazardous materials entering the environment and potentially contaminating water, thereby reducing the water quality of surface and/or groundwater resources. In the event these materials enter a water resource, water quality will be maintained or restored to levels as prescribed by the appropriate regulatory agency.

From Fire Management
Wildfire suppression efforts would potentially result in a short-term increase in erosion/soil loss that may enter water resources (depending on location), due to surface disturbance by fire fighting equipment and operations. However, successful suppression efforts would minimize the number of acres impacted as a result of vegetative cover loss. Following fire suppression, the successful implementation of the Las Vegas District Normal Fire Rehabilitation Plan would minimize the period during which soils would be vulnerable to increased erosion. The period would be reduced by re-establishing a vegetative cover and implementing other erosion prevention measures immediately following a fire. See the Soil Resource Management (from Fire Management) section of this Chapter for a description of the Normal Fire Rehabilitation Plan.

Use of prescribed burns as a vegetative manipulation tool could result in an increase in erosion and resultant sedimentation and salt loading to water resources, depending on their location in relation to the burn area. The potential for increased erosion would would be short-term. In the long-term, improved vegetative cover would be expected to reduce the potential for erosion and impact to water resources.

Riparian Management

From Soil Resource Management
The riparian resource would be impacted through improvement of watershed conditions. The improvement of approximately 96,994 acres of soil with a critical erosion condition and 37,670 acres with a moderate erosion condition and high erosion susceptibility would help to reduce impacts from erosion and sedimentation as stormwater runoff is modified. An increase in water quantity would be expected through better floodwater retention and groundwater recharge.

From Water Resource Management
Actions taken through this program would impact the riparian areas through maintenance and/or improvement of water quality and quantity. Reductions in erosion and sedimentation would also be expected to aid in maintenance and/or improvement of riparian areas as stormwater runoff is modified.

From Riparian Management
Riparian areas would be managed to maintain, restore or improve these areas to a healthy and productive ecological condition. Under this plan, measures would be taken to ensure that all 149 spring-associated riparian areas where practical and those riparian areas associated with perennial streams would

be in proper functioning condition (PFC). The implementation of measures to protect the 29 spring associated riparian areas (15 acres), that would continue to be impacted by grazing animals (livestock, wild horses and burros) would allow recovery of these areas to good condition.

Five of these riparian areas have already been protected through the use of fencing. Riparian resources are expected to be protected from impacts associated with competitive off-road vehicle activity (such as sedimentation) by prohibiting such activity within 0.25 mile of water sources and their associated riparian areas.

From Areas of Critical Environmental Concern
The proposed plan recommends designation of 1,005,031 acres of Areas of Critical Environmental Concern. Precluding livestock grazing, wild horse and burro use (except for Gold Butte Pat B, 119,097, includes Gold Butte Townsite acres), and competitive off-road vehicle use and having mineral activities intensively managed would reduce impacts in these areas. There would be expected reduction in contaminants (such as sediments and coliform) entering the aquatic/riparian areas associated with 106 springs and 1.7 miles of perennial streams within their boundaries. Elimination of livestock, wild horse, and burro grazing would contribute to an improvement in vegetative condition of the riparian area, as well as the uplands. This would be expected to result in better protective ground cover and soil-holding capability. Erosion and soil loss would be reduced and water quality improved as a result of better dissipation of energy associated with storm water runoff. An improvement in water quantity would be expected through better floodwater retention and groundwater recharge.

From Fish and Wildlife Habitat Management
Designation of 743,209 acres as Areas of Critical Environmental Concern for recovery of the Desert Tortoise would place restrictions on livestock grazing, wild horse and burro use, and mineral activities that could potentially impact riparian areas. Within the boundaries of the Areas of Critical Environmental Concern, there are 82 spring associated riparian areas (approximately 41 acres) and 1.7 miles of stream associated riparian areas (approximately 20 acres). In addition, there are 27,735 acres of soil highly susceptible and 420,195 acres of soil moderately susceptible to erosion that would be protected from soil-disturbing activities and resultant potential soil loss and sedimentation to riparian areas.

Actions to maintain or improve the condition of vegetation on 869,800 acres of bighorn sheep habitat to full ecological potential or the Desired Plant Community would help improve protective ground cover and soil-holding capability. Vegetation is a key component of a healthy watershed. As a result of improved dissipation of energy associated with stormwater runoff, there would be reduced erosion, soil loss and sedimentation impacting riparian areas. An increase in water quantity at riparian areas would be expected through better floodwater retention and groundwater recharge.

An improvement toward PFC would be expected in relation to maintenance or improvement of 10 springs and 5 acres of associated riparian area at Ash Meadows and 200 acres of riparian habitat on the Virgin River.

From Livestock Grazing Management
Under this plan, improvement of the riparian areas associated with 117 springs (59 acres) would be expected as a result of eliminating grazing activity. There would continue to be an impact on 19 springs (10 acres) within the allotments that remain open to grazing, but this would be short term, occurring for a period until the completion of protective measures. Livestock grazing within riparian areas prevents regeneration of desirable vegetative types, compacts soil, increases surface salinity; can overgraze plant growth; and also lower the water table by increasing soil erosion. Through the closure of the Virgin River and Meadow Valley Wash to cattle grazing, impacts resulting from livestock would cease and result in recovery in riparian health. Impacts to the riparian area associated with the Muddy River would continue where grazing is authorized, until appropriate protective measures are taken. This impact, as with the springs located within open allotments, would be short term.

From Wild Horse and Burro Management
In the short term, horse and burro use on 28 of the 33 spring associated riparian areas (14 acres) in the Gold Butte, Johnnie, and Muddy Mountains Herd Management Areas would continue to impact these areas. Five of the riparian areas (0.61 acres) have already been protected through the use of fencing. Wild horses and burros would continue to impact the unprotected riparian areas by concentrating around springs until protective measures are put in place as planned. As with livestock, wild horse and burro grazing within riparian areas prevents regeneration of desirable vegetative types, compacts soil, increases

surface salinity, overgrazes plant growth, and can lower the water table by increasing soil erosion.

Removal of all horses and burros from the Eldorado Herd Management Area, and managing the Ash Meadows and Amargosa Herd Management Areas at a zero Appropriate Management Level, would eliminate grazing impacts on 34 spring associated riparian areas (17 acres). Establishment of Appropriate Management Levels for the remainder of the herd management areas would be based on riparian enhancement and requirements to sustain a healthy, properly functioning condition (such as have amount of water necessary to maintain the riparian area). Riparian conditions would improve in the long term, through adjustments in animal numbers to the appropriate levels to maintain the thriving natural ecological balance.

From Lands Management
Land disposals resulting in increased growth and development within the valley would contribute to more acres of impermeable surface, creating additional storm water runoff, accelerated erosion, and greater peak flow rates. Increased sedimentation and erosion could be expected within the Las Vegas Wash, which is where much of the riparian/wetland area has already been impacted by floodwater runoff. Other communities within the planning area could also experience increased amounts of runoff and soil erosion that may impact riparian areas, but to a lesser extent than in the Las Vegas Valley.

From Rights-of-Way Management
The potential for impacts to the riparian resource would be present throughout the planning area, depending on the location and purpose of a right-of-way. Further, depending on its proximity to a right-of-way, a riparian area could be impacted through reduced water quality/quantity resulting from soil disturbance. The impact would be short term, lasting until rehabilitation efforts (including the re-establishment of vegetative cover and its soil holding capability) stabilize the soil. The low precipitation and resultant arid vegetation communities of the planning area are not readily amenable to standard rehabilitation efforts, so the time period necessary to adequately rehabilitate an area may be longer than under non-arid conditions.

Few established right-of-way corridors are currently designated within the Las Vegas BLM District. Under this plan, 538 miles (157,761 acres) of utility/transportation corridors would be designated within the planning area. Placement of transmission facilities within these corridors would eliminate potential impacts to those riparian areas outside the corridors. Although there are 3 spring-associated and 0.01 miles of stream-associated riparian areas (approximately 1.6 acres) within the boundaries of the corridors, minimal impact would be expected as a result of avoidance and implementation of mitigation on a site-specific basis.

From Acquisitions Management
Along the Virgin River there is interspersed private riparian area below the Riverside Bridge. Acquisition of this privately owned riparian area would facilitate its improvement to proper functioning condition by eliminating potential impacts from non-public holdings and by allowing a holistic approach to riparian improvements.

From Recreation Management
Since competitive off-road vehicle activity would only occur in previously disturbed areas, it is expected that soil and consequently the riparian resource would benefit through the preservation of areas presently undisturbed. The potential for direct impact to 4 springs (approximately 2 acres) and their associated riparian areas would be reduced through the exclusion of competitive off-road vehicle activity within 0.25 mile of a riparian area. These are the only riparian areas located within the area open to competitive off-road vehicle activity.

The actual impact to the riparian resource from casual off-road vehicle use is not known, but considering the increasing population in southern Nevada that activity is expected to proportionately increase. Under this plan, limiting off-road vehicle activity to existing roads and trails would improve the riparian resource through the prevention of new soil disturbance and sediment production.

From Wild and Scenic Rivers Management
The riparian area associated with the Virgin River would see added protection through interim management that considers the potential effect of proposed actions on the river's classification as a Recreation River. If the river is so classified, actions that would threaten its eligibility would be prohibited, including impacts to the riparian area.

From Wilderness Management
If the acreage recommended for wilderness designation is approved by Congress, 7,424 acres in critical erosion condition would be protected under the

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restrictions of a Wilderness Area. The remaining Wilderness Study Area acres with a critical erosion condition (24,754 acres) and all of the areas containing soil highly susceptible to erosion would be protected from off-road vehicle impact due to the limits on vehicles use to existing/designated roads. Since no roads exist in Wilderness Study Areas currently, no new off-road vehicle use would be possible.

From Minerals Management
Impacts to the riparian resource from mineral exploration and development, although both temporary and potentially long term, would be minimal because riparian areas would be withdrawn from locatable minerals. In areas where existing mining claims are located, proper mitigation and reclamation would reduce impacts significantly. Because the low precipitation and resultant arid climate are not readily responsive to standard rehabilitation efforts, there is slow establishment of a soil-holding vegetative cover. Even after abandonment of mineral developments, potential soil erosion and sedimentation to the riparian areas associated with springs and streams may occur, depending on location of the waters in relation to the activity.

Impacts from fluid minerals activities would be minimal. This plan would provide for No Surface Occupancy stipulations for any leases requested in riparian areas described in Table 2-12. Mineral material sales and non-energy leasable activities could potentially impact riparian resources, depending on their proximity to springs and streams. Soil disturbance and potential sedimentation could result from both mineral exploration and development activities, including access and haul road construction, stockpiling of topsoil, and pit construction. Riparian resources in areas with soils susceptible to erosion would be particularly vulnerable. Under this plan, 41,649 acres of soil highly susceptible and 126,040 acres of soil moderately susceptible to erosion would be open to mineral activity. Within the area open to mineral activity, approximately 45 acres (90 springs) of spring associated and 292 acres (12.05 miles) of stream associated riparian area could be potentially impacted. Closure to all minerals activity, except fluid minerals, within 0.25 mile of natural springs and associated riparian areas would help to mitigate potential impacts. Currently, there are approximately 1,461 acres of disturbance associated with mineral activities. This is not expected to increase and may actually decrease somewhat. Stipulations incorporated into mining plans of operation, project design, reclamation, and compliance checks would eliminate or minimize potential impacts to the riparian resource.

From Hazardous Materials Management
The riparian resource could be impacted through hazardous materials entering the environment and potentially contaminating riparian areas thereby reducing water quality , vegetative cover and diversity of riparian areas. In the event that these materials do enter a riparian area, proposed actions taken would minimize the impact and ensure that its functioning condition is maintained or restored.

From Fire Management
Wildfire suppression efforts would potentially result in a short-term increase in erosion/soil loss that may enter aquatic/riparian areas (depending on location), due to surface disturbance by fire fighting equipment and operations. However, successful suppression efforts would minimize the number of acres impacted as a result of vegetative cover loss both within and outside riparian areas. Following fire suppression, the successful implementation of the Las Vegas District Normal Fire Rehabilitation Plan would minimize the period during which soils would be vulnerable to increased erosion. The period would be reduced by reestablishing a vegetative cover and implementing other erosion prevention measures immediately following a fire. See the Soil Resource Management (from Fire Management) section of this Chapter for a description of the Normal Fire Rehabilitation Plan.

Use of prescribed burns as a vegetative manipulation tool could result in an increase in sedimentation to riparian areas, depending on their proximity to the burn area. Although the potential for increased impact to riparian areas would be expected, it would be short-term. In the long-term, improved vegetative cover would be expected to reduce the potential for erosion and impact to riparian resources.

Vegetation Management

From Vegetation Management
Managing for the Desired Plant Community or the Potential Natural Community would substantially enhance vegetation communities by replacing invading species, including noxious an invasive weeds with natural species. Efforts to rehabilitate disturbed sites, when possible, would be undertaken in accordance with the fire rehabilitation plan and project-specific mitigation measures. Native species would be the preferred plant in rehabilitation efforts to manage

toward the Potential Natural Community and to provide optimum native species diversity.

Vegetation would progress very slowly toward the Desired Plant Community or the Potential Natural Community regardless of BLM actions. An upward trend, representing a progression from one condition class to a higher class (such as from mid-seral stage to late-seral stage), would be accomplished in much of the planning unit during the life of the plan. Threatened, endangered and candidate plant species would be protected by prohibiting construction, mining, and cross-country off-road vehicle uses. Protection would also occur through avoidance and mitigation through the National Environmental Policy Act process. This would also reduce the potential for listing of other species as threatened and endangered.

From Livestock Grazing Management
Vegetation resources on approximately 611,000 acres of public lands would be impacted by livestock grazing. Approximately 689,784 acres currently closed to livestock grazing would remain closed and an additional 2,031,111 acres of public lands would be closed.

The number of animal unit months licensed has declined from approximately 30,000 in 1988 to 7,730 in 1994. Livestock numbers and animal unit months used are expected to decrease for the next few years, due to general economics and management to protect threatened and endangered species. An estimated future use level of approximately 4,000 Animal Unit Months is projected, based on allotments closures.

A total of 11 allotments would be managed under grazing systems in the long term. Above-ground biomass would increase and plant reproductive capability maintained or improved. The vigor of mature plants would be maintained or improved. Increased numbers of immature plants would successfully become established, making more plant material available for litter. If grazing exceeds established use levels, livestock would be removed, thus eliminating the potential to decrease vegetative cover. In the long term, species diversity should increase and ecological condition approach or reach a Potential Natural Community.

No grazing would increase above-ground biomass with plant reproductive capability maintained or enhanced. The vigor of mature plants would be maintained or improved. Abundant immature plants would successfully become established, increasing litter potential for soil stabilization.

Specific impacts related to unmanaged grazing would include repeated removal of above ground biomass, resulting in decreased production. Mature plants would experience reduced reproductive capability and vigor, while immature individuals would have difficulty in becoming established. Physical damage to both forage and non-forage species could result from trampling. Impacts during the dormant period would further reduce vegetative cover and the amount of plant material available for litter.

Grazing use would be keyed to specific utilization levels, depending on season of use, thus reducing the damaging impacts of cropping associated with year-long livestock grazing. An increase in canopy cover and plant vigor is expected. If grazing use exceeds established levels, livestock would be removed from an allotment. In the long term, under properly managed rangelands, species diversity and ecological condition should be maintained or improved.

From Wild Horse and Burro Management
Wild horse and burro impacts to vegetative resources would be eliminated on the Ash Meadows, Eldorado, and Amargosa Herd Management Areas. Wild horse and burro impacts to vegetation would continue to occur on three Herd Management Areas. Managing population levels at a thriving natural ecological balance would minimize or eliminate damage to the vegetation resources. Increased monitoring of utilization levels within the grazed Herd Management Areas would clearly indicate when animals should be removed to protect the vegetative resource. This level of monitoring would be proposed in any new Herd Management Area Plan developed for proper herd management. (See also impacts described under Riparian Management.)

From Lands Management
The vast majority of the Blue Diamond Cholla habitat would be protected under BLM management. No special management actions or use restrictions would be needed to ensure the long-term viability of the species. Listing as a threatened or endangered species would be avoided.

From Mineral Management
Removal of vegetative cover can lead to increased soil erosion by wind and water, as well as a loss of forage and habitat for livestock, wildlife and wild horses and burros. Soil compaction, mixing of soil horizons, the

presence of hazardous materials and high concentrations of minerals in areas of exploration and development would further hamper revegetation efforts. A visual impact would also occur because even with reclamation efforts the plant community would be different than the surrounding areas. Based on the recommended closures, approximately 33 percent of the district would be protected from surface disturbance caused by mining activity. This would enhance the habitats for the species dependant plants being protected.

Visual Resource Management

From Visual Resource Management
Adopted Visual Resource Management classes would provide standards and guide the development of mitigation measures to protect or enhance visual resources. Mitigation measures designed to reduce or eliminate impacts to visual resources would be developed and implemented on all actions. These could include changing the color of structures to blend with the natural color of the landscape, hiding structures or roads behind ridge lines, and by restricting motorized vehicle recreation and activity to either existing or designated roads and trails. Immediately adjacent to Las Vegas the rural open visual character of the landscape would be eliminated.

From Lands Management
Urbanization of southern Nevada will cause a loss of the natural landscape in Las Vegas Valley, as well as the Mesquite, Pahrump, and Laughlin areas. Loss of visual quality to form, line, color, and texture of the existing landscape would be caused by new roads, housing developments, commercial development, recreation facilities, and schools.

From Rights-of-Way Management
Designated corridors would help protect visual qualities by concentrating impacts within specified geographic zones. Although the process of designating corridors creates no visual impacts, the following analysis is intended to evaluate the potential impacts of construction of electrical transmission lines through those proposed corridors.

Construction of approximately four powerlines in the Coyote Springs Valley could degrade the visual resources along U.S. Highway 93 from State Road 165 south, where only one short line currently exists. Due to technical considerations and the presence of critical desert tortoise habitat, one line would likely be placed close to the road, 600 feet east of the highway centerline. All lines would be suspended from towers averaging 120 to 130 feet in height. At the south end of the valley, three lines would cross over the existing line and swing east over the Arrow Canyon Range, while the existing line would continue south along the highway. The visual impacts would be apparent for several miles in each direction along the highway due to the tower height and the locations on the ridges of the Arrow Canyon Range. Corridor crossings of major highways, such as Interstate 15 (I-15) and State Roads 93 and 95, would be confined to previously impacted areas and should not substantially degrade the visual resources in these locations.

Map 2-4 shows corridor alternatives for construction of electrical transmission lines through the Rainbow Gardens and River Mountains Areas of Critical Environmental Concern (and the Henderson Area). The planning objective was to provide a feasible corridor for the construction of up to six additional 500-kV powerlines, which were previously authorized or pending approval.

Corridor A avoids the central portion of Rainbow Gardens Area of Critical Environmental Concern and follows a route that would restrict placement of the lines between two prominent ridges, obscuring visibility from most of residential Las Vegas. However, the designation would route lines into a two-mile area that is presently undisturbed prior to an intersection with existing roads near the former Sunrise Mountain Landfill. Any above-ground transmission line would also substantially alter the unobstructed view of the Las Vegas Wash park area, currently under development.

Corridor B would route additional lines through the center of the Rainbow Gardens area and over the Red Needle feature in this area. Lines would be placed in an area currently containing two major transmission lines. Although other lines currently exist in this corridor, the addition of up to four additional lines would create an additional impact in this area by visually dominating the landscape. The rugged nature of the terrain would impose engineering constraints and potentially create more surface disturbance.

Corridors A and B would require that the Intermountain Power Project (IPP) and McCullough lines are crossed south of Las Vegas Wash. The new corridor lines could not be constructed on the west side of the present lines due to urban development in the Henderson areas, starting at a new subdivision,

Calico Ridge, approximately one-half mile south of the Wash near Lake Mead Drive. Other housing areas are located immediately adjacent to the present lines south of Lake Mead Drive. The crossing would require construction of larger and taller towers in comparison to those existing facilities, creating a more obvious visual intrusion. Five or six additional towers on each side of the existing six towers could be placed within a distance of approximately 2,500 feet.

South of this crossing, new lines could follow the 1,400-feet corridor, parallel to the IPP and McCullough lines or the 2,000-feet corridor through the River Mountains. In either case, between four and eight parallel lines would be located in the immediate vicinity of Calico Ridge, the entrance road to Lake Las Vegas, and Lake Mead Drive. This would comprise a considerable, unavoidable visual intrusion. Visual impacts on the Lake Las Vegas entrance would be reduced to some extent by the presence of the ridge between the corridor and the entrance road. However, visual impacts for travelers on Lake Mead Drive and to Calico Ridge subdivision would continue to be major for over a mile south, where the corridor passes over the ridge.

The corridors would have a moderate visual impact on private property and the urban areas of Henderson south of Lake Mead Drive for approximately two miles. The intensity of the impacts would be assessed as low to moderate for an additional two miles, at which point all construction would be restricted to the sides and tops of ridges. Multiple lines would be *skylined* in this area. In the vicinity of U.S. Highway 95 south of Henderson, impacts would be high where the lines would cross the highway.

From Minerals Management
Visual resources within the Arrow Canyon, Muddy Mountains, and Resting Springs Ranges (all within Class II Visual Resource Management areas) would be impacted over the long term by projected mineral development. Due to the low unit values of mineral resources in these areas, the large scale, open pit type operations necessary to operate profitably would require strategic location and extensive mitigative measures to maintain the impacts within the standard of Class II Visual Resource Management.

A major ridge of the Arrow Canyon Range within Visual Resource Management Class III could be mined for limestone. The large mine required for an economic operation would be visible to travelers along U.S. Highway 93 for several miles, creating a permanent, negative impact on visual resources.

Areas of Critical Environmental Concern

The discussion below summarized anticipated impacts from designation of Areas of Critical Environmental Concern. The impacts to a specific program or resource are analyzed in additional detail in the appropriate program or resource discussion.

From Areas of Critical Environmental Concern
Areas of Critical Environmental Concern, encompassing approximately 1,005,031 acres, would be designated, providing special management attention to protect critical environmental values. In addition to the special management attention identified in the individual Area of Critical Environmental Concern discussions in Chapter 2 and the impacts discussed below, one regulatory impact would occur upon designation. The *Code of Federal Regulations* at Title 43, Sub-Part 3809 (43 CFR 3809) requires that a plan of operations be submitted for approval by BLM, prior to commencing *any* surface-disturbing activities conducted pursuant to the 3809 regulations (locatable mineral activities) within a designated Area of Critical Environmental Concern. This requirement affords BLM the opportunity to prepare an Environmental Assessment to identify alternatives and mitigating measures. Where appropriate, a Section 7 consultation for endangered and threatened species and/or a Section 106 consultation for cultural resources must also be conducted, thus reducing or eliminating impacts to these sensitive resources.

Approximately 743,209 acres in four areas would be designated as Areas of Critical Environmental Concern to provide for the recovery of the desert tortoise. Impacts, including habitat loss and direct mortality to tortoises and other wildlife species, would be reduced through operation of the 3809 regulations on valid existing rights, by limiting casual off-road vehicle use to designated roads and trails, by prohibiting all speed off-road vehicle events and Section 7 consultations.

Approximately 261,822 acres in other areas would be designated as Areas of Critical Environmental Concern to protect other critical resource values, including threatened and endangered species, botanical resources, wildlife habitat, cultural and paleontological resources, geological resources, scenic quality and visual resources, and designated natural areas. Impacts such as habitat loss, direct mortality to

wildlife species, and degradation of scenic quality would be reduced through the following management actions: operation of the 3809 regulations on valid existing rights, limiting casual off-road vehicle use to existing roads and trails, prohibiting speed off-road vehicle events and closure to mineral material disposal, locatable mineral entry and leasable minerals.

From Rights-of-Way Management
See Fish and Wildlife Habitat Management, From Rights-of-Way Management, for a discussion of impacts to desert tortoise.

From Minerals Management
Table 2-12 shows the Areas of Critical Environmental Concern that would be closed to locatable, leasable, and salable mineral entry; closed to solid leasing; and subject to fluid mineral no surface occupancy. However, mineral development may still occur on valid existing rights. Mineral exploration and development in desert tortoise Areas of Critical Environmental Concern would impact desert tortoise. Habitat would be degraded or destroyed. Individual tortoises would either be killed or displaced from their home ranges. Increased roads and traffic in the Area of Critical Environmental Concern would increase the potential for road kills of desert tortoise. (See the section on Cultural Resource Management, From Minerals Management, for a discussion of impacts to cultural resources.)

Fish and Wildlife Habitat Management

From Soil, and Water Management
Improved watershed conditions would increase forage and cover for wildlife. Erosion control, particularly in riparian areas, would encourage vegetative production and improve water quality. These areas would have enhanced value as wildlife habitat. Management actions would help ensure that sufficient water is available to maintain riparian and aquatic habitats. Habitat for threatened and endangered species in the Virgin River would be maintained or improved.

From Riparian Management
Riparian enhancement actions would provide healthy riparian systems, providing habitat for a variety of wildlife species. A greater diversity and density of wildlife species would find habitat in these improved riparian areas. The density and distribution of wildlife species that depend upon riparian habitat could change over the long term. Riparian condition would affect water temperature, silt load, instream flow, spring flow, water quality and salinity of aquatic habitat. Habitat for threatened and endangered fish species in the Virgin River could improve. Special status plants that occur in riparian habitats would be protected.

From Vegetation Management
Managing for Desired Plant Community or Potential Natural Community would ensure availability of a variety of habitats for wildlife and special status species. Greater plant species diversity would provide a variety of forage, increasing the potential for improved tortoise nutrition and decreasing the incidence of malnutrition. More vigorous tortoise populations would result in increased survival and recruitment rates. Managing for a Potential Natural Community would create increased cover, affording hatchling and juvenile tortoises greater protection from predation, and improving recruitment. If individual tortoises are healthier, their resistance to Upper Respiratory Tract Disease (URTD) would be expected to increase.

From Areas of Critical Environmental Concern
Designation of approximately 1,005,031 acres as Areas of Critical Environmental Concern would result in additional protection for wildlife and plant habitat. These areas would be managed to preserve the values of the area and other activities would be limited. Most wildlife species would incur advantages from reduced loss, degradation, and fragmentation of habitat. Habitat of some candidate species would be protected, reducing the likelihood of future listing of the species as threatened or endangered.

Essential habitat in Ash Meadows Area of Critical Environmental Concern would be managed for recovery of the Ash Meadows ecosystem and endemic species. Beetle habitat on Big Dune and bighorn sheep habitat in the River Mountains would receive additional protection. Mesquite would be managed to provide ample cover and forage for wildlife. Desert tortoise habitat totaling 743,209 acres would be managed primarily for the recovery of the species, resulting in impacts to the desert tortoise. Ecological condition in the desert tortoise Areas of Critical Environmental Concern would be improved to allow the recovery of the species; impacts to tortoise would be mitigated.

Conflicting land uses would be limited, reducing both direct and indirect impacts on the tortoise. Protective

measures implemented in the desert tortoise Areas of Critical Environmental Concern, such as elimination of future mineral exploration, development and mining and grazing by livestock and wild horses and burros, would allow for improvement of tortoise habitat and upward population trends in tortoise populations. Las Vegas bear poppy habitat in Rainbow Gardens and Gold Butte would be afforded a higher level of protection.

Designation of desert tortoise Areas of Critical Environmental Concern would aid in recovery and eventual delisting of the desert tortoise. In combination with land managed by other Federal agencies and other BLM districts, sufficient habitat would be protected to support viable populations of desert tortoise and to meet the criteria of the *Tortoise Recovery Plan*.

From Fish and Wildlife Habitat Management
Management actions for desert tortoise ensure adequate habitat is available to support viable populations. Impacts to tortoise from other uses would be reduced. Other resident wildlife would thrive from improved habitat conditions.

Existing populations of game species would be maintained or increased through protection and improvement of habitat. Habitat for special status species would be protected, thereby reducing the potential that these species would be listed as threatened or endangered and aiding in the recovery of listed species. BLM inholdings in Ash Meadows National Wildlife Area/Refuge (NWR) would be made available for withdrawal by the U.S. Fish and Wildlife Service (USFWS) for inclusion in the Refuge, facilitating refuge management and indirectly improving the habitat of some species.

Habitats for non-game species, such as neotropical birds, would be inventoried and managed to maintain or improve habitat conditions for species of concern.

Important habitats for special status plant species would be protected, allowing for the maintenance of existing populations of plant species of concern. Additional management attention would be directed toward these species through development and implementation of conservation agreements.

From Forestry Management
Impacts to non-game bird special status species from firewood harvest would be minimal. Firewood harvest would not be authorized, unless beneficial to wildlife species dependent on mesquite habitats.

From Livestock Grazing Management
Elimination of livestock grazing on all but 11 allotments would enhance wildlife habitat and reduce competition for forage and water. Closure of Areas of Critical Environmental Concern to livestock grazing would have a long-term, substantial stabilization and improvement of desert tortoise habitat and populations trends. A diverse nutritious forage base would be provided for desert tortoise, lowering the incidence of malnutrition and osteoporosis. Improved vigor of tortoise populations would reduce the susceptibility of individuals to Upper Respiratory Tract Disease. Reduced utilization levels would improve cover for hatchling and juvenile tortoises, susceptible to predation. This would lessen competition for forage and the likelihood of trampling of tortoises and burrows. Over the long term, increased recruitment rates would aid in the recovery of the tortoise.

Continuing grazing on open allotments at Prescription 2 levels outside of Areas of Critical Environmental Concern would enhance the condition of the existing vegetative communities. Restricting the utilization of key forage species would sustain current habitat quality, with possible improvement. Tortoise populations would be maintained at current levels. Trampling of tortoise and competition for forage would continue in those areas open to grazing.

Management for the Potential Natural Community or the Desired Plant Community would provide good habitat conditions for many wildlife species. Competition between wildlife and livestock for water, forage and space would continue in those areas open to livestock grazing. Special status plants would benefit from a reduction in grazing pressure and soil disturbance in those areas closed to livestock grazing. In those areas remaining open to grazing, plants would continue to be impacted by trampling and herbivory.

Grazing closure in the Virgin River Bottom Allotment and riparian areas in Meadow Valley Wash and the Virgin River would protect threatened and endangered fish, waterfowl, and non-game species. Erosion would be reduced as a result of decreased utilization of forage within the riparian area and trampling of the stream banks; water quality would also improve. No domestic sheep grazing would be authorized, greatly reducing the potential for disease transmission to bighorn sheep.

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From Wild Horse and Burro Management
Over the long-term, competition for forage would be non-existent by managing the Ash Meadows, Amargosa, and Eldorado Herd Management Areas for 0 horses and burros. This would directly protect and enhance wildlife and their habitat. Areas with past overgrazing would be allowed to recover. Increased forage and cover would be available for wildlife with competition for water and forage between wildlife and wild burros removed.

Multiple-use decisions would be used to adjust any Appropriate Management Level established in The Plan based on new monitoring data. Riparian areas may require protective fencing, making the water less accessible to wildlife. In the Gold Butte, Muddy Mountain, Red Rocks, Johnnie and Wheeler Pass herd management areas, impacts to wildlife and plants would continue at a lower level than that which occurred under the no action alternative. Some level of competition for forage and water would continue between wild horses and burros and wildlife. Plants would be subject to some level of trampling and herbivory.

From Lands Management
Discretionary Disposal Areas. Approximately 1,022,314 acres within the planning unit would be available for disposal through sale, exchange, color-of-title, or Recreation and Public Purposes patent. These lands would be evaluated for the presence of special status species before being approved for disposal. Public land outside of established disposal areas would only be considered for disposal if specific criteria are met. Areas of critical environmental concern would not be available for disposal under any circumstances, protecting habitat for desert tortoise and other wildlife.

Most of the habitat within established disposal areas is marginal wildlife habitat due to the proximity of urban areas. Continued expansion of the developed areas would create new marginal areas for wildlife. Direct impacts to wildlife would include incidental take and loss of habitat. Indirect impacts would comprise the increased possibility of take due to casual recreational use, harassment by domestic dogs and cats, and degradation and fragmentation of habitat. Due to urban development, movement of bighorn sheep between the McCullough and River Mountains may no longer be possible.

Disposal of lands outside of established disposal areas would require close coordination with Nevada Division of Wildlife, Nevada Division of Forestry, and the U.S. Fish and Wildlife Service, providing for the identification of potential impacts to wildlife and special status species. If the disposal would result in significant impacts to wildlife or special status species, the lands would likely be retained.

Large blocks of habitat sufficient to support viable populations of wildlife would be maintained outside of established disposal areas. Springs and associated riparian habitats would be preserved for wildlife use. Private and leased lands in Coyote Springs Valley, if returned to Federal jurisdiction, would improve the integrity of Coyote Springs Area of Critical Environmental Concern and increase the potential for recovery and delisting of the desert tortoise.

From Rights-of-Way Management
All Areas of Critical Environmental Concern would be designated as rights-of-way avoidance areas. Over the long term, wildlife and special species habitat within these areas would be subject to less disturbance. For the most part, these areas would be excluded from mineral material rights-of-way. However, areas within 0.50 mile of Federal aid highways would be open to mineral material rights-way issued to governmental entities.

Development of material site rights-of-way would have impacts on resident wildlife and special status species, including loss of habitat and mortality of individuals. Residual impacts to wildlife would be mitigated to the extent possible.

Designation of utility corridors would facilitate the mitigation of impacts from proposed utilities and prevent proliferation of rights-of-way throughout the planning area. Concentrating powerlines in narrow corridors would restrict and localize raven and raptor perching sites.

In spite of the designation of corridors, overhead powerlines would impact desert tortoise by providing additional perching sites for ravens and raptors, causing loss and degradation of habitat, and resulting in direct mortality of animals during construction. Access roads for utility rights-of-way could also result in increased access into wildlife habitat. Increased access would create a greater potential for incidental *take* of desert tortoise, harassment of wildlife, road kills, and degradation of habitat. Impacts to wildlife from material sites, including loss and fragmentation of habitat and direct mortality, would be reduced under this alternative.

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From Acquisitions Management
The BLM would attempt to acquire key, undeveloped private lands within Areas of Critical Environmental Concern. Wildlife habitats would be consolidated, facilitating management of large blocks of public lands. Lands not specifically identified for acquisition could be acquired for the protection of threatened, endangered and special status species of plants and animals. There would be a positive impact on management for special status species, particularly plants which occur in small, isolated populations, often outside of areas of critical environmental concern and sometimes on private lands within disposal areas.

From Recreation Management

Special Recreation Management Areas. Designation of approximately 40,200 acres in the Rainbow Gardens area as a special recreation management area could have negative impacts on special status plants occurring in the area.

Off-road Vehicle Racing. Acreage open to high-speed, competitive off-road vehicle events would decrease in comparison to the No Action Alternative. This would reduce direct impacts associated with high-speed, competitive events including soil compaction and erosion, widening of existing roads and trails, creation of new roads and trails, and increased potential for direct mortality and harassment of wildlife. Off-road activity by spectators can cause damage to vegetation and soils, and direct mortality and harassment of wildlife would be decreased by strict regulation of spectators and spectator viewing areas. Big Dune beetle habitat area would be closed to all competitive events, reducing the potential to impact candidate species. These impacts would continue in those areas open to racing. All areas of critical environmental concern would be closed to off-road vehicle speed events, resulting in additional protection for wildlife and plant habitat.

Off-Road Vehicle Designations. There would be reduced impacts associated with off-road activities, such as habitat degradation, proliferation of roads, harassment of wildlife, vandalism, and road kills. The acreage designated as *open* would decrease substantially; a portion of Big Dune, the Nellis Dunes, and non-vegetated portions of dry lakes would be the only areas that would remain *open*. All desert tortoise Areas of Critical Environmental Concern would be designated as "limited to designated roads and trails", further reducing impacts to wildlife. Some roads would be physically closed and rehabilitated. Approximately 200 acres at Big Dune would be closed to all Off-road vehicle use. Off-road vehicle use in Wilderness Study Areas not designated by Congress would be limited to existing roads and trails, providing long-term protection of bighorn sheep habitat.

Rainbow Gardens Area of critical environmental concern would be designated as "limited to designated roads and trails" providing additional protection for habitat of special status plant species occurring in the area. The remainder of the planning area would be "limited to existing roads and trails" reducing impacts to vegetation, soils and wildlife.

Due to continued rapid population growth in Clark County, there will be a continually increasing demand for casual recreational opportunities on Public . Management actions proposed in The Plan will reduce impacts to wildlife and plants from casual recreational use of public lands.

From Wilderness Management
In the short term, implementation of the Interim Management Policy would assist in the protection of wildlife and special status species habitat. Long term, the designation of Wilderness Areas would enhance such habitats=. Although some wildlife management activities may be precluded in Wilderness Areas, long-term habitat protection from off-road vehicle use, mineral exploration and development, and associated indirect impacts would outweigh impacts to wildlife from constraints on wildlife management.

From Minerals Management
Outside of areas of critical environmental concern, mining and other mineral developments would contribute to impacts on wildlife and plant habitat and populations. Impacts from mineral exploration and development would include direct mortality during mining activities. The loss and degradation of habitat, harassment, and an increased probability of incidental *take* would constitute indirect impacts. These would occur during exploration and development activities which could also create new roads, further fragmenting wildlife habitat and increasing access. Some effects would be substantially mitigated through standard stipulations and mitigation measures developed through Section 7 of the Endangered Species Act and other relevant legislation and policy.

Within areas of critical environmental concern, potential impacts from mining would be reduced

compared to the No Action Alternative. These areas would be closed to solid leasables, subject to no surface occupancy, or timing and surface use constraints for fluid mineral development, segregated and withdrawn from the operation of the mining laws and closed to most salable mineral development.

Fluid Minerals. Approximately 55 percent of the planning area would be open to fluid mineral development. Another 25 percent would be available for leasing only, with No Surface Occupancy stipulations. An additional 3 percent of the planning area would be available for leasing subject to timing and surface use restrictions. The opportunity for exploration and development of fluid minerals would be reduced, thereby reducing impacts to wildlife. Seismic line projects utilizing cross-country travel would require rehabilitation and temporary closure to reduce subsequent use by off-road vehicles. There would be a potential for crushing of small wildlife during seismic operations. Mitigation measures, including the use of low pressure tire vehicles and seasonal restrictions on seismic activities, could lessen, but not eliminate, these impacts.

Outside of areas of critical environmental concern, impacts to wildlife and special status species could result from fluid mineral exploration and development. Development of a large oil and gas field would impact wildlife through the loss and fragmentation of habitat, mortality of individual animals, and increased access. Mitigation of impacts, to the extent possible, would be developed through Section 7 consultation.

Locatable Minerals. Under the management direction in this plan, approximately 1,005,031 acres of Areas of Critical Environmental Concern and 189,279 acres of lands identified for disposals and BLM administrative sites would be segregated and withdrawn from future locatable mineral entry during plan implementation. These areas would be closed to locatable, salable and leasable mineral entry, which would protect wildlife and their habitats from loss, degradation and fragmentation. In areas open to mineral entry or with valid existing rights, indirect impacts from mineral exploration and development would include habitat degradation, fragmentation and loss. Direct impacts would include harassment, injury, and mortality of individual animals. Impacts would be mitigated to the extent possible during development of mining plans of operation.

Loss of habitat for the Las Vegas Bear Poppy may occur from mining of gypsum in the Muddy Mountains and the development of valid existing claims in the Rainbow Gardens Area of Critical Environmental Concern. This species is listed as critically endangered by the State of Nevada and is restricted to gypsiferous soils. Much of its habitat in the Las Vegas Valley has already been lost to urban development. Proposed mineral withdrawals would protect an estimated 80 percent of the Las Vegas bear poppy habitat on public lands within the planning area.

Salable Minerals. Disposal of salable minerals would not be allowed within 36 percent of the total planning area. These areas would be managed as sensitive riparian areas, B LM administrative sites, and Areas of Critical Environmental Concern, with allowance for 0.50 mile corridor on either side of Federal-aid highways and county roads described in minerals management direction MN-1-k and MN-1-n. This would reduce loss, degradation, and fragmentation of wildlife and their habitats in the planning area. In areas open to salable mineral disposal, indirect impacts from mineral material exploration and development would include habitat degradation, fragmentation, and loss. Direct impacts would include harassment, injury, and mortality of individual animals. Impacts would be mitigated to the extent possible during development of mineral extraction plans and disposal contract stipulations.

Salable mineral development would be allowed within areas of critical environmental concern. However, authorizations for mineral removal would be allowed only within 0.50 mile of Federal aid highways, state highways, and county roads and issued only to governmental entities. This would provide additional protection to wildlife and special status species habitat in areas more than 0.50 mile from roads.

Within the 0.50 mile area and outside of areas of critical environmental concern, impacts to wildlife and special status species would continue. Indirect impacts from mineral exploration and development would include habitat degradation, fragmentation and loss. Direct impacts would include harassment, injury, and mortality of individual animals or loss of individual plants. Impacts would be mitigated to the extent possible. Given the continued rapid growth in southern Nevada, the demand for sand and gravel w' continue to be high. Management actions in The Plan will reduce impacts to wildlife and special status

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species by focusing mineral extraction actives within the less sensitive areas.

From Hazardous Materials Management
Hazardous materials contamination of the soil, water, or air may result in degradation of fish and wildlife habitat. Appropriate hazardous material planning and response will minimize these impacts.

Livestock Grazing Management

From Riparian Management
Livestock operators who are unwilling to manage use in riparian areas could sustain economic hardships due to removal of cattle when use levels are exceeded. Riparian areas in the Las Vegas BLM District are few in number and tend to be heavily grazed at various times during the year. Unprotected riparian areas where livestock continue to graze would constitute a limiting management factor. Utilization levels for riparian species would be used to determine when livestock would be either removed from the allotment or relocated within the allotment.

From Vegetation Management
Protection of candidate plants in the Las Vegas BLM District would require management actions that assure the species do not require listing as threatened or endangered. Such actions could impact livestock management on allotments where candidate species occur, potentially changing grazing strategies or causing the removal of livestock. Utilization levels identified for key forage species could result in reduced herd size, which could affect the economic viability of most permittees' operations.

From Fish and Wildlife Habitat Management
The management goals identified in the *Tortoise Recovery Plan* would have far-reaching impacts to the livestock industry. Only 11 allotments within the Las Vegas BLM District would be available for domestic livestock grazing. Grazing use would be authorized in accordance with the *Tortoise Recovery Plan* objectives. This would reduce the number of animal unit months available from approximately 10,037 to 2,440. (Refer to the Socioeconomic section for a detailed analysis of livestock grazing economics.)

Thirty-nine allotments would be closed to all domestic livestock grazing. This figure includes closures carried forward as valid existing management, one allotment for lack of base property, two allotments closed due to conflicts with riparian management, and the Meadow Valley Wash and Virgin River floodplain and riparian zones.

This action would close five currently active allotments to livestock grazing and put up to nine operators out of business. Since the Lower Mormon Mesa Allotment was not included as critical desert tortoise habitat, it would not be closed to livestock grazing from March 1 to June 14. However, the utilization restrictions of would apply. Use during the spring would maintain the permittee's current operation.

From Wild Horse and Burro Management
Wild horses and burros in two different Herd Management Areas (Muddy Mountains and Johnnie) would continue to directly compete with livestock for forage, water, and space on three grazing allotments (Mount Stirling, Wheeler Wash, and White Basin.) If wild horse and burro numbers are maintained in a thriving natural ecological balance, the impact to livestock grazing would be the loss of forage to wild horses and burros that would otherwise be available for livestock. Numbers could also be restricted based on available water capacity at spring sources or reduced during drought conditions to meet riparian objectives.

Wild Horse and Burro Management

From Air, Soils, and Water Management
In the short term, management actions to protect or improve soil and water resources may impact wild horse and burro management by requiring a reduction in wild horse or burro numbers. This would allow for recovery of vegetation and stabilization of soil, especially in riparian areas. Over the long term, these actions would reduce indirect impacts on wild horses and burros by improving the overall forage condition and water quality and quantity within Herd Management Areas. This would lead to healthier animals and habitat in the long term.

From Fish and Wildlife Habitat Management
Management of threatened and endangered species could have major impacts on wild horse and burro management. In extreme cases such as Ash Meadows, wild horse and burros would continue to be excluded from areas where they were present in 1971 in an effort to protect and ensure recovery of threatened and endangered plant species unique to the Ash Meadows ecosystem. 241

Designation of desert tortoise Areas of Critical Environmental Concern would require removal of all wild horses and burros from the Eldorado Herd Management Area. This would increase to three the number of Herd Management Areas with a 0 Appropriate Management Level. The remaining three Herd Management Areas would require that an Appropriate Management Level be set, as shown in Table 2-9. Managing for the appropriate management level would enhance animal and vegetative health in the long term.

From Lands Management - Pre-FLPMA Rights-of-Way

Some rights-of-way issued prior to the Federal Land Policy Management Act did not define specific requirements to provide for wild horse and burro movement across fenced highways. Any fence constructed along a highway without an underpass to allow passage for wild horses and burros would substantially restrict animal movement. Wild horses and burros could become confused and disoriented, causing some to run into the fences, sustaining injuries, and damaging the fence. Fencing highways would hinder current animal trailing patterns and possibly eliminate access to needed water sources. Animals could also be concentrated in smaller areas, thus adding additional stress to the habitat. Any fencing of highways without underpasses could require development of additional water to ensure animals do not die of thirst.

Cultural Resource Management

The definition of impacts to cultural resources has a conceptual range from maximum to minimum disturbance. The *maximum disturbance* orientation defines impacts to cultural resources as limited to the destruction of those qualities that would qualify the resources as eligible for nomination to the *National Register of Historic Places* (NRHP). In such cases, adverse impacts can be mitigated through consultation under Section 106 of the *National Historic Preservation Act*. For example, casual collection of a few artifacts on the surface within an aboriginally used shelter that possesses a meter of stratigraphic deposition would not affect the eligibility potential for yielding important data that can add to the knowledge of regional prehistory (36 CFR 60.4). If the shelter was destroyed through permitting a Federal action, then a data recovery plan could presumably mitigate those impacts or effects.

The *minimal disturbance* reference point states that any change to a cultural resource as a consequence of human actions, no matter how seemingly small, constitutes an effect. For instance, when an archeological property is discovered by people, a cycle of impacts is initiated. These impacts may simply consist of disturbing spiritual or intangible cultural values considered by Native Americans or other interested parties as belonging to the objects, features, or the surrounding area. Removal of any artifacts could be considered as dismembering the cultural property. Conducting a data recovery of the artifacts, charcoal samples, and biological materials at the shelter site proposed for destruction would not mitigate the adverse effects, rather, attempt to reduce the degree of impact. Section 106 consultation provides professional guidance to salvage a sample of physical objects and impressions, but does not erase the fact that the site was destroyed.

The assessment of impacts for cultural resources in this plan assumes a *minimal disturbance* reference. This assessment was determined through the professional judgement of the cultural resource manager. A cycle of impacts begins when a site is changed by removal or disturbance as a consequence of the evaluation or disposal phase involved in processing a Federal action. The only situations where impacts would be considered as improvements are those that provide direct protection through preservation and stabilization. All other changes are considered to be damaging to cultural resources. Substantial impacts are those where an action or a group of similar actions affect a relatively large number of eligible cultural resource properties. Examples of these kinds of whole scale environmentally reviewed actions include the processing and approval of mining plans of operations under the framework of this plan.

From Fish and Wildlife Management

Designation of 1,005,031 acres as Areas of Critical Environmental Concern would aid in the preservation of 2,100 eligible sites by restricting and inhibiting potentially threatening actions.

From Forestry Management

The development of a woodland management plan in the Pahrump Valley has the potential to affect 200 sites. This would constitute a significant impact on cultural resources.

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From Livestock Grazing Management
Continuation of livestock grazing on approximately 610,893 acres of public lands and construction of rangeland improvements would have the potential to affect 1,255 eligible sites. Effects could include trampling of sites by cattle, surface disturbance from vehicles used by permittees, and destruction of sites during range improvement construction. In particular, the integrity of archaeological districts in the Muddy Mountains and McCullough Mountains could be sacrificed.

From Lands Management
The availability for disposal of approximately 1,022,314 acres of public land through sales, leases, and rights-of-way has the potential to affect 2,100 eligible sites. The withdrawal of 114,000 acres from leases, permits, and disposal would aid in preservation of approximately 245 archaeological properties. The potential for substantial impacts to cultural resources would be present under this alternative.

From Rights-of-way Management
Designation of 157,761 acres of corridors for transmission systems and facilities in Clark and Nye Counties has the potential to affect 200 eligible sites. Although utility corridor designation would protect a large number of eligible properties from impacts, potential effects to 200 sites would constitute a significant impact to cultural resources.

From Recreation Management
Approximately 20 eligible sites could be affected by designation of 9,180 acres as open for off-road vehicle use areas. Zones that would be open are evaluated as having medium to low sensitivity for cultural resources, based on limited survey.

From Wilderness Management
Management of Wilderness Study Areas would reduce the impacts to cultural resources by prohibiting new access roads and limiting lands, minerals and recreation uses.

From Minerals Management
Encouragement of fluid, locatable, saleable, and non-energy leasable mineral development within approximately 80 percent of the planning area has the potential to affect 7,500 eligible sites. Effects could include total disturbance of properties during seismic testing, open pit mining, opening of previously inaccessible areas, and the direct and purposeful mining of historic and prehistoric sites under the concept of exploration. The minerals program has the potential for significant impacts to cultural resources.

Approximately 960,000 acres of Areas of Critical Environmental Concern require minerals actions to achieve compliance with the *National Historic Preservation Act*. While these restrictions limit untreated destruction of cultural values, the consumptive nature of mining operations would require scientific removal of archaeological data, thus causing irrevocable and irretrievable impacts to eligible cultural resources.

Lands Management

From Areas of Critical Environmental Concern
Under The Plan, 9,423 acres of BLM inholdings within the Ash Meadows National Wildlife Refuge boundary could be taken out of multiple-use management and transferred to the US Fish and Wildlife Service.

Indirect impacts include no land disposals allowed, avoidance of sensitive and threatened and endangered species habitat, as well as exclusion of rights-of-way in some limited areas. This would lead to potential increases in the cost of project completion, as well as closing these areas to most forms of development.

From Sensitive Species
Impacts could include relocation of a lands project or depending on the sensitivity of the species, avoidance of the species or even denial of lands action. Additional coordination with the Nevada Division of Wildlife would be required for species identified as endangered by State law. All these impacts would cause delays in application processing, potentially resulting in project timeline overruns, development of species specific mitigation measures, and increased expense for the applicant.

From Lands Management

Lease Areas. Airport leases would be authorized on an as-needed basis, providing communities with airport facilities which they could not otherwise afford to purchase. These lands would not be available for residential developments. However, commercial industries could potentially be developed within the lease areas.

Recreation and Public Purpose leases would be authorized within disposal areas to enhance communities by providing lands at less than fair

market value. Leases may be authorized for schools, libraries, community centers, parks, public golf courses, fire stations, churches, community buildings, law enforcement facilities, correctional institutions and water and sewage treatment facilities.

Withdrawals. Approximately 18,250 acres of public land within the planning area would continue to be encumbered by Federal Energy Regulatory Commission withdrawals. The filing of an application for a preliminary permit with the Federal Energy Regulatory Commission automatically segregates the lands from the public land laws, pending the authorization of a licensed hydropower project. These lands can not be used for any other purpose.

From Rights-of-Way Management
Under The Plan, approximately 157,761 acres of public lands would be designated for utility corridors. Designation of corridors would lessen the encumbrances incurred on public lands by randomly placed, single-use lines. The potential exists for a loss of approximately 2,309 acres of public land identified for discretionary disposal. These corridors would be limited to very specific types of rights-of-way, with no other uses considered. Hazardous materials contamination of the soil, water, or air may result in degradation of fish and wildlife habitat. Appropriate Hazardous material planning and response will minimize these impacts.

From Acquisition
Acquisition of riparian areas and desert tortoise habitat, as well as sensitive species habitat, will enhance the BLMs efforts to ensure protection of these ecosystems.

Any acquisition of riparian habitat that is infested with Tamarisk would be identified for restoration through removal of Tamarisk. The potential for private individuals to control Tamarisk-infested lands is limited. Therefore, a seed source would continue to exist, which would lead to continued or additional infestations of Tamarisk on adjacent public lands.

Acquisition of sensitive species habitat would indirectly assist in ensuring all possible actions could be taken to avoid listing of additional species as threatened or endangered.

From Minerals Management
Mineral entry and development encumbers the land and lowers the appraisal values. High potential mineral value could also preclude disposal of the lands. Other important influences on the lands disposal program include so-called "nuisance" claims, filed on lands known for their high sale value. In cases where the mining claimant refuses to relinquish the claims, the individual or agency applying for the land disposal could be forced to buy out the claimant. Processing of validity tests, a mechanism for ridding sale parcels of "nuisance" claims, would be expensive and time-consuming.

Rights-of-Way Management

From Visual Resource Management
There would be minimal impacts to the right-of-way program. In Visual Resource Management Class II areas (approximately 968,890 acres) and Class III areas (approximately 1,727,870 acres), rights-of-way would be relocated as necessary, buried, or painted a color compatible with their surroundings to ensure scenic integrity.

From Areas of Critical Environmental Concern
Within Areas of Critical Environmental Concern, rights-of-way for new roads would be in response to specific authorized actions only or to ensure access to private property. Reclamation of temporary roads authorized through the right-of-way process would be required. (Right-of-way exclusion and avoidance areas are discussed under Rights-of-Way section above).

From Fish and Wildlife Habitat Management
Relocation of proposed project sites or Section 7 consultation would occur, as required, to reduce impacts to threatened and endangered species and their habitat. To prevent undue and unnecessary degradation of bighorn sheep lambing habitat, no new road construction will be authorized through the right-of-way program in those areas.

From Rights-of-Way Management
Under The Plan, approximately 538 miles of utility corridors would be designated, totaling 157,761 acres of public lands. Corridors would range from 1,000 to 3,000 feet in width. Minimizing the proliferation of randomly placed, single-use utility lines would better protect the scenic values and integrity of the surrounding areas. Although utility rights-of-way would not be limited to designated corridors, all efforts would be focused on utilizing corridors whenever possible and to their maximum capacity. Prospective right-of-way holders would

conserve costs through the use of existing data for environmental compliance analysis. In some instances, location and size of designated corridors could cause minimal impacts to other land uses or projects in the area not compatible with corridor use.

Authorization of future communication site rights-of-way would be limited to existing established sites, within existing rights-of-way, related buildings, and communication facilities until a site management plan has been approved for that site. This would help eliminate the proliferation of scattered single-user sites and lessen further administrative impacts to established communication sites.

Within the Las Vegas BLM District, there are 178 material site rights-of-way, totaling approximately 15,842 acres. No new material site rights-of-way would be authorized until the following are completed:

- Incorporate the terms and conditions for material site rights-of-way contained in Appendix M in all new material site rights-of-way
- Coordinate with the Nevada Department of Transportation and evaluate the need for existing sites.
- Encourage the Nevada Department of Transportation to relinquish sites no longer needed.
- Receive justification by the Nevada Department of Transportation for continued use of existing sites or need for additional sites.

Unnecessary, randomly-placed, and unmanaged material site rights-of-way that encumber public lands otherwise valuable for disposal or lease would not continue to proliferate.

Designation of rights-of-way exclusion areas would constitute a loss of 5,640 acres of public land available for linear rights-of-way and a loss of 1,005,031 acres of public land available for site type rights-of-way (excluding existing established communication sites).

Designation of rights-of-way avoidance areas would constitute a potential loss of 1,011,069 acres of public land available for all types of rights-of-way.

From Wilderness Management
No rights-of-way could be authorized within the Sunrise Instant Study Area, unless it is released from further wilderness consideration. Due to the fact this is the only area where large powerlines (500-kV and higher) can pass into the Las Vegas Valley, long delays in application approval would be expected if Congress does not release the area from Wilderness consideration.

Acquisitions Management

Consideration would be given to acquiring undeveloped private lands within all designated Areas of Critical Environmental Concern, sensitive species habitat, and the Aerojet Lands. These lands would be included within applicable designated Areas of Critical Environmental Concern to enhance the integrity of each Area of Critical Environmental Concern, as well as provide additional management opportunities to protect the values within each area.

Recreation Management

From Air, Soil, and Water Management
Construction of reservoirs, spring developments, and bighorn and upland game guzzlers would affect opportunities for semi-primitive nonmotorized recreation opportunities, depending on locations, by limiting or closing access to protect the soil and water resources. These same developments could increase opportunities for hunting, wildlife viewing and photography upon habitat improvement. Increased development of water sources could increase visitor days for hunting by 10 percent or up to 36,000 visitor days per year. Off-road vehicle events would be eliminated from traditional courses within the non-attainment area, with the exception of Nellis Dunes.

From Areas of Critical Environmental Concern
Management of these areas would eliminate off-road vehicle speed competitive events on 1,005,031 acres. The following historically held events would be directly affected: five motorcycle events in the Piute Valley, and a motorcycle event in the Mormon Mesa/Moapa area. Approximately 750 participants (racers, pit crew members, and families), and 1,000 non race-related spectators per year would be impacted. Users would be displaced to other areas, including the Nelson Hills, the Mount Stirling area, Jean Lake/Roach Lake Special Recreation Management Area, Dry Lake Valley, and Nellis Dunes Special Recreation Management Area. This displacement could increase use in the Nelson Hills by 25 percent; the Jean Lake/Roach Lake Special Recreation Management Area and the Dry Lake Valley area by 25 percent, and in the Pahrump and

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Nellis Dunes Special Recreation Management Area by 15 percent.

Casual off-road vehicle use would be limited to designated roads and trails on 743,209 acres of tortoise Areas of Critical Environmental Concern. An additional 3,360 acres would be closed to all motorized uses in Hidden Valley Area of Critical Environmental Concern. This is not a change from the no action, because Hidden Valley is currently closed.

Management stipulations developed for non-speed organized rides and events passing through areas of critical environmental concern will allow a greater opportunity for recreation. The current situation where each proposed use must be individually analyzed by BLM and the U.S. Fish and Wildlife Service will end. Ride organizers and the public will have more assurance of what BLM will allow and permit. Grandfathered provisions for the larger historically run events will provide a continuity of use. The impact of area of critical environmental concern designation "landlocking" Mesquite will be partially relieved.

The temporary reduction in the number of non-speed events and entrants allowed in tortoise Areas of Critical Environmental Concern during the tortoise active season for an initial three year monitoring program should not adversely impact non-speed activities. While non-speed events are seen as growing in number and demand in the future, the current use does not exceed the temporary limits. However, should the temporary limits be made permanent as a result of monitoring, there would be an adverse impact on the future growth of non-speed events. The one-for-two provision, allowing events historically held during the active season with entrants in excess of 100 (the temporary limit is 75), such as the Silver State 300, which otherwise would not be allowed, provides a great degree of flexibility without increasing the level of use in areas of critical environmental concern. Under this provision, an event with entrants in excess of the allowed limit can be authorized if it is counted as two events of the allowable total. Therefore, overall use levels are not increased.

From Fish and Wildlife Habitat Management
Opportunities for competitive speed based off-road vehicle events would be lost on approximately 743,209 acres of public lands within the planning area due to restrictions imposed in Areas of Critical Environmental Concern managed for the recovery of the desert tortoise. This loss of opportunity would displace users to other areas such as the Jean/Roach Special Recreation Management Area, Pahrump Valley, Laughlin, and the Nellis Dunes Special Recreation Management Area. Use would be anticipated to increase by 15 percent or more in the Nellis Dunes, at least 25 percent in the Jean/Roach Special Recreation Management Area, at least 15 percent in the Pahrump Valley and Laughlin areas. Based on current volume, 5 to 10 percent of special recreation permit applications would either be denied or canceled due to time and resource constraints associated with protection of sensitive species habitat. Some of this impact has already occurred due to restrictions implemented as part of the tortoise recovery plan.

Off-road vehicle touring and free-play, hunting, camping, picnicking, and other recreational competitive and commercial activities could be restricted, eliminated, or displaced to other areas due to limitations and closures designed to protect desert tortoise habitat. Road designations in desert tortoise Areas of Critical Environmental Concern could directly affect 10 percent of all visitor use in the planning area (or approximately 173,772 visitor days).

Closure of approximately 200 acres within the Big Dune Area of Critical Environmental Concern to off-road vehicle activity for protection of crucial beetle habitat would eliminate this area from any future off-road vehicle use. It may also displace current users to other locations such as the Dumont Dunes in California.

From Lands Management
Disposal of land within the Las Vegas Valley will further displace public land users who feel they are being pushed farther and farther away from Las Vegas. While this is definitely occurring, the development of large blocks of private lands used interchangeably with BLM lands by the public is addiing to this problem.

From Rights-of-Way Management
If designated rights-of-way corridors are developed, semi-primitive nonmotorized and semi-primitive motorized recreation opportunities could be limited throughout the planning area by potential restrictions of exclusive use rights-of-way. While increased access could increase opportunities for hunting, camping, and off-road vehicle touring, racing, and free-play, there could be a loss of more primitive recreational settings. It would be more difficult to avoid the sights and sounds of human activities.

Avoidance of rights-of ways on 3,200 acres would ensure protection of significant cave and karst resources.

From Recreation Management
Areas designated as Special Recreation Management Areas would be managed to ensure that recreation opportunities are maintained in the long-term and to resolve conflicts between users and with other resource values. The area designated as an Extensive Recreation Management Area would be managed to ensure that dispersed recreation opportunities are maintained in the long term.

Designation of Special Recreation Management Areas would focus BLM efforts on opportunities available in these areas. The explosive growth in southern Nevada could increase recreation use by approximately 40 percent or 579,240 visitor days per year (total visitor days could exceed 3,475,456 visitor days annually) within the next decade.
Adoption of the Recreation Opportunity Spectrum inventory as a long-term condition to be retained would help maintain the settings in which recreational activities take place. A wide range of recreational opportunities would be possible. Recreational visitors could expect to find areas to experience primitive opportunities away from human impacts, as well as areas with improvements and actions taken to facilitate other opportunities.

Less than one percent of the planning area would be designated open for unrestricted off-road vehicle use (47 percent presently open) and less than 1 percent or 3,560 acres (no measurable change) would be closed to all motorized use. The impact of limited use designations would be; 69 percent (51 percent presently) or 2,460,100 acres would be limited to existing roads, trails, and dry washes while 30 percent (2 percent presently) or 1,079,930 acres would be limited to designated roads and trails. Overall impact to users would be minimal from these designations, since very little of the planning area is used for cross-country (off existing roads, trails, and dry washes) travel due either to rough terrain or restrictions in place to protect desert tortoise habitat.

The availability of public lands for competitive off-road vehicle events would be significantly reduced. Much of this reduced availability has already taken place as part of implementing the desert tortoise recovery plan and is merely being formalized in this Resource Management Plan. Off-road vehicle events could be allowed in Nellis Dunes, Jean/Roach Dry Lakes, Crater Flats area, Pahrump Valley to Beatty area, Laughlin area, Muddy Mountains area, Wheeler Wash area, Last Chance Range, Amargosa Valley, Nelson Hills area, and Eldorado Valley (outside of the Areas of Critical Environmental Concern).

The population growth of southern Nevada would continue to increase the demand for recreational opportunities in the planning area. This demand would primarily affect lands surrounding population centers such as Las Vegas, Laughlin, Mesquite, Boulder City, and Pahrump. Outlying areas would also receive greater demand from people seeking solitude from urbanization. Visitation is anticipated to increase by 20 percent or 289,620 visits within the next decade (total visitor days per year would equal approximately 3,185,820). This increase is projected to occur whether BLM provides additional opportunities or not.

Recreational shooters, equestrian riders, hikers, bicyclists, off-road vehicle recreationists, and other passive recreation users of public land would be directed to areas appropriate for their particular use, or where uses would be compatible. The Sunrise Mountain area would be managed for more compatible recreation opportunities, helping to eliminate the impacts associated with recreational shooters and illegal dumping.

Recreation Activity Management Plans developed for Special Recreation Management Areas would improve recreation management in areas of heavy, and potentially conflicting, recreational uses. Heavy uses in sensitive locations (tortoise habitat and archaeological sites) and overcrowding would be avoided through advanced planning.

The resource integrity and quality of area caves could be enhanced through active management, educational information dissemination to the public, and the creation of a greater sensitivity for cave and karst resources. This should lead to decreased vandalism and decreased long-term degradation.

From Minerals Management
Under this alternative, approximately 20 percent (55,314 acres) of all lands that afford opportunities for semi-primitive recreation would be open to mineral exploration and development. Opportunities for semi-primitive recreation, including hiking and horseback riding, would be eliminated as new roads are constructed and increased traffic compromises the primitive character of the landscape. Significant caves

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would continue to be protected by stipulations and through withdrawals from locatable mineral entry.

All 10,000 acres of the Nellis Dunes Special Recreation Management Area would be closed to all forms of mineral surface disturbance from prospecting, exploration and mineral development.

Within the Keyhole Canyon area, 361 acres would be closed to all forms of surface disturbance from mineral development to protect important cultural, recreation, and aesthetic values.

Wild and Scenic Rivers Management

Motorized vehicle restrictions, mineral withdrawals, no land disposals, and rights-of-way avoidance along the Virgin River as part of implementing the Area of Critical Environmental Concern designation would protect the scenic, riparian, wildlife, and natural values along the river throughout the life of the Plan. If the river is not designated as a Recreational (Wild and Scenic) River, its scenic, riparian, wildlife, and natural values would remain protected through the same above-mentioned actions.

Wilderness Management

From Minerals Management
Mineral activities in Wilderness Study Areas would continue to be managed under the Interim Management Policy guidance until Congressional designation or release. In those Wilderness Study Areas that are not designated as wilderness (based on Congress' acceptance of the BLM's recommendations), minerals extraction would be limited by the mineral values present and the economics of development. Locatable mineral development, oil and gas exploration and development, and mineral material sales could impact up to 2,000 acres; viable operations would likely be large scale or open pit mines. Locatable non-metallic minerals would potentially be developed in the Resting Springs, Muddy Mountains, Arrow Canyon, and South McCullough Wilderness Study Areas.

Following release from wilderness study, mineral material sales could occur in the Nellis 1, 2, and 3 Wilderness Study Areas. Leasing and exploration activities would be anticipated for oil and gas with the potential for discovery and development in the Muddy Mountains, Arrow Canyon, and Mount Stirling Wilderness Study Areas. An additional 602 acres of long-term impacts on resources from oil and gas exploration could be anticipated. Initial geothermal investigations could be made in the Resting Springs and Muddy Mountains Wilderness Study Areas. If minerals developments are located on the peripheries of the Wilderness Study Areas, the effects on primitive and semi-primitive values would be minimal. In the event that mines and facilities were to be developed in the interior portions of Wilderness Study Areas, the impacts would be detrimental to the areas primitive and semi-primitive values.

Projected potential maximum disturbance in areas released from wilderness consideration would be 2,000 acres, based on oil and gas exploration and production (500 acres), the development of one large clay mine (500 acres), a large silica mine (500 acres), a limestone quarry (200 acres), a gypsum mine (200 acres), and 20 exploration efforts or small mines producing uncommon varieties of stone, sand, or clay (100 acres). Mitigation stipulations would lessen the impacts to primitive and semi-primitive values, but could not eliminate all damage in localized areas.

Minerals Management

From Riparian Management
The proposed withdrawal and no surface occupancy direction for approximately 9,010 acres of Riparian Management Areas (areas within 0.25 mile of springs and their associated riparian zones) would limit availability of public lands for mining claim location, mineral leasing and mineral material disposal. The withdrawal would close approximately 9,010 acres to mining claim location, mineral material disposal and solid mineral leasing. It would allow fluid mineral leasing with the stipulation that no surface occupancy occur within the Riparian Management Areas.

From Areas of Critical Environmental Concern
The proposed withdrawal of 1,005,031 acres as Areas of Critical Environmental Concern would close these areas to mineral entry. This closure would limit the availability of public lands for mining claim location, mineral leasing, and mineral material disposal.

From Fish and Wildlife Habitat Management
Withdrawal of 827,603 acres primarily for desert tortoise and special status species habitat protection would close approximately 25 percent of the district. Special management requirements resulting from desert tortoise Area of Critical Environmental Concern

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designations would increase the costs of mineral operations and reclamation of disturbed areas, possibly delaying operations. Required mitigation fees could make low-unit value minerals or small-volume, high-value minerals economically questionable and have the potential for loss of income to operators.

From Cultural Resource Management
Mining operations must comply with Section 106 of the *National Historic Preservation Act* (NHPA). Cultural resources within all the designated areas of critical environmental concern would be protected by the withdrawal of eligible archaeological sites and areas from mineral law uses, and through the requirement of specific evaluation and treatment prior to surface disturbing actions.

Designations of Areas of Critical Environmental Concern or areas "closed" to off-road vehicles require implementation for inventory and mitigation procedures for all mineral exploration actions. The designation of Traditional Lifeways Areas requires consultation with Native American tribes for all actions in those areas on the effects of all mining activities. Under Section 106 of the National Historic Preservation Act, cultural resources must be identified through adequate inventory actions, evaluation of archaeological and cultural sites, determination of effect on the properties, and attempts to mitigate adverse effects. The procedures could range from simple inventory efforts to complex evaluation and mitigation activities that could indefinitely delay the proposed mineral exploration and recovery actions. Such procedures could determine that the project be considered economically unfeasible.

On remaining lands within the district, including the 420,970 acres of Wilderness Study Areas not designated as Wilderness by Congress, BLM would be allowed 15 days for inventory and evaluation of eligible sites that could be affected by the activities. The claimant would be notified of eligible sites and the procedures for protection and mitigation. In special cases, the process to conduct avoidance or mitigative activities could necessitate delays in mining operations.

From Lands Management
If the salable mineral estate is sold along with the surface estate, disposal of 175,314 acres within the district would decrease the availability of silt to the landscape industry, as well as sand and gravel to the building industry. Construction of housing and other structures on these lands would increase the demand for silt, sand, and gravel, which would already be in short supply within the Las Vegas Valley.

Existing classifications, withdrawals, and segregation (CW&S), which total approximately 166 and affect approximately 434,055 acres, limit the availability of public lands for mining claim location, mineral leasing, and mineral material disposals.

From Rights-of-way Management
Lands affected by material site rights-of-way are effectively withdrawn from entry and location under the mining law. Approximately 181 material site rights-of-way exist accounting for 15,842 acres.

From Recreation Management
Designation of two areas comprising approximately 3,560 acres as closed to off-highway vehicle use would require that a plan of operation be approved prior to commencing any mining operation, except casual use in those areas. Closure of Nellis Dunes, approximately 10,000 acres, to mining would close that area to solids, mining claim location, and mineral material disposals. It would allow fluid mineral leasing with the stipulation that no surface occupancy occur.

From Wild and Scenic Rivers Management
Designation of the Virgin River for addition to, or as an actual component of, the national wild and scenic rivers system would require approval of a plan of operation prior to commencing any mining operation except casual use in that area. However, under management direction for riparian areas, the Virgin River Area of Critical Environmental Concern would be withdrawn.

From Wilderness Management
Pending a decision by Congress as to the suitability of Wilderness Study Areas as Wilderness, no unnecessary or undue degradation of these lands will be permitted. The wilderness study areas comprise approximately 420,970 acres.

From Minerals Materials Management
Mineral material disposals can not be made from those public lands containing mining claims that have not been cancelled. This limits the availability of public lands for issuance of material sales contracts and free use permits.

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Fire Management

From Air, Soil and Water Management
Fire suppression activities within the Las Vegas Valley Non-Attainment Area would continue to be managed to keep fire size to a maximum of 10 acres 90 percent of the time. This guidance would minimize impacts to air quality, from primarily particulates and haze. Use of fire suppression foams, penetrants, and retardants would continue to be prohibited in the immediate area surrounding water sources. To reduce other impacts to soil and water resources from fire suppression activities, mitigation measures would be developed on a case-by-case basis, utilizing Resource Advisors in coordination with fire management specialists. Such mitigation could include requiring that a fire line in a critical erosion area be constructed using only hand tools.

From Wilderness Management
Fire suppression activities in wilderness study areas would continue to be managed to keep fire size to a maximum of 100 acres 90 percent of time to minimize detrimental impacts to resources. All fire suppression activities must be conducted so as to comply with the non-impairment criteria in the *Interim Management Policy*.

Prescribed burning for resource enhancement purposes would be allowed only on 56,721 acres in the Virgin Mountain Instant Study Area, the North and South McCullough Mountains Wilderness Study Areas (see Map 2-11). A programmatic fire burn plan and an Environmental Assessment would be prepared for each resource enhancement area prior to the authorization of any prescribed burn. Subsequent prescribed burns would be authorized without further environmental documentation, provided that the terms and conditions of the programmatic burn plan and an Environmental Assessment are met and the authorized officer or manager concurs.

Prescribed burning for fuel reduction purposes would be allowed only on 44,343 acres in the Virgin Mountain Instant Study Area and the North and South McCullough Mountains Wilderness Study Areas (see Map 2-11). A programmatic fire burn plan and an environmental assessment would be prepared for each fuel hazard reduction area prior to the authorization of any prescribed burn. Subsequent prescribed burns would be authorized without further environmental documentation, provided that the terms and conditions of the programmatic burn plan and an environmental assessment are met and the authorized officer or manager concurs.

From Fire Management
Prescribed burning for resource enhancement purposes would only be allowed on 163,482 acres in the Ash Meadows/Amargosa Flat area, the Gold Butte grazing allotment, the Virgin River floodplains, and South McCullough Mountains (see Map 2-11). A programmatic fire burn plan and an environmental assessment would be prepared for each resource enhancement area prior to the authorization of any prescribed burning.

Subsequent prescribed burns would be authorized without further environmental documentation, provided that terms and conditions of the programmatic burn plan and the environmental assessment are met and the authorized officer manager concurs.

Prescribed burning for fire fuels hazard reduction purposes would be allowed only on 95,516 acres in the Spring Mountains, South McCullough Mountains, and Virgin Mountains (see Map 2-11). A programmatic fire burn plan and an environmental assessment would be prepared for each fuel hazard reduction area prior to the authorization of any prescribed burn. Subsequent prescribed burns would be authorized without further environmental documentation, provided that the terms and conditions of the programmatic burn plan and the Environmental Assessment are met and the authorized officer concurs.

From Hazardous Materials Management
Prescribed burns will not be conducted near sites where hazardous materials are known to exist, including millsites and dump areas.

Socioeconomic Values

From Livestock Grazing Management
The economic impact of livestock grazing closure in critical desert tortoise habitat would include the loss of all gross income ($229,482) to the regional economy. Gross income was estimated based on marketing of yearling calves at an average market weight of 500 pounds, with an average value per pound of $.90. Average calf crops of 80 percent were used and a ratio of one bull for 20 cows. Loss to 11 operators, based on a 4 percent net profit on gross income, would be estimated at $9,179. Specific information on profit or loss to operators as a result of livestock grazing closures is unknown. Individual operators may have higher or lower net profits, depending on a number of variables which range from

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weather and range conditions to herd management strategies.

Thirteen operators are currently grazing 879 cattle and 16 horses on approximately 605,000 acres, with 7,424 Animal Unit Months. The current gross economic livestock production of Federal lands in the planning unit is estimated to be $342,871. Closure of grazing on critical habitat would reduce the number of active operators to five, grazing 295 cattle and 8 horses (2,601 Animal Unit Months) on approximately 329,000 acres.

If six currently inactive allotments were reactivated, 660 cattle and 11 horses (6,740 Animal Unit Months) could graze on approximately 608,453 acres. The projected gross would be $293,827, with a total net income to operators of $11,750. This would be reduced to $113,389, upon closure of five additional active allotments.

Cumulative Impacts

Cumulative impacts are those impacts that result from the incremental impact of an action, decision, or project in combination with other past, present, and reasonable foreseeable future actions, regardless of the agency (Federal or non-federal) or person undertaking such other actions. Cumulative impacts can result from individually minor but collectively significant actions over a period of time, from similar projects or actions, and from projects or actions which have similar impacts (40 CFR Part 1508.7).

Parameters

The parameters for cumulative impact analysis are used in concert with the assumptions for analysis identified in Chapter 4. These focus and direct the analysis effort to ensure that adequate information will be gathered and analyzed to make a reasoned decision.

The cumulative impact analysis is limited to the anticipated effective life of The Plan, which is 20 years.

Air, water, desert tortoise habitat, cultural resources, lands, and recreation are the only resources discussed in the cumulative impact analysis. These resources are affected by both private and BLM actions and are subject to cumulative impacts. The Plan analysis of impacts was limited to BLM actions.

Cumulative impacts to air resources are analyzed only within the Las Vegas Valley Air Quality Non-attainment Area.

A comprehensive cumulative impacts analysis on the desert tortoise for the Northeastern Mojave Recovery Unit was completed for the Ely District Caliente Management Framework Plan in cooperation with Nevada, Arizona and Utah BLM offices. The Las Vegas District used this analysis, with minor adjustments, to complete the cumulative impact analysis on the desert tortoise in the Northeastern Mojave Recovery Unit (Appendix I).

Portions of two additional recovery units are located within the administrative boundary of the Las Vegas District. These are the Eastern Mojave and Northern Colorado Recovery Units. Approximately seventeen and one percent are located within the Las Vegas District, respectively. The vast majority of the recovery units are within California.

Management objectives and direction for those portions of the Eastern Mojave and Northern Colorado Recovery Units located within the Las Vegas BLM District are consistent with those management objectives and direction identified for the Northeastern Mojave Recovery Unit. There is a clear link to the cumulative impact analysis for the Northeastern Mojave Recovery Unit, based on consistency in management objectives and direction, the Critical Desert Tortoise Habitat designations, proposal for Desert Tortoise Areas of Critical Environmental Concern, and the Clark County's Habitat Conservation Plan recommendations.

Because of this consistency in management direction between recovery units, and the relatively small area of these other recovery units within the Las Vegas BLM District, detailed analysis of cumulative effects within the Eastern Mojave and Northern Colorado Recovery Units will not be completed as part of this Proposed Resource Management Plan. Cumulative effects on the Eastern Mojave and Northern Colorado Recovery Units will be analyzed during development of Recovery Plan implementation strategies for those Recovery Units.

Increases in population generally lead to increased impacts on public land from both authorized uses (such as rights-of way) and unauthorized uses (such as illegal dumping). Both authorized and unauthorized uses increase the possibility of a release of hazardous materials. Additionally, urban encroachment near

waste site (including hazardous and non-hazardous) increase health risks to the public.

Past, Present, and Reasonably Foreseeable Future Actions

Past and Present Actions

Past and present actions in the planning area can be divided into two categories: BLM actions and all other types (including other Federal, state, local government, and private actions).

BLM Actions. Past and present BLM actions and BLM-authorized actions are partially identified and described in Chapter 3, *Affected Environment*, and the No Action Alternative of the Draft Resource Management Plan/Environmental Impact Statement. Where necessary to support a Reasonable Foreseeable Development Scenario, additional information is provided.

Other Actions. Other past and present actions in the planning area would be difficult, if not impossible, to accurately describe in this document. All private actions that would likely contribute to the cumulative impacts are assumed to have required some type of governmental approval and would, therefore, appear within the records of the various Federal, state, and local government offices.

Actions by local governments are directly tied to either the above-mentioned private actions or to BLM actions. Clark County, Nye County, and the incorporated cities of Las Vegas, North Las Vegas, Henderson, Boulder City, and Mesquite have different real property bases. In terms of their cumulative impacts, the local governments serve as permitting agencies for private businesses or individual citizens. Local governments acquire the use of public lands at nominal costs under the auspices of the Recreation and Public Purpose Act, in order to provide facilities and services such as schools, parks, and fire stations. The impacts of these acquisitions are considered in the discussion of past and present BLM actions.

The following assumptions were used in the cumulative analysis:

- Regardless of ownership, the amount of private lands developed in the planning area resulted in removal of these lands from other uses such as wildlife habitat, recreation areas, livestock grazing, and in many cases, mineral exploration and development. Within the planning area as a whole, this acreage (approximately 252,000 acres) is not substantial. In the Las Vegas Valley, however, impacts from private land development directly result in a loss of habitat (approximately 90,000 acres). The 90,000 developed acres represent approximately 38 percent of the private lands in the Las Vegas Valley.

- The State of Nevada functions primarily in the same role as local governments and owns a limited amount of real property in the planning area. Spring Mountain State Park, Valley of Fire State Park, and Floyd Lamb State Park (a total of approximately 42,046 acres or one percent of the planning area) constitute the real property of the State of Nevada in the planning area.

Reasonably Foreseeable Future Actions

BLM Actions. The preceding discussion of the alternatives identified several different areas to be managed for certain uses; acreage figures identified for these areas are utilized in this analysis to assess cumulative impacts. Reasonably foreseeable future actions related to specific on-the-ground activities are identified. In some cases, a full development scenario is presented. Those reasonably foreseeable future actions anticipated to result from BLM-initiated and authorized actions are described below by resource or program.

Air, Soil, and Water Resource Management

No reasonably foreseeable future actions are expected to occur in the planning area as a result of BLM management of air and soil resources. Management will continue to emphasize land use restrictions and project or site-specific constraints and mitigation. Reasonably foreseeable future actions, together with past and present actions, are not expected to result in unacceptable air quality in any areas outside of the existing Non-Attainment Area.

The water quality of 29 springs is projected to improve over the life of the Plan through the implementation of protective measures.

Riparian Management

Riparian areas associated with 29 springs, approximately 15 acres, are projected to improve over

the life of the Plan through implementation of protective measures. Approximately 4 miles of fence will be constructed around springs. Approximately 3,000 acres of *Tamarix* (salt cedar) will be removed along the Muddy and Virgin Rivers as a result of coordination efforts with various agencies in conjunction with the Moapa Town Board. Small infestations will also be removed as part of the project's total removal.

Vegetation Management

Rehabilitation of approximately 700 acres of disturbed areas will occur over the life of the Plan to aid in recovery of threatened and endangered species and improve their habitat. Management of this resource will continue to emphasize land use restrictions, as well as project or site-specific constraints and mitigation.

Visual Resource Management

Approved Visual Resource Management classifications would be used to establish management standards for the design and development of future projects, and the rehabilitation of existing projects in the planning area. The visual qualities common to large undeveloped open spaces would largely be retained.

Fish and Wildlife Habitat Management

Specific projects identified during the development of The Plan to improve management of fish and wildlife habitat in the planning area are shown in Table 4-3.

Forestry Management

Based on recent scientific data, Mesquite woodlands are extremely important for survival of numerous special status species. It is anticipated that limited amounts of firewood would be available for cutting, and only to ensure the health of the woodland. No wood could be sold until a woodlands management plan is completed with required environmental documentation.

Table 4-3. Proposed fish and wildlife habitat improvements.

Type of Improvement	Number of Units	Miles	Estimated Acres
Big game water developments	10-15	--	2-5
Spring developments	25-30	--	6 - 22
Riparian/aquatic habitat improvements	5-10	--	300
Tortoise proof fencing	--	200-300	--
Standard Fencing	--	10-20	--
Total	**40-55**	**210-320**	**308-327**

Livestock Grazing Management

Allotment evaluations were used to identify range improvement projects anticipated to be constructed during the 20-year span of The Plan (see Table 4-4). Livestock grazing would continue to be authorized on 11 allotments.

Table 4-4. Proposed range improvements.

Type of Improvement	Number of Units	Miles	Estimated Acres
Fences	--	0-56	0-42
Cattleguards	0-5	--	--
Corral	3	--	0-2
Pipeline	--	4-10	24-104
Water Hauls	2-5	--	.5-3
Troughs	6-18	--	--
Reservoirs	--	--	--
Wells	4-8	--	4-8
Springs (Rework)	8-30	--	4-15
Totals	**23-69**	**4-66**	**32.5-174**

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Wild Horse and Burro Management

Three Herd Management Areas would have 0 populations, and three would be managed at the Appropriate Management Level. All Herd Management Areas would initially be managed at the established Appropriate Management Level identified in Chapter 2. The continued listing of additional animals as threatened or endangered species could eliminate the majority of wild equids on public lands. This worsens a conflict between Federally protected species, which may require court action for resolution. Specific projects needed for management of wild horses and burros will be identified in the Herd Management Area Plans.

Cultural Resource Management

No reasonably foreseeable future actions are expected to occur in the planning area as a result of BLM management of cultural resources. Management of this resource would continue to emphasize land use restrictions and project or site-specific constraints and efforts to mitigate adverse effects.

Lands Management

The following statistics are based on known data and reports using September 1983 through August 1995 as base dates.

Sales

Three types of land sales are discussed. They are *Santini-Burton Act, FLPMA* Section 203, and *Recreation and Public Purposes Act* sales.

Santini-Burton Act Sales

Sales would continue until designated lands have been disposed as prescribed by Public Law 96-586. Sales would be completed in accordance with Section 203 of FLPMA, at fair market value, and would occur only within the Las Vegas area. Based on historical use, sales would range from 1 to 50 acres. Since approval of the Clark County Management Framework Plan in September of 1983, a total of 2,700 acres were patented under the *Santini-Burton Act,* which is an average of 225 acres per year.

Initial *Santini-Burton Act* sales were conducted at ora auctions, but were not met receptively. Later sales were curtailed due to the National Wildlife Federation Lawsuit, which has since been resolved in favor of the BLM.

In 1982, closed bid procedures were adopted for *Santini-Burton Act* sales. Sales conducted through these procedures were more successful. If the program could be actively pursued in future years at a maximum of 700 acres per year, the remaining 6,600 acres identified for disposal under P.L. 96-586 would be sold by the year 2002. Under the 1992 Interim Cooperative Management Agreement between BLM and Clark County, it is unlikely this would happen unless the *Santini-Burton Act* area is expanded outside the McCarran Airport aircraft noise zone.

FLPMA Section 203 Sales

Disposal of public lands would continue within the areas identified in The Plan, depending on public interest and community need. Sales would occur under Section 203 authority at fair market value and would occur throughout the planning area. Based on historical use, sales would range from 1 to 25 acres, 40 to 160 acres for medium parcels, and 300 to 5,000 acres for larger parcels. Smaller parcels usually receive higher value per unit appraisals and generate more revenue to the Federal government. A total of 1,754 acres were patented under Section 203 in the past 12 years, which equates to an average of 96 acres per year.

These projections, based on previous yearly sales and the priority given to *Santini-Burton*sales, are shown in Table 4-5. With the possible decrease in *Santini-Burton* sales, there may be an increase in FLPMA Section 203 sales. The potential also exists for sale of public lands rather than exchange to generate monies to purchase environmentally sensitive lands for special management purposes. The Plan identifies a number of public lands for sale that have never been offered on the open market. This could stimulate private sale requests and speculation by commercial interests within the next 20-year period.

Recreation and Public Purposes Act Leases

Disposal of public lands would continue within the areas identified as available for *Recreation and Public Purpose* actions in The Plan. Disposals would be at

less than fair market value to accommodate state and local government entities and nonprofit organizations seeking community facilities that could not otherwise be afforded. Based on historical use, sales would range from 5 to 15 acres for smaller parcels, 20 to 80 acres for medium parcels, and 100 to 300 acres for larger parcels. A total of 3,597 acres were patented under Recreation and Public Purpose in the past 12 years, which is an average of 300 acres per year. Table 4-5 lists projections for the next 20-year period (based on Recreation and Public Purpose patents issued in previous years), such leases that could reach completion of development, and the potential for additional public facilities needed due to steady growth.

Leases

Three types of land leases are discussed below:
- *FLPMA* Section 302
- *Recreation and Public Purposes Act*
- Airport leases

FLPMA Section 302 Leases. Under The Plan, Section 302 leases or permits would continue to be authorized on public lands throughout the Las Vegas BLM District. All public lands within the Las Vegas BLM District, other than Areas of Critical Environmental Concern, would be available at fair market value to meet the needs of growing communities, industry, and free enterprise. Section 302 authorizations may also be used to resolve suspected trespass. Based on historical use, leases/permits would range from 1 to 50 acres, however one 2,720-acre lease was authorized within the District in 1995. This lease was for a law enforcement training facility and shooting range.

Based on previous annual numbers (excluding 1995) and the policy of the BLM to dispose of lands through sale or exchange rather than encumber them with temporary or long-term leases, approximately six Section 302 leases for an approximate 50 acres would be authorized for the next 20-year period. If the District takes a pro-active stand on trespass activity, lease at fair market may be a viable resolution.

Recreation and Public Purposes Act Sales.
Lease of public lands would continue within the planning area on the lands identified as available for recreation and public purposes in The Plan. Leases would be at less than fair market value to accommodate state and local government entities and nonprofit organizations seeking community facilities, that could not otherwise be afforded. Based on historical use, leases would range from 5 to 15 acres for small sites, 20 to 80 acres for medium sites, and 100 to 300 acres for larger sites (see list on Table 4-5).

Airport Leases

With the exception of Areas of Critical Environmental Concern, all public lands within the planning area are available for airport leasing under the *Airport Lease Act* of May 24, 1928, as amended. These lands could be leased at less than fair market value to meet the need for public airport facilities for small but growing communities otherwise unable to afford such lands for these facilities. A total of 1,370 acres were leased for airport purposes during the last 12-year period. The leases ranged from 60 to 860 acres.

Based on previous years and the current interest in certain areas for public airport purposes by Nye and Clark counties, approximately 6 airport leases totaling 2,000 acres will be authorized over the next 20-year period.

Agricultural Entry

Three types of agricultural entry actions are discussed below:
- *Indian Allotments*
- *Desert Land Entries*
- *Carey Act* grants.

Indian Allotments.

There would be no *Indian Allotments* authorized under The Plan. Under the No Action Alternative, one *Indian Allotment* consisting of 160 acres was authorized in 1984.

Desert Land Entry

There would be no *Desert Land Entries* authorized under The Plan. An estimated six leases for an approximate total of 2,000 acres are expected to be authorized over the next 20-year period.

Under the No Action Alternative, two *Desert Land Entries* were authorized in 1990 consisting of 498 acres.

Table 4-5. Projections of sales, leases, conveyances, exchanges, withdrawals, and rights-of-way in the planning area for the next 20 years.

LANDS MANAGEMENT

Sales *FLPMA Section 203*

Size of Sale	Number in 20 Years	Range of Acreage For Individual Actions	Range of Acreage Multiplied by Number of Actions
Small	14	1 to 25	14 to 350
Medium	5	40 to 160	200 to 800
Large	1	300 to 5,000	300 to 5,000
Total	**20**	---	**514 to 6,150**

Recreation and Public Purposes Act

Size of Sale	Number in 20 Years	Range of Acreage For Individual Actions	Range of Acreage Multiplied by Number of Actions
Small	35	5 to 15	175 to 525
Medium	25	20 to 80	500 to 2,000
Large	5	100 to 300	500 to 1,500
Total	**40**		**1,175 to 4,025**

Leases FLPMA Section 302

Size of Lease	Number in 20 Years	Range of Acreage For Individual Actions	Total Acreage
Varied in size	6	1 to 50	50

R&PP Act

Size of Lease	Number in 20 Years	Range of Acreage For Individual Actions	Range of Acreage Multiplied by Number of Actions
Small	40	5 to 15	200 to 600
Medium	100	20 to 80	2,000 to 8,000
Large	40	100 to 300	4,000 to 12,000
Total	**180**		**6,200 to 20,600**

Airport Act of May 24, 1928, as amended

Size of Lease	Number in 20 Years	Range of Acreage For Individual Actions	Total Acreage
Varied in size	6	60 to 1,000	2,000

Conveyances
FLPMA Section 209

Size of Conveyance	Number in 20 Years	Range of Acreage For Individual Actions	Range of Acreage Multiplied by Number of Actions
Small	40	1.5 to 5	60 to 200
Medium	25	10 to 40	250 to 1,000
Large	5	50 to 200	250 to 1,000
Total	**70**		**560 to 2,200**

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Table 4-5. Projections of sales, leases, conveyances, exchanges, withdrawals, and rights-of-way in the planning area for the next 20 years (continued).

LANDS MANAGEMENT (continued)

Exchanges			
Size of Exchange	**Number in 20 Years**	**Range of Acreage For Individual Actions**	**Range of Acreage Multiplied by Number of Actions**
Small	10	50 to 300	500 to 3,000
Medium	6	500 to 1,000	3,000 to 6,000
Large	4	2,000 to 10,000	8,000 to 40,000
Total	**20**		**11,500 to 49,000**

Withdrawals			
Size of Withdrawal	**Number in 20 Years**	**Range of Acreage For Individual Actions**	**Range of Acreage Multiplied by Number of Actions**
Small	13	10 to 1,000	130 to 13,000
Medium	11	2,000 to 5,000	22,000 to 55,000
Large	8	6,000 to 20,000	48,000 to 160,000
Very Large	11	> 20,000	220,000
Total	**43**		**290,130 to 448,000**

RIGHTS-OF-WAY MANAGEMENT

Linear			
Size of Rights-of-way	**Number in 20 Years**	**Range of Acreage For Individual Actions**	**Range of Acreage Multiplied by Number of Actions**
Small	660	0.5 to 1	330 to 660
Medium	240	5 to 20	1,200 to 4,800
Large*	40	100 to 500	4,000 to 20,000
Total	**940**		**5,530 to 25,460**

* [it is expected that large energy and nonenergy (if compatible) ROWs would be placed within designated corridors.]

Areal			
Size of Rights-of-way	**Number in 20 Years**	**Range of Acreage For Individual Actions**	**Range of Acreage Multiplied by Number of Actions**
Small	300	1 to 5	300 to 1,500
Medium	100	10 to 50	1,000 to 5,000
Large	40	100 to 500	4,000 to 20,000
Total	**440**		**5,300 to 26,500**

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Carey Act

There would be no *Carey Act* Grants authorized under The Plan. Under the No Action Alternative, there were no *Carey Act* Grants authorized within the Las Vegas BLM District.

Conveyances

Prior to enactment of FLPMA in 1976, no provisions existed for obtaining the subsurface estate with no known value with the sale of the surface estate. Although FLPMA provided for sale of the subsurface estate, until 4 or 5 years after its enactment there was no program in place to aggressively pursue simultaneous sale of both the surface and subsurface estates. In the past 9 or 10 years, the sale of subsurface estate of no known value with the surface estate was a condition of the sale. This action established an awareness by the public of the probable availability of the subsurface; more people are submitting applications for conveyance of the mineral estate on public sale parcels purchased after 1976. It is probable that this trend would continue into the future, but at a declining rate since both estates are being conveyed simultaneously, when appropriate, with BLM motion sales.

Issuance of Section 209 conveyances would be for the mineral estate of no known value under the following conditions: 1) if Federal ownership precludes appropriate non-mineral development, and 2) such development is a more beneficial use of the land than the mineral development. Based on historical use, conveyances would range from 1.5 to 5 acres for small parcels, 10 to 40 acres for medium parcels, and 50 to 200 acres for large parcels. A total of 214 acres were patented under FLPMA Section 209 conveyances in the past 12 years. Based on previous years and the fact that both surface and subsurface estates are now disposed simultaneously, a gradual decline in this type of conveyance could be expected. Projections for the next 20-year period are listed in Table 4-5.

Exchanges

Disposal of lands under the exchange authorities would continue as long as the BLM encourages local government and private individuals to purchase environmentally sensitive lands, or lands rich in valuable resources that would enhance Federal land management. These lands could then be exchanged for public lands within the disposal areas identified in The Plan. All exchanges may not occur in the areas identified, because interested parties outside the state may seek legislative exchange as was done in the *Nevada-Florida Land Exchange Authorization Act* of 1988 (Aerojet). Historically, exchanges ranged from 50 to 300 acres for small parcels, 500 to 1,000 acres, and 2,000 to 10,000 acres for large parcels. Within the past 12 years, however, there was a total of 17,768 acres of public land disposed under exchange.

Based on previous years and the actual acreage that BLM would prefer to acquire and could realistically manage, it is unlikely that a large increase in exchanges would be completed. There should be an equivalent gain in acreage that is environmentally sensitive or rich in valuable resources that would enhance Federal land management. Projections for the next 20-year period are shown in Table 4-5.

Withdrawals

The Plan identifies withdrawals to be completed on public lands identified in each of the alternatives. Although other Federal agencies have not identified lands for withdrawal in this Resource Management Plan, based on historical use, it is possible that they may request lands to be withdrawn for specific projects at a later date. Also, based on historical use, withdrawals would range from 10 to 1,000 acres for small parcels, 2,000 to 5,000 acres for medium parcels, and 6,000 to 20,000 for large parcels. A total of 341,373 acres were withdrawn for the use of other Federal agencies. Benefitting agencies were the U.S. Forest Service, Bureau of Reclamation, Bureau of Indian Affairs, Federal Aviation Administration, and Federal Energy Regulatory Commission.

Other Bureau of Reclamation lands currently under withdrawal are in the process of being relinquished back to the BLM. Given the protection allowed by designating specific Areas of Critical Environmental Concern, the potential exists for a decrease in the number of withdrawals requested for the protection of valuable natural resources. Projections for the next 20-year period are listed in Table 4-5.

Rights-of-Way Management

All requests for rights-of-way on or across public lands are not strictly linear or areal. Some rights-of-way are a combination of both types. Examples

include floodwater detention basins and related flood control channels; electric power generation stations and related transmission lines; water wells and related water distribution lines; and communication sites and related access roads. Usually the primary use is the determining factor in whether a right-of-way is categorized as linear or areal. Most rights-of-way would occur within the Las Vegas Valley (80 percent). The others would be in Laughlin (4 percent), Pahrump (7 percent), Mesquite (3 percent), Moapa (3 percent) and Searchlight (3 percent).

Linear Rights-of-Way

Requests for linear rights-of-way across public lands within the planning area would continue in conjunction with private lands development. Rights-of-way would include access roads and highways, water and power utility lines, sewage lines and flood control channels. Based on historical use, future rights-of-way would range from 0.5 to 1 acre for small projects, 5 to 20 acres for medium projects, and 100 to 500 acres for large projects. Within the past 12 years, there were 817 linear rights-of-way authorized for a total of 2,979 acres. Projections for the next 20-year period are shown in Table 4-5.

Areal Rights-of-Way

Requests for areal (non-linear) rights-of-way on public lands within the planning area would continue with population growth and the need for co-facilities for linear rights-of-way. Rights-of-way would include communication sites, flood control basins, water and power utility substations, well sites, and sewage ponds. Based on historical use, future rights-of-way would range from 1 to 5 acres for small projects (such as communication sites), 10 to 50 acres for medium projects, and 100 to 500 acres for large projects. Within the past 12 years, 229 areal rights-of-way were authorized for a total of 96,050 acres. Projections for the next 20-year period are listed in Table 4-5.

Recreation Management

It is anticipated that 680 to 820 competitive off-road vehicle events will be authorized on 1,200 to 1,520 miles of existing courses during the life of the Resource Management Plan. An additional 300 competitive events will be authorized on 10,000 acres within the Nellis Dunes Special Recreation Management Area; the entire area is anticipated to be impacted during the life of the Resource Management Plan.

Wild and Scenic Rivers Management

The Virgin River would be evaluated for eligibility as a Recreational River. Future management of the river will depend on the outcome of that inventory and evaluation.

Wilderness Management

Congress is anticipated to designate some wilderness within the planning area. Wilderness Management Plans will be developed and implemented for those areas designated. Wilderness Study Areas not designated by Congress will be released from management under the Interim Management Policy and be managed according to management direction provided in the approved Resource Management Plan.

Minerals Management

Reasonably foreseeable future actions resulting from BLM management of minerals are described below. Several scenarios were designed to discuss the complexities for potential Federally-owned minerals on public lands. These minerals are categorized as locatable, leasable, or salable, depending on the kind of mineral.

Leasable Minerals

(Disposal is discretionary) - Leasable minerals include:

- All minerals on acquired lands, except saleable minerals.
- All minerals on the Outer Continental Shelf.
- Geothermal resources and associated by-products. Coal, phosphate, oil, and gas.
- Chlorides, sulfates, carbonates, borates, silicates, and nitrates of sodium and potassium.
- Sulphur in the states of Louisiana and New Mexico. Oil shale, native asphalt, solid and semisolid bitumen, and bituminous rock, including oil-

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impregnated rock or sands from which oil is recoverable only by special treatment after the deposit is mined or quarried.

Locatable Minerals

(Disposal is nondiscretionary) - Locatable minerals include:

- Uncommon varieties of sand, gravel, stone, pumice, pumicite, cinders, and exceptional clay.
- All "valuable mineral deposits" that are locatable under the *Mining Law* of 1872, except those specifically excluded below.

Salable Minerals

(Disposal is discretionary) - Salable minerals include:

- Petrified wood and common varieties of sand, gravel, stone, pumice, pumicite, cinders, and clay.
- All minerals not defined as locatable or leasable.

Leasable Minerals

The legal and regulatory framework for issuance and management of mineral leases is provided in the following:

- *Mineral Leasing Act* of February 25, 1920, as amended (41 Stat. 437; 30 U.S.C. 181 et seq.).
- *Acquired Lands Act* of August 7, 1947 (61 Stat. 913; 30 U.S.C. 351-359).
- *Geothermal Steam Act* of December 24, 1970 (84 Stat. 1566; 30 U.S.C. 1001-1025).
- 43 CFR, 3100 through 3599.

These regulations apply where public interest exists for development of oil, gas, geothermal, coal, and non-energy leasable mineral resources.

Stipulations are attached to leases and permits to assure protection of nonmineral resources that are susceptible to impacts resulting from the exploration and development of leasable mineral resources.

Fluid Leasable Minerals

To formulate scenarios, generic "Oil Fields" will be developed to understand the potential impacts to Federal lands. The model will provide a range of projected disturbances and an array of probable land uses. In reality, disturbances would vary from oil field to oil field.

Background Description. The entire planning unit is located within or adjacent to the geologic overthrust belt. This belt extends through the mountain areas of the North American continent from Alaska to Central America. The belt passes through Wyoming, Utah, and Nevada and has been the subject of major exploration efforts leading to oil and/or gas production in Wyoming, and Utah. Although located within the overthrust belt, oil production in Nevada is technically considered to be producing from a non-typical (that is, non-overthrust) geologic structure.

In southern Nevada, the geology of the belt is extremely complex having been folded, fractured, faulted, thrust, and overthrust many times through geologic history. Sedimentary rocks that comprise the overthrust belt are also overlain and interbedded with igneous rock. Sediments up to 30,000 feet thick make this the largest frontier exploration area in the contiguous 48 States.

Considerable difference of professional opinion exists as to petroleum potential. The U.S. Geological Survey Circular 902-H, *Petroleum Potential Wilderness Lands in Nevada*, concluded that potential for oil is low in the planning unit. U.S, Geological Survey Open File Report 88-450 also discusses the relatively low geologic petroleum potential of southern Nevada.

Proponents of further exploration in the belt cite as evidence the discovery of oil in Railroad Valley in Nye County, Nevada. Apache Corporation's Grant Canyon No. 3 well was the most prolific onshore, free flowing vertical well in the contiguous United States with a production rate as high as 4,100 barrels of 26° gravity oil per day (BOPD) from the Devonian Guilmette Formation. The well initially flowed at 2,272 BOPD. Completed in August 1984, it began producing water in May 1991, but was shut down in

October of the same year. Nevada oil production decreased 50 percent in 1993, as compared to 1992, due to other high volume producers in the Grant Canyon field.

Exploration Phase. The first exploration well drilled in Clark County was completed in 1929 near Arden, 15 miles southwest of Las Vegas. An area near Mesquite in the northeastern part of the county was believed to be a prospective oil area, but no wells are known to have been drilled in Nevada as a result of that promotion.

Some sporadic drilling occurred in the 1940s, but the more serious efforts began in 1950 when exploration throughout Nevada increased significantly. Although numerous wells have reported oil shows, the lack of a discovery and the general decrease in Nevada drilling in the late 1960s and early 1970s resulted in few wells being drilled in Clark County until the early 1980s. Some of these recent wells were drilled to test the possibility of "overthrust belt" oil fields like those in western Wyoming and northeastern Utah. The two most recent wells were drilled in 1992 in Nye county. Both of these wells were dry and were abandoned.

The deepest well drilled in Nevada, to date, is in Clark County on Mormon Mesa. In 1980, Mobil Oil Corporation drilled the Virgin River U.S.A. No. 1-A to a depth of 19,562 feet. It was an unsuccessful overthrust test. As of March 1, 1996, there were 41 oil and gas leases involving 54,738.54 acres in the planning area. No new leases are being issued pending finalization of the Resource Management Plan.

Geophysical Data Acquisition: Acquisition of geophysical data, emphasizing procurement of seismic data, will continue in the future. Lines will be run to obtain additional data in the vicinity of previous wells and in outlying areas. Estimates are that approximately 10 miles of seismic lines will be run each year. The best available technique will be used when completing these surveys and could be either energy or non-energy type studies. Energy type studies include vibration, above ground shot, shallow hole shot, and deep hole shot methods. Non-energy type studies could include magnetic declination surveys and the use of remote sensing techniques. Vibration and non-energy type studies generally cause negligible surface disturbance, and the use of explosives will cause some surface disturbance.

Seismic studies conducted by the petroleum industry usually consist of sending and receiving sound signals through the earth. Subsurface rock layers transmit variable velocities to the surface which are portrayed on graphs and then interpreted by geophysicists. The signals are generated by surface (shallow hole) dynamite blasts, deep hole (150+ feet) dynamite blasts, or vibroseis machines. The vibroseis process involves dropping a heavy weight on the surface of the earth and recording the shock waves. It requires surface access by heavy duty vehicles. A more detailed description of all phases of oil and gas exploration and development is provided in the mineral potential report.

Seismic evaluation in the valleys in southern Nevada is difficult due to up to 10,000 feet of alluvial fill and the great depth of sediments to penetrate. The alluvial material absorbs, deflects, and distorts signals passing through the material. New technology is available that helps clarify and interpret the distorted signal. Probable exploration would consist of 150 feet deep dynamite shots on the mountains and across the valleys. Depending on the structures being studied, the seismic line could be as short as several miles or as long as 40 to 60 miles. Seismic testing in Wilderness Study Areas on mountainous terrain would consist of helicopter operations to drill the blast holes. Blast holes in the valleys would be placed by low ground pressure all-terrain vehicles or would use existing roads and trails. Helicopter operations over the entire seismic line may also be used.

If a stratigraphic test well is drilled, it would be strategically placed to tie seismic information together with the drill data. If results of the seismic information, geophysical evaluations, and stratigraphic test well so indicate, an exploration well would be drilled. Based on oil and gas field location in the Wyoming and Utah portions of the overthrust belt, exploration wells are likely to be in the mountainous

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areas of Wilderness Study Areas. Such location will require full service roads through mountain terrain, unless located at the end of the present cherry stem road or trails that penetrate some of the Wilderness Study Areas.

Projecting for the 20-year life of the Resource Management Plan, a gradual increase in exploration is projected. This level of activity will depend on the success of exploration to the north where discovery has already been made. The high risk factor associated with the complex and deep structures, multi-million dollar wells, and the low current and projected value of oil are all factors influencing a relatively low exploration program.

Within the Wilderness Study Areas, it is expected that two deep exploration wells will be drilled. The Muddy Mountains, Arrow Canyon, and Mount Stirling Wilderness Study Areas, in that order, are expected to undergo additional seismic testing. Only one major new access road is expected to be built to drill one exploratory well or stratigraphic test well. The other exploratory drill site is expected to be on or near current access roads or trails.

Oil and Gas Development, In terms of an economic development field size, oil and gas development has not been formally established in the planning area. Hypothetically, a shallow 100 barrel per day well with a 100,000 recoverable barrel field could return drilling and investment costs in a few years. Nevertheless, a large field at over 10,000 feet depth would require many millions of barrels to be economically feasible.

Development of wells would follow existing BLM and state regulations and bonding. Production facilities (well heads) would be low profile, utilizing natural colors and occupying less than 100 square feet. Gathering lines would extend from the individual wells to a common collection point, consisting of storage tanks and loading facilities for truck transport. These lines would be either buried or be on the surface. If the field is large enough, a pipeline would be built to the nearest rail line or refinery.

A large field in southern Nevada is expected to consist of 18 to 20 wells and could extend 6 to 10 miles long and 3 miles wide. The project life of the field is 35 years, at which time all facilities would be removed and the sites rehabilitated.

Based on past drill history, most of the drilling will occur outside of Wilderness Study Areas. It is estimated that two wells will be drilled in the geographic areas currently known as Wilderness Study Areas. Historically, oil discoveries in Nevada have been exclusively in the high potential valley bottoms, none of which are known in the planning area. However, new theories have outlined a possible overthrust "play" in some of the lower potential mountainous regions. No more than three drilling or workover rigs will be in operation in a field at the same time. Limited reclamation work would occur until the producing field is abandoned. Producing fields would not be abandoned during the land use planning period. Disturbed land within any producing field that is closed or abandoned would be reclaimed.

Considerable design flexibility can be incorporated into the field development to mitigate environmental impacts. For instance, while Nevada state law specifies one development per square mile, it may make sense to drill multiple wells from one site, which is what is done in the Prudhoe and Kaparuk fields in Alaska. These wells use slant drilling techniques with several wells per pad. Federal well spacing requirements are one well per 40 acres for wells 5,000 feet or less in depth, and one well per 160 acres for wells greater than 5,000 feet in depth. Normally, drilling depths are greater than 5,000 feet; therefore, most of the well spacing can be expected to be 160 acres. The average size for a producing oil and gas field in Nevada is 640 acres.

Beginning geophysical surveys may cross the entire District in a very broad brush fashion. These surveys will attempt to piece together the overall regional geology. After geologic structures of interest are located, surveys of specific areas will be intense and may be repeated frequently. An estimated 50 to 150 miles of line will be surveyed per year. Each year, geophysical exploration would disturb up to 200 acres. There will be 100 percent reclamation completed on these lines by the year's end. This reclamation will be entirely from efforts taken by the geophysical companies.

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The risk factors involved would usually limit drilling to depths of 6,000 feet, although some operators would speculate that larger reservoirs would be encountered at greater depths (10,000 to 15,000 feet). Production rates of each field would range from negligible amounts (10 barrels of oil per day [BOPD]) to extremely prolific (6,300 BOPD). The production life of a field would last from 18 months to 35 years. The complexity of the geology, depth, high cost of drilling to 20,000 feet, restoration and development costs in rugged terrain, and continued low price for oil are not very conducive to active deep depth drilling unless detailed geological information is available in advance.

Future Exploration Activity. Exploration for oil and gas will presumably continue in the future. This exploration will include seismic surveys and wildcat drilling. It is anticipated that 40 wildcat wells will be drilled in the next 20 years. It is also anticipated that these wells will not lead to the discovery of any oil fields. This is contrary to the current industry standard that for every 20 wildcat wells drilled, one will have a discovery. To date, 67 wildcat wells have been drilled in the planning area without any discovery.

The projected quantity and amount of surface disturbance for the projected exploration well activity is listed in Table 4-6. The total acreage disturbed would be 416.38 acres. This is equal to 0.012 percent (416.38 acres ÷ 3,331,895 acres) of the BLM-managed surface within the planning area. Although reclamation requirements apply to all acreage, this is not reflected in the estimates above. All disturbed areas are expected to be eventually reclaimed.

Future Production Activity. Projections are minimal. It is anticipated that a few oil fields could be developed within the planning area during the 20-year anticipated life of this plan. However, if an oil field was discovered, 4 to 20 wells would be drilled in each of two oil fields (one minor and one major). Each field would contain 3 producing wells, up to 2 injection wells, and 2 to 17 plugged and abandoned wells. Because tank batteries would be placed on existing drill pads, additional surface disturbance would not be required.

Each field would be located 1 to 6 miles from a major existing road and require a 50-foot wide access road surfaced with 3 feet of gravel. Additionally, 4 to 5 miles of 30-foot wide service road with a 2-foot gravel surface would be required. Drill pads would not exceed 2 acres and would be surfaced with 2.5 feet of gravel. Between 1 and 6 miles of pipeline would be laid on a 15-foot wide disturbed area. Gravel would be obtained locally from pits not exceeding 10 feet in depth. An oil refinery disturbing 20 acres would be constructed in conjunction with the major oil field. A 30-mile long pipeline disturbing 55 acres of surface would be built from the new oil fields to the proposed refinery. The projected disturbance is listed in Table 4-7.

Two oil fields could possibly be discovered within the planning area during the 20-year anticipated life of this Plan, contingent on the release of lands being considered for Wilderness designation. These kinds of fields are projected as one small (four wells) within the Arrow Canyon Wilderness Study Area, and one larger field (20 wells) within both the Muddy Mountains Wilderness Study Area.

Drilling trends could fluctuate greatly, from an absence of drilling for up to five consecutive years, to half of the wells being drilled in a ten-year period. Each new discovery would foster an increase in drilling activity that could last for two to three years. The amount of acreage disturbed would range from a low of 41 acres, to a high of 253 acres. Although reclamation requirements apply to all acres, the disturbed acreage estimates do not reflect these activities.

Solid Leasable Minerals.

The exploration and mining scenarios for locatable minerals are used to explore the potential impacts from this resource.

Future Exploration Activity. During the proposed 20-year life of this plan, one prospecting permit would be

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received for the White Basin area.. The prospecting permit would equate to a Scenario "C" and would be a two-year project to drill and evaluate the area's mineral potential. This permit is projected to possibly result in lease issuance and development for sodium. The amount of disturbance expected is listed in Table 4-7.

Future Mining Activity. Expectations for solid leasables is similar to the exploration discussion. One mine (located in White Basin) would be developed under Scenario "F." Acreage disturbed would range from a low of 335 acres to a high of 3,020 acres. This is equal to between 0.010 percent (335 acres ÷ 3,331,895 acres) and 0.09 percent (3,020 acres ÷ 3,331,895 acres) of the BLM-managed surface within the Las Vegas BLM District. Although reclamation requirements apply to all acres, reclamation activities are not included in the estimates. All disturbed areas are expected to be eventually reclaimed. Projected disturbance for the exploration and mining development is shown in Table 4-7.

Locatable Minerals

Exploration for and development of locatable mineral resources is provided by the *General Mining Law of May 10, 1872, as amended (17 Stat. 91; 30 U.S.C. 21 et seq.).* 43 CFR 3802 and 3809 provide protection to nonmineral resources, provide reclamation of disturbed areas, and provide for mineral exploration and development, while assuring that activities are conducted in a manner that prevents unnecessary or undue degradation.

Scenario Models. Several generic *mining notice* and *plan of operations* scenarios were created as models to show the complexity and variety of potential impacts to Federal lands. The models illustrate a range of projected disturbances within an array of probable land uses. In reality, disturbances would presumably vary among deposits.

(A) Exploration: mining notice Scenario: In this scenario, there could be county bladed roads, drill pads, trenches, or cut and fill roads. Average disturbance would be 3 acres per year per notice. An average drill program would range from 1 to 15 holes per year. A typical pad would be 20 feet wide by 40 feet long. Holes would often be drilled in roads with the road serving as the drill pad. Cumulative unreclaimed disturbance would not be allowed to exceed 5 acres in any individual project area.

Table 4-6. Projected quantity of material and surface disturbance needed for future fluid mineral exploration wells.

Feature	Square Feet (Each)	Cubic Feet (Each)	Number of Wells	Total Square Feet	Total Cubic Feet	Total Acres
Pad[1]	160,000	400,000	40	6,400,000	16,000,000	146.92
Road[2]	211,200	422,400	40	8,448,000	16,896,000	193.94
Total	**371,200**	**822,400**	**40**	**14,848,000**	**32,896,000**	**340.86**
Pit for extraction of material[3]: 32,896,000 cubic feet ÷ 10 feet maximum depth =					3,289,600	75.52
Total surface disturbance in acreage						**416.38**

Key:
[1] Drill pads are 160,000 ft² (400 feet x 400 feet, constructed on a gravel base 2½ feet deep utilizing 400,000 ft³ (160,000 ft² x 2½ feet) of gravel.
[2] Two miles of access roads, each 20 feet wide, are required for each well. Road disturbance is projected to be 211,200 ft² (10,560 feet x 20 feet). They would be constructed on a two-feet deep base utilizing 422,400 ft³ (211,200 ft² x 2 feet) of gravel.
[3] All gravel would be obtained locally. Gravel pits would be a maximum of 10 feet deep.

Table 4-7. Projected disturbance following exploration and discovery of leasable minerals actions.

Discovery of an Oil Field:	
Disturbance	**Total Acres**
Well pads	8 - 40
Service roads	15 - 18
Access roads	6 - 30
Pipelines	2 - 66
Refinery	0 - 20
Gravel pits	10 - 79
Total	**41 - 253**

Exploration and Development of a Mine		
Scenario	**Number**	**Total Acres**
C	1	5 - 10
F	1	330 - 3,010
Total	**2**	**335 - 3,020**

(B) Mining Operation: mining notice. In this operation, the miner could pursue a placer deposit or a lode deposit. A front end loader and a bulldozer could be utilized. Typically, the miner would be following high grade mineralization that requires minimal processing facilities. Average disturbance would range from two to four acres per year. Cumulative unreclaimed disturbance would not be allowed to exceed 5 acres in any individual project area.

(C) Exploration: plan of operations. In this operation, the mining operator would disturb 5 to 10 acres of land per year. These projects would not normally last more than two to five years. Roads, trenches, and drill pads would be the predominant surface disturbances. An average drill program would range from 15 to 30 holes per year. Up to 200 holes could be drilled in the project area. Closer spacing of holes and more intense programs would normally be associated with the defining of a mineral resource. It is possible that some of these programs would start under a mining notice and then change to a plan of operations when they exceed the surface disturbance threshold of 5 acres.

(D) Small Enterprise: Plan of Operations. In this operation, a small scale operator would pursue a working mine. The small scale operator could be mining a high grade deposit, old tailings, or a deposit which is too small for the larger operators. This operation could be the mining of building stone, industrial minerals, precious metals, or gems. The operators would attempt to operate within favorable economic windows with little capital investment and low operating costs. This operation could employ 1 to 5 people. The disturbance is listed in Table 4-8.

(E) Small-to-Moderate Mine: plan of operations. This operation could be mining industrial minerals, base metals, precious metals, or gems. It could be an open pit gold heap leach operation utilizing a leachate such as cyanide. This mine would have an open pit to pursue the desired commodity. A processing or mill facility would be required. A heap leach pad would only be used for the gold operation. Typically, gold deposits would be low grade with a cut-off grade of 0.025 ounces of gold per ton. This operation could have grades of 0.05 to 0.1 ounces of gold per ton, but the high grade ore would be the exception. In-place gold reserves would be in the neighborhood of 50,000 to 100,000 total ounces of gold. Normally, this operation would employ 15 to 40 people and have a mine life of 3 to 6 years. The disturbance is listed in Table 4-8.

(F) Large Mine: plan of operations. This operation could be mining industrial minerals, base metals, precious metals, or gems. This mine would have one or more open pits to pursue the desired commodity. A processing or mill facility would be required. A heap leach pad would only be used for gold operations. The size of the open pit, type of processing facility, and method of tailings disposal would depend on the commodity being mined. A molybdenum/copper circuit would require larger tailings disposal areas than a gold circuit. Normally, this operation would employ 300 to 600 people and have a mine life of at least seven years. Numbers of employees would likely increase during construction phases of the operation. Water wells, power lines, parking facilities, and other ancillary facilities would be required in advance of production. Disturbance would be greatly influenced by terrain and the engineering ability to use the existing topographic features. The projected disturbance is shown in Table 4-8.

(G) Brine Mine: plan of operations. This operation would pump one or a combination of the following brines: lithium, sodium, potassium, boron, magnesium, or any metal bearing brine from the

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Table 4-8. Projected disturbance from implementation of locatable minerals plans of operations.

Small Mine:	
Disturbance	**Total Acres**
Roads	2 - 5
Processing facilities	1 - 2
Heap leach sites	0 - 10
Administrative sites	½ - 1
Pit or scrape	½ - 10
Ore stockpiles	½ - 4
Overburden storage	½ - 5
Total	**5 - 37**

Small-to-Moderate Mine	
Disturbance	**Total Acres**
Roads	6 - 10
Open pit	10 - 20
Ore stockpile	5 - 30
Leach pads and ponds	20 - 30
Plant facilities	0 - 5
Power lines	0 - 5
Water wells	1 - 5
Overburden/waste	40 - 65
Total	**82 -170**

Underground Mine:	
Disturbance	**Total Acres**
Roads	5 - 50
Processing facilities	5 - 15
Headframe or portal	5 - 10
Ventilation	5 - 10
Tailings disposal	25 - 50
Total	**45 - 135**

Large Mine	
Disturbance	**Total Acres**
Open pits	100 - 500
Leach pads and ponds	100 - 500
Mill buildings	15 - 160
Overburden storage	100 - 400
Tailings ponds	0 - 1,700
Haul roads	30 - 50
Ore stockpiles	30 - 50
Administration, engineering, shop maintenance buildings	50 - 100
Access roads	5 - 50
Total	**430 - 3,510**

Brine Mine:	
Disturbance	**Total Acres**
Processing facilities	10 - 25
Pipelines and roads	50 - 150
Power lines	5 - 20
Evaporation ponds	1,500 - 5,000
Well sites	5 - 20
Salt storage	50 - 150
Overburden storage	50 - 50
Administrative sites	5 - 25
Total	**1,675 - 5,440**

aquifer. A series of evaporation ponds would be constructed. The solution would be allowed to concentrate in the ponds. The solution would concentrate as the water evaporates. The concentrated solution would be run through a mill to remove the desired product. Salt would ultimately be the product left in the pond. The salt or metal or both would be sold as the desired product. The projected disturbance is shown on Table 4-8.

(H) Expansion: Plan of Operations. This operation would not be a wholly new mining venture, but would occur adjacent to an existing operation. It would be an expansion of an existing mine to take advantage of a new ore deposit, new technology, changing economics, or changing company philosophy. A mine could have more than one expansion during its life. This acreage could be used for a new open pit, pit expansion, leach pad, facilities, tailings expansion, waste rock expansions, and others. This model would be projected to disturb an additional 120 to 360 acres, beyond the estimates shown on Table 4-8.

(I) Underground Mine: Plan of Operations. In this operation, the operator could be mining base metals, precious metals, or gems. This operation would require a higher grade of ore than is needed for an open pit mine. Although an underground mine would require less surface acres than an open pit mine, the costs to remove a ton of material would be much higher. Indirect impacts of subsidence and acid water drainage can result from this operation. The mine and processing facilities would often be separated to take advantage of terrain. Typically, an underground mine would be very capital intensive and require extensive development work in advance of production. Normally, this operation would employ 50 to 175 people and have a mine life of 8 to 15 years. The projected disturbance is shown on Table 4-8.

Future Exploration Activity. Exploration would continue within those parts of the planning area that remain available for locatable mineral activity. Drilling programs would attempt to accomplish: 1) the complete assessment work to hold the mining claims pursuant to the *General Mining Law of 1872, as amended*, and/or 2) evaluate a mineralized area as a potential mine.

Exploration activity would vary in a pattern that follows commodity prices. When commodity prices are up, activity would be up. Work conducted during this foreseeable future would occur across the parts of planning area available for locatable mineral activity in mineral potential zones rated as low, moderate, and high. Programs would be concentrated within mining districts, surrounding existing mines, and around new discoveries.

It would be projected that 46 new Scenario "A" operations would take place each year, along with 10 amendments to existing mining notices. It would be projected that 5 new Scenario "C" operations would take place each year, along with 2 amendments to existing plans of operations. During a year, exploration pursuant to a mining notice would disturb 168 acres [(46 + 10) (3 acres)], and that exploration pursuant to plans of operations would disturb between 35 and 70 acres [(5 + 2) (5 acres to 10 acres)]. This exploration would be outside of existing mine project areas. This would total between 203 and 238 acres of new disturbance each year.

Operations pursuant to a Scenario "B" mining notice would stay constant. Currently, there are 20 such operations within the Las Vegas BLM District. These operations would relocate during the life of a plan of operations, but the acreage would remain constant. This would total between 40 and 80 acres [(20) (2 acres to 4 acres)] of existing disturbance each year. Generally, these operators would be working in historic mining districts.

Future Mining Activity.

Projections. The following discussion includes projections for selected operations in the planning area. Scenarios "D" through "I" are used in the foreseeable development scenario. Scenarios "D" through "G", and Scenario "I" focus on new mines or actions, not existing operations. Only Scenario "H" would apply to existing mines. These actions would be mainly projected in moderate or high potential zones, although many factors could lead to development in low potential areas. Based upon the proposed 20-year life of the Resource Management Plan, the total projections are listed in Table 4-9.

Acreage disturbed would range from a low of 15,490 acres to a high of 33,970 acres. This equals between 0.465 percent (15,490 acres ÷ 3,331,895 acres) and 1 percent (33,970 acres ÷ 3,331,895 acres) of the BLM-managed surface within the Las Vegas BLM District. It is important to note that reclamation requirements apply to all of these acres. These estimates do not account for reclamation. It is expected that all disturbed areas will be eventually reclaimed.

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Table 4-9. Projected and current disturbances for future locatable actions.

Future Mining Projections Under Scenarios A through I

Scenario	Number	Total Acreage
A	(46 + 10) x 20 = 1,120	(1,120)(3) = 3,360 to 3,360
B	20 x 20 = 400	(400)(2 to 4) = 800 to 1,600
C	7 x 20 = 140	(140)(5 to 10) = 700 to 1,400
D	2 x 20 = 40	(40)(5 to 37) = 200 to 1,480
E	1 x 20 = 20	(20)(82 to 170) = 1,640 to 3,400
F	0.1 x 20 = 2	(2)(430 to 3,510) = 860 to 7,020
G	0 x 20 = 0	(0)(1,675 to 5,440) = 0 to 0
H	1 x 20 = 20	(20)(120 to 360) = 2,400 to 7,200
I	0.1 x 20 = 2	(2)(45 to 135) = 90 to 270
Total	**159.2 x 20 = 3,184**	**10,050 to 25,730**

Current Disturbances: Number of cases by case type from 1981 through 1995

Type	Active	Inactive	Closed	Total
Non-Wilderness Plans	29	8	75	112
Wilderness Plans	1	7	20	28
Notices	205	5	446	716
Total	**295**	**20**	**541**	**856**

Current Disturbances: Percentages of disturbances with reclamation from 1981 through 1995

Type	Reclaimed Acreage	divided by	Disturbed Acreage	Percentage of Disturbed Acreage Reclaimed
Notices	1,338 acres	÷	2,148 acres	= 62.29 percent
Plans	3,515 acres	÷	5,180 acres	= 67.86 percent
Total	**4,853 acres**	÷	**7,328 acres**	**= 66.23 percent**

Projected and Current Surface Disturbances

Type Scenario	Current Disturbed Acreage	plus	Projected Disturbed Acreage	Total Disturbed Acreage
Minimum	10,050 acres	+	2,475 acres	= 12,525 acres
Maximum	25,730 acres	+	2,475 acres	= 28,205 acres

Type Scenario	Total Disturbed Acreage	divided by	Planning Area Total Acreage	Total Percentage of Disturbed Acreage
Minimum	12,525 acres	÷	3,331,895 acres	= 0.376 percent
Maximum	28,205 acres	÷	3,331,895 acres	= 0.847 percent

Summary of Past and Projected Disturbances

Category of Disturbance	Acres	Percent of Planning Area
Notices and plans proposed from FY1981 through FY1995	7,328	0.220
Notices and plans still requiring reclamation	2,475	0.074
Foreseeable future low	10,050	0.302
Foreseeable future high	25,730	0.772
Total unreclaimed and foreseeable future low	12,525	0.376
Total unreclaimed and foreseeable future high	28,205	0.847

Current Disturbance. The amount of acres disturbed, identified by case file type, from fiscal year 1981 through fiscal year 1995 is summarized in Table 4-9. From 1981 through 1995, the disturbance proposed under mining notices was 2,148 acres (716 x 3 acres), and the disturbance proposed under plans of operation was 5,180 acres (140 x 37 acres), for a total disturbance of 7,328 acres. Not all acreage was disturbed. To close a mining notice case file, all disturbed areas must be reclaimed to the standard described in 43 CFR 3809.1-3(d). To close a plan of operations case file, all disturbed areas must be reclaimed to the standard described in the approved plan.

Reclaimed mining notices equal 1,338 acres (446 x 3 acres). Reclaimed plans of operation equal 3,515 acres (95 x 37 acres). Total reclamation of both notices and plans equals 4,853 acres. Percentages of the disturbances caused by mining operations that have been reclaimed are also shown in Table 4-9.

Unreclaimed mining notices equal 810 acres (270 x 3 acres), and unreclaimed plans of operation equal 1,665 acres (45 x 37 acres), for a total of 2,475 acres.

Combined Disturbance. The total of the current, existing disturbance added to the projected disturbance results in the total surface disturbance in the planning area. This total and the percentages of the BLM-managed surface disturbed by mining operations in the minimum and maximum development scenarios are listed in Table 4-9. No reclamation has been applied to the new disturbance. The BLM policy encourages concurrent reclamation on all projects. All operations in excess of five acres require proper bonding. A complete tabulation of disturbances from 1981 through 1995 and projections for 20 years into the foreseeable future is also listed in Table 4-9.

Saleable Materials

Modifications of the exploration and mining scenarios for locatable minerals are used to identify potential impacts from this resource. These scenarios include all reasonably foreseeable sand and gravel development activities whether these materials are presently being mined as a salable mineral, locatable mineral, leasable mineral, or material site rights-of-way. Mineral extraction for major industrial, military, recreation, and wildlife management areas would occur adjacent to and along access roads to these areas.

Mineral materials extraction would occur as close to the project as possible. Urban areas that would require materials include the cities of Boulder City, Henderson, Las Vegas, Mesquite, North Las Vegas and Pahrump, the towns of Amargosa Valley, Arden, Blue Diamond, Bunkerville, Cal-Nev-Ari, East Las Vegas, Glendale, Goodsprings, Green Valley, Indian Springs, Jean, Lathrop Wells, Laughlin, Logandale, Moapa, Nelson, Overton, Paradise, Sandy Valley, Searchlight, Sloan, Spring Valley, Sunrise Manor, and Winchester, as well as the Apex industrial site, Nellis Air Force Base, and Yucca Mountain nuclear repository site.

Numerous major paved road systems are in the planning area (see list in Table 4-10). Additional smaller, paved spurs also provide access. These paved highways, as well as the extensive road network within the Las Vegas Valley, would require maintenance, rebuilding, and continued sources of materials. Landscape rock would be mined from the Arden and Flagstone quarries.

Scenario Models. Five scenarios are discussed for operation of the salable minerals program.

(V) Sampling and testing activities. In this operation, exploration activities would disturb 3 to 5 acres of land per year, and would typically last less than one year. The predominant type of surface disturbance would consist of road cuts, trenches, and drill holes. An average drill program would range from 15 to 30 holes per year. Up to 200 holes could be drilled in the project area. Closer spacing of holes and more intense programs would normally be associated with the defining of a sand and gravel deposit. These activities would normally cover a larger area than a material site right-of-way or free use permit. All sampling and testing would be authorized under 43 CFR 3602. Ultimately, Federally-aided highway projects would be granted material site rights-of-way under 43 CFR 2800, and all other projects would be issued materials sales contracts or free use permits under 43 CFR 3610 or 3620, respectively.

(W) Community pit operations. In this scenario, up to four operators would extract within a designated community pit, with the sand and gravel deposit utilizing a front end loader and bulldozer. Operators would typically extract material that requires minimal processing facilities. Average disturbance would range from 2 to 4 acres per year.

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(X) Small size pit operations. In this operation, a small-scale operator would pursue a working open pit mine consisting of either a high-quality deposit or one considered too small for the larger operators. The operation would likely extract sand and gravel, building stone, or other common variety minerals. The operation would be restricted by minimal capital investment, with a need to attain a low level of operating costs, resulting in a personnel limitation of one to five employees. The projected disturbance is listed in Table 4-11.

(Y) Moderate size pit operations. This operation would involve mining, by open-pit method, for sand and gravel, building stone, or other common variety minerals. The mine would require a processing facility, employ 15 to 40 workers, and have a mine life from three to six years. Projected disturbance is listed in Table 4-11.

(Z) Large size pit operations. This operation would utilize one or more open pits to extract sand and gravel, building stone, and other common variety minerals. A processing or hot plant facility would be required. The size of the open pit, type of processing facility, and method of overburden disposal would be dependent upon the commodity being mined. The operation would normally employ 50 to 300 people and have a mine life of 7 years or more; additional employees would be needed during construction phases. Water wells, power lines, parking areas, and other ancillary facilities would be required in advance of production. Disturbance would largely depend on the nature of the terrain and the available engineering technology. Projected disturbance is listed in Table 4-11.

Future Exploration Activity. During the approximate 20- year life of this plan, there will be an estimated 70 requests for letters of authorization to conduct sampling and testing activities for sand and gravel. Of these, 85 percent will be by the Nevada Department of Transportation and 15 percent by private contractors. Further, 32 of these authorization requests are projected to result in approval to mine sand and gravel, and there would be 25 for material site rights-of-way, 5 for free use permits, and 2 for contracts for material sales to private contractors. Also, all 22 sand and gravel pits are expected to be developed.

The sampling and testing activities would equate to a Scenario "V" and would be received for the portions of the planning area described in MN-1-k. It would be a one-year project to drill and evaluate the potential for these mineral materials. Three new Scenario "V" operations are expected to occur each year. Exploration activities pursuant to letters of authorization to conduct sampling and testing would

Table 4-10. Major paved road systems in the planning area.

Road Designation	Locations Connected
I-15	Stateline - Las Vegas -Mesquite
US 93	Arrow Canyon - Las Vegas - Hoover Dam
US 95	Beatty - Las Vegas - I-40
SR 144	Mesquite (old highway)
SR 146	I-15 at Sloan - Henderson
SR 147	Henderson - Lake Mead NRA
SR 156	Lee Canyon Road
SR 157	Kyle Canyon Road
SR 158	Deer Creek to SR 157
SR 159	Las Vegas - Blue Diamond - SR 160
SR 160	I-15 at Arden - Pahrump - US 95
SR 161	Jean - Goodsprings - Sandy Valley
SR 163	US 95 - Laughlin
SR 164	I-15 at Mountain Pass - Searchlight - Cottonwood Cove
SR 165	US 95 - Nelson
SR 168	Arrow Canyon - Moapa - I-15 at Glendale
SR 169	I-15 at Glendale - Logandale - Overton
SR 170	I-15 - Bunkerville - I-15
SR 372	Pahrump - California and Nevada border
SR 373	Lathrop Wells - California and Nevada border
SR 374	Beatty to California and Nevada border
SR 604	Las Vegas Boulevard (old highway)

Key:
SR State Route (Nevada)
US United States highway (Federal)
I- Interstate highway (Federal)

disturb between 9 and 15 acres [(3 authorizations) (3 acres to 5 acres)] of new disturbance each year. This exploration would be outside of existing sand and gravel mining areas.

Future Mining Activity. Community pit operations would equate to a Scenario "W." Currently, there are 28 active Scenario "W" operations in the planning area. An average of 30 operations per year are expected over the life of the plan, involving about 30 operators and between 0.25 to 2 acres of new disturbance each year. These operations would relocate during the life of the plan as operators move and community pits are opened and closed. These operators vary in size from small, to medium to large.

Small operations would equate to a Scenario "X". Currently, there are five Scenario "X" operations within the Las Vegas BLM District. An average of 10 new disturbances is expected over the life of the plan, totaling between 60 and 120 acres, and involving 30 operators at 2 acres to 4 acres each. These operations would relocate during the life of the plan as operators move.

Moderate operations would equate to a Scenario "Y." Currently, there are 15 Scenario "Y" operations within the Las Vegas BLM District. An average of five per year is expected over the life of the plan. The total would be between 20 and 80 acres of new disturbance, involving 5 operators at 4 to 16 acres each.. These operations would relocate during the life of the plan as operators move.

Large operations would equate to a Scenario "Z." Currently, there are 4 Scenario "Z" operations in the Las Vegas BLM District. An average of five per year is expected over the life of the plan. This would total between 48 and 192 acres, involving 3 operators and 16 to 64 acres of new disturbance each year. These operations would relocate during the life of the plan as operators move.

Projections follow for operations in the planning area. Scenarios "V" through "Z" are being used in the foreseeable development scenario. These actions would mainly occur in areas of moderate or high sand and gravel potential, although many factors could lead to development in low potential areas. Based on the approximate 20-year life of the Resource Management Plan, total projections are listed in Table 4-11.

The amount of disturbed acreage would range from a low of 3,010 acres to a high of 9,640 acres. Although reclamation requirements apply to all acres, the projections and estimates do not reflect this data. The percentages of BLM-managed surface within the planning area disturbed by mining operations in the minimum and maximum development scenarios are also listed in Table 4-11. This includes 40 designated pits (10 that average 3,150 acres), each with 3 percent or 95 acres disturbed or active at any given time. A total of 3,800 acres of active community pit disturbance is expected each year.

Assessment of Cumulative Impacts from the Past, Present, and Reasonably Foreseeable Future Actions

The following section analyzes the cumulative effects expected from implementation of The Plan. The assessment attempts to address effects on each resource for all lands regardless of ownership.

Air Resource Management

The discussion of cumulative impacts to air resources will be restricted to the Las Vegas air quality Non-Attainment Area (see Map 3-4a). Air resources within the Non-Attainment Area have been degraded by pollutant levels, primarily particulates (PM_{10}) and carbon monoxide, in excess of ambient air quality standards established by the Environmental Protection Agency, State of Nevada, and Clark County Health District. Air quality in the remainder of the planning area is acceptable, meaning that pollutant levels are less than or equal to established standards on a continuous basis. Reasonably foreseeable future actions, together with past and present actions, are not expected to result in unacceptable air quality in any areas outside of the existing Non-Attainment Area.

The primary contributor to the cumulative impact to the air resource within the Las Vegas Valley is public land disposals. Land disposals would indirectly impact the air resource by providing land that may be developed, resulting in an increased growth rate within the valley. Pollutant sources and discharge would be expected to increase along with an increased growth rate. Under this plan, approximately 52,000 acres of public lands within the Las Vegas Valley Non-Attainment Area are designated as being available for disposal.

The fact that public lands have been identified for disposal does not guarantee their eventual disposal

Table 4-11. Projected disturbance from implementation of saleable minerals operations.

Small-sized Pit Disturbance (X)	**Total Acres**
Roads	¼ - ½
Processing facilities	¼ - ½
Pit or scrape	1 - 2
Material stockpiles	¼ - ½
Overburden storage	¼ - ½
Total	**2 - 4**

Large-sized Pit Disturbance (Z)	**Total Acres**
Roads	1 - 4
Processing facilities	1 - 4
Pit or scrape	10 - 40
Ore stockpiles	2 - 8
Overburden storage	2 - 8
Total	**16 - 64**

Moderate-sized Pit Disturbance (Y)	**Total Acres**
Roads	½ - 1
Processing facilities	½ - 1
Pit or scrape	2 - 10
Ore stockpiles	½ - 2
Overburden storage	½ - 2
Total	**4 - 16**

Future Mining Projections Under Scenarios V through Z

Scenario	**Number**	**Total Acreage**
V	3.5 x 20 = 70	(70)(3 to 5) = 210 to 350
W-small	24 x 20 = 480	(480)(2 to 4) = 960 to 1,920
W-med	2 x 20 = 40	(40)(4 to 6) = 160 to 640
W-large	2 x 20 = 40	(40)(16 to 64) = 640 to 2,560
X	10 x 20 = 200	(200)(2 to 4) = 400 to 800
Y	15 x 20 = 300	(300)(4 to 16) = 1,200 to 4,800
Z	3 x 20 = 60	(60)(16 to 64) = 960 to 3,840
Total	**71 x 20 = 1,420**	**4,530 to 14,920**

Projected Surface Disturbances

Type Scenario	**Projected Disturbed Acreage**	**divided by**	**Planning Area Total Acreage**	**Total Percentage of Disturbed Acreage**
Minimum	4,530 acres	+	3,331,895 acres	= 0.136 percent
Maximum	14,920 acres	+	3,331,895 acres	= 0.449 percent

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and development, and this fact must be taken into consideration in development of reasonably foreseeable future actions and assessment of impacts. Among the many factors affecting disposal of public land are budget and workforce considerations, public demand, economic conditions, changing resource values (such as the listing of the desert tortoise), and coordination with local governments.

Approximately 15,325 acres of public lands have been disposed in the Las Vegas Valley over the last 12 years, which averages 1,277 acres per year. Assuming that land disposals will continue at a similar rate as in the past, approximately 25,540 acres of public lands are expected to be disposed during the life of the Resource Management Plan (20 years).

For the purposes of this analysis, it is assumed that approximately 54,000 acres of private lands within the Las Vegas Valley will be developed during the life of the Resource Management Plan (based on a past annual total land development estimate of approximately 4,000 acres provided by local entities, less the average annual disposal figure of about 1,300 acres). This projection, along with the anticipated public land disposals (assuming development of all acres), would result in a total of approximately 80,000 acres of new development during the life of this plan; this represents a 60 percent increase of the total developed land base (currently approximately 132,000 acres) in the Valley .

Estimates for PM_{10} and carbon monoxide emissions due to land disposals are based on data obtained from the Clark County Health District and Clark County Comprehensive Planning. Cumulative impacts from both private and public land development activities during the life of this plan would result in an annual PM_{10} increase of about 760 tons, a total of approximately 15,000 tons (based on 0.19 tons/acre/year) at the end of the 20-year life of the planning period. These figures represent a worst-case scenario in that it is assumed that all of the public land acres disposed will be developed. In practice, all the acres probably will not be developed, and the actual emissions figures resulting from development will be somewhat less than those presented.

Cumulative impacts on carbon monoxide emissions from both private and public land development activities during the life of this plan would result in an annual increase of 5,459 tons, a total of 109,180 tons (based on 1.37 tons/acre/year) at the end of the 20-year life of the planning period. This anticipated increase is due primarily to growth induced increases in motor vehicles and their resultant emissions. These estimates represent a worst-case scenario by not factoring in technological advances that will undoubtedly be made in reducing carbon monoxide emissions from internal combustion engines. It also does not consider additional legal or regulatory measures that may be taken by Federal, state, or local governments to reduce carbon monoxide emissions.

Soil Resource

Erosion and soil loss are expected to decrease as a result of a decrease in surface-disturbing activities. A total of approximately 81,000 tons of soil loss can be expected over the 20-year life of the Resource Management Plan. Actions under The Plan contributing to these losses include livestock grazing; wild horse and burros grazing; off-road-vehicle use; and mineral exploration and development. The soil loss is approximately 21,000 tons less than estimated under current management (about 102,000 tons). Regardless of what actions occur on lands other than public, actions taken under this plan would result in a net improvement to the soil resource.

Water Resource Management

The discussion of the cumulative impacts to the water resource will be restricted to the Las Vegas Valley where rapid growth and development has resulted in a groundwater overdraft situation. In this area, Nevada's Colorado River water allocation is also being rapidly depleted.

The primary contributor to the cumulative impact to the water resource in the Las Vegas Valley is public land disposals. Land disposals would indirectly impact the water resource by providing land that may be developed, resulting in an increased growth rate within the valley. Water demand would be expected to increase along with an increased growth rate.

Under this plan, approximately 52,000 acres of public lands within the Las Vegas Valley are designated as being available for disposal. The fact that public lands have been identified for disposal does not guarantee their eventual disposal and development, and this fact must be taken into consideration in the development of reasonably foreseeable future actions and assessment of impacts. Among the many factors

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affecting disposal of public land are budget and workforce considerations, public demand, economic conditions, changing resource values (such as the listing of the desert tortoise), and coordination with local governments.

Approximately 15,000 acres of public lands have been disposed in the Las Vegas Valley over the last 12 years (an average of approximately 1,300 acres per year). Assuming that land disposals will continue at a similar rate as in the past, it is anticipated that approximately 26,000 acres of public lands will actually be disposed of during the life of the Resource Management Plan (20 years).

Records indicate that approximately 67,000 acre feet of groundwater was extracted from the principal aquifer of the Las Vegas Valley, far exceeding the estimated recharge of 30,000 acre-feet (Table 3-9). In addition to groundwater withdrawals, the Valley used approximately 293,000 acre feet of Nevada's allocation of Colorado River water. Current projections indicate that consumptive use within the Valley may reach its maximum allocation of the Colorado River water much sooner than anticipated.

For the purposes of this analysis, it is assumed that approximately 54,000 acres of private lands within the Las Vegas Valley will be developed during the life of the Resource Management Plan. This estimate is based on a past annual total land development of approximately 4,000 acres provided by local entities, less the average annual disposal figure of approximately 1,300 acres. This amount, along with the anticipated public land disposals (assuming development of all acres), would result in a total of approximately 80,000 acres of new development during the life of this plan. This total represents an increase of 60 percent of the total developed land base (currently approximately 132,000 acres) in the Valley. These actions would have indirect impacts on the water resource by encouraging growth within the Valley and increasing demand on an already taxed water supply.

To date, approximately 132,000 acres of land have been developed in the Las Vegas Valley. Assuming that nearly all present water usage (approximately 336,000 acre-feet) from both groundwater sources and the Colorado River is consumed by these land holdings, the per acre annual water usage in the Valley is approximately 2.5-acre feet. The estimated increase in annual water usage from new development would be approximately 10,000 acre-feet. However, because all disposed lands would probably not be developed, the actual increase in water use would be somewhat less than indicated.

Over the 20-year life of the Resource Management Plan, the anticipated consumption of additional water would be approximately 200,000 acre-feet. Adverse implications of the increased water consumption could be moderated by actions taken by the entities within the Valley charged with management of the water situation. The Las Vegas Valley Water District has initiated an exploration and development program designed to increase current water supplies over the next 15 to 20 years. Mandatory conservation measures may be introduced to better utilize currently available water supplies.

Riparian Resource

Current and proposed actions would act synergistically. These actions include intensive riparian management and/or protection; closure of 43 of the 54 grazing allotments; removal of all wild horses and burros from three Herd Management Areas and reduction to the Appropriate Management Level within three Herd Management Areas; and a forage utilization limit for riparian vegetation. These various actions would help to stabilize and improve the proper functioning condition of the 149 spring associated riparian areas (75 acres) and those associated with the Muddy River, Virgin River and the Meadow Valley Wash (292 acres).

Public land disposals and eventual development of these lands, along with land development other than that associated with public land disposals, would continue to increase the impermeable surface acreage within the Las Vegas Valley. There would be increased runoff and sediments from these areas along with continued erosion within the Las Vegas Wash. These impacts, however, would be expected to be moderated through the efforts of the Clark County Regional Flood Control District. Impacts to the Virgin River riparian area (but to a lesser degree than those within the Las Vegas Valley) would be expected as a result of public land disposals in and around the City of Mesquite.

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Vegetation Management

Vegetation on approximately 29,000 acres would either be lost or changed due to surface disturbance activities over the life of this plan. It is reasonable to expect limited success in reclamation efforts based on past results from many projects. Use of native local cacti species, which transplant well, could be used to improve the success ratio of reclamation efforts.

Weedy species (such as red brome, Mediterranean grass and Russian thistle) tend to invade disturbed sites under most conditions and can become dominant in some situations. Evidence of this occurs throughout the Las Vegas District. It is reasonable to expect white bursage to become established on disturbed sites naturally, provided a seed source is present. This plant is important for soil stabilization.

Plant vigor and species diversity would be expected to improve over the life of this plan due to closure of areas to livestock grazing and new mineral entities. Areas remaining open to livestock grazing would also improve based on intensive management and completion of allotment management plans. Managing grazing at proper use levels and alternating use through deferment grazing systems is expected to improve vegetative conditions over the long term.

Desert Tortoise Habitat Management

Cumulative impacts to desert tortoise habitat are expected to occur over the entire planning area, in varying intensity from location to location. Within the Las Vegas Valley, cumulative impacts to desert tortoise will be significant; This assessment is tempered by the fact that it is unlikely for a long-term viable breeding population to be sustained in the Valley, given current development and the projected growth of Las Vegas over the life of The Plan. Assuming that the identified reasonable foreseeable future actions occur, approximately 107,000 acres of low density tortoise habitat will be lost over the life of The Plan. The majority of this habitat would be located in the Las Vegas Valley. A loss of this magnitude would normally be considered significant, but due to the lack of large *islands* of habitat in the Las Vegas Valley that are capable of sustaining minimum viable populations levels, this loss of habitat is not expected to jeopardize the continued existence of the desert tortoise in Nevada.

A total of approximately 743,000 acres would be designated as Areas of Critical Environmental Concern to be managed primarily for the recovery of desert tortoise. Section 7 consultation would be required on all Federal actions that may affect a threatened or endangered species.

Designation of critical habitat for desert tortoise or other species changes the threshold for jeopardy. Therefore, Federal actions proposed within Areas of Critical Environmental Concern or critical tortoise habitat are more likely to result in a jeopardy opinion. Mitigation measures are expected to be less stringent on projects located outside of Areas of Critical Environmental Concern and critical habitat. Proposed changes in livestock grazing, mineral development, off-road-vehicle designations, and off-road-vehicle racing would reduce, but not eliminate, impacts to desert tortoise. The areas considered most important for tortoise recovery would be protected by Area of Critical Environmental Concern designation.

Recreation Management

Cumulative impacts to recreation will occur throughout the planning area as a result of the management of critical tortoise habitat and the transfer of public lands. The critical habitat designation and management restrictions imposed under the *Tortoise Recovery Plan* restricts casual use and organized off-road-vehicle activity. These limits and the loss of opportunities will cause a long-term shift of off-road-vehicle use to other areas and reduce options for current and future users.

The transfer of public lands under the *Eldorado Lands Act* removed one of the most heavily used recreation areas in the Las Vegas area from public domain. Depending on future management of those lands, there could be losses in the major off-road-vehicle events, numerous other organized permitted activities, and many casual use recreation opportunities. The population growth to nearly 1.5 million people during the life of this plan would create millions of additional visitor days' use on the public lands. This additional use could result in increased user conflicts, overcrowding, and possible resource degradation at other areas in the Las Vegas BLM District that currently do not receive intensive recreational use.

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Unavoidable Impacts

Certain impacts or effects to resources that are considered to be unavoidable after general attempts at mitigation for designated actions are discussed below by resource.

Air Quality

Dust from various activities such as gravel pits, off-road-vehicle races, and construction activities will continue. Increased vehicle emissions are expected due to continued population increases, based on development in the planning area. Strict enforcement of State air quality standards may limit, but not eliminate, increases in pollutants from energy and industrial sources.

Soil

Areas open to off-road-vehicle use, new roads, flood control structures, sand and gravel pits, and industrial sites would result in soil compaction, loss and disturbance as described in this chapter.

Water

Springs and wells would not be used to water cattle or other domestic animals on allotments closed to livestock grazing. Overdrafting of ground water in the Las Vegas Valley would be expected to continue, unless additional injection wells are drilled to recharge the aquifer. Short-term impacts to water quality by grazing animals would continue until spring sources are protected by the appropriate means.

Vegetation

There would be loss of vegetation due to land disposal and subsequent development, gravel pit expansion, and other ground disturbing activities. There would be continued spread of introduced species from disturbance activities. Native plants would be lost due to any ground-disturbing activity.

Visual Quality

Construction of powerlines, whether in corridors or not, would reduce visual qualities and leave lasting changes of the landscapes line and form.

Wildlife

Some desert tortoise and other wildlife would be taken due to both permitted activities and casual use throughout the Las Vegas BLM District. Wildlife habitat would be lost or degraded whenever the surface vegetation is removed.

Grazing

Most livestock permittees would be out of business following closure of allotments to grazing. Land disposal for community growth would lead to limited grazing allotment closures.

Wild Horse and Burro

The Appropriate Management Level of any Herd Management Area would be zero in desert tortoise Areas of Critical Environmental Concern. Animals would be removed from other areas where populations exceed the Appropriate Management Level.

Cultural Resources

Inadvertent effects to cultural properties would occur in three types of situations. Casual recreational activities from uses such as driving off-road-vehicles, riding domesticated horses, riding all-terrain bicycles, and rock collectors could cause disturbances to archaeological features in high use areas. The second situation involves effects to sites from wildlife, which would animals grazing around waterholes and animals burrowing in locales where stratified deposits remain. The third situation would involve natural weathering processes that could move artifacts and disturb intact features through wind erosion, flooding, and ground-shifting.

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Lands

Desert Land Entries, Indian Allotments and Carey Acts would be denied due to lack of water or suitable soils.

Recreation

Decreased opportunities for unrestricted off-road-vehicle use. Restrictions based on desert tortoise management are unavoidable. Closure of the (air quality) Non-attainment area to competitive off-road-vehicle events (except for Nellis Dunes) would cause a loss of traditional use areas and courses associated with Las Vegas Valley.

Mining

Some areas would be closed to mineral entry.

Socioeconomics

Property values could be lowered in areas where powerline corridors are designated.

Some grazing permittees would need to accept the loss of a life-style and find another means to support a family. Impacts on the agriculture community would result from closure of allotments to grazing because fewer animals would go to market at sale yards.

Irreversible And Irretrievable Commitment of Resources

Irreversible commitments are those that cannot be reversed except perhaps in the extreme long term (100 years or more).

Irretrievable commitment of a resource is the loss of an opportunity for production or use of a renewable resource for a period of time.

Irreversible Commitments

- Disposal of public lands to nonpublic uses.
- Loss of wilderness values in a Wilderness Study Area.

Irretrievable Commitments

- Loss of a ranching operation as a result of Resource Management Plan implementation.
- Closure of allotments to grazing.
- Construction or disposal that results in loss of cultural resources.
- Setting an Appropriate Management Level of zero for an Herd Management Area.
- Loss of access to mineral potential as a result of implementing the Plan.
- Loss of soil through wind and water erosion.
- A loss of visual resources as a result of construction of roads, buildings, and powerlines (some of which is immediate and long term, as for powerlines).
- Water and air quality degradation and soil loss due to mining, off-road-vehicles, grazing and powerline construction.
- Loss of woodland sites for firewood potential.

Irreversible and Irretrievable Commitments

- Extraction of materials, as a result of mine development and sand and gravel pit expansion
- Loss or destruction of wildlife and its habitat through construction and other permitted activities.

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Relationship Between Short-Term Uses of the Human Environment and Maintenance and Enhancement of Long-Term Productivity

Short-term uses are generally those that determine the present quality of life for the public. Long-term productivity refers to the capacity of the land to support sound ecosystems that produce resources such as forage, wildlife, and water.

- The disposal of lands from Federal ownership, which is a short-term use, would preclude long-term use of those lands. This would provide for long-term, sustained community growth and agricultural development.

- Actions that improve vegetation conditions would result in an increase in long-term productivity of the resource.

- Locatable minerals development would be constrained by withdrawals and closure to mineral entries, resulting in long-term economic and production loss or delay in mineral activities on affected lands.

- Changes in livestock grazing practices, including no grazing, would result in long-term improvement in riparian, hydrologic and vegetation conditions. The same kinds of restrictions would also result in the suspension of permittees' operations in the short-term and lead to long-term reduced levels of grazing on public lands.

Chapter 5 - Consultation and Coordination

Introduction

This chapter summarizes the preparation, public participation, consultation, and coordination activities conducted for the *Proposed Las Vegas Resource Management Plan/Final Environmental Impact Statement*, referenced frequently as The Plan. During preparation of this document, numerous formal and informal efforts were made to involve the public, various special interest groups and organizations, other Federal agencies, and state and local governments in the planning process, per 40 CFR 1502.25 and 43 CFR 1610.3.

An ongoing extensive data collection effort preceded the writing of The Plan. This process included data assembly, public participation, interagency coordination and consultation, and preparation of the Analysis of the Management Situation. It also included consultation and coordination requests to the U.S. Fish and Wildlife Service for technical assistance for managing candidate species in the planning area, individual scoping meetings for local governments, and meetings with individual members of the general public and representatives of special interest groups and various organizations. Documentation of these consultation and coordination efforts and a complete mailing list of those contacted during the scoping process are on file in the Las Vegas BLM Field Office.

Public Scoping/Participation

The public participation process began in March 1990 with publication of a Notice of Intent to prepare the Stateline Resource Management Plan/Environmental Impact Statement in the *Federal Register* (Volume 55, No. 60, Wednesday, March 28, 1990, page 11445).

On March 29, 1990, approximately 1,400 initial scoping reports were distributed to a mailing list that included interested and affected individuals, State and Federal agencies, local governments, organizations, and private industry. Over 1,000 additional scoping reports were requested and distributed throughout the scoping period. In addition, copies of the scoping report were available at all public meetings.

The scoping report summarized tentative planning issues, preliminary criteria and alternatives, and resource concerns identified by BLM managers and resource specialists. The scoping report also described procedures for nominating Areas of Critical Environmental Concern. The public was specifically asked to:

- Evaluate the scoping report
- Identify additional issues, criteria, or concerns for analysis in the Draft Resource Management Plan/Environmental Impact Statement, hereafter known as, The Draft Plan.
- Nominate Areas of Critical Environmental Concern.

Locations, dates, and times of the nine public scoping meetings were also included in the scoping report.

Copies of the scoping report and a news release announcing the scoping meetings were sent to 218 individuals, organizations, newspapers, and radio and television stations throughout Nevada and some locations in California.

The public scoping meetings were held to solicit comments on the tentative issues, the preliminary planning criteria, and alternatives. Nominations for Areas of Critical Environmental Concern were accepted during the scoping meetings.

There were nine scoping meetings held throughout the District to help identify issues for consideration or analysis in the Resource Management Plan. A total of 198 interested public attended these meetings and voiced their concerns about management of public lands. The scoping period for the Stateline Resource Management Plan/Environmental Impact Statement generated 212 comment forms and

letters.

A Notice of Availability for The Draft Plan was published in the *Federal Register* (Vol. 57, No. 113, Thursday, June 11, 1992).

A Notice of Intent to supplement The Draft Plan was published in *the Federal Regis*ter (Vol. 58, No. 126, Friday, July 2, 1993).

A Notice of Availability for The Supplement was published in the *Federal Register* (Vol. 59, No. 104, Wednesday, June 1, 1994).

Consultation

Section 7 of the *Endangered Species Act* mandates consultation between the BLM and the U.S. Fish and Wildlife Service prior to authorization or implementation of any project that may affect any Federally threatened or endangered plant or animal species or their habitat. Technical assistance on candidate species was requested during the scoping period, and informal consultation on listed species is ongoing throughout the planning process. The Draft Plan and The Supplement were submitted to the U.S. Fish and Wildlife Service for informal consultation for all listed species. The Plan was submitted for formal consultation in December 1997.

Concurrent with development of The Plan, several other major planning efforts were in progress regarding the desert tortoise. Among them were Clark County's short and long-term Habitat Conservation Plans and the U.S. Fish and Wildlife Service *Tortoise Recovery Plan.* The Plan was written to be consistent with both of these documents, which have since been completed .

The Nevada Division of Wildlife was contacted concerning state-listed threatened and endangered wildlife and plant species. This plan is consistent with legislation protecting state-listed species. Coordination and consultation with the State of Nevada will be continued throughout the planning process and during implementation.

The BLM cultural resource management program operates in accordance with 36 CFR, Part 60, which outlines specific procedures for consultation between BLM and the State Historic Preservation Office. A National Programmatic Agreement among the State Historic Preservation Office, the Advisory Council on Historic Preservation, and the BLM became effective in 1997. When implemented in Nevada, this agreement will coordinate provisions of 36 CFR 60 with existing BLM procedures, emphasizing Section 106 consultation. The agreement will also incorporate statewide protocol between BLM and the State Historic Preservation Office, establish reporting standards, and define undertakings and activities that require consultation.

Coordination

Coordination, as defined in this section, refers to efforts to achieve compatibility with other Federal, state, and local land use plans. Public scoping represents initial efforts to coordinate with other entities. All agencies listed at the end of this chapter received at least one copy of the scoping report. Most of the public scoping meetings were attended by representatives from local, state, or Federal entities.

With the City of Las Vegas Planning Department acting as coordinator, public agency scoping meetings were scheduled early in the planning process. Invitations were extended to Clark County and all incorporated cities within the county. The first meeting was held May 8, 1990, and was attended by representatives from the planning departments of BLM, Clark County, and the cities of Henderson, Las Vegas, and Boulder City. A follow-up meeting held May 30, 1990 was attended by all parties from the first meeting, as well as representatives from the Regional Transportation Commission and Clark County Regional Flood Control District. A third meeting was held on July 12, 1990, between BLM and Clark County.

Tonopah was the site of a June 5, 1990. meeting between BLM and representatives from Nye County Planning.

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Written comments were received from various departments of the State of Nevada (including the State Clearinghouse), Inyo County, California, various town boards, town advisory boards, and Citizen's Advisory Committees.

Other Federal agencies providing written comments included National Park Service (Western Region, Death Valley National Monument, and Lake Mead National Recreation Area), U.S. Fish and Wildlife Service (Reno Field Station and Desert National Wildlife Refuge Complex), U.S. Forest Service (Mt. Charleston Ranger District), Environmental Protection Agency (Region IX), U.S. Bureau of Mines (Western Field Operations Center), and U.S. Air Force (Nellis Air Force Base).

Public Review of the Draft, Supplement and Proposed Plan

The Draft Plan and The Supplement were published and made available for a 90-day public comment period on June 11, 1992 and June 1, 1994 respectively. Additional copies of The Draft and Supplement documents were distributed to numerous agencies and organizations, as well as many individuals. The Plan was mailed to everyone on the mailing list, which is included for review at the end of this chapter. The complete mailing list is located at the Las Vegas BLM Field Office at 4765 Vegas Drive, Las Vegas, Nevada, 89108.

A total of eight hearings were held throughout the district, seven for The Draft Plan and one for The Supplement. A combined total of 152 speakers gave testimony for The Draft Plan and Supplement, 124 and 28 respectively.

Written and Testimony Comments

A total of 406 comment letters were received on The Draft Plan and Supplement, 340 and 66 respectively. Written comments and questions were divided into 50 general categories to accommodate review and answering by staff specialists.

Public comments and questions received during the scoping and planning process, including the various meetings and hearings, as well as the BLM's responses, are presented in Appendix O. The presentation of comments and questions is arranged by resource programs in the same order as the resources are addressed in the Plan. Only those letters that addressed issues presented in the Draft Plan and Supplement are addressed in the appendix. All letters received are on file and available for review at the Las Vegas BLM Field Office, along with agency responses to individual comments and questions.

Corrections in The Plan

The following errors or inconsistencies in The Draft Plan and The Supplement were noted in public comments and corrected in The Plan.

Air, Soils and Water Management

On page 4-31 of The Draft Plan, the sentence "With proper mitigation and reclamation, mineral activities would adversely impact the soils in the short term," was changed to "With proper mitigation and reclamation, mineral exploration should not adversely impact the soils in the short-term.

On page 2-38 of the Draft Plan, a reference was made to Appendix A, but should have been Appendixes B and C. Appendixes A-D are included in Appendix M in The Plan. In Chapters 3 and 4, the most current data was used for The Plan to state the Federal Ambient Air Quality Standard is PM10 (particles less than 10 microns).

Page 2-2 of The Supplement states, "Obtain water rights to springs associated with the grazing privilege for those allotments that are retired from livestock grazing. Maintain those waters for wildlife, wild horses and burros, and riparian habitat values." This statement was changed to, "Determine the amount of water needed to meet management objectives. File for appropriative water rights on public and acquired lands, in accordance with the State of Nevada

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water laws, for those water sources that are not Federally reserved."

Page 2-6 of The Supplement states, "Obtain water rights to base waters on grazing allotments which are closed and manage these for wildlife and riparian values." This measure was deleted for The Plan.

Forestry

Page 2-13 of The Supplement refers to wood cutting areas, but only one area is proposed. This error was corrected in The Plan to read that only one area is available for wood cutting.

Livestock Grazing Management

In The Draft Plan, there are inconsistencies in the numbers of active allotments. The inconsistencies were corrected. Maps 2-11 and 2-27 are difficult to compare and the map legends are not accurate. The map legends were corrected and the maps clarified.

Potential Natural Community and Desired Plant Community were not defined in The Draft Plan, but are defined in the Glossary of The Plan.

Pages 4-96 and 4-145 of the Draft Plan are inconsistent with management of livestock. The error on page 4-96 was corrected to match information presented on page 4-145.

Wild Horse and Burro

The Draft Plan should have included a better discussion of constraints on wild horse and burros. A more complex discussion was added for The Plan.

In The Draft Plan, the Valley of Fire State Park lands were included in the Las Vegas BLM District lands. This error was corrected in The Plan.

Page 2-21 of the Draft Plan should be revised to state, "...coordinate herd management with the U.S. Forest Service where Herd Management Areas extend across administrative boundaries, and with the National Park Service in areas where burros inhabit use areas crossing administrative boundaries." This revision was added to The Plan.

In The Draft Plan, the animal numbers do not represent recently recorded data. The new data is reflected in The Plan.

In The Supplement, Table S-1, the Wild Horse and Burro Program should be moved to Wild Horse and Burro section (Page S- 22). This was corrected for The Plan.

Fish and Wildlife

The lands in North Las Vegas called Category 2 tortoise habitat in The Draft Plan are incorrectly identified. This error was corrected in The Plan as Category 3 habitat.

In The Draft Plan, Table 3-7 (Estimated Bighorn Sheep Population Numbers), Map 3-8, and the Species lists in Appendix F and Appendix G were outdated. They were updated for The Plan, in Appendix A and B.

Lands Management

In The Draft Plan, Map 1-2 does not show the Kerr-McGee lands. The lands were identified in The Plan.

Volume II of The Draft Plan does not accurately describe the Eldorado Valley Act lands. These lands were accurately described with the final sale results in The Plan.

In The Supplement, there are inconsistencies in Chapter 4 regarding visual impacts. This was corrected in The Plan.

Minerals Management

In The Draft Plan, the Special Management acreage in the Minerals Management section was

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listed as 172,281 acres, and was changed to 172,218 acres.

Maps 3-17, 3-18 and 3-19 show the mineral potential classifications for lands, such as the Lake Mead National Recreation Area-managed acreage, as surface estate managed by BLM. Those maps were revised to show lands where the surface estate is not managed by BLM.

Socioeconomics

In the Draft Plan, the socioeconomics information in most programs, especially the Minerals Management section, does not reflect accurate data and consequently was updated in The Plan.

Fire

Fire management levels are incorrectly shown on the map on U.S. Forest Service lands. The map was determined not necessary and not carried forward to The Plan.

Special Management Areas

In Appendix E of The Draft Plan, the Crescent Area of Critical Environmental Concern nomination and the Amargosa Mesquite Area of Critical Environmental Concern were missing, because the nomination forms were inadvertently omitted.. This appendix was not carried forward to The Plan.

List of Agencies, Organizations, Individuals and Other Offices

Listed below are the various individuals, agencies, groups, and offices that are on the Las Vegas BLM Field Office mailing list. They were mailed copies of planning documents and notices as part of the consultation and coordination planning process of The Plan.

Congressional Delegation

U.S. Senator Richard Bryan
U.S. Senator Harry Reid
U.S. Congressman John Ensign
U.S. Congresswoman Barbara Voucanovich (past)
U.S. Congressman Jim Gibbons

Federal Agencies

Department of Agriculture
U.S. Forest Service
Soil Conservation Service

Department of Defense
Army Corps of Engineers
Nellis Air Force Base

Department of Energy
Nevada Field Office
Nevada Operations Office

Federal Energy Regulatory Commission
Office of Environmental Compliance
Western Area Power Administration
Yucca Mountain Project Office

Department of the Interior
Bureau of Indian Affairs
Bureau of Mines
Bureau of Reclamation
Bureau of Land Management
- Alaska State Office
- Arizona State Office
- California State Office
- Colorado State Office
- Eastern States Office
- Idaho State Office
- Montana State Office
- Nevada State Office
- New Mexico State Office
- Oregon State Office
- Utah State Office
- Wyoming State Office
- Arizona Strip District
- California Desert District
- Barstow Resource Area
- Needles Resource Area
- Ridgecrest Resource Area
- Tonopah Resource Area

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Battle Mountain Field Office
Caliente Resource Area
Carson City Field Office
Elko Field Office
Ely Field Office
Las Vegas Field Office
Winnemucca Field Office
Field Solicitor

Minerals Management Service
National Park Service
U.S. Fish and Wildlife Service
U.S. Geological Survey

Department of Transportation
Federal Highway Administration
Federal Aviation Administration

Environmental Protection Agency

State Agencies

Arizona
Game and Fish Department

California
Department of Fish and Game, Region 5

Nevada
Agency for Nuclear Projects
Colorado River Commission
Commission for the Preservation of Wild Horses and Burros
Conservation Commission
Land Use Planning Advisory Committee
Multiple Use Advisory Committee for Federal Lands
Army National Guard
Department of Agriculture
Department of Industrial Relations
Department of Minerals
Department of Transportation
Department of Wildlife
Division of Forestry
Division of Historic Preservation and Archaeology
Division of State Lands
Division of State Parks
Military Department
Nevada State Clearinghouse
Office of the Governor
Spring Mountain Ranch State Park
State Senators and Assemblymen (Clark and Nye counties)
University of Nevada-Reno Agriculture and Resource
Economic Division
American Institute of Mining and Metallurgical Society
American Institute of Mining Engineers-Nevada
Animal Sciences
Department of Mining Engineering
Department of Range, Wildlife, and Forestry
Desert Research Institute
Fleshman College of Agriculture
Mackay School of Mines
Plant, Soil, Water Resources
Renewable Natural Resource Center
University of Nevada-Las Vegas
Barrick Museum of Natural History Center
for Business and Economic Research
(Departments of
Anthropology, Biological Sciences,
Geoscience, and
Physics)

Local Government

Citizen's Advisory Councils
Bunkerville
East Las Vegas
Goodsprings
Indian Springs
Moapa Valley
Mt. Charleston
Sandy Valley

City of Boulder City
City Council
City Manager
Community Development and Planning
Department of Public Works
Mayor
Utilities

City of Henderson
City Council
City Engineer
City Manager
Department of Parks and Recreation

Department of Planning
Department of Public Works
Mayor
Water and Sewer

City of Las Vegas
City Council
City Manager
Community Planning and Development
Department of Public Works
Mayor
Parks and Leisure Activities

City of Mesquite
City Manager

City of North Las Vegas
City Council
City Engineer
City Manager
Community Planning and Zoning
Department of Parks and Recreation
Department of Public Works
Mayor
Office of Economic Development
Utilities

Clark County
Clerk
Commissioners
Community and Economic Development
Community College
County Manager
Department of Comprehensive Planning
Department of General Services
Department of Parks and Recreation
Health District
Planning Commission
Public Works
School District
Soil Conservation District
Clark County Museum
Clark County Regional Flood Control District
Clark County Regional Transportation Commission
Clark County Wildlife Advisory Board

Inyo County, California
Planning Department

Nye County
Commissioners
Planning Department
Road Department
School District
Town Boards
Beatty
Amargosa Valley
Town Advisory Boards
Bunkerville
Moapa Valley
Laughlin
Mt. Charleston
Searchlight

Native American Councils

Intertribal Council of Nevada
Las Vegas Indian Center

Public Libraries

Amargosa Public Library
Beatty Community Library
Blue Diamond Library
Boulder City Library
Bunkerville Library
Charleston Heights Library
Clark County Community College
Learning Resource Center
Clark County Library
Colorado State University
Department of Interior Natural Resources Library
Goodsprings Library
Henderson Library
Indian Springs Library
Las Vegas Public Library
Moapa Valley Library
Mt. Charleston Public Library
North Las Vegas Library
Nye County Library
Pahrump Public Library
State of Nevada Library
Sunrise Public Library
University of Nevada-Las Vegas
University of Nevada-Reno
Virgin Valley Library
Washoe County Library

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Organizations

All-Terrain Vehicle Safety Institute
American Alpine Institute
American Mustang and Burro Registry
American Rivers
Archaeo-Nevada Society
Best In The Desert Motorcycle Club
Blue Ribbon Coalition
Boulder City Chamber of Commerce
Boulder Gem Club
Bureau of Land Management Lands Foundation
Center for Urban Affairs and Policy Research
Citizen Alert
Clark County Gem Collectors
Desert Bighorn Council
Ecology Center of Southern California
Environmental Defense Fund
Fraternity of the Desert Bighorn
Friends of Nevada Wilderness
Friends of Red Rock Canyon
Friends of the Mojave Road
Friends of the River
Frontier Girl Scout Council
Groundshakers Motorcycle Club
Henderson Chamber of Commerce
High Desert Racing Assn.
Humane Society of Southern Nevada
International Society for the
Protection of Mustangs and Burros
Las Vegas Board of Realtors
Las Vegas Chamber of Commerce
Las Vegas Distance Riders Club
Las Vegas District Advisory Council
Las Vegas Gem Club
Las Vegas League of Women Voters
Legislative Counsel Bureau
Lost City Museum
Motorcycle Racing Association of Nevada
NAACP-Las Vegas Branch
Natural Resource Defense Council
National Speleological Society
National Wildlife Federation
Nevada Federation of Animal Protection
Organizations
Nevada League of Women Voters
Nevada Natural Heritage Program
North Las Vegas Chamber of Commerce
Partners for PFT
Red Rock Audubon Society
Sierra Club
Silver Dust Racing Assn.
Southern Nevada Off-Road Enthusiasts
Soroptimist International
Southern Nevada Clean Communities, Inc.
Southern Nevada Grotto
Southern Nevada Home Builders Assn.
Southern Nevada Landcruisers
Teamsters Local 631
The Nature Conservancy
The Wilderness Society
Tri County Livestock Council
U.S. Humane Society
U.S. Wild Horse and Burro Foundation
Wild Horse Organized Assistance, Inc.

Businesses

AeroTech
Aggrandize Mining Company, Inc.
AMAX Gold Inc
American Borate Company
American Sand and Gravel
Andalex Resources
Animal Protection Institute of America
Associated Press
Avery Engineering Company
Baron Mining Corporation
Bell Telephone Company of Nevada
Black Canyon Mining Company
Blystone Equipment Co.
BO-K Explorations
Bob Bottom, Inc.
Bolling Construction
Bow and Arrow Cattle Co.
Brookline Mining Company
CALNEV Pipeline Co.
Charles H. Heisen and Associates
Consolidated Minerals Mgmt. Corp.
Converse Consultants
Dames and Moore
Delorda Mining Company
Desert Echo
Dimick Drilling
Dixie Mining
Eldorado Valley Mining Corp
Energy Research Company, Inc.
Frehner Construction Company, Inc.
Galli Exploration USA
G. C. Wallace, Inc.
Gold Fields Mining Corporation

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Grace Petroleum Corporation
Henderson Home News
Holchem Inc.
Hollywood Gravel Co.
Holnam, Inc.
Homestake Mining Company
H and W Minerals Company
Idaho Power
IMV
Industrial Photographics
Jacobs Engineering Group, Inc.
James Hardie Gypsum
Jetco Enterprises, Inc.
Johnstone Supply
J.R. Simplot Company
Kern River Gas Transmission Co.
Kerr-McGee Chemical Corporation
Key West Mining, Inc.
Knight and Leavitt Associates, Inc.
Krause/Thacke Mining and Minerals Co.
KVBC TV (Channel 3)
LAC Minerals (USA), Inc.
Los Aangeles Department of Water and Power
Las Vegas Paving Corporation
Las Vegas Sun
Las Vegas Valley Water District
Lewis Homes
Magnum Mining Company
MEA, Inc.
Mesquite Farmstead Water Assn.
Micron Minerals Corporation
Minerals Exploration Coalition
Mitsubishi Cement
Moapa Valley Telephone Company
Monco Petroleum
Nevada Environmental Consultants, Inc.
Nevada Cobalt Industries, Inc.
Nevada Pacific Company, Inc.
Nevada Power Company
Noble-Tech Group, Ltd.
Oglebay Norton Company
Osage Industries
Oxbow Power Corporation
PABCO Gypsum
Pathfinder Gold Mines Corp.
Planning Information Corporation
Popular Mining Magazine
Precision Asphalt and Grading
Public Land News
R.A.M.M. Corporation
R.B. Peterson Construction Company
Red Corral Mines
Resource Concepts, Inc.
Ruby Drilling Company, Inc.
Science Applications International Corporation
Santa Fe Pacific Mining Company
Sierra Pacific Power Company
Silver State Disposal Company
Silver State Materials Corp.
Simplot Silica Products
Sky's The Limit, Inc.
Skyline Construction Company, Inc.
Snowbird Resources Limited
Southern California Edison
Southern Nevada Mining Partners
Southern Nevada Paving, Inc.
Southwest Gas Corporation
S & S Geologic Consulting Services
Standard Industrial Minerals, Inc.
Stateline Resources, Inc.
St. Joe Gold Corp.
Stocks Mill and Supply Company, Inc.
Sundance Realty and Development
TAMETIC
Tele-Reservations
U.S. Borax and Chemical Corporation
U.S. Engineering and Mining Company
United States Resources, Inc.
Valley Ready Mix
Van Sickle Enterprises
Viceroy Gold Corporation
Vosburg Equipment
VTN
Washington Contractors Group
Western Range Service
Western Rock Products
Whiting Brothers, Inc.
Wil-Tel Communications
Wittwer Ranch
WMK

Individuals

Aaron L. Clark
Abe Teerlink
Al Atwell
Amy Mazza
Andrea L. Sweet
Audrey Bradbury
Barbara Rodgers
Bart and Jean Pearson

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Ben Brown
Betty J. Rivers
Bill Fleshman
Bill Shapley
Billy B. Crank
Bob Moss
Bob Collette
Bob and Rita Pribila
Bret Braden
Bryce Gubler
Bruce Canfield
Byron and Ellie Green
C. A. Lewis
Carl Semon
Carl Volkmar
Carol Jacobson
Charles Carson
Charles D. Snow
Charles Luzier
Charles P. Van Epps
Charlie Lam
Cheri Madison
Chris Mitchell
Chuck Garrett
Clay Mills
Colonel Scott C. Bergren
Craig Walton
Cris Trolson
Dan Mundy
Daniel C. Thorne
Dave Naslund
David and Mary Deitrich
David Donnelly
David Hinkson
David L. Platerio
David Meshard
David Pierce
Deborah Collins
Dennis B. Whitmor
Dennis and Lola Egan
Derril Wenzel
Donald G. and Connie R. Whitney
Donna Geiser
Douglas E. Noland
D. R. Moody
Dr. Stanley E. Jones
Earl Gregory
Eddy Dean
Ed Pribyl
Edward and Adriane Wheeler
Edwin O. Larson
Emerson Leavitt
Ernest and Marge Sandquist
E. R. Riggs
Evan Blythin
Evelyn Hartin
Frank Buckley
Frank Maxwell
Franklin Rittenhouse
Fred Hansen
Gail D. Armstrong
Garry Hayes
Gary Bullard
George Austin
George D. Fehr
George H. Reed
George Moehr
Gladys Feinn
Glenn Stone
Greg Gault
Hardy H. Seglor
Harley Dickensheets
Harold C. Anderson
Harold Fischer
Harold Wittwer
Harry Pappas
Herbert M. Jones, Esq.
H. W. Gulley
Ivan G. Pivaroff
Jack Baker
Jack Woodcock
Jeff Landers
Jeff Van Ee
Jerry Riggs
Jim Sallee
Jo and Don Noble
Joe Cleary
Joe and David Jones
John A. Davenport
John Clark
John and Della Yeager
John L. Grassmeier
John Peplowski
John P. Rich
John Sherman
John Steele
John W. Arlidge
Joseph H. Robertson
Joseph Puckett
Joyce Stalians
Julene P. Haworth
Katherine Goudreau

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Keith Kindred
Keith and Marilyn Nay
Ken Jensen
Kent Tim Hafen
Kirk Harrison
LaRene Younghans
Larry Isbell
Larry P. Brundy
Lee Halsey
Lee Kapaloski
Lee, Paul, and David Ziegler
Len Haeckel
Leo C. Artman
Leon Sprouse
Linda Sanders
Lionel Tyree
L. Levy
Lorin Bunker
Louis Koncher
Lt. Craig Klatt
Malcolm J. Reeves
Manning J. Post
M. R. Rambo
Marjorie Sill
Mark A. Sorensen, P.E.
Mark Royce
Mark Saylor
Marvin Veneman
Mary Hibbs
M. Dean Webb
Melburn Jensen
Michael Kirk, D.V.M.
Michele Spruell
Mike Payne
Mike Verchick
Milton Linn
Mr. Melburn Jensen
Mr. Mildred K. Kaunas
Pat Foley
Paul E. Huish
Paul Selzer
Paul and Timothy Austin
Perry Bowman
Peter Gattuso
Randal Grandstaff
Ray Ausmus
Ray Lindblom
Raymond Sunday
R. E. Bob King
Rex Goodell
R. H. Cronshey
Richard Arnold
Richard C. MacDonald
Richard J. Mitchell
Richard Peters
Richard Thurmond
R. James Steward
Robert B. Leydecker, Jr.
Robert C. Broadbent Jr.
Robert and Joan Michel
Robert Kerr
Robert Murphy and Evangeline Brown
Robert Stoldal
Robert W. Maichle
Roland Holmes
Ronald M. Newell
Ron and Ann Schreiber
Ron L., Ron W., and Leslie Hardy
Ron Rudin Realty
Rose Strickland
Russell F. Miller
Ruth Sunday
Sal Fish
Sandy McFarlane
Sanford and Marilyn Shuler
Scott Margetts
Scott Obney
Shirley and Wayne Leavitt
Spencer Apple
Stanley Pierce
Steve Hailey
Steven Reiter
Team Loomis, Off-Highway Training
The C. L. Hesters
Thomas Davis
Thomas L. Williams
Tim Boyce
Tom Mannillo
Walter Barbuck
William A. Kelley
William J. Herbert, Jr.
William R. Hodges
William and Toni Dixson
William Lescenski
William Pautle

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LIST OF PREPARERS

The Las Vegas Proposed Resource Management Plan and Final Environmental Impact Statement was prepared by specialists from the Las Vegas Field Office. Planning, resource, and printing staff from the Nevada State Office provided technical reviews and support. The Ely Field Office completed the Desert Tortoise Cumulative Impact Analysis in Appendix I. Tables 5-1, 5-2, and 5-3 list the individuals and their responsibilities in the preparation of this document.

Table 5-1. List of preparers.

Name	Assignment	Education and Qualifications	Years of Experience
Roger Alexander	Team Leader	B.S.-Wildlife Science	20
Jerry Wickstrom	Team Leader (after 7/91)	B.S.-Wildlife Science	30 retired
Jeff Steinmetz	Team Leader (after 9/94)	B.S.-Range Management	20
Jeanie Cole	Wildlife Habitat Mgmt. Aquatic Habitat Mgmt. ACECs	B.S.-Wildlife Ecology	11
Tom Cook	Geology, Minerals	B.S.-Geography B.S.-Geology B.S.B.A.-Accounting M.S.-Accountancy M.B.A.- Business Administration	19
Sharon DiPinto	Lands, Rights-of-Way, Acquisitions		19
Gary McFadden	Wild Horse & Burro Mgmt.,	B.S.-Range Animal Science	23
Kathy Helm	Technical Writer/Editor		16
Rebecca Lange	Geology and Minerals	B.A. Geology	15
Joel Mur	Red Rock Canyon NCA	B.A.-Liberal Arts B.S.-Natural Resources/ Recreation Lands Mgmt.	21
Keith Myhrer	Cultural Resources, Paleontological Resources	M.A.-Anthropology	5 USAF
Paul Myers	Socio-Economics	B.S.-Economics	20
Jack Norman	Soils and Hydrology	B.S. Soil Science	16
Gary Pavusko	Fire Management	A.A.S.-Fire Science Mgmt. A.A.S.-Fire Science Tech. B.S.-Natural Resource Conservation	12 CDF
Jake Rajala	Desert Tortoise Cumulative	M.A. Anthropology M.S. Forestry & Range B.A. Anthropology	21
Donn Siebert	Air Resources, Soils, Water Resources, Riparian Mgmt.	B.S.-Watershed Mgmt. B.S.-Forest Mgmt.	19
Robert Taylor	GIS Support	B.S. Landscape Architect	22
Dave Wolf	Recreation, Wilderness, VRM, Wild & Scenic Rivers,	B.S.-Wildlife Management B.S. Recreation	23

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Table 5-2. List of reviewers and technical support and guidance.

Name	Title	Office
Bob Stager	Rangeland Management Specialist	Las Vegas Field Office
Bob Taylor	Resource Advisor	Las Vegas Field Office
Sid Stone	Wildlife Biologist	Las Vegas Field Office
Stan Rolf	Archaeologist	Las Vegas Field Office
Gayle Marrs-Smith	Botanist	Las Vegas Field Office
Ken Stowers	Realty Specialist	Nevada State Office
Richard Hoops	Fluid Minerals Team Leader	Nevada State Office
Brad Hines	Range Specialist	Nevada State Office
Dave Pulliam	Wildlife Biologist	Nevada State Office
Randy McNatt	Fish/Foresrty Specialist	Nevada State Office
Margaret Wolf	Outdoor Recreation Planner	Nevada State Office
Mary Clark	Land Law Examiner	Nevada State Office
Neil Talbot	Planning/Environmental Analyst	Nevada State Office
Pat Barker	Archaeologist	Nevada State Office
Stephen Smith	Wilderness Specialist	Nevada State Office

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Table 5-3. Management support and guidance.

Name	Title	Office
Robert V. Abbey	State Director	Nevada State Office
Dan Rathbun	Special Assistant to State Director	Nevada State Office
Tom Leshendok	Divisions Chief, Minerals Mgt.	Nevada State Office
Sandra Allen	Chief, Natural Resources, Lands & Planning	Nevada State Office
Jo Simpson	Cheif, Office of External Affairs	Nevada State Office
Mike Lipka	State Fire Control Officer	Nevada State Office
Jessie Dingman	State Fire Management Officer	Nevada State Office
Michael Dwyer	Field Office Manager	Las Vegas Field Office
Marvin D. Morgan	ADM Renewable Resources	Las Vegas Field Office
Mark Chatteron	ADM Non-Renewable Resources	Las Vegas Field Office
Dan Krutina	Interagency Fire Mtg. Officer	Las Vegas Field Office

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Chapter 6 - Plan Implementation, Maintenance, and Amendment

Introduction

The Las Vegas District Resource Management Plan is designed to provide the framework for managing public lands in the Las Vegas BLM District for a period of approximately 20 years. To accomplish this goal, the planning process must provide for changes in the terms, conditions, and decisions of the Approved Resource Management Plan, in response to unforeseen future demands or events.

Plan Implementation

Following approval of the resource management plan, the BLM will implement the management actions of this plan. The following standard operating procedures will be followed during plan implementation to mitigate the impacts of those management actions.

Standard Operating Procedures

1. Management actions will conform to all laws, Executive Orders, regulations, Memoranda of Understanding, Cooperative Management Agreements, Department of Interior manuals, BLM manuals, and BLM Instruction Memoranda.

2. All management actions will require an environmental analysis prior to implementation. The environmental assessment process will evaluate the proposed action for conformance with applicable laws and regulations. If the assessment determines there is potential for significant impacts that cannot be mitigated, the proposed action will be modified or abandoned.

Plan Maintenance

The Las Vegas District Resource Management Plan will be maintained as necessary to reflect minor changes in data. Situations requiring plan maintenance include changing acreage figures to reflect recent land disposals or acquisitions, to reflect new legislation, and to provide new language clarifying a decision, term, or condition. Maintenance of the Plan cannot expand the scope of a resource use or a restriction, nor can it change the terms, conditions, and decisions of an approved Resource Management Plan. Plan maintenance does not require formal public involvement, interagency coordination, or the preparation of an environmental assessment or environmental impact statement. Any maintenance must, however, be documented in the Plan and supporting records.

Plan Amendments

The *Federal Land Policy and Management Act* (1976) requires that all actions occurring on public land conform to an approved land use plan. The BLM regularly receives proposals, applications, and requests for uses that are not in conformance with an approved land use plan. Approval of any of these proposals would alter the scope of a resource use or use restriction; or change the terms, conditions, or decisions of the Resource Management Plan. In this situation, the Bureau has two options: (1) to deny the request or application, based on non-conformance with the approved land use plan, or (2) to initiate the plan amendment process.

The plan amendment process may also be initiated at any time by the BLM State Director, in response to new data obtained from plan monitoring and evaluation; new or revised policy; changes in the scope of a resource use or a use restriction; and any changes in the terms, conditions, or decisions of the Resource Management Plan.

The decision to initiate the plan amendment process does not guarantee that the proposed plan amendment will be approved. The proposed amendment will be analyzed in accordance with the planning regulations and receive an appropriate level of environmental analysis, public participation, and interagency coordination (including consistency determinations with other approved Federal, state, and local land use plans), prior to the Bureau's final decision.

Based on the significance of the anticipated environmental impacts from the specific proposal and the significance of the anticipated change to the Resource Management Plan, plan amendments are categorized as described below:

- *Category 1* - The proposed amendment, based on preliminary analysis, would not involve a significant change in the goals, objectives, terms, conditions, or decisions of the Resource Management Plan and would not result in a significant environmental impact. An Environmental Impact Statement would not be required, and the proposed plan amendment would be analyzed in an environmental assessment.

- *Category 2* - The proposed amendment, based on preliminary analysis, would involve a significant change in the goals, objectives, terms, conditions, or decisions of the Resource Management Plan, and would result in a significant environmental impact. An Environmental Impact Statement would, therefore, be required.

Plan Amendment Process

The plan amendment process for the Las Vegas District Resource Management Plan will be conducted on an annual basis, except in special circumstances where the State Director requires that the process begin immediately. In March of every year following approval of the Resource Management Plan, a 30-day time period will be designated for the purpose of submitting proposed amendments to the Las Vegas District Manager. Public notification of the submission period will be published in the *Federal Register*; news releases will be distributed to all major media sources in Nevada; and a notice will be sent to all individuals, organizations, agencies, and other entities who have requested to be on the Planning Mailing List.

All proposed amendments submitted during this time period will be evaluated to:

- Determine if the proposed amendment is in accordance with applicable laws and regulations and provides for the immediate and future management, use, development, and protection of the public lands within the Las Vegas BLM District. The BLM Las Vegas District Manager will base the rationale for such determination on the principles of multiple use, sustained yield, and maintenance of environmental quality, as required in the *Federal Land Policy and Management Act* of 1976.

- Determine if alternative locations within the Las Vegas District are available to meet the applicant's needs without requiring a change in the Resource Management Plan's classification or an amendment to any plan element.

The following criteria must be present before a plan amendment will be considered:

- The proposed amendment is based on new data not considered when the plan was developed.

- The information represents a change in legal or regulatory mandate.

- The supporting detail is sufficient and the problem is clearly stated to allow consideration of the request.

- The information represents a formal change in State or local government or agency plans.

If the proposed amendment cannot be considered due to legal or regulatory constraints or to improper submission, or if the situation can be resolved without a plan amendment, the amendment process will end at this point.

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If a determination is made by the Las Vegas BLM District Manager to proceed with the amendment process, the proposed plan amendments will be presented to the Resource Advisory Council for discussion and recommendations. The Council will serve only in an advisory capacity and their recommendations will not be binding on the District Manager.

The recommendations of the District Manager and the Resource Advisory Council will be forwarded to the State Director, who will decide to either:

- Reject the proposed plan amendment, in which case the requestor will be notified of the decision and its rationale.

- Further consider the proposed plan amendment, in which case the Director will determine the category of the amendment with regard to the level of environmental analysis. The Bureau will then proceed with the amendment process, as indicated below.

Category 1 Amendment

- Issue Notice of Intent (NOI) to prepare a plan amendment.
- Provide a 30-day public review and comment period.
- Identify issues related to the proposed plan amendment and review existing Resource Management Plan planning criteria. Revise the planning criteria, if necessary, and provide for public comments on the revised criteria. Collect necessary data, review the existing Analysis of the Management Situation as it applies to the proposed amendment, and revise as needed. Formulate alternatives and estimate effects of implementing any of these alternatives.
- Prepare Environmental Assessment (EA) and Finding of No Significant Impact (FONSI).
- Provide for 60-day Governor's Consistency Review.
- Issue Notice of Availability (NOA) for Proposed Plan Amendment/Environmental Assessment/Finding of No Significant Impact.
- Provide a 30-day protest period.
- Resolve any protests.
- Prepare Approved Plan Amendment/Decision Record.

Category 2 Amendment

- Issue Notice Of Intent to prepare a plan amendment/Environmental Impact Statement.
- Provide a 30-day public scoping period.
- Identify issues related to the proposed plan amendment and review existing Resource Management Plan planning criteria. Revise the criteria, if necessary, and provide for public comments on the revised criteria. Collect necessary data, review the existing Analysis of the Management Situation as it applies to the proposed amendment, and revise as necessary. Formulate alternatives and estimate the effects of implementing any of these alternatives.
- Prepare Draft Plan Amendment/Environmental Impact Statement.
- Provide for 90-day public comment and review period.
- Analyze comments and prepare Proposed Plan Amendment/Final Environmental Impact Statement.
- Issue Notice of Availability for Proposed Plan Amendment/Final Environmental Impact Statement.
- Provide 30-day protest period and 60-day Governor's Consistency Review.
- Resolve any protests.
- Prepare Approved Plan Amendment/Record of Decision.

Plan Amendment Information

All requests for amendment must be submitted to the Las Vegas BLM District Manager at the following address:

Bureau of Land Management
Attention: District Manager
4765 Vegas Drive
Las Vegas, NV 89108

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Information Required from Individuals and Organizations

Requests for a plan amendment from individuals, private groups, organizations, and businesses must contain the following information:

- Reason for the request, including: (1) explanation of any adverse effects on an individual, group, organization, or business by existing requirements or management objectives in the Resource Management Plan, or (2) description of new data or circumstances attributed to the need to amend the Resource Management Plan.
- Description of the proposed plan amendment, including objectives, direction, and actions.

Information Required from Governmental Agencies

Cities

Requests for a plan amendment from an incorporated city must contain the following information:

- Approval of the request by vote of the appropriate City Council.
- Reason for request, including: (1) explanation of any adverse effects on the city by the Resource Management Plan or parts thereof, or (2) description of new data or circumstances attributed to the need to amend the Resource Management Plan.
- Description of the proposed plan amendment, including objectives, direction, and actions, as well as supportive data explaining the necessity of the proposed amendment for consistency with officially adopted city land use plans.

County

Requests for a plan amendment from Clark or Nye County must contain the following information:

- Approval of the request by vote of the appropriate County Commissioners.
- Reasons for the request, including: (1) explanation of any adverse effects by the Resource Management Plan, or parts thereof, or (2) description of new data or circumstances attributed to the need to amend the Resource Management Plan.
- Description of the proposed plan amendment, including objectives, direction, and actions, as well as supportive data explaining the necessity of the proposed amendment for consistency with officially adopted county land use plans.

State

Requests for plan amendment from the Legislative or Executive Branch of the State of Nevada must contain the following:

- Approval of the Executive Director or Secretary of the submitting agency, after demonstrating coordination with other potentially affected State agencies.
- Reasons for the request, including (1) explanation of any adverse effects on the State by the Resource Management Plan, or parts thereof; or (2) description of new data or circumstances attributed to the need to amend the Resource Management Plan.
- Description of the proposed plan amendment, including objectives, direction, and actions, as well as supportive data explaining the necessity of the proposed amendment for consistency with adopted State plans or programs.

Federal Agency

Requests for plan amendment from a department, office, or bureau of the Executive Branch of the United States Government (other than BLM) must contain the following:

- Approval by the director of the submitting department, office, or bureau.

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- Reasons for the request, including: (1) explanation of any adverse effects on the agency by the Resource Management Plan, or parts thereof, or (2) description of new data or circumstances attributed to the need to amend the Resource Management Plan.

- Description of the proposed plan amendment, including objectives, direction, and actions, as well as supportive data explaining the necessity of the plan amendment for consistency with officially adopted plans or programs.

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*U.S. GOVERNMENT PRINTING OFFICE: 1998-683-040/60008

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:ed States
Department of the Interior
Bureau of Land Management
Las Vegas Field Office
4765 West Vegas Drive
Las Vegas, NV 89108-5000

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U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Las Vegas Field Office
4765 Vegas Drive
Las Vegas, NV 89108

May 1998

PROPOSED
LAS VEGAS RESOURCE MANAGEMENT PLAN AND FINAL ENVIRONMENTAL IMPACT STATEMENT

Volume II: Appendices, Glossary, References and Maps

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B 64

MISSION STATEMENT

The Bureau of Land Management is responsible for the stewardship of our public lands. It is committed to manage, project, and improve these lands in a to manner to serve the needs of the American people for all times. Management in based upon the principles of multiple use and sustained yield of our nation's resources within a framework of environmental responsibility and scientific technology. These resources include recreation, rangelands, timber, minerals, watershed, fish and wilderness, air and scenic, scientific and cultural.

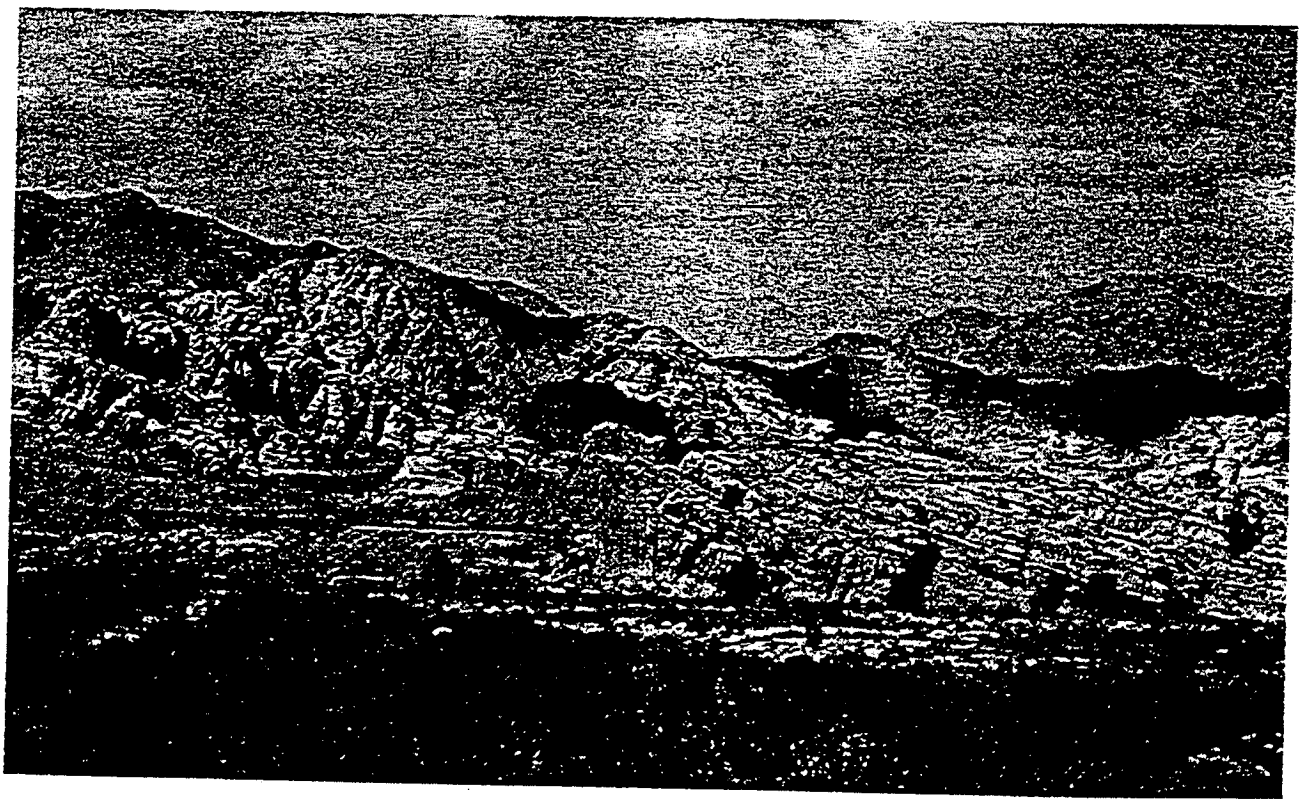
BLM/LV/PL-98/012+1791

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Las Vegas Field Office
4765 Vegas Drive
Las Vegas, NV 89108

May 1998

EXECUTIVE SUMMARY FOR PROPOSED LAS VEGAS RESOURCE MANAGEMENT PLAN AND FINAL ENVIRONMENTAL IMPACT STATEMENT



Introduction and Background

This Executive Summary is provided to assist your review of the Proposed Las Vegas Resource Management Plan and Final Environmental Impact Statement, hereafter referred to as The Plan.

The Plan will provide management direction over approximately the next 20 years for most Bureau of Land Management (BLM) administered public lands and Federal mineral estate within the BLM's Las Vegas District (see map). These lands include approximately 2.6 million acres of BLM-administered lands in Clark County; 700,000 acres in Nye County; and 111,100 acres of mineral estate where the surface is not Federal land.

Two areas of BLM-administered land within the Las Vegas District [Red Rock Canyon National Conservation Area (NCA) and Nellis Air Force Range] are not included in The Plan. A General Management Plan is being prepared for the Red Rock Canyon NCA (approx. 195,000 acres) per legislation creating its special designation. Nellis Air Force Range Resource Plan (1992) addresses the Department of Defense's use and associated resource use limitations on approximately 2.2 million acres of public land within the Las Vegas BLM District.

Besides providing overall objectives and management direction for the various resources in the Las Vegas BLM District, The Plan identifies specific direction for designated special areas, oil and gas leasing, major transmission line corridors, special recreation management areas, Areas of Critical Environmental Concern, open livestock grazing allotments, and proposals to adjust scattered public land ownership patterns.

Although The Plan provides more specific guidance than the present Management Framework Plan and also additional guidance for new land use issues, it does not differ significantly from current management. The Plan establishes resource management objectives, directions, and guidelines for assuring that public land management considers present and future needs of resources and the public.

Public Participation

Draft. The Draft Resource Management Plan (RMP)/Environmental Impact Statement was available for a 90-day public review and comment period in May of 1992. During that time, 124 people provided comments at the 7 public hearings that were held (two in Las Vegas and one each in Mesquite, Pahrump, Searchlight, Laughlin, and Henderson). In addition, the draft RMP/EIS was distributed to approximately 1,000 individuals, groups, and organizations.

Supplement. A Supplement to the Draft was made available for a 90-day public review and comment in May of 1994. The Supplement addressed four issues that were either not previously covered or needed updating/revision of analysis. The four issues were consistency with the Desert Tortoise Recovery Plan, Utility Corridors, Range Reclassification, and Mineral Management after congressional designation of Wilderness. At a public hearing held in Las Vegas during the review period, 28 people provided comments.

Comments. The BLM received approximately 400 comment letters (340 on the Draft and 66 on the Supplement). The comments, which covered a wide range of topics, were grouped into 50 different categories with questions developed based on similar comments. All comments were considered in preparation of The Plan, and resulted in adjustments in The Plan to incorporate numerous clarifying statements, modify proposed actions, and revise environmental analysis. Also in response to comments, the document was reorganized to make it more user-friendly.

Specifically, The Plan responds to comments about management of desert tortoise habitat, utility corridors, Areas of Critical Environmental Concern, land disposal, air quality, off-highway vehicle events, closure of grazing allotments, and mineral withdrawals. Other comments that were helpful in revising The Plan were those that identified clarification needs, suggested editorial changes, or expressed opinions and preferences for differing alternatives.

The Plan's Contents and Organization

The Plan is one combined document, including the resource management plan and the environmental impact statement.

The Plan includes proposed objectives and management direction for the planning area. Several appendices from the draft are incorporated into The Plan's guidelines. In addition, numerous appendices containing Standard Operating Procedures were incorporated into Appendix M.

Summary tables are included to compare differences in key management objectives, directions, and impacts of the alternatives.

<u>Summary of The Plan's Five Chapters</u>

EIS Chapter 1 - Presents The Plan's purpose and need, describes the planning area, gives an overview of the planning process, lists planning issues and criteria, and addresses consistency with other plans.

EIS Chapter 2 - Provides objectives and management directions specific to Air, Soil, and Water; Riparian, Vegetation; Visual Resources; Areas of Critical Environmental Concern; Fish and Wildlife; Special Status Species; Forestry; Livestock Grazing; Wild Horse and Burro; Cultural Resources; Lands; Rights-of-way; Acquisition; Recreation; Wild and Scenic Rivers; Wilderness; Minerals; Hazardous Materials; and Fire Management. This chapter also identifies changes made to the document based on input from the public, other state and federal agencies, as well as BLM changes to ensure consistency with laws and regulations. This chapter represents the proposed plan that would become the Resource Management Plan for the Las Vegas District upon approval by the Nevada State Director.

EIS Chapter 3 - Describes existing environmental and resource components that could be impacted with implementation of The Plan.

EIS Chapter 4 - Includes analyses of expected impacts associated with implementing the Proposed Action described in The Plan. The following elements were used for analysis:

- Air and Water Quality
- Cultural Resources & Native American Traditional Lifeway Areas
- Oil and Gas Development Opportunities and Operations
- Areas of Critical Environmental Concern
- Biological Resources and Ecological Systems
- Livestock Grazing Opportunities and Operations
- Other Mineral Developments and Operations
- Recreation Resources and Opportunities
- Land Disposal
- Fire Management

EIS Chapter 5 - Describes public participation procedures that BLM used to develop the Draft, Supplement, and Proposed Final Resource Management Plan and Final Environmental Impact Statement (RMP/FEIS). Chapter 5 includes responses to comments and identifies adjustments in The Plan that resulted from the comments. The chapter has five sections: Introduction, Public Scoping/Participation, Consultation, Coordination, and Public Review and Comments.

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Changes Between Draft, Supplement, and Proposed Plan

Changes in Document Organization

- The four appendices identifying Minerals Standard Operating Procedures in the Draft Plan are included with the Standard Operating Procedures in Appendix M of The Plan. Appendix L was added to include the approved Standards and Guidelines for Rangeland Health, which was completed by the Resource Advisory Council.

- The document's format was modified to include a letter code of 2 or 3 letters designating each resource.

- The section on Areas of Critical Environmental Concern is placed prior to the Wildlife section, which has several references to ACECs.

- Management of Special Status Species, previously addressed in the Vegetation section, is now presented in the Fish, Wildlife and Special Status Species section.

- All lands-related resources are arranged sequentially and all mineral-related actions are included in the mineral resource section. For example, although material site rights-of-way are authorized through the Lands program, its management direction is included in the Minerals section which is a more logical place for readers to find this information.

- In response to comments, The Plan has been updated and changed to clarify proposed management directions.

- Multiple cross references for objectives and management directions that were in the Draft and Supplement are not included in The Plan. Instead, to simply wording, the guidance is placed under the most appropriate section

Changes in Document Content

- Specific wording was inserted to address air conformity requirements.

- A management direction was developed for Wilderness Study Areas and other Federal Agency withdrawn lands within proposed Areas of Critical Environmental Concern. The direction identifies action to take if such lands are released from consideration for wilderness designation or are returned to the BLM, respectively.

- Fish, Wildlife Habitat, and Special Status Plants and Animals are addressed in a section titled Wildlife. Combining these discussions helps readers locate management direction related to Wildlife and Special Status Species. Also, a management direction was added to provide for managing elk that move from U.S. Forest Service-administered lands onto BLM-administered lands.

- The Livestock Grazing section was reorganized to reflect three main objectives, and additional wording was included to incorporate the Standards and Guidelines developed by the Resource Advisory Council.

- Herd Management Area boundaries were changed to reflect original field maps showing animal locations at the time the Wild Horse and Burro Act was passed.

- A land disposal area was added west of Las Vegas to allow land exchanges for Blue Diamond Cholla habitat. Any lands acquired either adjacent to or within the existing Red Rock Canyon National Conservation Area boundary would become part of that NCA. The Las Vegas Valley and Laughlin disposal

areas are modified from original proposals based on comments received throughout the process. Also, a management direction was added to allow for repositioning of public lands, contingent on 10 criteria.

- Special Recreation Management Area boundaries changed to reflect current and future recreation. Specific management directions for non-speed events were developed using input from the public and other agencies.
- A section was added to address Hazardous materials, which were not addressed in the Draft and Supplement.
- Discussions and recommendations for specific fire initial attack areas and suppression levels, which were included in the Draft and Supplement, are not included in The Plan. These areas and levels are more appropriately addressed and determined in the Fire Management Plan.

Selected Allocations and Management Guidelines

The following summary highlights elements or management activities of highest public interest throughout the planning process.

Management Objectives and Directions

Objectives and directions were developed to provide additional clarity for managing public lands in a manner that will provide for healthy sustainable ecosystems contributing to the goods, services, social, and cultural needs of local communities, the region, and the nation. Further, the objectives and directions emphasize that BLM will continue to collaborate with local governments and involve local interests and permittees in implementing management activities identified in the Resource Management Plan. Similarly, the Standard Operating Procedures emphasize collaborative efforts.

Summary of the Proposed Action

The purpose and need for The Plan is to provide for land use designations and allocations, including recreation, Areas of Critical Environmental Concern, utility corridors, off-highway vehicles, visual resource management areas, fire management zones, disposal of public lands for community development and flood control, and extraction of sand and gravel or other minerals, consistent with all laws and regulations and the goals and objectives of the Desert Tortoise (Mojave Population) Recovery Plan.

General Guidelines By Resource Value

Air Quality

Ensure that BLM actions conform with the State Implementation Plan regarding the Non-attainment Area for carbon monoxide and particulate matter. Closely coordinate management with the Clark County Health District, where applicable.

Soil and Water

Manage for improved water quality and reduced soil erosion. Specifically, manage public lands to avoid impact to the Colorado River system.

Riparian Areas

Manage riparian areas, according to BLM directives, to achieve Proper Functioning Condition.

Vegetation

Manage for Potential Natural Community or Desired Plant Community, using criteria identified in Appendix N for determining desired plant community for desert tortoise habitat.

Visual Resource Management (VRM)

Designate VRM classes.

Areas of Critical Environmental Concern (ACEC)

The Plan proposes designation of 23 Areas of Critical Environmental Concern totaling 1,005,031 acres. The areas selected for ACEC designation have unique values that will require a high level of management attention. (Note: The tables in the Plan identify 24 ACECs, with the additional area being Bird Spring. Because this area is entirely within the expansion area for Red Rock Canyon National Conservation Area, a more protective designation, the Bird Spring area is not proposed as an ACEC.)

Four of the ACECs total approximately 74 percent of the proposed ACEC acreage (743,209 acres) and are specifically selected for desert tortoise protection: Piute/Eldorado Valley (329,440 acres), Coyote Springs Valley (75,500 acres), Mormon Mesa (151,360 acres), and Gold Butte Part A (186,909 acres). Site-specific management objectives and prescriptions are provided for these four ACECs. Management guidance includes, but is not limited to, the following:

- *Lands*: Retain in Federal ownership. Designate as right-of-way avoidance area, except within corridors.

- *Minerals*: Close to locatable minerals and solid leasables. Open to fluid mineral leasing subject to no surface occupancy stipulations. Allow material site rights-of-way only within 0.5 mile of the centerline of Federal Aid Highways. Designate as a site type right-of-way exclusion area, except within 0.5- mile of either side of Federal Aid Highways. Allow mineral material free use permits only within 0.5-mile of the centerline of Federal and state highways; and plan specified county roads in the Gold Butte area. Issue free use permits to governmental entities only.

- *Range*: Close to livestock grazing. Manage for zero (0) wild horses and burros.

- *Roads*: Require reclamation of temporary roads. Authorize new roads in response to specific proposed actions where no feasible alternative exists. Ensure access to private property.

- *Wildlife*: Do not allow commercial collection of flora. Allow commercial collection of fauna only when a scientifically credible study is completed demonstrating that such collection does not adversely impact affected species or their habitat. This action does not apply to hunting or trapping and casual collection as permitted by the State.

- *Recreation*: Designate as "Limited to designated roads and trails" for all motorized and mechanized vehicles. Prohibit off-road vehicle speed events, mountain bike races, horse endurance rides, 4-wheel drive hill climbs, mini events, publicity rides, high speed testing, and similar speed-based events. Permit commercial activities on a case-by-case basis, contingent on their consistency with recovery of desert tortoise.

- As a term and condition of the biological opinion, the BLM will implement a monitoring plan to monitor impacts on tortoise from casual, speed and organized non-speed events. As part of this monitoring program, the number of events and/or participants shall be permitted below the level shown below for a 3 year period. At the end of 3 years the BLM and Service will evaluate monitoring data and if appropriate, increase the numbers, location, seasonal restrictions to a maximum of that allowed in the

Resource Management Plan.

- Allow non-speed events subject to the following limitations:
  - For events involving more than 25 vehicles, require Recreation Use Permits.
  - For events involving more than 100 vehicles, issue permits only during the tortoise inactive season (Nov. 1 through end of February). To maintain consistency with California vehicle limit restrictions, limit the number of vehicles in any one event to 300 motorcycles or 300 four-wheeled vehicles (including All Terrain Vehicles). With the exception that if a alternative route for the Barstow-to-Vegas event is not found, resulting in the need to traverse the Piute Area of Critical Environmental Concern, the number of entrants permitted in Nevada will be consistent with that permitted by California.
  - Do not permit off-highway vehicle non-speed events between approximately April 1 to June 1 and between August 15 to October 15 (dates may vary slightly from year to year to provide a full Saturday/Sunday weekend if April 1 is during the weekend and to provide three full weekends for events prior to or including November 1).
  - Allow a maximum of 10 permitted non-speed events annually with no more than three events per ACEC during the tortoise active season (March 1 to October 31), with specific allowed dates being between March 1 to 31, June 1 to August 14, and October 16 to October 31 (see date variances in directly preceding guidance). Based on historic use, an exception to this guidance will be granted to allow an event from Mesquite through the Mormon Mesa ACEC. This event, having as many as 200 entrants and constituting two of the three annual events, will be limited to a one-way route (north-south or south-north).
  - Allow a maximum of 12 permitted non-speed events annually during the tortoise inactive season (November 1st to end of February), with no more than four events per Area of Critical Environmental Concern.
  - Restrict speed of vehicles in permitted events (including but not limited to motorcycle or buggy rallies and mountain bike rides) to the legal, posted or unposted, speed limit of roads used during the event. (Note: Clark County has 25 miles per hour speed limit for unposted roads.)

Fish and Wildlife and Special Status Species Management

Protect habitat of plant and animal species in the district. Follow very specific management direction provided for desert tortoise. Manage Desert Tortoise habitat to achieve recovery criteria defined in the Tortoise Recovery Plan and to ultimately delist the desert tortoise. Protect Special Status Species habitat to preclude future listing of additional species as threatened or endangered.

Manage public lands identified as important for recovery of Federally listed species as threatened and endangered species conservation areas consistent with direction established by the U.S. Fish and Wildlife Service and the Nevada Division of Wildlife to complement the Clark County Desert Conservation Plan and Multiple Species Conservation Plan.

Forestry

Manage for mesquite woodlands and desert vegetation sale potential. Focus on managing for healthy mesquite stands as habitat for threatened, endangered, and special status species. Restrict wood cutting.

Livestock Grazing

Make approximately 611,000 acres available for livestock grazing. Intensively manage authorizations on allotments open to livestock grazing in accordance with the Standards and Guidelines for Rangeland Health.

Note: Approximately 2.7 million acres would be unavailable to grazing due to implementation of the Desert Tortoise Recovery Plan, lack of forage or range improvements, and protection needs of other sensitive resources. Presently, about 50 percent of allotments open to livestock grazing (5 of 11 allotments) actually receive use by livestock. Also, 3 of the 11 open allotments are being considered for closure in recommendations so recent that they are not addressed in The Plan. Closure of all disposal areas is also proposed.

Livestock grazing may occur on open allotments in desert tortoise habitat outside Areas of Critical Environmental Concern under Prescription 2 guidelines as follows: From March 1 to October 14, as long as forage utilization does not exceed 40 percent on key perennial grasses, forbs, and shrubs. Between October 15 and end of February, forage utilization will not exceed 50 percent on key perennial grasses and 45 percent on key shrubs and perennial forbs. The option to reinitiate consultation to change these parameters is available on a case-by-case basis.

Wild Horse and Burro

Expand three Herd Management Areas to existing fenced highways for ease of management. This provision is supported by data showing location of the animals in the early 1970s. The Wild Horse and Burro Act required that Herd Management Areas include those areas used by animals as of the passing of the Act in 1971. Historical and existing data supports the new boundaries.

Set Appropriate Management Level base level for seven Herd Management Areas. Three Herd Management Areas would have an Appropriate Management Level of Zero (0). Appropriate Management Levels can be adjusted, based on monitoring data.

Cultural

Establish two Traditional Lifeway Areas (Spirit Mountain and Virgin Mountain/Gold Butte).

Land Disposal

Public lands specifically identified for disposal total 175,314 acres and do not include any disposals by Desert Land Entry, Indian allotment, or the Carey Act.

The Plan identifies the process for improving land ownership patterns to assist BLM in meeting management objectives and direction. Any adjustments to land ownership patterns would be coordinated with local governments, adjoining landowners, and existing permittees. There would also be a public review process, as well as further site-specific reviews of the properties under consideration for adjustment.

- Lands not within a disposal boundary could potentially be suitable for land tenure adjustments through land exchanges. These lands, which are outside the proposed disposal areas, could be available for exchange only if all 10 specific disposal criteria as noted below, were met. This adjustment provision would reduce the need to complete land use plan amendments in the future. A plan amendment would be required for any land disposal request outside the established disposal areas that does not meet the 10 criteria and creation or expansion of an existing disposal area.

    1. The lands would serve the purpose of : 1) community expansion and economic development; 2) local government needs; or 3) to facilitate Federal land management and minimize BLM administrative costs.

    2. The lands are not located adjacent to Congressionally mandated disposal boundaries.

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3. The lands to be disposed of are located outside any Area of Critical Environmental Concern, Traditional Lifeway Area, Special Recreation Management Area, Right-of-way corridor, Wilderness Study Area, active communication site, riparian site or cultural sites eligible for inclusion on the National Register of Historic Places.

4. The public lands are not encumbered by an existing permit or lease that would preclude the disposal action.

5. The lands do not include Threatened, Endangered, Special Status Species Habitat or other crucial wildlife habitat.

6. There are no other public uses that outweigh the value of the parcel.

7. It is a parcel of land acquired for a specific purpose and it is no longer required for that or any other Federal purpose.

8. Local communities support the exchange and close coordination with the USF&WS, the Nevada Division of Wildlife, and Clark County is undertaken.

9. Public access would be improved.

10. Any other specific values or concerns not identified above would be analyzed at the time of the proposal to determine if disposal would be in the best interest of the public.

Rights-of-Way

Designate utility corridors according to the final proposed corridor locations. These corridor locations were identified through coordination with other Federal and State agencies, as well as the public. Also, where possible, the corridor locations were designed to avoid private lands and to use existing powerline rights-of-way as a basis. Rights-of-way for flood control, rights-of-way avoidance, and exclusion areas are identified. Any future rights-of-way for communication sites would require development of management direction before being approved.

Acquisition

Identify general type of land, as well as specific areas and sites, that are in the public interest for BLM to acquire.

Recreation

Realign existing Special Recreation Management Areas into eight SRMAs to more specifically focus BLM resources and staff. Manage these areas for their specific, sometimes different, recreational values according to direction provided in The Plan for such actions as semi-primitive recreation, off-road vehicle use, recreation opportunities in areas having sensitive resources, off-road events, non-speed events, and competitive off-road events. The Las Vegas Valley Special Recreation Management Area would be closed to off-road events, casual off-road vehicle use, shooting of firearms, and camping.

Off-road vehicle designations are identified as open; closed; limited to designated roads and trails; or limited to existing roads, trails and dry washes. Specific detailed management of speed and non-speed events are identified. Approximately 24,600 acres are designated as open to all motorized and mechanical vehicles; 2,186,500 acres as limited to existing roads, trails and washes; 1,117,250 acres as limited to designated roads and trails; and 3,760 acres as closed to all motorized and mechanical vehicles.

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Cave management: Protect cave resources and animals, specifically bats that inhabit some caves. Wild and Scenic Rivers, which is a very limited resource in the Las Vegas District, will be managed according to protection pursuant to the Wild and Scenic River Act of 1968.

Wilderness

Follow Wilderness Study Area management guidelines pending final Congressional decision on Wilderness designation. Release the Logandale FLPMA 202 Wilderness Study Area (which was omitted from the original wilderness review) from further wilderness consideration.

Locatable. Leasable and Saleable Minerals

Lands within Las Vegas BLM District are open to location, lease and sale of minerals as follows:

Open to locatable minerals subject to standard terms and conditions:	2,135,146 acres
Open to mineral leasing subject to standard terms and conditions:	1,909,351 acres
Open to fluid mineral leasing with a No Surface Occupancy Stipulation:	866,067 acres
Open to saleable mineral disposal subject to standard terms and conditions:	2,117,331 acres

Hazardous Materials

Prevent hazardous materials contamination and reduce risks in contaminated areas.

Fire Management

Identify three suppression areas based on similar resource values, suppression requirements, and urban rural interface. The recently developed Fire Management Plan and the Plan are consistent.

The Next Step

When the Proposed RMP/EIS is complete, a 30-day protest period and 60-day Governor's Consistency review will be announced simultaneously. Then, after considering any comments received, a Record of Decision (ROD) will be prepared for issuance by the Nevada BLM State Director, at which time the proposed plan (excluding any portion under protest) will become final. Approval will be withheld on any portion of The Plan under protest until protest resolution is complete.

Within 90 days after approval of The Plan, an implementation schedule will be developed to identify plan decisions and implementation priorities, as well as the sequence and associated costs of the various actions being implemented. There will be continued public involvement and coordination with local county governments, as well as state and other Federal agencies. Periodic reports will also be made available to the public to summarize The Plan's progress and to forecast future management activities. Monitoring of The Plan will be done to determine if any plan modification is required; and if so, the plan amendment process will be conducted with continued public involvement.

For additional information, contact Jeffrey G. Steinmetz at (702) 647-5097.

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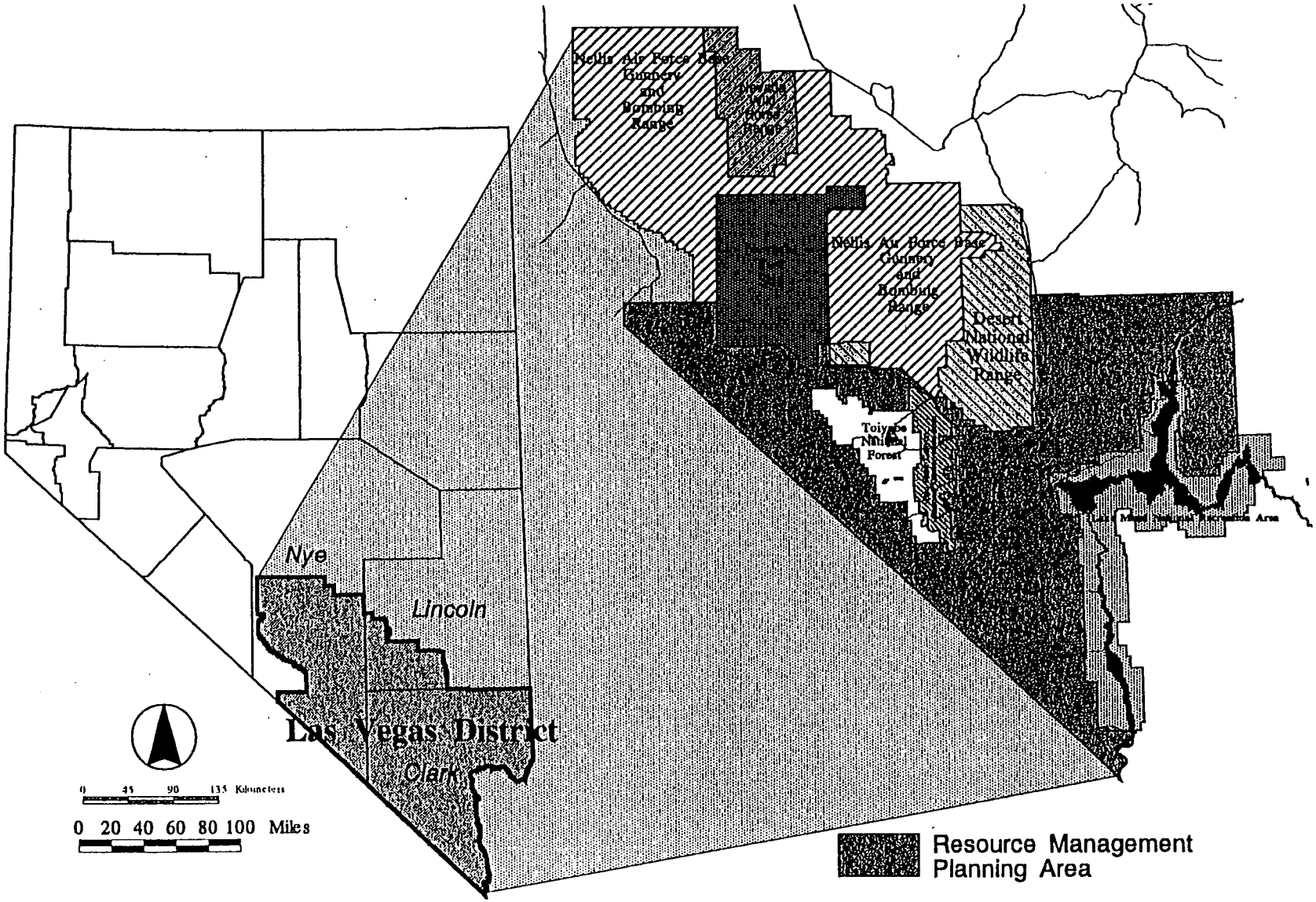

Resource Management Plan

Bureau of Land Management
Las Vegas District

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The data contained herein is for informational purposes only. No liability is assumed as to the accuracy of the data or for purposes other than originally intended.

The data was prepared using the BLM's ESRI ARC/INFO geographic information system and maps plotted using the ESRI ArcView system.

Map # 1-1

Prepared July 11, 1997

UNITED STATES DEPARTMENT of the INTERIOR
BUREAU OF LAND MANAGEMENT
Las Vegas Field Office
4765 Vegas Drive
Las Vegas, Nevada 89108

In Reply Refer To:
1610
(NV-050)

June 12, 1998

Dear Interested Party:

I have enclosed a copy of the Executive Summary to assist in your review of the Las Vegas Proposed Resource Management Plan and Final Environmental Impact Statement. The Summary provides a brief but concise explanation of the Resource Management Plan development over the past nine years with emphasis on identifying the changes made to both organization and content of the document.

In addition, pursuant to the Endangered Species Act (ESA) of 1973, as amended, all Federal agencies including the BLM must ensure that their actions *"will not likely jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of ... (critical) habitat"*. The U.S. Fish and Wildlife Service has reviewed the Proposed Plan and issued a biological opinion which includes *"terms and conditions that must be complied with by the Federal agency or applicant (if any), or both, to implement the measures specified..."*.

The biological opinion lowers the thresholds proposed in the RMP for non-speed OHV activities in desert tortoise ACECs. BLM will manage under those lower thresholds until such time that monitoring data supports a change in these terms and conditions. The BLM will implement a monitoring program that will be reviewed by the BLM and Service to determine if the interim thresholds can be changed to reflect those established in the RMP, or possibly reduced further. The differences between the RMP and biological opinion are described below:

1) Events allowed during the ACTIVE SEASON, 3/1 to 10/31.

The allowable number of events is reduced from ten (10) to five (5) for the first three years of management under the RMP with no more than three (3) events in any one ACEC (no change from RMP).

2) Date restrictions during ACTIVE SEASON

The two closure periods within the ACTIVE SEASON designed to limit use during times when tortoise are most active will be expanded. The early closure will be expanded four weeks from the original April 1 to June 1 closure to March 16 to June 14 and the late closure will be expanded two weeks from the original August 15 to October 15 closure to August 15 to October

QUESTIONS AND ANSWERS ON THE PROPOSED RESOURCE MANAGEMENT PLAN

Q. For what public lands does this Resource Management Plan (RMP) propose specific management guidance?

A. The plan covers approximately 2.6 million acres of BLM administered lands in Clark County, and approximately 700,000 acres in Southern Nye County. Lands in the Red Rock Canyon National Conservation Area, Nellis Bombing Range, Nevada Test Site and Desert National Wildlife Range are not included in the Las Vegas Resource Management Plan. Each of these areas has a separate planning document which provides guidance for management of the resources.

Q. At what phase of the planning process is the Las Vegas Resource Management Plan?

A. We are near the end of the planning process, with 3 steps remaining to complete, which are as follows: 1.) A 30-60 day Governors consistency review and a 30 day public protest period of the Las Vegas Resource Management Plan/Final Environmental Impact Statement. 2.) Resolution of any protest received. The Director of the BLM will make the decisions on how to resolve any plan protests. The Directors decision is the final position of the BLM. 3.) Final approval through a Record of Decision, signed by the Nevada State Director.

Q. What Chapter in the document contains the proposed plan?

A. Chapter 2 in the RMP contains the specific Objectives and Management Directions. It is recommended the reader focus on this chapter along with the Standard Operating Procedures in Appendix M. Chapter 2 contains about 40 pages and represents the BLM proposed actions for management of the resources, including but not limited to wildlife, special status species, lands, minerals and recreation to name a few.

Q. When does the BLM anticipate final approval of the RMP?

A. If all protests can be resolved within a 60 day period, we expect to issue a Record of Decision in October of 1998. There is a possibility of approving those parts of the plan which are not protested. A decision will be made sometime shortly after the end of the protest period.

Q. What would happen if an action is proposed which is not in conformance with the approved Resource Management Plan?

A. There are 3 options if this were to occur which are as follows: 1.) Change the proposed action so it is in conformance with the approved RMP. 2.) Deny the proposed action. 3.) Amend the RMP to accommodate the proposal.

A plan amendment requires full public participation and review of the NEPA document prior to approval by the Nevada State Director. There will be a number of opportunities for you to participate in the planning process during any amendment as we try to meet the needs of future generations.

31. Provision has been made to ensure full weekend availability when the above dates would otherwise split a weekend into open and closed halves.

3) Restrictions on number of Participants

During ACTIVE SEASON - For the first three years, events will be limited to a maximum of 75 participants. However, to accommodate larger historically held events, an event with up to 150 participants may be authorized with the provision that it counts as two of the three events allowed in the ACEC annually.

During INACTIVE SEASON - The provision allowing events entering from California to exceed the 300 participant INACTIVE SEASON limit (if California has permitted more than 300 participants) has been eliminated. Events may not exceed 300 participants.

4) Geographic restriction during ACTIVE SEASON

Non-speed events may not be permitted in the Paiute Valley ACEC south of the old Nipton Highway and south of Searchlight, NV with the exception of Secs. 10, 15, and 23 within T.63E., R.29S., between March 1 and October 31. This requirement is not included in the RMP. This provision may be modified in the future as a result of monitoring findings.

A complete copy of the Biological Opinion is available on request at address listed above. The BLM will continue to coordinate with the interested parties and the U.S. Fish and Wildlife Service in developing the monitoring plan and other options related to management of non-speed organized OHV activity within desert tortoise ACECs.

Michael F. Dwyer
District Manager

APPENDIX A

SPECIES LIST FOR CLARK AND SOUTHERN NYE COUNTIES

(Source: This lists was developed from a variety of sources and is not intended to be a comprehensive list. Sources include: Burt and Grossenheider 1976, Hall 1946, Peterson 1961, Stebbins 1966, USDI, BLM 1978 and USDI, BLM 1993)

I. BIRDS

Gaviidae (Loons)

Common loon	Gavia immer
Red-throated loon	Gavia Stellata

Podicipedidae (grebes)

Western Grebe	Aechmophorus occidentalis
Horned Grebe	Podiceps auritus
Eared grebe	Podiceps nigricollis
Pied-billed grebe	Podilymbus podiceps

Pelecanidae (pelicans)

White pelican	Pelecanus erythrorhynchos
Brown pelican	Pelecanus occidentalis

Phalacrocoracidae (cormorants)

Double-crested cormorant	Phalacrocorax auritus

Ardeidae (herons and bitterns)

Great blue heron	Ardea herodias
Green-backed heron	Butorides striatus
Little-blue heron	Egretta caerulea
Louisiana heron	Egretta tricolor
Black-crowned night heron	Nycticorax nycticorax
American bittern	Botaurus lentiginosus
Common egret	Casmerodius albus
Snowy egret	Egretta thula
Least bittern	Ixobrychus exilis
Cattle egret	Bubulcus ibis

Threskiornithidae (ibises and spoonbills)

Wood ibis	Mycteria americana
White-faced ibis	Plegadis chihi

Anatidae (Swans, ducks and geese)

Trumpeter swan	Cygnus columbianus
Canada goose	Branta canadensis
White-fronted goose	Anser albifrons
Snow goose	Chen caerulescens
Ross' goose	Chen rossii
Mallard	Anas platyrhynchos
Gadwall	Anas strepera
Pintail	Anas acuta

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Green-winged teal	Anas crecca
Blue-winged teal	Anas discors
Cinnamon teal	Anas cyanoptera
American wigeon	Anas americana
Northern shoveler	Spatula clypeata
Wood duck	Aix sponsa
Redhead	Aythya americana
Ring-necked duck	Aythya collaris
Canvasback	Aythya valisineria
Greater scaup	Aythya marila
Lesser scaup	Aythya affinis
Common goldeneye	Bucephala clangula
Barrow's goldeneye	Bucephala islandica
White-winged scoter	Melanitta fusca
Surf scoter	Melanitta perspicillata
Bufflehead	Bucephala albeola
Ruddy duck	Oxyura jamaicensis
Common merganser	Mergus merganser
Red-breasted merganser	Mergus serrator
Hooded merganser	Lophodytes cucullatus
Fulvous whistling duck	Dendrocygna bicolor

Cathartidae (American vultures)

Turkey Vulture	Cathartes aura

Accipitridae (hawks, kites, harriers and eagles)

Northern goshawk	Accipiter gentilis
Sharp-shinned hawk	Accipiter striatus
Cooper's hawk	Accipiter cooperii
Red-tailed hawk	Buteo jamaicensis
Swainson's hawk	Buteo swainsoni
Rough-legged hawk	Buteo lagopus
Ferruginous hawk	Buteo regalis
Red-shouldered hawk	Buteo lineatus
Northern harrier	Circus cyaneus
Golden eagle	Aquila chrysaetos
Bald eagle	Haliaeetus leucocephalus
Osprey	Pandion haliaetus

Flaconidae (falcons)

Prairie falcon	Falco mexicanus
American kestrel	Falco sparverius
Peregrine falcon	Falco peregrinus
Merlin	Falco columbarius

Phasianidae (quail, partridge and pheasant)

Gambel's Quail	Callipepla gambelii
Chukar	Alectoris chukar

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Meleagrididae (turkey)

Turkey	Meleagris gallopavo

Gruidae (Cranes)

Sandhill crane	Grus canadensis

Rallidae (rails, coots, and gallinules)

Virginia rail	Rallus limicola
Sora rail	Porzana carolina
American coot	Fulica americana
Common moorhen	Gallinula chloropus

Charadriidae (plovers, turnstones and surfbirds)

Snowy plover	Charadrius alexandrinus
Killdeer	Charadrius vociferus
Black-bellied plover	Pluvialis squatarola
Ruddy turnstone	Arenaria interpres
Semipalmated plover	Charadrius semipalmatus

Scolopacidae (snipe and sandpipers)

Long-billed curlew	Numenius americanus
Whimbrel	Numenius phaeopus
Spotted sandpiper	Actitis macularia
Willet	Catoptrophorus semipalmatus
Greater yellowlegs	Tringa melanoleuca
Lesser yellowlegs	Tringa flavipes
Baird's sandpiper	Calidris bairdii
Dunlin	Calidris alpina
Least sandpiper	Calidris minutilla
Long-billed dowitcher	Limnodromus scolopaceus
Stilt sandpiper	Calidris himantopus
Western sandpiper	Calidris mauri
Marbled godwit	Limosa fedoa
Sanderling	Calidris alba

Recurvirostridae (avocets and stilts)

American avocet	Recurvirostra americana
Black-necked stilt	Himantopus mexicanus
Wilson's phalarope	Phalaropus tricolor

Laridae (gulls and terns)

Herring gull	Larus argentatus
California gull	Larus californicus
Ring-billed gull	Larus delawarensis
Bonaparte's Gull	Larus philadelphia
Forster's tern	Sterna forsteri
Least tern	Sterna antillarum
Caspian tern	Sterna caspia

Black tern	Chlidonias niger
Columbidae (pigeons and doves)	
Band-tailed pigeon	Columba fasciata
White-winged dove	Zenaida asiatica
Mourning dove	Zenaida macroura
Ground dove	Columbina passerina
Inca dove	Columbina inca
Rock dove	Columba livia
Cuculidae (cuckoos and roadrunners)	
Yellow-billed cuckoo	Coccyzus americanus
Roadrunner	Geococcyx californianus
Tytonidae (owls)	
Barn owl	Tyto alba
Screech owl	Otus kennicottii
Great Horned owl	Bubo virginianus
Burrowing owl	Athene cunicularia
Long-eared owl	Asio otus
Short-eared owl	Asio flammeus
Northern Saw whet owl	Aegolius acadicus
Flammulated owl	Otus flammeolus
Northern pygmy owl	Glaucidium gnoma
Caprimulgidae (goatsuckers)	
Poor-will	Phalaenoptilus nuttallii
Common nighthawk	Chordeiles minor
Lesser nighthawk	Chordeiles acutipennis
Apodidae (swifts)	
White-throated swift	Aeronautes saxatalis
Vaux's swift	Chaetura vauxi
Trochilidae (hummingbirds)	
Black-chinned hummingbird	Archilochus alexandri
Costa's hummingbird	Calypte costae
Calliope hummingbird	Stellula calliope
Anna's hummingbird	Calypte anna
Broad-tailed hummingbird	Selasphorus platycercus
Rufous hummingbird	Selasphorus rufus
Alcedinidae	
Belted kingfisher	Ceryle alcyon
Picidae (woodpeckers)	
Northern flicker	Colaptes auratus

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Gila woodpecker	Melanerpes uropygialis
Lewis woodpecker	Melanerpes lewis
Yellow-bellied sapsucker	Sphyrapicus varius
Red-breasted sapsucker	Sphyrapicus ruber
Williamson's sapsucker	Sphyrapicus thyroideus
Ladder-backed woodpecker	Picoides scalaris
Hairy woodpecker	Picoides villosus
Mimidae (mockingbirds and thrashers)	
Bendire's thrasher	Toxostoma bendirei
LeConte's thrasher	Toxostoma lecontei
Crissal thrasher	Toxostoma dorsale
Sage thrasher	Oreoscoptes montanus
Mockingbird	Mimus polyglottos
Muscicapidae (thrushes and bluebirds)	
Robin	Turdus migratorius
Hermit thrush	Catharus guttatus
Swainson's thrush	Catharaus ustulatus
Western bluebird	Sialia mexicana
Mountain bluebird	Sialia currucoides
Townsend's solitaire	Myadestes townsendi
Sylviidae (gnatcatchers and kinglets)	
Black-tailed gnatcatcher	Polioptila melanura
Blue-gray gnatcatcher	Polioptila caerulea
Ruby-crowned kinglet	Regulus calendula
Golden-crowned kinglet	Regulus satrapa
Motacillidae (water pipit)	
Water pipit	Anthus spinoletta
Bombycillidae (waxwings)	
Cedar waxwing	Bombycilla cedrorum
Ptilogonatidae (phainopepla)	
Phainopepla	Phainopepla nitens
Laniidae (shrikes)	
Loggerhead shrike	Lanius ludovicianus
Sturnidae (starling)	
Starling	Sturnus vulgaris

Vireonidae (vireos)

Bell's vireo	Vireo bellii
Gray vireo	Vireo vicinior
Solitary vireo	Vireo solitarius
Warbling vireo	Vireo gilvus
Hutton's vireo	Vireo huttoni

Emberizidae (warblers)

Orange-crowned warbler	Vermivora celata
Virginia's warbler	Vermivora virginiae
Lucy's warbler	Vermivora luciae
Yellow warbler	Dendroica petechia
Yellow-rumped warbler	Dendroica coronata
Black-throated gray warbler	Dendroica nigrescens
Nashville warbler	Vermivora ruficapilla
Townsend warbler	Dendroica townsendi
Hermit warbler	Dendroica occidentalis
Northern waterthrush	Seiurus noveboracensis
MacGillivray's warbler	Oporornis tolmiei
Yellowthroat	Geothlypis trichas
Yellow-breasted chat	Icteria virens
Wilson's warbler	Wilsonia pusilla
American redstart	Setophaga ruticilla
Painted redstart	Myioborus pictus
Black and White warbler	Mniotilta varia

Ploceidae (old world sparrows)

House sparrow	Passer domesticus

Icteridae (meadow larks, blackbirds, and orioles)

Western meadow lark	Sturnella neglecta
Yellow-headed blackbird	Xanthocephalus xanthocephalus
Red-winged blackbird	Agelaius phoeniceus
Scott's oriole	Icterus parisorum
Brewer's blackbird	Euphagus cyanocephalus
Brown-headed cowbird	Molothrus ater
Great-tailed grackel	Quiscalus mexicanus
Hooded oriole	Icterus cucullatus

Thraupidae (tanagers)

Western tanager	Piranga ludoviciana
Hepatic tanager	Piranga flava
Summer tanager	Piranga rubra

Fringillidae (grosbeaks, finches, sparrows and buntings)

Black-headed grosbeak	Pheucticus melanocephalus
Blue grosbeak	Guiraca caerulea
Indigo bunting	Passerina cyanea
Lazuli bunting	Passerina amoena

Evening grosbeak	Coccothraustes vespertinus
Cassin's finch	Carpodacus cassinii
House finch	Carpodacus mexicanus
Pine siskin	Carduelis pinus
American goldfinch	Carduelis tristis
Lesser goldfinch	Carduelis psaltria
Red crossbill	Loxia curvirostra
Green-tailed towhee	Pipilo chlorurus
Rufous-sided towhee	pipilo erythrophthalmus
Abert's towhee	Pipilo aberti
Lark bunting	Calamospiza melanocorys
Savannah sparrow	Passerculus sandwichensis
Grasshopper sparrow	Ammodramus savannarum
Vesper sparrow	Pooecetes gramineus
Lark sparrow	Chondestes grammacus
Black-throated sparrow	Amphispiza bilineata
Sage sparrow	Amphispiza belli
Dark-eyed junco	Junco hyemalis
Tree sparrow	Spizella arborea
Chipping sparrow	Spizella passerina
Brewer's sparrow	Spizella breweri
Blacked-chinned sparrow	Spizella pusilla
White-crowned sparrow	Zonotrichia leucophrys
Golden-crowned sparrow	Zonotrichia atricapilla
Fox sparrow	Passerella iliaca
Lincoln's sparrow	Melospiza lincolnii
Song sparrow	Melospiza melodia
Swamp sparrow	Melospiza georgiana

Tryannidae (tyrant flycatchers)

Western kingbird	Tyrannus verticalis
Cassin's kingbird	Tyrannus vociferans
Ash-throated flycatcher	Myiarchus cinerascens
Olive-sided flycatcher	Contopus borealis
Western wood pewee	Contopus sordidulus
Black phoebe	Sayornis nigricans
Say's pheobe	Sayornis saya
Vermillion flycatcher	Pyrocephalus rubinus
Brown-crested flycatcher	Myiarchus tyrannulus

Empidonax flycatchers

Gray flycatcher	Empidonax wrightii
Dusky flycatcher	Empidonax oberholseri
Western flycatcher	Empidonax difficilis
Hammond's flycatcher	Empidonax hammondii
Willow flycatcher	Empidonax traillii

Alaudidae (larks)

Horned lark	Eremophila alpestris

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Hirundinidae (swallows)

Tree swallow	Tachycineta bicolor
Violet-green swallow	Tachycineta thalassina
Purple martin	Progne subis
Cliff swallow	Hirundo pyrrhonota
Northern rough-winged swallow	Stelgidopteryx serripennis
Bank swallow	Riparia riparia
Barn swallow	Hirundo rustica

Corvidae (jays, crows and magpies)

Scrub jay	Aphelocoma coerulescens
Pinyon jay	Gymnorhinus cyanocephalus
Steller's jay	Cyanocitta stelleri
Clark's nutcracker	Nucifraga columbiana
Common raven	Corvus corax
American crow	Corvus brachyrhynchos

Paridae (titmice, verdins and chickadees)

Plain titmouse	Parus inornatus
Mountain chickadee	Parus gambeli
Verdin	Auriparus flaviceps
Bushtit	Psaltriparus minimus

Certhiidae (creepers)

Brown creeper	Certhia americana

Sittidae (nuthatches)

White-breasted nuthatch	Sitta carolinensis
Red-breasted nuthatch	Sitta canadensis
Pygmy nuthatch	Sitta pygmaea

Troglodytidae (wrens)

House wren	Troglodytes aedon
Rock wren	Salpinctes obsoletus
Bewick's wren	Thryomanes bewickii
Marsh wren	Cistothorus palustris
Canyon wren	Catherpes mexicanus
Cactus wren	Campylorhynchus brunneicapillus
Winter wren	Troglodytes troglodytes

II. REPTILES

LIZARDS

Banded Gecko	Coleonyx variegatus
Gilbert's Skink	Eumeces gilberti
Western Skink	Eumeces skiltonianus
Desert Iguana	Dipsosaurus dorsalis
Zebra-tailed lizard	Callisaurus draconoides
Collared lizard	Crotaphytus collaris
Chuckwalla	Sauromalus obesus
Gila monster	Heloderma suspectum
Long-nosed leopard lizard	Gambelia wislizenii
Desert spiny lizard	Sceloporus magister
Western fence lizard	Sceloporus occidentalis
Eastern fence lizard	Sceloporus undulatus*
Sagebrush lizard	Sceloporus graciosus
Side-blotched lizard	Uta stansburiana
Desert horned lizard	Phyrnosoma platyrhinos
Desert night lizard	Xantusia vigilis
Western whiptail	Cnemidophorus tigris
Long-tailed brush lizard	Urosaurus graciosus
Tree lizard	Urosaurus ornatus

SNAKES

Ringneck snake	Diadophis punctatus
Striped whipsnake	Masticophis taeniatus
Coachwhip	Masticophis flagellum
Western patch-nosed snake	Salvadora hexalepis
Spotted leaf-nosed snake	Phyllorhynchus decurtatus
Western shovel-nosed snake	Chionactis occipitalis
Black-headed snake	Tantilla planiceps
Racer	Coluber constrictor
Glossy snake	Arizona elegans
Gopher snake	Pituophis melanoleucus
Common kingsnake	Lampropeltis getulus
Long-nosed snake	Rhinocheilus lecontei
Western ground snake	Sonora semiannulata
Night snake	Hypsiglena torquata
Western blind snake	Leptotyphlops humilis
Sonoran Mountain kingsnake	Lampropeltis pyromelana
Speckled rattlesnake	Crotalus mitchelli
Mojave rattlesnake	Crotalus scutulatus
Sidewinder	Crotalus cerastes
Western diamondback	Crotalus atrox
Western garter snake	Thamnophis elegans
Sonora lyre	Trimorphodon biscutatus lambda

TORTOISES AND TURTLES

Desert tortoise	Gopherus agassizi
Texas softshell turtle	Trionyx spiniferus

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III. AMPHIBIANS

TOADS

Great Basin spadefoot	Scaphiopus intermontanus
Southwestern toad	Bufo microscaphus microscaphus
Red-spotted toad	Bufo punctatus
Great-Plains toad	Bufo cognatus
Woodhouse's toad	Bufo woodhousei
Western toad	Bufo boreas

FROGS

Vegas Valley leopard frog	Rana pipiens fisheri **Possibly extinct**
Bullfrog	Rana catesbeiana
Pacific treefrog	Hyla regilla
Leopard frog	Rana pipiens

IV. MAMMALS

Bovidae (mountain sheep)

Desert bighorn sheep	Ovis canadensis nelsoni

Cervidae (deer and elk)

Mule deer	Odocoileus hemionus hemionus
Rocky mountain elk	Cervus canadensis

Canidae (coyote. foxes, wolves)

Coyote	Canis latrans
Kit fox	Vulpes macrotis
Gray fox	Urocyon cinereoargenteus

Felidae (cats)

Bobcat	Lynx rufus
Mountain lion	Felis concolor

Mustelidae (skunks, racoons. weasels, otters. badgers)

Spotted skunk	Spilogale gracilis
Striped skunk	Mephitis mephitis
Badger	Taxidea taxus
Southwestern otter	Lutra canadensis sonorae

Procyondidae (racoons)

Racoon	Procyon lotor
Ringtail	Bassariscus astutus

Rodentia (squirrels, rats and mice)

Round-tailed ground squirrel	Citellus tereticaudus

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Townsend's ground squirrel	Citellus townsendii	
Rock squirrel	Citellus variegatus	
Cliff chipmunk	Eutamias dorsalis	
Plamer's chipmunk	Eutamias palmeri	
Panamint chipmunk	Eutamias panamintinus	
White-tailed antelope ground squirrel	Ammospermophilus leucurus	
Golden-mantled ground squirrel	Citellus lateralis	
Geomyidae (pocket gophers)		
Botta's pocket gopher	Thomomys bottae	
Heteromyidae (kangaroo rats, kangaroo mice, pocket mice)		
Merriam's kangaroo rat	Dipodomys merriami	
Desert kangaroo rat	Dipodomys deserti	
Panamint kangaroo rat	Dipodomys panamintinus	
Great basin pocket mouse	Perognathus parvus	
Long-tailed pocket mouse	Perognathus formosus	
Little pocket mouse	Perognathus longimembris	
Castoridae (beaver)		
Beaver	Castor canadensis	
Cricetidae (rats. mice. lemmings and voles)		
Bushy-tailed woodrat	Neotoma cinerea	
Desert woodrat	Neotoma lepida	
Western harvest mouse	Reithrodontomys megalotis	
Canyon mouse	Peromyscus crinitus	
Cactus mouse	Peromyscus eremicus	
Deer mouse	Peromyscus maniculatus	
Brush mouse	Peromyscus boylii	
Pinon mouse	Peromyscus truei	
Southern grasshopper mouse	Onychomys torridus	
Muskrat	Ondatra zibethicus	
Ash Meadows vole	Microtus montanus nevadensis	possibly extinct
Muridae (Old World Rats and Mice)		
House mouse	Mus musculus	
Norway rat	Rattus norvegicus	
Erethizontidae (porcupines)		
Porcupine	Erethizon dorsatum	
Lagomorpha (rabbits and hares)		
Black-tailed jackrabbit	Lepus californicus	
Desert cottontail	Sylvilagus audubonii	
Nuttall's cottontail	Sylvilagus nuttallii	
Chiroptera (bats)		

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Big brown bat	Eptesicus fuscus pallidus
Leaf-nosed bat	Macrotus californicus
Yuma myotis	Myotis yumanensis
Long-eared myotis	Myotis evotis chrysonotus
Fring-tailed myotis	Myotis thysanodes thysanodes
Long-legged myotis	Myotis volans interior
California myotis	Myotis californicus pallidus
Small-footed myotis	Myotis subulatus
Silver-haired bat	Lasionycteris noctivagans
Western pipistrell	Pipistrellus hesperus hesperus
Red bat	Lasiurus borealis
Hoary bat	Lasiurus cinereus
Spotted bat	Euderma maculatum
Townsend's big-eared bat	Plecotus townsendi
Mexican big-eared bat	Plecotus phyllotis
Pallid bat	Antrozous pallidus pallidus
Mexican free-tailed bat	Tadarida brasiliensis
Pocketed free-tailed bat	Tadarida femorosacca
Big free-tailed bat	Tadarida macrotis
Western mastiff bat	Eumops perotis

Soricidae (Shrews)

Inyo shrew	Sorex tenellus
Desert shrew	Notiosorex crawfordi

V. FISHES

Species	Distribution	Status
Clupeidae (herring and shad)		
Threadfin shad Dorosoma petenense atchafalayae	Colorado River drainage	introduced
Salmonidae (salmon and trout)		
Rainbow trout Oncorhynchus mykiss	Colorado River drainage	introduced
Lahontan cutthroat trout Oncorhynchus clarki ssp.	Colorado River drainage	introduced
Catostomidae (suckers)		
Razorback sucker Xyrauchen texanus	Lake Mead and Mohave	endangered
Flannel-mouth sucker Catostomus latipinnis	Colorado River drainage	sensitive
Catfish		
Channel catfish Ictalurus punctatus	Colorado River drainage	introduced
Black bullhead catfish Ictalurus melas	Colorado River drainage	introduced
Centrarchidae (sunfishes)		
Largemouth bass Micropterus salmoides	Colorado River drainage	introduced
Bluegill sunfish Lepomis macrochirus	Colorado River drainage	introduced
Green sunfish Lepomis cyanellus	Colorado River drainage	introduced
Black crappie Pomoxis nigromaculatus	Colorado River drainage	introduced

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Species	Distribution	Status
Percichthyidae (temperate basses)		
Striped bass Morone saxitilis	Colorado River drainage	introduced
Cyprinodontidae (killifish. springfish. and pupfish)		
Ash Meadows Amaragosa pupfish Cyprinodon nevadensis mionectes	Ash Meadows	endangered
Warm spring pupfish Cyprinodon nevadensis pectoralis	Ash Meadows	endangered
Devils Hole pupfish Cyprinodon diabolis	Ash Meadows	endangered
Moapa White River springfish Crenichthys baileyi moapae	Muddy River	sensitive spp
Pahrump killifish Empetrichthys latos	Corn Creek springs Spring Mountain State Park	endangered
Poeciliidae (livebearers)		
Mosquito fish Gambusia affinis	Colorado River drainage	introduced
Shortfin molly Poecilia mexicana	Colorado River drainage	introduced
Black mollies Mollienesia latipinna	Colorado River drainage	introduced
Guppies Lebistes reticulatus	Colorado River drainage	introduced
Swordtails Xiphophorus helleri	Colorado River drainage	introduced
Platys Xiphophorus maculatus	Colorado River drainage	introduced
Cyprinidae (minnows)		
Fathead minnow Pimephales promelas**	Colorado River drainage	introduced

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Species	Distribution	Status
Colorado River roundtail chub Gila robusta robusta	Colorado River drainage	native
Virgin River roundtail chub Gila robusta seminuda	Virgin River Muddy River	endangered sensitive
Bonytail chub Gila elegans	Lake Mohave	endangered
Red shiner Notropis lutrensis**	Colorado River drainage	introduced
Golden shiner Notemigonus crysoleucas**	Colorado River drainage	introduced
Speckled dace Rhinichthys osculus	Colorado River drainage	native
Ash Meadows speckled dace Rhinichthys osculus nevadensis	Ash Meadows	endangered
Meadow Valley Wash specked dace Rhinichthys osculus spp.	Muddy River	sensitive
Moapa dace Moapa coriacea	Muddy River	endangered
Asiatic carp Cyprinus carpio	Colorado River drainage	introduced
Goldfish Carassius auratus	Colorado River drainage	introduced
Virgin River spinedace Lepidomeda mollispinis mollispinis	Virgin River	sensitive
Big Spring spinedace Lepidomeda mollispinis pratensis	Ash Meadows	threatened
Woundfin Plagopterus argentissimus	Virgin River	endangered
Grass carp Ctenopharyngodon idella Val.	Colorado River drainage	introduced

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APPENDIX B

Special Status Species

Special status species include those federally listed as threatened, endangered or candidates for listing. State listed species and BLM sensitive species. BLM sensitive species are species designated by the BLM State Director, in cooperation with the State of Nevada Department of Conservation and Natural Resources, that are not already included as BLM Special status species under (1) Federally listed, proposed or candidate species; or (2) Species listed by the State of Nevada because of potential endangerment or extinction.

The Nevada BLM Sensitive Species list was updated in March 1997. However, because Nevada Revised Statute 501.110 is not clear on which species are listed for reasons of endangerment or extinction, several species of concern were not included on the most recent Nevada BLM Sensitive Species list. This list is currently being revised by the State Director. The revised list will include several species which are not included on the tables below. The BLM sensitive species list will be reviewed annually and revised as appropriate.

Table B-1. Federally listed species.

Species expected to occur on BLM managed lands in the Las Vegas District

Threatened	Desert tortoise, *Gopherus agassizii*
Endangered	Woundfin minnow, *Plagopterus argentissimus*
Endangered	Virgin River chub, *Gila robusta*
Endangered	Ash Meadows Amaragosa pupfish, *Cyprinodon nevadensis mionectes*
Endangered	Warm springs pupfish, *Cyprinodon nevadensis pectoralis*
Endangered	Ash Meadows speckled dace, *Rhinichthys osculus nevadensis*
Threatened	Ash Meadows naucorid, *Ambrysus amaragosus*
Endangered	Peregrine falcon, *Falco peregrinus anatum*
Endangered	Southwest willow flycatcher, *Empidonax traillii extimus*

Species that occur on state, private and other Federal lands and probably do not occur on BLM managed lands in the Las Vegas District

Endangered	Bald eagle, *Haliaeetus leucocephalus*
Endangered	Moapa dace, *Moapa coriacea*
Endangered	Bonytail chub, *Gila elegans*
Endangered	Pahrump killifish, *Empetrichthys latos*
Endangered	Devil's Hole pupfish, *Cyprinodon diabolis*
Endangered	Colorado squawfish, *Ptychocheilus lucius*
Endangered	Razorback sucker, *Xyrauchen texanus*

(Source: USFWS, Reno Field Station, File no. 1-5-95-SP-066, February 9, 1995 and FR Vol. 61, No. 25, 2/6/96)

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Table B-2. BLM sensitive species potentially occurring within the Las Vegas District

Species likely to occur on BLM managed lands

Invertebrates
Oasis Valley springsnail, *Pyrgulopsis micrococcus*
Red Rocks springsnail #1, *Pyrgulopsis* sp.
Red Rocks springsnail #2, *Pyrgulopsis* sp.
Giuliani's dune scarab beetle, *Pseudocotalpa giulianii*
Big Dune aphodius scarab beetle, *Aphodius* sp.
Large aegialian scarab beetle, *Aegialia magnifica*
Rulien's miloderes weevil, *Miloderes rulieni*

Mammals
Greater western mastiff-bat, *Eumops perotis californicus*
Allen's big-eared bat, *Idionycteris phyllotis*
California leaf-nosed bat, *Macrotus californicus*
Small-footed myotis, *Myotis ciliolaburm*
Long-eared myotis, *Myotis evotis*
Fringed myotis, *Myotis thysanodes*
Cave myotis, *Myotis velifer*
Long-legged myotis, *Myotis volans*
Yuma myotis, *Myotis yumanensis*
Big free-tailed bat, *Nyctinomops macrotis*
Pale Townsend's big-eared bat, *Plecotus townsendii pallescens*

Birds
Phainopepla, *Phainopepla nitens*

Amphibians
Arizona toad, *Bufo microscaphus microscaphus*

Reptiles
Chuckwalla, *Sauromalus obesus*

Fish
Virgin spinedace, *Lepidomeda mollispinis mollispinis*

(Source: BLM Sensitive Species list, March 1997).

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APPENDIX C

WILD AND SCENIC RIVERS
ELIGIBILITY, CLASSIFICATION, AND SUITABILITY

STUDY PROCESS

The wild and scenic river study process has three steps:

1. Determine if the river segment(s) is eligible for wild and scenic river designation.
2. Determine the potential classification of the river segment(s) as wild, scenic, recreational, or any combination thereof.
3. Conduct a suitability study/legislative EIS to determine if the river segment(s) is suitable for designation to the Wild and Scenic Rivers System.

Specific study procedures are found in BLM Manual 8351 and in the final revised U.S. Department of Agriculture and Interior guidelines found in *Federal Register* Vol. No. 173, September 7, 1982. The guidance recommends that all three steps be completed during the RMP process. If circumstances make this impossible, the study/EIS step may be deferred for up to 5 years. Minimum determination in an RMP involving a potential wild and scenic river must include decisions on eligibility and classification.

This appendix completes the first two steps of the process for the Virgin River. The Stateline Resource Area has elected to defer the suitability study for the Virgin River due to the abbreviated RMP schedule and the intensive coordination which would be required. Funding limitations also influenced this decision.

The suitabiltiy study/legislative EIS for the Virgin River will be a joint effort involving the BLM Cedar City District, Utah, the BLM Arizona Strip District, and the BLM Las Vegas District, Nevada.

STUDY CRITERIA

To be eligible for inclusion in the national system, a river segment must be free-flowing. The river and its adjacent land area must possess at least one outstandingly remarkable value. Length or flow of an eligible river segment are not specifically defined and are considered sufficient if they sustain or compliment the outstandingly remarkable values for which the river would be designated. The minimum study corridor includes the river and the adjacent lands to .025 miles from the river's edges. A wider corridor may be studied if inclusion could facilitate resource management in the river area. If a river segment is determined to be non-eligible during the planning process, futher study should be discontinued. Planning records must document the basis for the non-eligibility determination.

A river segment's potential classification depends on the condition of the river and adjacent lands at the time of the study. The Wild and Scenic Rivers Act specifies three classifications for eligible rivers: wild, scenic and recreational.

To be classified wild, a river must be free of impoundments and generally inaccessible except by trail. Watersheds or shorelines must be essentially primitive and the waters unpolluted.

To be classified scenic, a river segment must be free of impoundments, with shorelines or watersheds still largely primitive. Shorelines should be largely undeveloped, but accessible by some roads. The area must not show substantial evidence of human activity.

To be classified recreational, a river segment may be readily accessible by road or railroad and may have some development along the shoreline. The river segment may also have undergone some

impoundment or diversion in the past.

INTERIM MANAGEMENT

BLM guidance provides for interim protection of a river segment after it is determined eligible and subsequently classified as wild, scenic, and/or recreational. Management activities will not be allowed to damage the existing elibility, classification, or suitablitity. The outstandingly remarkable values of the river area must be protected and, to the extent practicable, enhanced. The free-flowing characteristics of the river segment cannot be modified.

VIRGIN RIVER OVERVIEW

The following sections address the eligibilty and classification steps of a study on the Virgin River in Nevada for potential Wild and Scenic River designation. The river was on the 1982 National Rivers Inventory but was later removed from that list. Public interest expressed during the RMP process indicated that the river should be studied for potential designation. The Nevada section is classified as recreational.

Introduction

The Virgin River flows through three states, originating north and east of Zion National Park and flowing through southwestern Utah, the Virgin River Gorge in Arizona, and finally into Lake Mead in Nevada. The total river segment covers 76 miles, from just above Hurricane, Utah to Lake Mead. This eligibility and classification determination covers only the 30 miles in Nevada. Although the river was removed from the National Rivers Inventory (NRI), the values for which it was originally included are considered in this eligibility and classification process. The Virgin River was identified as having outstandingly remarkable scenic, geologic, fisheries, and wildlife values.

ADMINISTRATION

The Nevada section of the Virgin River has been determined non-mavigable. The river bed, use on the river, and the area within the corridor included in this study are controlled by the landowner. Of the approximately 30 miles of river in Nevada, 16 miles are under BLM administration, 11 miles are privately owned, and 3 miles are state-owned.

RIVER DESCRIPTION

The Virgin River traverses lands valuable for agricultural uses, as well as important riparian habitat. The woundfin minnow, an endangered species, and the Virgin River chub, a candidate for endangered status, are found in the river. This riparian corridor also provides important habitat for waterfowl, upland game, nongame, and other fish. These adjacent lands possess opportunities for nature study, interpretation, hunting, and non-consumptive recreational activities.

The river corridor to be studied consists of the river itself and a strip of land 0.25 miles from the high water mark on each side of the river. The corridor starts where the river crosses the Arizona-Nevada state line and ends where the river enters the Lake Mead National Recreation Area. The 30 mile section has been divided into three segments:

1. Arizona-Nevada state line (Mile 0) to the bridge at Riverside (approximately 14 river miles).

2. The Riverside Bridge to the Overton State Wildlife Management Area (approximately 10 river miles).

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3. The Overton State Wildlife Management Area to the Lake Mead National Recreation Area border (approximately 6 river miles).

Segment 1

This segment of the Virgin River lies between the municipalities of Mesquite and Riverside, Nevada. The segment runs through approximately 4 miles of private land used for agriculture and approximately 10 miles of BLM administered land; 5 of which are within the boundaries of the Virgin River Recreation Lands. The recreation lands were designated to preserve waterfowl habitat and rare and unusual plants along the river, as well as developing wildlife and recreational values. The shoreline is primarily sandy and includes riparian vegetation. There are several access points scattered along the shoreline, human development (houses and agricultural fields) is visible as well as several diversions that feed water to nearby fields.

Segment 2

This segment of the Virgin River lies between the municipality of Riverside, Nevada and the Overton State Wildlife Management Area. The segment runs through approximately 5 miles of private land used for agriculture and approximately 5 miles of BLM administered land; 4 of which are within the boundaries of the Virgin River Recreation Lands. The shoreline is primarily sandy and includes riparian vegetation. There are several access points scattered along the shoreline, human development (houses and agricultural fields) is visible as well as several diversions that feed water to nearby fields.

Segment 3

This segment of the Virgin River lies between the Overton State Wildlife Management Area and Lake Mead National Recreation Area. The segment runs through approximately 3 miles of land managed by the State of Nevada Division of Wildlife and approximately 3 miles of private land used for agriculture. There are several access points scattered along the shoreline, human development (houses and agricultural fields) is visible as well as several diversions that feed water to nearby fields.

ELIGIBILITY

The river meets the definition of a free-flowing stream from the Arizona-Nevada state line to the Lake Mead National Recreation Area. All three segments have outstandingly remarkable desert aquatic riparian values. Therefore, all three segments are determined eligible for inclusion in the Wild and Scenic Rivers System.

POTENTIAL CLASSIFICATION

All three segments meet the recreation criteria because of bridges, river channel modifications access points and noticeable human devlopments.

INTERIM MANAGEMENT

Interim management for the Virgin River will require that the potential classification as determined in this document be considered when an action is proposed that may affect these classifications. Especially important is segment 1 from the Arizona-Nevada state line to the Riverside bridge because of the human population growth and related demands on natural resources.

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APPENDIX D

PUBLIC LAND CLASSIFICATIONS

Recreation and Public Purposes Classifications

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Nye County -				
	T. 13 S., R. 47 E.				
Nev-057750	sec. 26,	S½S½;			Public Land Laws
(Lease)	sec. 35,	NE¼NE¼, NW¼NW¼, S½N½.	Waste Site Buffer Zone	560	1872 Mining Law
	T. 16 S., R. 49 E.				
N-45126	sec. 16,	NW¼NE¼.	Comm. Park	40	Public Land Laws 1872 Mining Law
(Lease)					
N-20003	sec. 9,	S½SE¼SW¼SE¼.	Not Specific	5	Public Land Laws 1872 Mining Law
(Classification)					
	Clark County -				
	T. 16 S., R. 56 E.				
N-38127	sec. 8,	Lot 8.	Church	2.22	Public Land Laws 1872 Mining Law
(Lease)					
N-25225	sec. 8,	Lot 7.	VFW Post	2.23	Public Land Laws 1872 Mining Law
(Lease)					
Nev-064225	sec. 15,	W½SW¼SW¼,			Public Land Laws
(Lease)	sec. 16,	E½SE¼SE¼.	Sanitary Landfill	40	1872 Mining Law
N-41004	sec. 8,	Lot 6.	Park/Complex	40	Public Land Laws 1872 Mining Law
(Lease)					
	T. 24 S., R. 57 E.				
N-7838	sec. 27,	SE¼SW¼SW¼,			Public Land Laws
(Lease)		SW¼SE¼SW¼.	Sanitary Landfill	20	1872 Mining Law
N-56715	sec. 32	N½SE¼NE¼SW¼.	School Site	5	Public Land Laws 1872 Mining Law
(Lease)					
	T. 22 S., R. 58 E.				
Nev-066747	sec. 12,	SW¼NE¼.	Disposal Site	40	Public Land Laws 1872 Mining Law
(Lease)					
	T. 24 S., R. 58 E.				
N-47565	sec. 26,	SE¼SE¼NE¼NW¼.	Goodsprings Fire Station	2.5	Public Land Laws 1872 Mining Law
(Lease)					
N-57882	sec. 26,	N½NE¼NW¼, SW¼NE¼NW¼,			
(Lease)		N½SE¼NE¼NW¼,			Public Land Laws
		SW¼SE¼NE¼NW¼.	Park Site	37.5	1872 Mining Law
	T. 18 S., R. 59 E.				
N-41567	sec. 23,	SE¼NW¼NW¼;			
(Lease)	sec. 32,	SW¼NE¼NW¼;			Public Land Laws
	sec. 33,	SW¼NE¼SW¼.	School Site	30	1872 Mining Law
N-41568	sec. 28,	SW¼NE¼NW¼,			Public Land Laws
(Lease)		E½NW¼SW¼.	School Site	30	1872 Mining Law
	T. 22 S., R. 59 E.				
N-10151	sec. 7,	S½SW¼NE¼NW¼,			Public Land Laws
(Classification)		SE¼NW¼.	Horse Corrals	45	1872 Mining Law
	T. 19 S., R. 60 E.				
N-36876	sec. 2,	Lots 1,2,3,4, S½N½,S½;			
(Lease)	sec. 3,	Lots 3,4, S½NE¼, S½NW¼, NE¼SW¼, SE¼;			
	sec. 4,	Lots 1,2, SE¼NE¼;			Public Land Laws
	sec. 11,	NW¼.	State Park	1,360.89	1872 Mining Law
N-37057	sec. 5,	Lot 11.	Fire Station	2.45	Public Land Laws
(Lease)					1872 Mining Law
N-37125	sec. 5,	Lot 19.	Park Site	10.27	Public Land Laws
(Lease)					1872 Mining Law

N-37056 (Lease)	sec. 13,	N½NW¼NW¼NE¼.	Fire Station	5	Public Land Laws 1872 Mining Law
N-37108 (Lease)	sec. 13,	E½NW¼NE¼, S½NW¼NW¼NE¼, SW¼NW¼NE¼.	Park Site	35	Public Land Laws 1872 Mining Law
N-37109 (Lease)	sec. 24,	W½NE¼SE¼.	Park Site	20	Public Land Laws 1872 Mining Law
N-37111 (Lease)	sec. 28,	SW¼SW¼NW¼.	Park Site	10	Public Land Laws 1872 Mining Law
N-41567-11 (Lease)	sec. 21,	W½NE¼NE¼.	School Site	20	Public Land Laws 1872 Mining Law
N-37055 (Lease)	sec. 17,	Lot 10.	Fire Station	2.5	Public Land Laws 1872 Mining Law
N-37123 (Lease)	sec. 17,	Lot 10.	Park Site	7.5	Public Land Laws 1872 Mining Law
N-37122 (Lease)	sec. 20,	W½NE¼NE¼.	Park Site	20	Public Land Laws 1872 Mining Law
N-56125 (Lease)	sec. 20,	NE¼NE¼.	Good Shepherd Campus	40	Public Land Laws 1872 Mining Law
N-58886 (Classification)	sec. 29,	NWSE¼NE¼.	Church	10	Public Land Laws 1872 Mining Law
	T. 20 S., R. 60 E.				
N-41567-30 (Lease)	sec. 7,	SW¼NE¼NE¼.	School Site	10	Public Land Laws 1872 Mining Law
N-41567-13 (Lease)	sec. 9,	E½NE¼SW¼NE¼, W½NE¼SE¼NE¼, NW¼SE¼NE¼.	School Site	20	Public Land Laws 1872 Mining Law
N-50827 (Lease)	sec. 10,	NW¼NE¼NE¼NW¼, N½SW¼NE¼NE¼NW¼, N½NW¼NE¼NW¼, N½S½NW¼NE¼NW¼, N½NE¼NW¼NW¼, NE¼NW¼NW¼NW¼.	Park Site	18.75	Public Land Laws 1872 Mining Law
N-51565 (Lease)	sec. 15,	W½NE¼NW¼, SE¼NE¼NW¼, S½NE¼NE¼NW¼, NW¼NW¼, S½NW¼, N½NW¼SW¼.	Corporate Yard University Br. Campus Flood Detention Basin	175	Public Land Laws 1872 Mining Law
N-37129 (Lease)	sec. 22,	SE¼NW¼NW¼, NE¼SW¼NW¼.	Park Site	20	Public Land Laws 1872 Mining Law
N-51517 (Lease)	sec. 22,	SE¼SW¼SE¼.	Park Site	10	Public Land Laws 1872 Mining Law
N-37128 (Lease)	sec. 27,	NW¼SE¼NW¼.	Park Site	10	Public Land Laws 1872 Mining Law
N-41565-26 (Lease)	sec. 27,	SW¼NE¼NW¼.	School Site	10	Public Land Laws 1872 Mining Law
N-37127 (Lease)	sec. 28,	E½NW¼NE¼.	Park Site	20	Public Land Laws 1872 Mining Law
N-58750 (Lease)	sec. 28,	E½NE¼SE¼SW¼, SE¼SE¼SW¼.	Church	15	Public Land Laws 1872 Mining Law
Nev-054655 (Lease)	sec. 29,	E½.	Park Site	320	Public Land Laws 1872 Mining Law
N-37126 (Lease)	sec. 33,	Lots 4,5,6.	Park Site	15	Public Land Laws 1872 Mining Law
	T. 21 S., R. 60 E.				
N-37119 (Lease)	sec. 3,	Lots 72,73,97.	Park Site	15.86	Public Land Laws 1872 Mining Law
N-58742 (Classification)	sec. 3,	SW¼NE¼SW¼, E½SE¼NW¼SW¼.	Church	15	Public Land Laws 1872 Mining Law
N-7301-E (Lease)	sec. 10,	SE¼NE¼SW¼.	School Site	10	Public Land Laws 1872 Mining Law

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N-29498 (Lease)	sec. 11,	Lots 127,128,128,130.	Park Site	10	Public Land Laws 1872 Mining Law
N-20095 (Lease)	sec. 12,	Lots 91,92.	School Site	5	Public Land Laws 1872 Mining Law
N-41565-30 (Lease)	sec. 15,	W½W½NE¼NW¼SW¼, NW¼NW¼SW¼.	Maintenance Facility	12.5	Public Land Laws 1872 Mining Law
N-51437 (Lease)	sec. 15,	E½NE¼NW¼SW¼, E½W½NE¼NW¼SW¼, S½NW¼SW¼, W½W½SW¼SW¼, NE¼NW¼SW¼SW¼, W½SE¼NW¼SW¼SW¼, W½E½SW¼SW¼SW¼.	Multi-Use Civic Site	 43.75	Public Land Laws 1872 Mining Law
N-56734 (Classification)	sec. 15,	SE¼SW¼SW¼.	Church	10	Public Land Laws 1872 Mining Law
N-41568-29 (Lease)	sec. 16,	SE¼NE¼SW¼.	School Site	10	Public Land Laws 1872 Mining Law
N-41279 (Lease)	sec. 16,	NW¼, N½NE¼SW¼, SW¼NE¼SW¼, W½SW¼, SE¼SW¼.	Park Site	310	Public Land Laws 1872 Mining Law
N-54133 (Lease)	sec. 16,	E½SE¼SW¼.	DMV Building	20	Public Land Laws 1872 Mining Law
N-21490 (Lease)	sec. 17,	NE¼SW¼NE¼, E½NW¼SW¼NE¼.	Reservoir Site	15	Public Land Laws 1872 Mining Law
N-52317 (Lease)	sec. 17,	W½NW¼SE¼SE¼, NE¼SW¼SE¼, E½NW¼SW¼SE¼.	School Site	20	Public Land Laws 1872 Mining Law
N-54237 (Lease)	sec. 17,	N½NE¼NE¼NE¼.	Church	20	Public Land Laws 1872 Mining Law
N-57387 (Classification)	sec. 17,	SE¼SW¼SE¼.	Police Station	10	Public Land Laws 1872 Mining Law
N-59504 (Lease)	sec. 17,	E½NW¼SE¼NW¼.	Church	5	Public Land Laws 1872 Mining Law
N-41568-24 (Apln)	sec. 23,	NW¼NE¼NE¼, W½NE¼NE¼NE¼, SW¼SE¼NE¼.	School Site	45	Public Land Laws 1872 Mining Law
N-7301-1 (Lease)	sec. 24,	SW¼SE¼NW¼.	School Site	10	Public Land Laws 1872 Mining Law
	T. 21 S., R. 61 E.				
N-44619 (Lease)	sec. 13,	W½NE¼NE¼SE¼.	School Site	5	Public Land Laws 1872 Mining Law
N-29566 (Lease)	sec. 13,	Lot 20.	Church School Site	 5.22	Public Land Laws 1872 Mining Law
N-13084 (Lease)	sec. 32,	NW¼NE¼NE¼, S½NE¼NE¼, NW¼NE¼, N½SW¼NE¼, N½S½SW¼NE¼, SE¼NE¼.	Golf Course	140	Public Land Laws 1872 Mining Law
	T. 22 S., R. 61 E.				
N-7473 (Lease)	sec. 7,	NW¼SE¼.	Park Site	40	Public Land Laws 1872 Mining Law
N-55370 (Lease)	sec. 14,	NE¼NE¼SW¼, N½SE¼NE¼SW¼, W½SE¼SE¼NE¼SW¼, SW¼SE¼NE¼SW¼.	School Site	18.75	Public Land Laws 1872 Mining Law
N-57698 (Lease)	sec. 14,	NE¼NW¼NE¼NW¼, E½NW¼NW¼NE¼NW¼, E½SW¼NW¼NE¼NW¼, W½SE¼NW¼NE¼NW¼.	Church	5	Public Land Laws 1872 Mining Law
N-10138 (Lease)	sec. 17,	N½NE¼NE¼SW¼NE¼.	Transfer Station	1.25	Public Land Laws 1872 Mining Law

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	T. 19 S., R. 62 E.				
N-43395	sec. 5,	All;			
(Lease)	sec. 8,	W½;			
	sec. 15-17	All;			
	sec. 21,	N½, SW¼, N½SE¼, SW¼SE¼;	National Guard		Public Land Laws
	sec. 22,	N½, E½SW¼.	Armory Complex	3,883.24	1872 Mining Law
	T. 20 S., R. 62 E.				
N-50714	sec. 11,	NE¼.	Driver Training Course	160	Public Land Laws
(Lease)					1872 Mining Law
N-37028	sec. 13,	S½SW¼.	Shooting Range	80	Public Land Laws
(Lease)					1872 Mining Law
	T. 21 S., R. 62 E.				
Nev-046208	sec. 1,	SE¼;			Public Land Laws
(Lease)	sec. 12,	E½, E½NW¼, SW¼.	Sanitary Landfill	720	1872 Mining Law
N-10405	sec. 28,	S½NW¼NE¼SW¼.	School Site	5	Public Land Laws
(Lease)					1872 Mining Law
	T. 21 S., R. 63 E.				
N-24417	sec. 25,	E½E½SE¼SW¼, W½W½SW¼SE¼;			Public Land Laws
(Lease)	sec. 36,	NW¼SW¼NE¼.	Sludge Disposal(2)	30	1872 Mining Law
Nev-060170	sec. 28,	S½NW¼SW¼, SW¼SW¼;			Public Land Laws
(Lease)	sec. 29,	S½SE¼.	Disposal Site	140	1872 Mining Law
	T. 22 S., R. 63 E.				
N-48691	sec. 9,	NE¼SW¼SE¼.	School Site	10	Public Land Laws
(Lease)					1872 Mining Law
N-59106	sec. 9,	E½W½NW¼NW¼.	Park Site	10	Public Land Laws
(Classification)					1872 Mining Law
	T. 28 S., R. 63 E.				
N-21747	sec. 22,	Lot 22, S½SW¼SE¼, W½W½SE¼SE¼;			
(Lease)	sec. 27,	Lots 1,2.	Well Site and Roadside Park		Public Land Laws
		(actual R&PP area is within the above legal description)		56	1872 Mining Law
	T. 14 S., R. 66 E.				
N-24441	sec. 19,	W½SW¼SE¼.	Sanitary Landfill	20	Public Land Laws
(Lease)					1872 Mining Law
N-36907	sec. 36,	W½SW¼SW¼,	Equipment		Public Land Laws
(Lease)			Storage Site	20	1872 Mining Law
	T. 16 S., R. 66 E.				
N-3836	sec. 26,	E½, SE¼NW¼, E½SW¼;			Public Land Laws
(Classification)	sec. 35,	All.	State Park	1,080	1872 Mining Law
N-4202	sec. 12,	E½E½;			
(Classification)	sec. 13,	E½NE¼, E½SE¼, SW¼SE¼;			
	sec. 24,	E½.			
	T. 17 S., R. 66 E.				
	sec. 11,	All;			
	sec. 12,	Lots 2,3, S½NW¼, SW¼;			
	sec. 13,	Lots 4,5,6,7,12,13,14,15;			
	sec. 14,	All;			
	sec. 23,	All;			
	sec. 24,	Lots 3,4,5,6,7,8;			
	sec. 25,	Lot 1;			
	sec. 26,	Lots 1,2,3,4,5,6,7,8,9,10,11.			
	T. 15 S., R. 67 E.				
	sec. 31,	E½NE¼, E½SE¼SW¼, SE¼;			
	sec. 32,	All;			
	sec. 33,	W½.			
	T. 16 S., R. 67 E.				
	sec. 4,	Lots 3,4, S½NW¼, SW¼;			
	sec. 5,	Lots 1,2,3,4, S½N½,			

		W½W½SW¼, SE¼;			
	sec. 6-8	All;			
	sec. 9,	W½;			
	sec. 16,	W½;			
	sec. 17-21	All;			
	sec. 28,	All;	State Park	12,454.79	Public Land Laws 1872 Mining Law
	sec. 29,	E½, E½W½.			
	T. 32 S., R. 66 E.				
N-39878 (Lease)	sec. 8,	NE¼NE¼.	Sanitary Landfill	40	Public Land Laws 1872 Mining Law
N-59989 (Classification)	sec. 9,	NW¼NW¼.	Sanitary Landfill Expansion	40	Public Land Laws 1872 Mining Law
N-36589 (Classification)	sec. 14,	SE¼.	Sewage Facility	160	Public Land Laws 1872 Mining Law
N-37132 (Classification)	sec. 14,	SW¼.	Sewage Facility	160	Public Land Laws 1872 Mining Law
N-46521 (Classification)	sec. 14,	N½.	Park/Golf Course	160	Public Land Laws 1872 Mining Law
N-30016 (Classification)	sec. 15,	SE¼.	Sewage Facility	160	Public Land Laws 1872 Mining Law
N-41262 (Lease)	sec. 15,	S½NW¼.	School Site	80	Public Land Laws 1872 Mining Law
N-50031 (Classification)	sec. 15,	N½SW¼SW¼, SE¼SW¼SW¼, SE¼SW¼.	Sewage Facility	70	Public Land Laws 1872 Mining law
N-50460 (Classification)	sec. 15,	NE¼.	Sewage Facility	160	Public Land Laws 1872 Mining Law
N-50912 (Lease)	sec. 15,	N½NW¼.	Community College Facility	80	Public Land Laws 1872 Mining Law
N-57242 (Classification)	sec. 15,	SW¼SW¼SW¼.	American Legion Building	10	Public Land Laws 1872 Mining Law
	T. 15 S., R. 67 E.				
N-36866 (Lease)	sec. 26,	N½NE¼, E½NW¼, E½NW¼NW¼, SW¼NW¼NW¼.	Fairgrounds	190	Public Land Laws 1872 Mining Law
	T. 16 S., R. 68 E.				
N-11193 (Classification)	sec. 6,	SW¼SW¼NE¼, NW¼NW¼SE¼.	Sanitary Landfill	20	Public Land Laws 1872 Mining Law
N-37137 (Lease)	sec. 20,	NW¼NW,SE¼NW¼.	Sewage Facility	80	Public Land Laws 1872 Mining Law

Small Tract Classifications

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Clark County -				
	T. 25 S., R. 59 E.				
BLM Order 02-18-1963	sec. 11,	W½SW¼SW¼SE¼.	Public Sale	5	Public Land Laws 1872 Mining Law
	T. 20 S., R. 60 E.				
Nev-028671	sec. 28,	E½SW¼NE¼SE¼.	Public Sale	5	Public Land Laws 1872 Mining Law
	T. 22 S., R. 60 E.				
Nev-049805	sec. 32,	N½.	Public Sale	160	Public Land Laws 1872 Mining Law
	T. 28 S., R. 63 E.				
N-12575	sec. 27,	Lot 7, (within)	Car Wrecking Yard Lease	5	Public Land Laws 1872 Mining Law

Airport Lease Classifications

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Nye County -				
Nev-057637 (Lease)	T. 15 S., R. 49 E. sec. 13, sec. 24, sec. 25,	SW¼SW¼, S½SE¼SW¼; All; N½N½.	Lathrop Wells Airport	860	All
Nev-046697 (Lease)	T. 18 S., R. 50 E. sec. 25,	NW¼NW¼, S½N½, S½.	Ash Meadows Airport	520	All
N-19646 (Lease)	T. 17 S., R. 52 E. sec. 8,	W½SE¼NW¼, W½E½SW¼.	Public Airport	60	All
	Clark County -				
N-13238 (Lease)	T. 25 S., R. 56 E. sec. 1, T. 25 S., R. 57 E. sec. 6, sec. 7, sec. 8,	Lots 1,2,3,4,5,6. Lots 10,11; Lots 4,5; Lots 6,7.	Sandy Valley Airport	266.37	All
N-5826 (Lease)	T. 23 S., R. 61 E. sec. 10, sec. 11,	S½SE¼NE¼NE¼, S½NE¼SE¼NE¼, SE¼SE¼NE¼; W½NW¼.	Sky Harbor Airport	100	All
Nev-065340 (Lease)	T. 29 S., R. 63 E. sec. 2, sec. 11, sec. 14,	Lots 2,18,19,20, SE¼NE¼, SW¼SE¼, E½SE¼; (within) E½; (within) N½NE¼. (within)	Searchlight Airport	184	All
N-43266 (Lease)	T. 13 S., R. 71 E. sec. 3, sec. 4,	Lots 6,7,8,9,10, 11,12, SW¼NW¼, W½SW¼; Lots 5,12, SE¼NE¼, E½SE¼.	Mesquite Airport	516.45	All
N-43317 (Lease)	T. 30 S., R. 63 E. sec. 25, N½.		Kidwell Airport	320	All

Acres Unsuitable For Classification Under The Desert Land Entry Act Or Carey Act

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Nye County -				
N-22835	T. 24 N., R. 8 E. sec. 6,	Lots 1,2,15, S½NE¼, N½SE¼, SE¼SE¼.	Agricultural Use	311.49	None

N-22855	sec. 8,	Lot 1, NE¼, E½NW¼, NW¼NW¼.	Agricultural Use	308.38	None
	T. 16 S., R. 48 E.				
(BLM Orders dated 01-31-1983 and 02-07-1983)					
N-23764	sec. 4,	N½;			
N-23727	sec. 5,	E½;			
N-22409					
N-23208	sec. 6,	All;			
N-23726					
N-23728					
N-22191	sec. 9,	N½;			
N-24005	sec. 12,	All;			
N-24007					
N-22973	sec. 13,	W½;			
N-23860	sec. 14,	W½NE¼, W½;			
N-23913					
N-24001					
N-23207	sec. 16,	SW¼NE¼, NW¼, NW¼SW¼,			
N-23208		N½SE¼, SE¼SE¼;			
N-23861					
N-23912	sec. 17,	S½;			
N-23902	sec. 20,	NE¼, E½NW¼, NW¼SW¼, NW¼SE¼, SE¼SE¼;			
N-24099	sec. 21,	W½;			
N-24091	sec. 27,	N½NW¼, SW¼NE¼, NW¼SE¼, SE¼SE¼.	Agricultural Use	4,516.16	None
	T. 17 S., R. 48 E.				
N-23042	sec. 2,	E½.	Agricultural Use	320	None
	T. 15 S., R.49 E.				
(BLM Orders dated 10-10-1979, 01-31-1983, 02-07-1983, 04-26-1983, 05-05-1983, 05-17-1983 and 06-10-1983)					
N-21874	sec. 4,	W½;			
N-22828	sec. 7,	All;			
N-26963					
N-37943					
N-26305	sec. 9,	S½;			
N-26247	sec. 10,	S½;			
N-26245	sec. 11,	S½;			
N-27096	sec. 12,	S½;			
N-27068	sec. 13,	N½;			
N-37944	sec. 14,	S½;			
N-27605	sec. 15,	All;			
N-37946					
N-37945	sec. 16,	All;			
N-37947					
N-23773	sec. 21,	N½;			
N-23765	sec. 22,	All;			
N-23772					
N-22885	sec. 23,	NW¼, S½;			
N-22886					
N-23047					
N-22886	sec. 26,	N½, SW¼;			
N-22906					
N-22888	sec. 27,	E½NW¼, NE¼, S½;			
N-22308					
N-22309					
N-24598					
N-22308	sec. 34,	All;			
N-22309					
N-22887					

N-22309	sec. 35,	All;			
N-22845					
N-22846					
N-22828	sec. 36,	All.	Agricultural Use	8,430.78	None
N-22844					
	T. 16 S., R. 49 E.				
N-22696	sec. 3,	S½;			
N-22695	sec. 7,	E½;			
N-22697	sec. 10,	W½;			
N-23038	sec. 14,	S½;			
N-23027	sec. 15,	S½, SE¼NW¼;			
N-23025	sec. 16,	All;			
N-22975	sec. 17,	All;			
N-22971	sec. 21,	N½;			
N-21979	sec. 22,	N½;			
N-23023	sec. 23,	W½;			
N-23045	sec. 27,	E½;			
N-24019	sec. 32,	W½.	Agricultural Use	4,572.97	None
	T. 17 S., R. 49 E.				
N-23332	sec. 2,	Lots 1,2, S½NE¼, SE¼.	Agricultural Use	318.37	None
N-23031	sec. 5,	Lots 3,4, S½NW¼, SW¼.	Agricultural Use	320.69	None
N-23102	sec. 5,	Lots 1,2, S½NE¼, SE¼.	Agricultural Use	320.55	None
	T. 15 S., R. 50 E.				
N-27933	sec. 8,	W½.	Agricultural Use	320	None
N-27081	sec. 23,	N½.	Agricultural Use	320	None
	T. 18 S., R. 50 E.				
N-22818	sec. 26,	Lots 4,5,6,7,8,9,10, NE¼SW¼.	Agricultural Use	333.98	None
N-22819	sec. 34,	Lots 1,3, N½N½, SW¼NE¼, SE¼NW¼.	Agricultural Use	320.53	None
	T. 16 S., R. 52 E.				
N-26197	sec. 12,	W½.	Agricultural Use	320	None
N-26092	sec. 13,	W½.	Agricultural Use	320	None
	T. 18 S., R. 52 E.				
N-24427	sec. 7,	Lots 1,2, NE¼, E½NW¼.	Agricultural Use	319.72	None
	T. 18 S., R. 53 E.				
N-27626	sec. 8,	W½.	Agricultural Use	320	None
N- 24178	sec. 30,	W½E½, E½W½.	Agricultural Use	320	None
	Clark County -				
	T. 16 S., R. 54 E.				
N-26669	sec. 11,	E½.	Agricultural Use	320	None
N- 26249	sec. 11,	SW¼;			
	sec. 14,	NW¼.	Agricultural Use	320	None
N-26463	sec. 12,	S½.	Agricultural Use	320	None
	T. 23 S., R. 54 E.				
N-24179	sec. 1,	Lots 1,2,3,4,5,7,8,9,10, NE¼NE¼;			
	sec. 2,	All.	Agricultural Use	323.33	None
	T. 16 S., R. 55 E.				
N-25866	sec. 1,	S½.	Agricultural Use	320	None
N-23737	sec. 4,	S½SW¼;			
	sec. 5,	E½SE¼;			
	sec. 8,	N½NE¼;			
	sec. 9,	N½NW¼.	Agricultural Use	320	None

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N-23735	sec. 7,	E½.	Agricultural Use	320	None
N-23736	sec. 8,	S½NE¼, N½SE¼, SE¼SE¼;	Agricultural Use	320	None
	sec. 9,	SW¼NW¼, W½SW¼.			
N-23733	sec. 9,	S½NE¼, SE¼NW¼, E½SW¼, N½SE¼, SW¼SE¼.	Agricultural Use	320	None
N-23734	sec. 10,	SW¼NE¼, S½NW¼, SW¼, NW¼SE¼.	Agricultural Use	320	None
N-25547	sec. 10,	S½SE¼.	Agricultural Use	320	None
N-24620	sec. 11,	W½.	Agricultural Use	320	None
N-23858	sec. 11,	E½.	Agricultural Use	320	None
N-23856	sec. 12,	W½.	Agricultural Use	320	None
N-25814	sec. 13,	E½.	Agricultural Use	320	None
N-37697	sec. 13,	W½.	Agricultural Use	320	None
N-25460	sec. 14,	W½.	Agricultural Use	320	None
N-25240	sec. 15,	W½.	Agricultural Use	320	None
N-37703	sec. 17,	All.	Agricultural Use	640	None
N-37172	sec. 18,	All.	Agricultural Use	638.6	None
N-23854	sec. 12,	E½.	Agricultural Use	320	None
	T. 16 S., R. 55½ E.				
N-23857	sec. 1,	N½SW¼, SE¼SW¼;	Agricultural Use	335.86	None
	sec. 2,	Lots 3,4, N½SE¼, SW¼SE¼.	Agricultural Use	40	None
N-23311	sec. 1,	SE¼SW¼.	Agricultural Use	355.12	None
N-23802	sec. 11,	Lots 1,2,3,4, W½E½.	Agricultural Use	320	None
N-23855	sec. 12,	E½.	Agricultural Use	301.25	None
N-23310	sec. 12,	Lots 1,2, NE¼, NE¼NW¼, SE¼NW¼.			
	T. 16 S., R. 56 E.				
N-23835	sec. 9,	SE¼;	Agricultural Use	320	None
	sec. 10,	SW¼.	Agricultural Use	320	None
N-23849	sec. 10,	E½.	Agricultural Use	320	None
N-23840	sec. 15,	S½.	Agricultural Use	320	None
N-23843	sec. 15,	N½.	Agricultural Use	320	None
N-23990	sec. 16,	W½.	Agricultural Use	640	None
N-30630	sec. 18,	All.			
	T. 17 S., R. 58 E.				
N-26462	sec. 10,	W½.	Agricultural Use	320	None
	T. 21 S., R. 59 E.				
N-23450	sec. 3,	S½NE¼, N½SE¼;			
	sec. 4,	S½NE¼, W½SE¼;			
	sec. 14,	SW¼NE¼, S½SW¼;			
	sec. 15,	SE¼NE¼, NE¼SW¼, N½SE¼, SE¼SE¼;			
	sec. 16,	S½NW¼, SW¼, S½SE¼;			
	sec. 21,	NW¼, SE¼;			
	sec. 27,	NW¼;			
	sec. 28,	N½NE¼, SE¼NE¼, E½W½, NW¼NW¼;			
	sec. 33,	E½, E½NW¼, NE¼SW¼.	Agricultural Use	2,200	None
	T. 22 S., R. 59 E.				
(BLM Orders dated 02-16-1983 and 04-05-1983)					
N-29925	sec. 2-3,	All;			
	sec. 4,	Lots 1,2,3,4, S½N½, N½SW¼, N½SW¼SW¼, SE¼SW¼SW¼, SE¼SW¼, SE¼;			
	sec. 5,	W½SW¼, SE¼SW¼, NE¼SE¼, SW¼SE¼;			
	sec. 6,	All;			
	sec. 12,	All;			
	sec. 16,	All;			

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N-23316	sec. 18,	N½;			
N-23316	sec. 19,	All;			
N-29925	sec. 20-21,	All;			
N-23316	sec. 22-23,	All;			
	sec. 25,	All.	Agricultural Use	7,531.47	None
N-29925	sec. 16,	All.	Agricultural Use	500	None
	(only 500 acres remain public)				
	T. 22 S., R. 61 E.				
N-22751	sec. 6,	Lots 33,37,38,96,97,99,100,101,			
N-31350		100,101,107,108,110,115,			
		116,117,124,125,128,130.	Agricultural Use	50.17	None
BLM Order	sec. 17,	Parcels A,B,C,D.	Agricultural Use	?	None
	T. 20 S., R. 62 E.				
N-22753	sec. 1,	SE¼;			
	sec. 12,	NW¼.	Agricultural Use	320	None
N-22651	sec. 11,	E½.	Agricultural Use	320	None
	T. 23 S., R. 62 E.				
N-34824	sec. 2,	Lots 1,2, S½NE¼, SE¼.	Agricultural Use	319.24	None
	T. 23 S., R. 63 E.				
N-24166	sec. 3,	W½NE¼, NW¼, N½SW¼.	Agricultural Use	320	None
N-36717	sec. 10,	E½.	Agricultural Use	320	None
N-23833	sec. 14,	N½.	Agricultural Use	320	None
N-23832	sec. 14,	S½.	Agricultural Use	320	None
	T. 25 S., R. 64 E.				
(BLM Orders dated 09-21-1982, 01-26-1983, 01-31-1983 and 10-05-1983)					
N-24779	sec. 7,	E½;			
N-25254					
N-23508	sec. 8,	All;			
N-23756					
N-23826					
N-23831					
N-24779					
N-25254					
N-23507	sec. 9,	All;			
N-23754					
N-23830					
N-23509	sec. 17,	All;			
N-23752					
N-23751	sec. 18,	N½;			
N-27628	sec. 20,	All;			
N-23506	sec. 21,	W½;			
N-22293	sec. 27,	S½;			
N-23505	sec. 28,	All;			
N-26955					
N-22291	sec. 34,	N½, SW¼.	Agricultural Use	4,939.9	None
N-29234					
	T. 26 S., R. 64 E.				
(BLM Orders dated 09-21-1982 and 09-22-1982)					
N-34997	sec. 17,	N½;			
N-34315	sec. 18,	W½;			
N-34280	sec. 34,	E½.	Agricultural Use	960	None
	T. 14 S., R. 65 E.				
(BLM Orders dated 07-26-1982 and 11-13-1984)					
N-23398	sec. 10,	E½SW¼NW¼, W½SE¼NW¼, NE¼SW¼, NE¼NW¼SW¼, N½SE¼SW¼, SE¼SE¼SW¼;			

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N-25272	sec. 13,	All;			
N-25298					
N-29642					
N-29642	sec. 14,	SE¼NE¼, NE¼SE¼;			
N-25298	sec. 15,	N½NE¼;			
	sec. 16,	SW¼.	Agricultural Use	1,080	None
	T. 13 S., R. 66 E.				
N-25264	sec. 32,	S½.	Agricultural Use	320	None
N-25274	sec. 33,	S½.	Agricultural Use	320	None
	T. 14 S., R. 66 E.				
(BLM Orders dated 05-23-1983, 06-10-1983, 06-29-1983, 07-14-1983, 08-01-1983 and 04-12-1984)					
N-22370	sec. 4,	All;			
N-22373					
N-25277					
N-25286					
N-25388					
N-25574					
N-25575					
N-28612					
N-25278	sec. 8,	E½;			
N-25368					
N-25573					
N-22655	sec. 9,	All;			
N-25356					
N-25369					
N-25371					
N-25388					
N-22365	sec. 10,	W½NW¼, SE¼NW¼, SW¼;			
N-22365	sec. 15,	N½, E½SW¼, E½SE¼;			
N-24117					
N-25281					
N-25302					
N-25279	sec. 16,	N½, SW¼, W½SE¼;			
N-25282					
N-25296					
N-25356					
N-22378	sec. 17,	NE¼, N½NW¼, SE¼NW¼,			
N-25280		S½;			
N-25282					
N-25346					
N-25370					
N-25292	sec. 19,	NE¼, N½SE¼,			
		E½SE¼SW¼,			
		SE¼SE¼;			
N-27231	sec. 20,	E½SE¼;			
N-25268	sec. 21,	S½;			
N-25321					
N-22368	sec. 22,	E½E½NE¼NW¼,			
N-22378		E½W½NE¼NW¼,			
N-25321		W½W½SE¼,			
N-25329		E½NW¼SE¼,			
		E½NE¼SW¼SE¼,			
		S½SW¼SW¼SE¼,			
		NE¼SE¼SW¼SE¼,			
		S½SE¼SW¼SE¼,			
		W½NW¼SE¼SE¼,			
		S½SE¼SE¼;			
N-22368	sec. 23,	SW¼;			
N-25329					
N-22369	sec. 26,	W½W½NE¼, N½NW¼,			

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N-25329		SE¼NW¼, E½SW¼, W½E½SE¼, W½SE¼.			
N-25262 N-25268 N-25282	sec. 27,	SW¼NW¼, SW¼, NW¼NE¼SW¼SE¼, S½NE¼SW¼SE¼, W½SW¼SE¼, SE¼SW¼SE¼;			
N-25268 N-27231	sec. 28,	NE¼, N½NW¼, SE¼NW¼, NW¼SE¼;			
N-25575	sec. 29,	NE¼NE¼;			
N-25262 N-25282	sec. 34,	W½NE¼NE¼, W½NE¼;			
N-25304	sec. 35,	NE¼, NE¼NW¼, S½NW¼, NE¼SE¼;			
N-25270 N-25289	sec. 36,	W½, SW¼SE¼.	Agricultural Use	6,239.04	None
	T. 15 S., R. 66 E.				
N-25270	sec. 1,	W½NE¼, SE¼NW¼, NW¼SE¼, SE¼SE¼.	Agricultural Use	10	None
	T. 15 S., R.67 E.				
N-25311	sec. 22,	N½NE¼NE¼, SW¼NE¼NE¼, SW¼SE¼NE¼.	Agricultural Use	40	None
(BLM Orders dated 06-29-1983, 07-06-1983, 09-22-1983 and 10-06-1983)					
N-25270	sec. 7,	Lot 1,			
N-23391	sec. 9,	SE¼NE¼, E½SE¼;			
	sec. 10,	NW¼NW¼, W½SW¼NW¼, W½SW¼SW¼;			
N-25276 N-25312 N-25314	sec. 14,	W¼;			
N-23391 N-25310 N-25312	sec. 15,	NE¼, N½NW¼;			
N-25276	sec. 21,	NW¼NE¼;			
N-25276 N-25314	sec. 22,	E½NE¼;			
N-25318 N-25323	sec. 23,	NE¼, SE¼NW¼, SE¼;			
N-25276 N-25318	sec. 26,	N½N½, SE¼NW¼;			
N-25269	sec. 36,	NW¼SE¼, SE¼SE¼.	Agricultural Use	1,559.80	None
	T. 14 S., R. 69 E.				
N-22807	sec. 12,	SE¼SE¼;			
	sec. 13,	NE¼, E½SE¼.	Agricultural Use	280	None
N-22808	sec. 13,	NE¼NW¼, S½NW¼, N½SW¼, SW¼SW¼, W½SE¼.	Agricultural Use	320	None
N-23969	sec. 32,	W½.	Agricultural Use	320	None
	T. 14 S., R. 70 E				
N-22807	sec. 7,	Lot 4.	Agricultural Use	40.06	None
	T. 13 S., R. 71 E.				
N-37498	sec. 9,	W½.	Agricultural Use	320	None

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Existing Desert Land Entry Classifications

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Nye County -				
	T. 16 S., R. 49 E.				
(No Entry) Nev-060322	sec. 36,	Lots 1,2.	Agricultural Use	62.12	None
	T. 21 S., R. 53 E.				
(No Entry) N-21908	sec. 24,	E½.	Agricultural Use	320	None

Acres Unsuitable For Classification Under The Indian Allotment Act

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Clark County -				
	T. 21 S., R. 60 E.				
N-29206	sec. 35,	SE¼SE¼NW¼NE¼, NE¼NE¼SW¼NE¼, N½NW¼SW¼NW¼;			
	sec. 36,	NW¼NE¼NE¼NE¼, S½NE¼NE¼NE¼, NW¼NE¼NE¼, W½SW¼NE¼NE¼, N½SE¼NE¼NE¼, SE¼NE¼SE¼NE¼;			
	T. 21 S., R. 61 E.				
	sec. 30,	NW¼SE¼NW¼NE¼;			
	T. 20 S., R. 62 E.				
	sec. 14,	N½SE¼.	Agricultural Use	122.5	None

Classification and Multiple Use Act Retention Classifications

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Nye County -				
	T. 24 N., R. 7 E.				
N-257 (11-10-1966)	sec. 1,	Lot 8.			
	T. 25 N., R. 7 E.				
	sec. 4,	Lot 1;			
	sec. 5,	Lots 1,2,3,4,5,6,7, SW¼NW¼, SW¼, SW¼SE¼;			
	sec. 6,	Lots 1,2,3,4,5,6,8, 11, S½NE¼, SE¼NW¼, NE¼SW¼, SE¼;			
	sec. 7,	Lots 1,3,8,9,11, NE¼NE¼;			
	sec. 8,	Lots 1,5, N½, NE¼SW¼, SE¼;			
	sec. 9,	Lots 1,2,3,4,5,6,7,			

	SW¼NW¼, SW¼, SW¼SE¼;
sec. 10,	Lot 1;
sec. 14,	Lot 1;
sec. 15,	Lots 1,2,3,4,5,6,7, SW¼NW¼, SW¼, SW¼SE¼;
sec. 16,	Lots 1,2,5,6, N½, N½SE¼, SE¼SE¼;
sec. 17,	Lots 3,8, NE¼NE¼;
sec. 21,	Lots 4,5,8;
sec. 22,	Lots 1,3,6,7,9, N½N½, SE¼NW¼, N½SE¼, SE¼SE¼;
sec. 23,	Lots 1,2,3,4,5,6,7, SW¼NW¼, SW¼, SW¼SE¼;
sec. 24,	Lot 1;
sec. 25,	Lots 1,2,3,4,5,6,7, SW¼NW¼, SW¼, SW¼SE¼;
sec. 26,	Lots 1,3,6,7,9, N½N½, SE¼NW¼, N½SE¼, SE¼SE¼;
sec. 27,	Lots 6,9, NE¼NE¼;
sec. 35,	Lots 4,6,8;
sec. 36,	Lots 1,4,5,7,9, N½N½, SE¼NW¼, N½SE¼, SE¼SE¼.
T. 26 N., R. 7 E.	
sec. 31,	Lots 1,2,3,4,5,6,7, W½SW¼, SE¼SW¼.
T. 25 N., R. 8 E.	
sec. 30,	Lot 1;
sec. 31,	Lots 1,2,3, W½NW¼, SE¼NW¼, SW¼, W½SE¼, SE¼SE¼;
sec. 32,	Lot 1.

Clark County -

T. 22 S., R. 57 E.	
sec. 16,	NE¼SE¼.
T. 20 S., R. 58 E. *	
sec. 8-28,	All;
sec. 29,	N½, SW¼, W½SE¼;
sec. 30-31,	All;
sec. 32,	W½NE¼, SE¼NE¼, NW¼, S½;
sec. 33-36,	All;
T. 21 S., R. 58 E. *	
sec. 1,	Lots 2,3,4, SE¼NE¼, W½SE¼NE¼, S½NW¼, SW¼, NW¼NE¼SE¼, NW¼SE¼, S½SE¼;
sec. 2-15,	All;
sec. 16,	SE¼NE¼, SW¼NW¼, N½N½, S½;
sec. 17-23,	All;
sec. 24,	W½W½;
sec. 25,	W½;
sec. 26-33,	All;
sec. 34,	N½, SW¼, N½SE¼,

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		SW¼SE¼;			
	sec. 35,	N½, SE¼;			
	sec. 36,	W½.			
	T. 22 S., R. 58 E. *				
	sec. 1,	Lots 1,2,3,4, S½N½, N½SE¼, SE¼SE¼;			
	sec. 2,	Lots 1,2,3, S½N½, N½SW¼, NW¼SE¼;			
	sec. 3,	Lots 3,4, SW¼NW¼, S½SW¼, SE¼;			
	sec. 4-11,	All;			
	sec. 12,	Lots 1,2,3,4,5,6, E½, SE¼SW¼;			
	sec. 13-18,	All;			
	sec. 20,	NE¼;			
	sec. 21-28,	All;			
	sec. 33-36,	All;			
	T. 20 S., R. 59 E. *				
	sec. 7,	All;			
	sec. 18,	All;			
	sec. 19,	N½.			
	T. 21 S., R. 59 E. *				
	sec. 5,	S½SW¼;			
	sec. 6,	Lot 7, SE¼SW¼, N½NW¼SW¼SE¼, S½NE¼SW¼SE¼,			
	sec. 7,	All;			
	sec. 8,	W½;			
	sec. 18,	All.			
	T. 24 S., R. 59 E. *				
	sec. 4,	Lots 1,2,3,4, S½N½.	Multiple Use *designated Red Rock Canyon Recreation Lands	67,189.21	Agricultural Laws Public Land Laws 1872 Mining Law
	Nye County -				
	T. 17 S., R. 50 E.				
N-257 B (11-10-1966)	sec. 35,	E½NE¼, N½NE¼SE¼;			
	sec. 36,	NE¼, W½, N½SE¼, SE¼SE¼.			
(09-25-1970)	T. 18 S., R. 50 E.				
	sec. 1,	N½N½;			
	sec. 2,	NE¼.			
	T. 17 S., R. 51 E.				
	sec. 31,	NE¼NE¼, W½E½, W½.			
	T. 18 S., R. 51 E.				
	sec. 6,	Lots 2,3,4,5,6, SW¼NE¼, SE¼NW¼, NE¼SW¼, SE¼.	Multiple Use	2,009.77	Public Land Laws 1872 Mining Law
	Clark County -				
	T. 21 S., R. 60 E.				
N-1575 A (09-25-1970)	sec. 11,	Lots 127,128,129,130, 143,144, SW¼SW¼.			
	T. 14 S., R. 69 E.				
	sec. 14,	E½SW¼, NW¼SW¼;			
	sec. 15,	SE¼SE¼;			
	sec. 22,	All;			
	sec. 27,	All;			
	sec. 28,	NE¼, N½SE¼, N½SW¼, SW¼SW¼;			
	sec. 29,	SW¼;			
	sec. 32,	N½NE¼, SW¼NE¼, E½NW¼, N½SW¼,			

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		SW¼SW¼;			
	T. 13 S., R. 70 E. *				
	sec. 27,	Lot 3, SE¼SW¼;			
	sec. 32,	S½NE¼, SE¼;			
	sec. 33,	S½NW¼, SE¼NE¼, SW¼, W½SE¼, NE¼SE¼;			
	sec. 34,	Lots 1,2,3,4,6, NW¼NW¼.			
	T. 14 S., R. 70 E. *				
	sec. 4,	Lots 1,2,3,4, S½N½, N½SW¼, SW¼SW¼;			
	sec. 5,	E½, SW¼;	Multiple Use		Agricultural Laws
	sec. 6,	S½;	* designated		Public Land Laws
	sec. 7,	Lot 2, E½NW¼, NE¼;	Virgin River		
	sec. 8,	N½.	Recreation Lands	5,127.16	1872 Mining Law
	T. 15 S., R. 70 E.				
N-1575	sec. 2,	Lot 4.			
(01-24-1969)	T. 16 S., R. 70 E.				
	sec. 22,	SW¼SW¼;			
	sec. 23,	SE¼.			
	T. 15 S., R. 71 E.				
	sec. 17,	S½SE¼;			Agricultural Laws
	sec. 20,	NE¼, E½NW¼, SW¼NW¼, S½.	Multiple Use	920.27	Public Land Laws 1872 Mining Law
	T. 18 S., R. 51 E.				
N-3319 (12-27-1968) Section 2455 Sale Sale Act of 09-19-1964	sec. 18,	Lot 2, W½SE¼NW¼.	Multiple Use Jackrabbit Springs Pupfish Areas	56.35	1872 Mining Law

PUBLIC LAND WITHDRAWALS

Note: Overlapping withdrawals may result in a different combination of segregation on a particular parcel of land. Therefore, when determining the segregative effect on a parcel of land, it is necessary to consider the segregative effect of all the withdrawals encumbering that land.

FERC Power Project Withdrawals

(The legal descriptions of the FERC Withdrawals are described to the nearest section or aliquot part and in some cases do not represent the actual configurations of the withdrawals. Private lands or lands withdrawn to another agency are not shown.)

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Clark County - T. 13 S., R. 66 E.				
N-50945 (Authorized)	sec. 2,	Lot 4, SW¼NW¼, W½SW¼;			
	sec. 3,	Lots 1,2,3,4, SE¼NE¼, E½SE¼;			
	sec. 10,	E½E½;			
	sec. 11,	W½W½;			
	sec. 14,	W½W½;			
	sec. 15,	E½E½;			
	sec. 22,	E½E½;			
	sec. 23,	W½W½;			
	sec. 26,	W½W½;			
	sec. 27,	E½E½;			
	sec. 34,	E½E½;			

	sec. 35,	W½W½;			
	T. 14 S., R. 66 E.				
	sec. 2,	Lot 4, SW¼NW¼, W½SW¼;			
	sec. 3,	Lot 1, SE¼NE¼, E½SE¼;			
	sec. 10,	E½E½;			
	sec. 11,	W½W½;			
	sec. 14,	W½W½;			
	sec. 22,	E½E½;			
	sec. 23,	W½W½;			
	sec. 26,	W½W½;			
	sec. 27,	E½E½;			
	sec. 34,	E½E½;	Mormon Peak Hydro-		Public Land Laws
	sec. 35,	W½W½, SE¼SW¼.	power Project #10753	3,548	1872 Mining Law
	T. 21 S., R. 59 E.				
N-50948	sec. 20,	S½SE¼;			
(Authorized)	sec. 21,	Lots 13,14,15,16;			
	sec. 26,	N½N½;			
	sec. 27,	N½NE¼;			
	sec. 28,	All;			
	sec. 29,	E½;			
	sec. 33,	N½N½;			
	sec. 34,	N½NW¼.			
	T. 21 S., R. 60 E.				
	sec. 16,	SW¼SW¼;			
	sec. 19,	Lots 25,26,27,28, S½SE¼SW¼, S½SE¼;			
	sec. 20,	E½E½, SW¼SE¼SE¼, S½SE¼, S½SW¼;			
	sec. 21,	W½W½;			
	sec. 29,	N½N½;	Blue Diamond,S. Hydro-		Public Land Laws
	sec. 30,	N½N½.	power Project #10756	1,737	1872 Mining Law
	T. 21 S., R. 59 E.				
N-50949	sec. 3,	Lots 8,9,10;			
(Authorized)	sec. 4,	Lot 8, S½SW¼;			
	sec. 5,	S½;			
	sec. 8,	All;			
	sec. 9,	All;			
	sec. 10,	Lots 8,9;			
	sec. 11,	Lots 9,10,11.			
	T. 21 S., R. 60 E.				
	sec. 17,	S½SW¼SE¼;			
	sec. 18,	Lot 34, E½SW¼SE¼SW¼, SW¼SW¼SE¼;			
	sec. 19,	W½NW¼NW¼NE¼, E½NE¼NE¼NW¼.	Blue Diamond,N. Hydro- power Project #10758	1,382	Public Land Laws 1872 Mining Law
	T. 15 S., R. 63 E.				
N-50950	sec. 13,	SE¼;			
(Authorized)	sec. 24,	All.			
	T. 15 S., R. 64 E.				
	sec. 12,	S½SE¼;			
	sec. 13,	E½, S½;			
	sec. 14,	S½;			
	sec. 15,	S½;			
	sec. 16,	S½;			
	sec. 17,	W½NW¼, S½;			
	sec. 18,	E½E½W½, W½SW¼;			
	sec. 19,	NW¼NW¼.			

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	T. 15 S., R. 66 E.				
	sec. 7,	Lot 4, SE¼SW¼, S½SE¼;			
	sec. 8,	S½S½;			
	sec. 9,	S½S½;			
	sec. 10,	NE¼SE¼NW¼, SW¼, N½SE¼, SW¼SE¼;			
	sec. 11,	W½NW¼;			
	sec. 15,	N½NW¼;			
	sec. 16,	N½N½;			
	sec. 17,	N½N½;	Arrow Mtn. Hydro-		Public Land Laws
	sec. 18,	Lot 1, NE¼NW¼, N½NE¼.	power Project #10759	3,141	1872 Mining Law
	T. 16 S., R. 57 E.				
N-50951	sec. 28,	SW¼, SW¼SE¼;			
(Authorized)	sec. 29,	S½NE¼, N½SE¼, SE¼SE¼;			
	sec. 33,	Lot 1, NE¼, NE¼NW¼;			
	sec. 34,	Lots 2,3,4,6,7,8,9,10, NW¼NW¼, S½NW¼.			
	T. 17 S., R. 57 E.				
	sec. 1,	Lots 1,2, SE¼NE¼;			
	sec. 13,	SE¼;			
	sec. 24,	E½NE¼, NW¼NE¼, SE¼;			
	sec. 25,	N½NE¼, SW¼NE¼, E½NW¼, SW¼NW¼, SW¼;			
	sec. 26,	SE¼;			
	sec. 34,	S½NE¼, SE¼NW¼, E½SW¼, SE¼;			
	sec. 35,	N½NE¼, SW¼NE¼, NW¼, NW¼SW¼.			
	T. 17 S., R. 58 E.				
	sec. 6,	Lots 3,4,5, E¼NW¼, E½SW¼;			
	sec. 7,	E½E½;			
	sec. 18,	Lots 3,4, E½W½;	Lee Canyon Hydro-		Public Land Laws
	sec. 19,	Lots 1,2,3, NE¼NW¼.	power Project #10760	1,801	1872 Mining Law
	T. 19 S., R. 58 E.				
N-50952	sec. 1,	SE¼SE¼;			
(Authorized)	sec. 11,	E½SE¼, SW¼SE¼, SE¼SW¼;			
	sec. 12,	NE¼, E½NW¼, SW¼NW¼, SW¼, N½SE¼, SW¼SE¼;			
	sec. 13,	N½NW¼;			
	sec. 14,	N½SW¼, NW¼SE¼;			
	sec. 15,	SE¼NE¼, S½SW¼, SE¼, NE¼SW¼;			
	sec. 16,	SE¼SE¼;			
	sec. 21,	E½NE¼, NE¼SE¼;			
	sec. 22,	N½NE¼, NW¼, N½SW¼.			
	T. 18 S., R. 59 E.				
	sec. 28,	S½S½;			
	sec. 29,	SE¼SE¼;			
	sec. 32,	E½E½, SW¼SE¼, S½SW¼;			
	sec. 33,	N½N½, SW¼NW¼, W½SW¼.			
	T. 19 S., R. 59 E.				
	sec. 4,	Lot 4;			
	sec. 5,	Lots 1,2,3,4, SW¼NE¼, S½NW¼, SW¼, W½SE¼;			
	sec. 6,	Lots 1,2,6,7, S½NE¼, E½SW¼, SE¼.	Kyle Canyon Hydro- power Project #10761	2,129	Public Land Laws 1872 Mining Law

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	T. 20 S., R. 62 E.				
N-50953 (Authorized)	sec. 1,	E½SE¼;			
	sec. 12,	E½E½;			
	sec. 13,	E½E½;			
	sec. 14,	SW¼SW¼.			
	T. 20 S., R. 63 E.				
	sec. 7,	SW¼SW¼;			
	sec. 18,	W½W½;			
	sec. 19,	W½NW¼, SE¼NW¼, SW¼;	Frenchman Mtn. Hydro-		Public Land Laws
	sec. 30,	NW¼, N½SW¼.	power Project #10762	1,009	1872 Mining Law
	T. 17 S., R. 56 E.				
N-50954 (Authorized)	sec. 12,	SE¼SE¼;			
	sec. 13,	NE¼, E½NW¼, SW¼NW¼, N½SW¼, SW¼SW¼;			
	sec. 14,	S½SW¼, SE¼;			
	sec. 22,	NE¼, N½SE¼;			
	sec. 23,	NW¼NE¼, NW¼, W½SW¼.			
	T. 16 S., R. 57 E.				
	sec. 28,	SW¼, SW¼SE¼;			
	sec. 29,	S½NE¼, N½SE¼, SE¼SE¼;			
	sec. 32,	Lots 1,2,5,6,7,8,10,11, 12, SE¼NE¼.			
	T. 17 S., R. 57 E.				
	sec. 3,	Lot 3;			
	sec. 4,	Lots 1,2,3, S½N½, SW¼;			
	sec. 5,	S½SW¼, SE¼;			
	sec. 7,	Lots 3,4, E½NE¼, SW¼NE¼, E½SW¼, W½SE¼, NE¼SE¼;			
	sec. 8,	N½N½, SW¼NW¼;			
	sec. 9,	NW¼NW¼;	Indian Ridge Hydro-		Public Land Laws
	sec. 18,	Lot 1.	power Project #10763	1,334	1872 Mining Law
	T. 17 S., R. 58 E.				
N-50956 (Authorized)	sec. 34,	S½SE¼;			
	sec. 35,	S½S½;			
	sec. 36,	S½SW¼, SE¼.			
	T. 18 S., R. 58 E.				
	sec. 1,	Lots 2,3,4;			
	sec. 2,	Lots 1,2,3,4;			
	sec. 3,	Lots 1,2, S½NE¼, SE¼;			
	sec. 9,	SE¼NE¼, NE¼SE¼;			
	sec. 10,	NE¼, S½NW¼, SW¼, N½SE¼, SW¼SE¼;			
	sec. 15,	NW¼, NW¼SW¼;			
	sec. 16,	SE¼NE¼, SE¼;			
	sec. 21,	NE¼, E½NW¼, SW¼, W½SE¼;			
	sec. 28,	N½NW¼, SE¼NW¼, W½SW¼;	Lucky Strike Hydro-		Public Land Laws
	sec. 29,	E½NE¼, SW¼NE¼, SE¼.	power Project #10765	1,488	1872 Mining Law
	T. 20 S., R. 59 E.				
N-51058 (Authorized)	sec. 30,	S½NE¼, SE¼NW¼, E½SW¼, SE¼.	Brownstone Canyon Hydro-power Project #10757	187	Public Land Laws 1872 Mining Law
	T. 21 S., R. 59 E.				
N-55434 (Application)	sec. 26,	S½N½NE¼, N½S½NE¼, S½NE¼NW¼, SE¼NW¼, N½SW¼, SW¼SW¼;			
	sec. 27,	S½SE¼;			

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	sec. 29,	S½SW¼;		
	sec. 31,	E½NE¼NE¼, N½SE¼NE¼;		
	sec. 32,	N½NW¼, NW¼SW¼NW¼;		
	sec. 33,	S½NE¼, SE¼NW¼, S½N½NE¼, S½NE¼NW¼;		
	sec. 34,	NE¼, S½NE¼, S½N½NW¼, N½N½SE¼;		
	sec. 35,	W½NE¼.		
	T. 21 S., R. 60 E.			
	sec. 29,	W½SW¼NW¼NE¼, SE¼NW¼NE¼, S½NE¼NW¼, SW¼NW¼NW¼, W½SE¼NW¼NW¼, W½NE¼SE¼NW¼, E½NW¼SW¼NW¼, NE¼SW¼NW¼;	Tropicana Hydro-	Public Land Laws
	sec. 30,	Lot 13, E½NW¼SE¼NW¼.	power Project #11221	1872 Mining Law
N-56422 (Application)	T. 21 S., R. 59 E.			
	sec. 32,	Within;		
	sec. 33,	Within;		
	sec. 34,	Within;		
	sec. 35,	Within.		
	T. 22 S., R. 59 E.			
	sec. 3,	Within;	Tropicana Pumped Storage	Public Land Laws
	sec. 4,	Within.	Hydro-power Project #11323	1872 Mining Law
N-56892 (Application)	T. 22 S., R. 60 E.			
	sec. 25,	SW¼NE¼, E½SW¼, SW¼SW¼, NW¼SE¼;		
	sec. 35,	E½NE¼, W½NE¼, SW¼, NW¼SE¼;		
	sec. 36,	NW¼NW¼.		
	T. 23 S., R. 60 E.			
	sec. 2,	Lot 4;		
	sec. 3,	Lot 1, S½NE¼, SE¼SW¼, N½SE¼, SW¼SE¼;		
	sec. 9,	SE¼NE¼, SE¼;		
	sec. 10,	NW¼, NW¼SW¼;		
	sec. 16,	W½NE¼, SW¼, E½NW¼;		
	sec. 21,	W½W½;		
	sec. 28,	W½W½;		
	sec. 32,	E½E½;		
	sec. 33,	W½NW¼.		
	T. 24 S., R. 60 E.			
	sec. 5,	Lots 1,2, S½NE¼, E½SW¼, W½SE¼;		
	sec. 8,	E½NW¼, SW¼NW¼, NE¼SW¼, W½SW¼;		
	sec. 17,	W½NW¼;		
	sec. 18,	E½NE¼, SE¼;		
	sec. 19,	NE¼, E½SE¼;		
	sec. 20,	W½SW¼;		
	sec. 29,	W½NW¼, SW¼;		
	sec. 30,	NE¼NE¼;		
	sec. 32,	W½NE¼, E½NW¼, SE¼.		
	T. 25 S., R. 60 E.			
	sec. 4,	Lot 4;		
	sec. 5,	Lot 1, SE¼NE¼, E½SE¼;		
	sec. 7,	W½E½, E½W½;		

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	T. 25 S., R. 60 E.				
	sec. 8,	E½NE¼, SW¼NE¼, NE¼SE¼, W½SE¼;			
	sec. 16,	NW¼;			
	sec. 17,	All;	Sheep Mountain Modular		Public Land Laws
	sec. 18,	E½, E½NW¼.	Pumped Storage Project #11367	5,920	1872 Mining Law
	T. 24 S., R. 61 E.				
N-56894	sec. 20,	S½SE¼;			
(Application)	sec. 21,	SW¼SW¼;			
	sec. 27,	S½NW¼, E½SW¼, SW¼SE¼;			
	sec. 28,	E½NE¼, NW¼NE¼, N½NW¼;			
	sec. 29,	NW¼NE¼, E½NW¼, SW¼NW¼, NW¼SW¼;			
	sec. 30,	Lot 4, SE¼SW¼, N½SE¼, SW¼SE¼;			
	sec. 31,	Lot 1;			
	sec. 34,	S½NE¼, NW¼NE¼, NE¼NW¼;			
	sec. 35,	SW¼NW¼, E½SW¼, NW¼SW¼, S½SE¼;			
	sec. 36,	SW¼SW¼.			
	T. 25 S., R. 61 E.				
	sec. 1,	Lots 3,4, S½NE¼, SE¼NW¼, E½SW¼, SE¼;			
	sec. 12,	N½NE¼, NE¼NW¼.			
	T. 25 S., R. 62 E.				
	sec. 2,	Lots 7,8, S½NW¼;			
	sec. 3,	Lots 5,6,7,8, SW¼NW¼;			
	sec. 4,	Lot 5, S½N½, N½SW¼;			
	sec. 5,	SW¼, N½SE¼, SW¼SE¼;			
	sec. 6,	Lots 15,16,17,18, SE¼SW¼, S½SE¼;			
	sec. 7,	Lots 5,6,7,8, NE¼, E½NW¼, NE¼SW¼, N½SE¼.	Eldorado Modular Pumped Storage Project #11371	3,520	Public Land Laws 1872 Mining Law

Bureau of Land Management Withdrawals

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Nye County -				
	T. 17 S., R. 50 E.				
PLO-5387	sec. 14,	Lot 11;			
(N-7468)	sec. 35,	SW¼NE¼, S½NE¼SE¼, SE¼SE¼.	Ash Meadows Pupfish Area	136.84	Public Land Laws 1872 Mining Law
	Clark County -				
	T. 21 S., R. 58 E.				
PLO-3530	sec. 17,	N½NE¼, NW¼NW¼, N½SW¼NW¼, NW¼SE¼NW¼.	Pine Creek Canyon Natural Areas	150	Public Land Laws 1872 Mining Law
	T. 21 S., R. 59 E.				
EO 2-23-1916 (Nev-047451)	sec. 6,	Lot 7.	Public Water Res.	80.43	Public Land Laws Location of Non-Metalliferous Metals
	T. 21 S., R. 63 E.				
SO 01-07-1929	sec. 12,	S½SE¼;			
(Nev-054523)	sec. 13,	NE¼NE¼, SW¼NE¼;			

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T. 21 S., R. 64 E.
Affects all lands at an altitude of less than 1250' above sea level to be interpreted to include when surveyed every smallest legal subdivision any part which lies at altitude within the following sections: 2,3,4,5,6,7,8,9,10,11,12,13,14, 15,16,17,18,20,21,22,23,24,25,26,27,28,29,33,34,35,36.

T. 20 S., R. 65 E.

sec. 34,	SE¼SW¼, SE¼.

T. 22 S., R. 65 E.

sec. 6,	Lots 1,2,3,4,5,6,7,8,9, 10,11,12;
sec. 7,	Lots 1,2,3,4,5, NW¼NE¼, S½NE¼, E½W½, SE¼;
sec. 8,	Lots 1,2,3,4,5, SW¼NW¼, SW¼;
sec. 16,	Lot 1;
sec. 17,	Lots 1,2,3,4,5, W½W½;
sec. 18,	All;
sec. 19,	All;
sec. 20,	Lots 1,2, NE¼NE¼, S½NE¼, NW¼NW¼, S½NW¼, S½;
sec. 21,	SW¼NW¼, NW¼SW¼;
sec. 28,	Lot 1;
sec. 29,	NW¼NE¼, NW¼, N½SW¼, SW¼SW¼;
sec. 30,	Lots 1,2, NE¼, E½NW¼;
sec. 32,	W½NW¼, SW¼.

T. 21 S., R. 66 E.
Affects all lands at an altitude of less than 1250' above sea level within the following sections: 4,25,31,32,33,34,35,36.

T. 16 S., R. 67 E.

sec. 24,	SW¼NE¼, SE¼SE¼.

T. 18 S., R. 67 E.

sec. 25,	Lots 1,2,3,4, SW¼NE¼, NW¼SE¼.

T. 19 S., R. 67 E.

sec. 1,	SE¼;
sec. 12,	E½NE¼, NW¼NE¼.

T. 20 S., R. 67 E.
Affects all lands at an altitude of less than 1250' above sea level within the township.

T. 16 S., R. 68 E.

sec. 13,	SE¼;
sec. 20,	SW¼NE¼, N½NW¼, SE¼NW¼, E½SE¼;
sec. 21,	SW¼SW¼;
sec. 24,	NE¼, E½SE¼;
sec. 25,	E½NE¼;
sec. 26,	E½SW¼;
sec. 28,	SW¼NE¼, NW¼, W½SE¼, SE¼SE¼;
sec. 30,	Lot 2, E½SW¼;
sec. 31,	W½NE¼, E½SE¼;
sec. 32,	S½SW¼;
sec. 33,	NE¼NE¼;
sec. 34,	S½NW¼, SW¼, W½SE¼, SE¼SE¼;
sec. 35,	E½, E½NW¼, NE¼SW¼, SW¼SW¼;
sec. 36,	S½NW¼SW¼, S½SE¼.

T. 17 S., R. 68 E.

sec. 1,	Lots 1,2,3,4, S½N½, NE¼SW¼, S½SW¼, SE¼;
sec. 2,	Lots 1,2,3,4, SW¼NE¼, S½NW¼, E½SW¼, W½SE¼;
sec. 3,	Lots 1,2, SE¼NE¼;

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sec. 4,	Lot 4, SW¼NW¼, SW¼, SW¼SE¼;
sec. 5,	Lots 1,2,3,4, SE¼NE¼;
sec. 9,	N½N½, S½NE¼, SE¼NW¼, E½SE¼;
sec. 10,	SW¼NW¼, SW¼, SW¼SE¼;
sec. 11,	NE¼;
sec. 12,	N½, N½SW¼, SW¼SW¼, E½SE¼;
sec. 13,	E½NE¼, SW¼NE¼, E½NW¼, N½SE¼, SE¼SE¼;
sec. 14,	SW¼NW¼, SW¼, S½SE¼;
sec. 15,	All;
sec. 16,	E½;
sec. 23,	NE¼, E½NW¼, E½SE¼;
sec. 24,	W½NE¼, S½NW¼, SW¼;
sec. 25,	N½N½, S½NE¼, SE¼NW¼, E½SW¼, SE¼;
sec. 26,	N½N½, SW¼NE¼, NW¼, N½SW¼, SW¼SW¼;
sec. 27,	N½SW¼, SE¼SE¼SE¼;
sec. 34,	Lots 2,5;9,12,13, E½NE¼NE¼, W½NW¼SE¼, SE¼NW¼SE¼;
sec. 36,	NE¼, E½NW¼, S½.
T. 15 S., R. 69 E.	
sec. 31,	Lots 3,4, E½SW¼.
T. 16 S., R.69 E.	
sec. 7,	Lots 1,2,3,4, E½W½;
sec. 19,	Lots 1,2,3,4;
sec. 30,	Lots 1,2,3,4, SE¼SW¼;
sec. 31,	Lots 1,2,3,4, E½W½, S½SE¼.
T. 17 S., R. 69 E.	
sec. 5	Lot 4, SW¼NW¼;
sec. 6,	Lots 1,2,3,4,5,6,7, S½NE¼, SE¼NW¼, E½SW¼, N½SE¼, SW¼SE¼;
sec. 7,	Lots 1,2,3,4, NW¼NE¼, E½W½, SE¼;
sec. 17,	E½NE¼, NW¼;
sec. 18,	Lots 1,2,3,4, NE¼, E½NW¼, SE¼SW¼;
sec. 19,	Lots 1,4, NW¼NE¼, S½NE¼, E½W½, SE¼;
sec. 20,	W½SW¼;
sec. 29,	W½W½, SE¼SW¼, SW¼SE¼;
sec. 30,	All;
sec. 31,	All;
sec. 32,	W½NE¼, W½, NW¼SE¼.

T. 21 S., R. 69 E.
All Township Included.
T. 14 S., R. 70 E.
Affects All Lands Lying Below 1250' Above Sea Level.
T. 21 S., R. 70 E.
Affects Sections 12,13,14,23,26,35 Lying Within Unsurveyed Portions of Sections 12,13,14,23,24,25,26,35,36 Lying Between 1229' Contour Line and the Colorado River. (GLO Order June 30, 1945)
T. 22 S., R. 70 E.
Affects All Lands Lying Below 1250' Above Sea Level.
T. 20 S., R. 71 E.
Affects All Lands Lying Below 1250' Above Sea Level.
T. 21 S., R. 71 E.
All Township Included. PSC #210

	T. 21 S., R. 58 E.				
EO 04-17-1926	sec. 4,	Lot 3.			
(Nev-047449)	T. 22 S., R. 58 E.				
	sec. 14,	Lot 8, NE¼SW¼;			
	sec. 22	NE¼SE¼.			
	T. 18 S., R. 67 E.				
	sec. 12.	Lot 4.	Public Water Reserve #107	200.21	Public Land Laws Location of Non-Metalliferous Minerals
	T. 21 S., R. 63 E.				
PL 73					Public Land Laws 1872 Mining Law
Nev-061168	sec. 35.	Lots 8,9, S½SW¼, SW¼SE¼.	Henderson Sale Area	187.65	1920 Mineral Leasing Act
	T. 21 S., R. 63 E.				
PL 522					Public Land Laws 1872 Mining Law
Nev-044337	sec. 33.	NE¼NE¼, E½NW¼NW¼, N½SE¼NE¼.	Henderson Sale Area	80.00	1920 Mineral Leasing Act
	T. 22 S., R. 64 E.				
SO 05-29-1933	sec. 1-2.	All;			
(Nev-054528)	sec. 3.	Lots 5,6,7,11,12, S½N½, S½;			
	sec. 10-14.	All;			
	sec. 15.	N½, NE¼SW¼, SE¼;			
	sec. 22.	NE¼NE¼;			
	sec. 23.	N½, NE¼SW¼, N½SE¼, SE¼SE¼;			
	sec. 24.	Lots 1,2,3,4,5,6, W½NE¼, NW¼, N½SW¼, SW¼SW¼, NW¼SE¼;			
	sec. 25.	Lots 1,2,3,4,5,6,7, SW¼NE¼, NW¼NW¼, NW¼SE¼.			
	T. 21 S., R. 65 E.				
	sec. 3.	Lots 6,7,8, W½SE¼, SW¼;			
	sec. 4.	Lots 5,6, E½SW¼, SE¼;			
	sec. 9.	NE¼, N½NW¼, SE¼NW¼, N½SE¼, SE¼SE¼;			
	sec. 10.	W½, S½SE¼;			
	sec. 11.	S½SW¼;			
	sec. 12.	Lot 7;			
	sec. 13.	Lots 1,2,3,4, W½E½, S½NW¼, SW¼;			
	sec. 14.	S½NE¼, W½SE¼;			
	sec. 15.	All;			
	sec. 16.	S½NE¼, E½W½, SE¼;			
	sec. 17.	SW¼NE¼, S½NW¼, S½;			
	sec. 18.	E½SE¼;			
	sec. 19.	Lots 10,17, S½NE¼, S½;			
	sec. 20.	Lots 4,5,6,7,8,9,10,11,			
	sec. 21.	Lots 1,2,3,4,5,6,7,8, S½N½, S½;			
	sec. 22.	Lots 1,2,3,4,5,6,7,8,9, 10, S½N½, SW¼, N½SE¼;			
	sec. 23.	Lots 1,2,3,4,5,6,7,8, S½N½;			
	sec. 24.	Lots 1,2,3,4,5,6,7;			
	sec. 27.	Lots 1,2;			
	sec. 28.	Lots 1,2,3,4;			
	sec. 29.	Lots 1,2,3,4, N½NE¼, NW¼, NW¼SW¼;			
	sec. 30.	All;			

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sec. 31,	Lots 9,10,11,12, W½NE¼, W½.

T. 23 S., R. 65 E.
Includes All Township. Affects Land Below 700' Above Sea Level In Sections 5,8,9,16,21,27,28 and 34.
T. 23½ S., R. 65 E.
Affects All Lands Lying Below 700' Above Sea Level In Sections 34 and 35.
T. 24 S., R. 65 E.
Affects All Lands Lying Below 700' Above Sea Level In Township.
T. 25 S., R. 65 E.

sec. 11,	Lots 1,2,3,4, W½SW¼;
sec. 14,	Lots 1,2,3,4;
sec. 23,	Lots 1,2,3,4;
sec. 26,	Lots 1,2,3,4;
sec. 35,	Lots 1,2,3,4, SW¼NW¼;
sec. 34,	SE¼NE¼, E½SE¼.

Affects All Lands Lying Below 700' Above Sea Level in Sections 2 and 3.
T. 26 S., R. 65 E.

sec. 2,	Lots 1,2,3,4;
sec. 3,	Lot 1, SE¼NE¼, E½SE¼;
sec. 10,	E½NE¼;
sec. 11,	Lots 1,2,3,4,5, NW¼SW¼, SE¼SW¼, SW¼SE¼;
sec. 12,	Lot 1;
sec. 13,	Lots 1,2,3,4;
sec. 14,	N½NE¼, SE¼NE¼;
sec. 23,	NE¼NE¼;
sec. 24,	Lot 1;
sec. 25,	Lot 1;
sec. 26,	SW¼NE¼, W½SE¼;
sec. 35,	N½NE¼, SE¼NE¼, NE¼SE¼;
sec. 36,	SW¼NW¼, N½SW¼, SE¼SW¼, SW¼SE¼.

T. 27 S., R. 65 E.

sec. 1,	Lots 1,2,5, SW¼NE¼, E½SE¼;
sec. 13,	SE¼SE¼;
sec. 23,	E½SE¼;
sec. 24,	Lots 1,2,3,4,5, NW¼NE¼, W½, SW¼SE¼;
sec. 25,	NE¼, N½NW¼, E½SE¼;
sec. 36,	E½E½, SW¼SE¼.

T. 28 S., R. 65 E.

sec. 1,	Lots 1,2, S½NE¼, N½SE¼, SE¼SE¼;
sec. 12,	Lots 1,2,3, N½NE¼, SW¼NE¼, NE¼SW¼, S½SW¼;
sec. 13,	Lots 1,2,3,4, W½W½;
sec. 24,	Lot 1, Lots 2,3,(within) Lot 4, W½W½;
sec. 25,	Lots 1,2,3,4, N½NW¼, SE¼NW¼, E½SW¼;
sec. 36,	W½E½, E½W½.

T. 29 S., R. 65 E.

sec. 1,	Lots 1,2, S½NE¼, SE¼;
sec. 12,	E½, NE¼NW¼;
sec. 13,	NE¼, N½SE¼, SE¼SE¼.

T. 27 S., R. 66 E.
Affects All Lands Lying Below 100' Above Sea Level In Township.
T. 29 S., R. 66 E.

sec. 8,	Lot 1;
sec. 17,	Lots 1,2,3,4, SW¼SW¼;

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sec. 18,	Lot 4;
sec. 19	Lot 1, S½NE¼, E½NW¼, N½SE¼, SE¼SE¼;
sec. 20,	Lots 1,2,3, W½, NW¼SE¼, S½SE¼;
sec. 21,	Lots 1,2;
sec. 28,	Lots 1,2,3,4,5, NW¼NW¼; S½NW¼, SW¼, NW¼SE¼;
sec. 29,	N½, NE¼SW¼, SE¼;
sec. 30,	NE¼NE¼;
sec. 32,	E½NE¼;
sec. 33,	Lot 1,2,3, NW¼, N½SW¼, SE¼SW¼, NW¼SE¼, S½SE¼;
sec. 34,	Lots 1,2.
T. 30 S., R. 66 E.	
sec. 2-4,	Within;
sec. 10-11,	Within;
sec. 14-15,	Within;
sec. 22-23,	Within;
sec. 26-27,	Within;
sec. 34-35,	Within;
T. 31 S., R. 66 E.	
sec. 2,	Lots 1,2,3,4, W½SW¼;
sec. 3,	Lot 1;
sec. 11,	Lots 1,2,3,4, W½NW¼;
sec. 14,	Lots 1,2,3,4, NW¼NW¼, W½SW¼;
sec. 23,	Lots 1,2,3,4, N½NW¼, SE¼NW¼, NE¼SW¼;
sec. 26,	Lots 1,2,3,4, SW¼NE¼, W½SE¼;
sec. 35,	Lots 1,2,3,4,10, NW¼NE¼;
sec. 36,	Lots 1,2,3, SW¼SW¼.
T. 18 S., R. 68 E.	
sec. 1,	All;
sec. 2,	Lots 1,2,3,4, S½N½, SE¼SW¼, SE¼;
sec. 3,	Lots 2,3,4, SW¼NE¼, S½NW¼, SW¼, W½SE¼;
sec. 4-5,	All;
sec. 8,	NE¼SE¼, S½SE¼;
sec. 9,	N½, SW¼, W½SE¼;
sec. 10,	N½, N½SW¼, SE¼;
sec. 11-12,	All;
sec. 13,	W½;
sec. 14,	All;
sec. 15,	E½NE¼, S½SW¼, SE¼;
sec. 16,	All;
sec. 17,	E½, NE¼SW¼, S½SW¼;
sec. 18,	SE¼SE¼;
sec. 19,	Lots 3,4, E½NE¼, SW¼NE¼, SE¼NW¼, E½SW¼, SE¼;
sec. 20,	N½, SW¼, S½SE¼;
sec. 21,	N½, SW¼, W½SE¼;
sec. 22,	N½N½, S½NE¼, SE¼NW¼, E½SW¼, SE¼;
sec. 23,	All;
sec. 24,	N½NW¼, SW¼NW¼;
sec. 26,	N½, SW¼, NW¼SE¼;
sec. 27,	E½, E½NW¼, SW¼NW¼, SW¼;

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sec. 28,	W½, SE¼;
sec. 29-30,	All;
sec. 31,	Lots 1,2,3,4, NE¼, E½W½, W½NE¼SE¼, W½SE¼;
sec. 32,	Lots 1,2,3,4,5,6,7,8,9,10,11,13,15,16,17;
sec. 33-34,	All;
sec. 35,	NW¼, W½SW¼.
T. 19 S., R. 68 E.	
sec. 2,	Lots 3,4, S½NW¼, SW¼;
sec. 3-4,	All;
sec. 5,	Lots 1,2,3,5, S½NE¼, S½NW¼NW¼, S½NW¼, SW¼, S½NE¼SE¼, W½SE¼, SE¼SE¼;
sec. 6,	Lots 2,3,4,5,6,7,9, S½NE¼NE¼, S½NE¼, SE¼NW¼, E½SW¼, SE¼;
sec. 7,	Lots 1,2, NE¼, E½NW¼;
sec. 8-10,	All;
sec. 11,	W½;
sec. 14,	W½;
sec. 15,	All;
sec. 16,	Within;
sec. 17,	All;
sec. 20,	All;
sec. 21,	Within;
sec. 22,	All;
sec. 23,	W½;
sec. 26,	W½;
sec. 27-29,	All;
sec. 31,	SE¼;
sec. 32-34,	All;
sec. 35,	W½.
T. 20 S., R. 68 E.	
sec. 3,	All;
sec. 4,	Within;
sec. 5,	All;
sec. 6,	Lot 1, S½NE¼, E½SW¼, SE¼;
sec. 7-10,	All;
sec. 15-19,	All;
sec. 20,	N½, SW¼, N½SE¼, SW¼SE¼;
sec. 21-22,	All;
sec. 26,	W½W½, SE¼SW¼, S½SE¼;
sec. 27-28,	All;
sec. 29,	E½NE¼, SW¼NE¼, NW¼, S½;
sec. 30-31,	All;
sec. 32,	N½, NE¼SW¼, N½SE¼, SE¼SE¼;
sec. 33-35,	All;
sec. 36,	S½NW¼, SW¼, SW¼SE¼.
T. 21 S., R. 68 E.	
sec. 1,	All;
sec. 2,	Lots 1,2,3,4, S½N½, N½SE¼;
sec. 3,	Lots 1,2,3,4, S½NE¼;
sec. 6,	Lots 1,2,3, S½NE¼, SE¼NW¼.
T. 18 S., R. 69 E.	
sec. 5,	Lots 2,3,4, SW¼NE¼, S½NW¼, N½SW¼, SW¼SW¼,

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		NW¼SE¼;			
	sec. 6,	All;			
	sec. 7,	Lots 1,2,3,4, NE¼, E½W½, NW¼SE¼;			
	sec. 18,	Lot 1.	PSC #272	79,846.48	Public Land Laws
	T. 21 S., R. 65 E.				
EO 11-17-1913 (Nev-054532)	sec. 24,	Lots 8,9,10.			
	T. 20 S., R. 67 E.				
	Affects All Lands Lying Within ¼ Mile of the Colorado River.				
	T. 21 S., R. 68 E.				
	sec. 5,	Lots 1,2,3,5,6;			
	sec. 6,	Lots 6,7,8,9, E½SW¼, NW¼SE¼.			
	sec. 7,	Lots 1,2,3.	PSR #407	6,266.27	Public Land Laws
	T. 21 S., R. 68 E.				
EO 09-05-1914 (Nev-054534)	sec. 2,	Lots 5,6,7,8;			
	sec. 3,	Lots 1,2,5,6,7;			
	sec. 12,	Lots 1,2,3,4.			
	T. 21 S., R. 69 E.				
	Affects All Lands Lying Within ¼ Mile of the Colorado River.				
	T. 21 S., R. 70 E.				
	Affects All Lands Lying Within ¼ Mile of the Colorado River. Affects Sections 12,13,14,23,26,35 Lying Within Unsurveyed Portions of Sections 12,13,14,23,24,25,26,35,36. Lying Between 1229' Contour Line and the Colorado River. (GLO Order June 30, 1945).				
	T. 22 S., R. 70 E.				
	Affects All Lands Lying Within ¼ Mile of the Colorado River.				
	T. 21 S., R. 71 E.				
	All Township Included.		PSR #446	12,064.39	Public Land Laws
	T. 21 S., R. 65 E.				Public Land Laws
EO 12-03-1913 (Nev-054535)	sec. 23,	Lots 9,10,11,12, N½SE¼;			1872 Mining Law
	sec. 24,	Lots 11,12, SW¼NW¼.	PSC #462	325.38	
	T. 13 S., R. 63 E.				
PL 100-275 (N-48281)	sec. 1,	Lot 2 (W½),3,4, W½SW¼NE¼, S½NW¼, SW¼, W½W½SE¼;			
	sec. 2,	All;			
	sec. 3,	Within;			
	sec. 10,	Within;			
	sec. 11-14,	All;			
	sec. 15,	Within;			Public Land Laws
	sec. 22,	Within;			1872 Mining Law
	sec. 23,	Within;	Aerojet Buffer		1920 Mineral Leasing Act
	sec. 24,	Within.	Zone Lease Agreement	6,110	1970 Geothermal Steam Act
	T. 13 S., R. 70 E.				
N-45233	sec. 12,	S½;			
	sec. 13,	N½, SW¼, N½SE¼;			
	sec. 14,	S½;			
	sec. 23,	Lots 1,2, N½, SW¼, NW¼SE¼;			
	sec. 24,	Lots 2,6, W½NW¼;			
	sec. 26,	Lot 2, N½NW¼.			
	T. 13 S., R. 71 E.				
	sec. 7,	All;			
	sec. 8,	Lots 1,2,3, N½, N½S½, SW¼SW¼;			
	sec. 9,	Lots 1,5,6,7,8,10, 11,13,15,16,17,19,			

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		21, N½, N½SW¼, N½NW¼SE¼;			
	sec. 10,	Lots 5,6,7,8,9, NW¼, N½SW¼;			
	sec. 17,	Lot 1;			Public Land Laws 1872 Mining Law 1920 Mineral Leasing Act 1970 Geothermal Steam Act
	sec. 18,	Lots 5,6,7,9, NW¼NE¼, N½NW¼.	Mesquite Legislation Public Lands Sale Area	4,417.49	
	T. 13 S., R. 70 E.				
PL 99-548	sec. 24,	Lot 3. (within)			
(N-45240)	sec. 26,	Lots 1,3,4. (within)			
	T. 13 S., R. 71 E.				
	sec. 15,	Lots 5,6,7,8, SW¼; (within)			
	sec. 16,	Lots 1,2,3,4,5, S½SE¼; (within)			
	sec. 17,	Lot 2;			Public Land Laws 1872 Mining Law 1920 Mineral Leasing Act 1970 Geothermal Steam Act
	sec. 19,	Lot 6; (within)			
	sec. 20,	Lots 1,2,6, SW¼NE¼; (within)	Mesquite Legislation		
	sec. 21,	N½NW¼. (within)	Public Lands Retention Areas	637.52	
	T. 13 S., R. 70 E.				
PL 104-208,	sec. 1,	Lots 5,6,7,8,9,10,11,12, S½N½, S½;			
Sec. 121	sec. 11,	E½SE¼;			
(N-61259)	sec. 12,	All;			
	sec. 13,	W½;			
	sec. 14,	E½NE¼, S½;			
	sec. 23,	Lots 1,2, N½, SW¼, NW¼SE¼;			
	sec. 24,	Lots 2,6, W½NW¼;			
	sec. 26,	Lots 1,2,3,4, N½NW¼;			
	T. 13 S., R. 71 E.				
	sec. 4,	Lots 6,7,8,9,10,11, SW¼NE¼, S½NW¼, W½SE¼, SW¼;			
	sec. 5,	Lots 5,6,7,8,9,10,11,12, S½N½, S½;			
	sec. 6,	Lots 8,9,10,11,12,13,14,15, S½N½, S½;			Public Land Laws 1872 Mining Law
	sec. 7,	N½.	Mesquite Land Sale Act	5,642.30	
	T. 20 S., R. 57 E.				
HR 4559	sec. 24,	All;			
(10-26-1990)	sec. 25,	All;			
	sec. 36,	All.			
	T. 21 S., R. 57 E.				
	sec. 1,	All;			
	sec. 12-13,	All;			
	sec. 24-25,	All;			
	sec. 36,	All.			
	T. 20 S., R. 58 E.				
	sec. 8-36,	All;			
	T. 21 S., R. 58 E.				
	sec. 1,	Lots 2,3,4, SW¼NE¼, W½SE¼NE¼, S½NW¼, SW¼, W½NE¼SE¼, SE¼NE¼SE¼, W½SE¼, SE¼SE¼;			
	sec. 2-15,	All;			
	sec. 16,	N½N½, SE¼NE¼, SW¼NW¼, S½;			
	sec. 17-23,	All;			
	sec. 24,	E½NE¼, E½W½NE¼,			

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	NW¼NW¼NE¼, N½NW¼,
	SW¼NW¼, N½SE¼NW¼,
	SW¼SE¼NW¼, W½SW¼,
	W½SE¼SW¼, E½NE¼SE¼,
	NE¼SW¼SE¼, SE¼SE¼;
sec. 25,	W½NW¼NE¼, SE¼NW¼NE¼,
	SW¼NE¼, W½, W½E½SE¼,
	W½SE¼;
sec. 26-33,	All;
sec. 34,	N½, SW¼, N½SE¼,
	SW¼SE¼;
sec. 35,	E½, NW¼;
sec. 36,	W½E½NE¼, W½NE¼,
	W½, N½SE¼, SW¼SE¼,
	W½SE¼SE¼.
T. 22 S., R. 58 E.	
sec. 1,	Lots 1,2,3,4, S½N½,
	N½SE¼, SE¼SE¼;
sec. 2,	Lots 1,2,3, S½NE¼,
	S½NW¼, N½SW¼, NW¼SE¼;
sec. 3,	Lots 3,4, SW¼NW¼,
	S½SW¼, SE¼;
sec. 4-11,	All;
sec. 12,	Lots 1,2,3,4,5,6,
	E½, SE¼SW¼;
sec. 13-18,	All;
sec. 20,	NE¼;
sec. 21-28,	All;
sec. 33-36,	All;
T. 23 S., R. 58 E.	
sec. 1,	Lots 1,2,3,4,
	S½N½, S½;
sec. 2,	Lots 1,2,3,4,
	S½N½, S½;
sec. 3,	Lots 1,2,3,4,
	S½N½, S½;
sec. 4,	Lots 1,2,3,4,
	S½N½, S½;
sec. 9-12,	All;
T. 20 S., R. 59 E.	
sec. 7-9,	All;
sec. 16,	N½;
sec. 17,	Lots 1,2,3,4,5,6,7,8,9,10,11,12;
sec. 18-19,	All;
sec. 20,	Lots 1,2,3,4;
sec. 30-31,	All;
sec. 32,	S½, (within)
T. 21 S., R. 59 E.	
sec. 3,	S½NW¼, * SW¼;
sec. 4,	Lots 3,4 (within),
	Lots 5,6,7,8, NW¼,
	SW¼, * E½SE¼;
sec. 5,	Lots 1,2,3,4, S½N½,
	S½;
sec. 6,	Lots 1,2, S½NE¼,
	* NE¼NW¼, * N½SE¼NW¼,
	* SW¼SE¼NW¼, * N½SE¼SE¼NW¼,
	S½SE¼SE¼NW¼, * N½NE¼SW¼,
	* N½S½NE¼SW¼, S½S½NE¼SW¼,
	S½SW¼, * NW¼SE¼, * N½NE¼SW¼SE¼,
	S½NE¼SW¼SE¼, N½NW¼SW¼SE¼,
	* S½NW¼SW¼SE¼, * S½SW¼SE¼,

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		E½SE¼;		
	sec. 7-9,	All;		
	sec. 10,	Lots 15,16,17,18, NW¼ (minerals only);		
	sec. 16,	Lots 3,4, N½NW¼;		
	sec. 17,	Lots 1,2,3,4,5,6, 7, N½N½;		
	sec. 18-19,	All;		
	T. 22 S., R. 59 E.			
	sec. 6,	All;		
	sec. 7,	Lots 1,2,3,4, N½NE¼, N½SW¼NE¼, E½NW¼, E½SW¼, S½NE¼SW¼SE¼, W½SW¼SE¼, SE¼SE¼;		Public Land Laws
	sec. 8,	NW¼, SW¼, SW¼SE¼;	Red Rock Canyon	1872 Mining Law
	sec. 17,	W½NE¼, NW¼;	National Con-	1920 Mineral Leasing Act
	sec. 18	Lots 1,2, NE¼.	servation Area 83,100	1970 Geothermal Steam Act

* Denotes federal ownership of mineral estate only - surface estate has been transferred into private ownership.

	T. 17 S., R. 63 E.	
PL 101-67	sec. 32,	Within;
(N-49779)	sec. 33,	Within;
	T. 18 S., R. 63 E.	
	sec. 3-5,	Within;
	sec. 8,	Within;
	sec. 9,	All;
	sec. 10,	Within;
	sec. 11,	Within;
	sec. 13,	Within;
	sec. 14,	NE¼, NW¼, N½SW¼, SW¼SW¼, N½SE¼SW¼, SW¼SE¼SW¼;
	sec. 15-16,	All;
	sec. 17-19,	Within;
	sec. 20-22,	All;
	sec. 23,	E½NE¼, E½NW¼NE¼, E½SW¼NE¼, SW¼SW¼NE¼, W½NE¼NW¼, W½NW¼, W½SW¼, SE¼SE¼SW¼, E½SE¼, N½NW¼SE¼, SE¼NW¼SE¼, SW¼SE¼;
	sec. 24,	All;
	sec. 26,	E½NE¼, N½NW¼NE¼, N½SW¼NW¼NE¼, SE¼NW¼NE¼, E½SW¼NE¼, E½NE¼NW¼, N½SE¼NW¼, W½W½NW¼, NW¼NW¼SW¼, S½NE¼SW¼, SE¼SW¼, E½SE¼, NE¼NW¼SE¼, S½NW¼SE¼, SW¼SE¼;
	sec. 27-30,	All;
	sec. 31,	E½, SE¼SW¼;
	sec. 32-34,	All;
	sec. 35,	E, E½NW¼, E½NW¼NW¼, SW¼NW¼NW¼, SW¼NW¼, SW¼.
	T. 19 S., R. 63 E.	
	sec. 2,	All;
	sec. 3,	Lots 1,2,3,4, S½NE¼, N½SW¼NW¼, SE¼SW¼NW¼, SE¼NW¼, NE¼SW¼, E½NW¼SW¼, SW¼NW¼SW¼, S½SW¼, SE¼;
	sec. 4,	Lots 1,2,3,4, S½N½, SW¼,

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		NW¼SE¼, S½SE¼;			
	sec. 5-8,	All;			
	sec. 9,	N½, N½SW¼.			
	T. 18 S., R. 64 E.				
	sec. 7,	Lots 9,10,11, SE¼SW¼, SE¼;			
	sec. 18,	Lots 5,6,7,8,9,10, 11,12,13,14,15, N½NE¼, E½NW¼;			
	sec. 19,	Lots 5,6,7,8,9,10, 11,12, E½NE¼, E½SW¼, SE¼;			All Except R&PP and Applicable Sale Authorities
	sec. 20,	N½.	Apex Project	21,000	

Department of Energy Withdrawals

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Clark County -				
	T. 26 S., R. 64 E.				
(N-2385) PLO 4662	sec. 4,	SE¼NE¼NW¼SW¼.	Atomic Seismic Station	2.5	Public Land Laws 1872 Mining Law
	T. 23 S., R. 63 E.				
PLO 4250 (Nev-067001)	sec. 22,	SW¼;			
	sec. 23,	Lots 3,6, S½NW¼, NE¼SW¼, E½SE¼SW¼;			
	sec. 24,	Lots 5,6,7,8, S½.			
	T. 23 S., R. 63½ E.				
	sec. 25,	NE¼, N½SE¼.			
	T. 23 S., R. 64 E.				
	sec. 27-29,	All;			
	sec. 30,	Lots 5,6,7, NE¼, E½NW¼, NE¼SW¼, SE¼;			
	sec. 33,	N½NE¼, SE¼NE¼, NE¼NW¼;			
	sec. 34,	N½, NE¼SW¼, N½SE¼, SE¼SE¼.	Pacific NW and Pacific SW Intertie	4,302.57	Public Land Laws 1872 Mining Law

United States Forest Service Withdrawals

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Clark County -				
	T. 18 S., R. 55 E.				
PLO-1355 (Nev-016774)	sec. 13,	S½SE¼;			
	sec. 24,	N½NE¼.			
	T. 19 S., R. 57 E.				
	sec. 29,	S½N½SE¼, S½SE¼, SE¼NE¼SW¼, E½SE¼SW¼;			
	sec. 32,	Lots 1,2,3,4; (N½)			
	sec. 7,	Lots 8 (S½), 9 and 10 (SE¼), 11 (N½);			
	sec. 8,	Lots 5 (SW¼), 12 (NW¼), 9 (W½), 10,15;	Recreation Areas & Administrative Sites	776.08	Public Land Laws 1872 Mining Law
	sec. 31,	Lots 7 (W½), 8,9,11,12.			
	T. 18 S., R. 56 E.				
PLO-1377	sec. 27,	SW¼NE¼NW¼, S½NW¼NW¼,			

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(Nev-028474)		W½SE¼NW¼, SW¼NW¼, NW¼NE¼SW¼, N½NW¼SW¼, SW¼NW¼SW¼;			
	sec. 28,	SE¼NE¼NE¼, NE¼SE¼NE¼, NE¼NE¼SE¼, S½NE¼SE¼;			
	sec. 33,	NW¼NE¼, N½SE¼NE¼, E½NE¼NW¼, NE¼SE¼NW¼.	Recreation Areas	270	Public Land Laws 1872 Mining Law
	T. 19 S., R. 57 E.				
PLO-2785	sec. 7,	Lots 11 (S½), 12;			
(Nev-058297)	sec. 8,	Lots 5 (N½,SE¼), 6 (S½), 11, 12 (NE¼,S½), 13,14.	Geological Area	243	1872 Mining Law
	T. 18 S., R. 55 E.				
PLO 1487	sec. 10,	E½;			
(Nev-054565)	sec. 11-14,	All;			
	sec. 15,	E½;			
	sec. 23-25,	All;			
	sec. 36,	All.			
	T. 19 S., R. 55 E.				
	sec. 1,	Lots 1,2,3,4, S½NE¼, S½NW¼, SW¼, NE¼SE¼;			
	sec. 2,	Lots 1,2,3,4, S½N½, S½;			
	sec. 12,	S½NE¼, W½, SE¼;			
	sec. 13-15,	All;			
	T. 18 S., R. 56 E.				
	sec. 18-22,	All;			
	sec. 25,	N½, SW¼;			
	sec. 26-34,	All;			
	sec. 35,	E½NE¼, W½NW¼;			
	sec. 36	NE¼NE¼, S½SE¼SE¼NW¼NE¼, NW¼, SE¼.			
	T. 19 S., R.56 E.				
	sec. 1,	Lots 5,6,7,8,9,10,11, 12,13, SE¼NW¼, E½SW¼;			
	sec. 2,	Tract 40 (within), Lots 5,6,7;			
	sec. 3,	Tract 43 (within), Lots 5,6,7,8,9, S½N½, SW¼, N½SE¼, SW¼SE¼;			
	sec. 4,	Lots 5,6,7,8, S½N½, S½;			
	sec. 5,	Lots 5,6,7,8,9,10,13, 14,15,16, S½N½, E½SE¼;			
	sec. 6,	Lots 8,9,10,11,12,13, 14,15,16,17,19,20,21, 22, S½NE¼, SE¼NW¼, NE¼SW¼, N½SE¼;			
	sec. 7,	Lots 6,7,8,9,10,11,12, 13, S½NE¼, SE¼NW¼, E½SW¼, SE¼;			
	sec. 8,	Lots 1,2,3,4, NE¼NE¼, S½NE¼, S½NW¼, S¼;			
	sec. 9,	Tract 43 (within), Lots 1,2,3,4, W½E½, W½;			
	sec. 10,	Tract 43 (within), Tract 57 (all in sec.), Lots 1,2,3,4;			
	sec. 11,	Tract 43 (all in sec.), Tract 44;			
	sec. 12,	Tract 48 (all in sec.),			

	Tract 58;
sec. 13,	Tract 37 (within),
	Tract 48 (all in sec.),
	Tract 58 (all in sec.),
	Lots 1,2,3,4,5,6,7,
	SW¼, SW¼SE¼;
sec. 14,	Tract 51 (all in sec.),
	Lots 1,2,3,4,5,6,7,8,
	SW¼SW¼;
sec. 15,	Tract 43 (all in sec.),
	Tract 51 (all in sec.),
	Tracts 52,53,54,
	Tract 57 (all in sec.),
	Lots 1,2,3,4,5,6;
sec. 16,	Tract 43 (all in sec.),
	Lots 1,2,3,4,5,6,7,
	NW¼NE¼, N½NW¼, SW¼NW¼,
	W½SW¼, SE¼SW¼;
sec. 17,	All;
sec. 18,	Lots 5,6,7,8, E½, E½W½;
sec. 19,	Lots 5,6,7,8, E½, E½W½;
sec. 20,	All;
sec. 21,	All;
sec. 22,	N½N½, SW¼NW¼, SW¼;
sec. 23,	Lots 1,2,3, SE¼NE¼,
	W½NW¼, SE¼NW¼, N½SW¼,
	SE¼SW¼, SE¼;
sec. 24,	Lots 1,2,3,4, W½E½, W½;
sec. 25,	Lots 1,2,3,4, W½E½, NW¼,
	N½SW¼, SE¼SW¼;
sec. 26,	N½, SW¼, NW¼SE¼;
sec. 27-29,	All;
sec. 30,	Lots 5,6,7,8, E½, E½W½;
sec. 31,	Lots 5,6,7,8,9,10,11,
	NE¼, E½NW¼, NE¼SW¼,
	N½SE¼;
sec. 32,	Lots 1,2,3,4, N½, N½S½;
sec. 33,	Lots 1,2,3,4, N½, N½S½;
sec. 34,	Lots 1,2,3,4, N½, N½S½;
sec. 35,	Lots 1,2,3,4, W½NE¼,
	SE¼NE¼, NW¼, N½SW¼,
	N½SE¼;
sec. 36,	Lots 1,2,3,4,5,
	E½NE¼ (within), SW¼NE¼,
	S½NW¼, N½SW¼, NW¼SE¼.
<u>T. 20 S., R. 56 E.</u>	
sec. 1-5,	All;
sec. 11-13,	All;
<u>T. 18 S., R. 57 E.</u>	
sec. 30,	Lots 1,2,3,4, E½W½, E½;
sec. 31,	Lots 1,2,3,4, E½W½, E½.
<u>T. 19 S., R. 57 E.</u>	
sec. 5-6,	All;
sec. 7,	E½;
sec. 8,	All;
sec. 17,	All;
sec. 18,	Lots 2,3,5,6,7,8,9,10,
	11,12,13,14,15, E½NW¼;
sec. 19-20,	All;
sec. 29-30,	All;
sec. 31,	Lots 5,6,7,8,9,10,11,
	12,13;

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	sec. 32-33,	All;			
	T. 20 S., R. 57 E.				
	sec. 4-8,	All;			
	sec. 9,	All;	Toiyabe National Forest	38,436.85	None
	sec. 18,	All.			
	T. 18 S., R. 56 E.				
PLO-4708 (Nev-054565)	sec. 26,	SE¼.	Toiyabe National Forest	160	None
	T. 19 S., R. 57 E.				
PLO-3253 (Nev-060240)	sec. 17,	E½SW¼NW¼ (within), SE¼NW¼ (within).	Historic Site	38	1872 Mining Law

Federal Aviation Administration Withdrawals

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Nye County -				
	T. 13 S., R. 47 E.				
BLM Order 09-18-1957 (Nev-045108)	sec. 17,	S½NE¼SW¼, SE¼NW¼SW¼, SE¼SW¼, E½SW¼SW¼, SW¼NW¼SE¼, W½SW¼SE¼;			
	sec. 20,	NW¼NW¼NE¼, N½NE¼NW¼, NE¼NW¼NW¼.	Beatty VOR Facility	160	Public Land Laws 1872 Mining Law
	T. 13 S., R. 47 E.				
PLO-6687 (N-42735)	sec. 17,	W½SE¼NW¼SE¼, W½E½SW¼SE¼;			
	sec. 20,	W½NE¼NW¼NE¼, SW¼NW¼NE¼, S½NE¼NW¼, SE¼NW¼NW¼.	Beatty ANS	60	Public Land Laws 1872 Mining Law
	Clark County -				
	T. 19 S., R. 57 E.,				
PLO-5305 (N-5999)	sec. 10,	SE¼SE¼NE¼NW¼(within).	Angel Peak ANS	.304	Public Land Laws 1872 Mining Law
	T. 26 S., R. 63 E.				
PLO-3447 PLO-3485 PLO-3931 (Nev-059256)	sec. 12,	SW¼NW¼NE¼NE¼, W½SW¼NE¼NE¼, S½N½NW¼NE¼, S½NW¼NE¼, SW¼NE¼, W½W½SE¼NE¼, S½NE¼NE¼NW¼, SE¼NE¼NW¼, E½SE¼NW¼.	Searchlight RCAG	122.5	Public Land Laws 1872 Mining Law
	T. 13 S., R. 69 E.				
PLO-6687 (N-42415)	sec. 27,	NW¼SW¼;			
	sec. 28,	NE¼SE¼.	Mormon Mesa ANS	80	Public Land Laws 1872 Mining Law
	T. 13 S., R. 69 E.				
BLM Order 01-18-1952 (Nev-051785)	sec. 28,	SE¼SE¼.	ANS Nev. #1	40	Public Land Laws 1872 Mining Law

Bureau of Reclamation Withdrawals

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Clark County -				
	T. 21 S., R. 62 E.				
PLO-3512	sec. 23,	NE¼NE¼, E½SE¼;			
(Nev-059798)	sec. 24,	All;			
	sec. 25,	E½NE¼, NE¼NW¼.			
	T. 21 S., R. 63 E.				
	sec. 19,	Lots 3,4, E½SW¼;			
	sec. 25,	All;			
	sec. 26,	Lots 1,2,3,4, N½,			
		N½S½,			
	sec. 27,	SE¼;			
	sec. 28,	SE¼NE¼, N½NW¼, W½SW¼,			
		SE¼SW¼, SE¼;			
	sec. 29,	N½NE¼, NW¼, S½S½;			
	sec. 30,	Lots 1,2,4, NE¼,			
		E½NW¼, SE¼SW¼, S½SE¼;			
	sec. 34,	Lots 1,2,3,4,5,6,			
		W½NE¼, W½;			
	sec. 35,	Lots 1,2,3,6,7,			
		SE¼SE¼;			
	sec. 36,	S½.			
	T. 22 S., R. 63 E.				
	sec. 1-3,	All;			
	sec. 10,	All;			
	sec. 14-15,	All;			
	sec. 22,	All;			
	sec. 23,	W½;			
	sec. 26,	W½;			
	sec. 35,	All.			
	T. 22 S., R. 63½ E.				
	sec. 1,	Lots 1,2,3,4,5,6, S½NE¼, SE¼.	Southern Nevada Water Supply Project	9,777.64	Public Land Laws 1872 Mining Law
	T. 20 S., R. 63 E.				
Various SO's (Nev-051745)					
SO 03-03-1933	sec. 35,	All;			
SO 12-11-1941	sec. 36,	All;			
	T. 21 S., R. 63 E.				
S0 12-11-1941	sec. 1-2,	All;			
	sec. 11-13,	All;			
	sec. 14,	N½NE¼, NE¼NE¼SW¼NE¼, E½SE¼NE¼, N½NW¼SE¼NE¼, SE¼NW¼SE¼NE¼, E½SW¼SE¼NE¼, E½NE¼SE¼, SE¼SE¼;			
	sec. 23,	E½E½;			
	sec. 24,	All.			
	T. 23 S., R. 63 E.				
SO 01-03-1929	sec. 2,	Lots 12,20;			
	sec. 11,	Lots 1,4,5,8; (within)			
	sec. 14,	Lots 1,4,5,8. (within)			
	T. 30 S., R. 63 E.				
SO 06-04-1930	sec. 17-20,	All;			
	T. 31 S., R. 63 E.				
SO 06-04-1930	sec. 1,	Lots 1,2, S½NE¼, SE¼;			
	sec. 3,	Lot 4, SW¼NW¼;			
	sec. 4,	Lots 1,2,3, S½NE¼,			

		SE¼NW¼, S½;
	sec. 9,	Lots 1,2,3,4,5,6,7,
		8,9, S½NE¼, SE¼NW¼,
		N½SE¼, SE¼SE¼;
	sec. 12,	NE¼, E½SE¼;
	sec. 13,	E½E½;
	sec. 16,	Lot 4.
	T. 21 S., R. 63½ E.	
SO 12-11-1941	All Township Included.	
	T. 20 S., R. 64 E.	
SO 03-03-1933	sec. 31-33,	All;
SO 01-31-1903	Affects All Lands Lying Within 4 Miles of the Colorado River.	
	T. 21 S., R. 64 E.	
SO 01-31-1903	sec. 11-12,	Within;
	sec. 13,	All;
	sec. 14-15,	Within;
	sec. 22,	Within;
	sec. 23-26,	All;
	sec. 27-28,	Within;
	sec. 33,	Within;
	sec. 34-36,	All;
SO 08-07-1920	All Township Included.	
	T. 22 S., R. 64 E.	
SO 08-07-1920	sec. 1-2,	All;
	sec. 3,	Lots 5,6,7,11,12,
		S½N½, S½;
	sec. 4,	Lots 6,7,8,10,11,
		12,14,15,16, S½N½,
		S½;
	sec. 5-23,	All;
	sec. 24,	Lots 1,2,3,4,5,6,
		W½NE¼, NW¼, N½SW¼,
		SW¼SW¼, NW¼SE¼;
	sec. 25,	Lots 1,2,3,4,5,6,
		7,8,9,10,11,12,
		SW¼NE¼, NW¼NW¼,
		W½SE¼;
	sec. 26-27,	All;
	sec. 36,	Lots 1,2,3,4,5,6,
		W½E½, S½NW¼, SW¼.
	T. 23 S., R. 64 E.	
SO 08-07-1920	sec. 1,	All;
	sec. 12-13,	All;
SO 01-31-1903	sec. 6,	Lots 12,13,16.
SO 01-03-1929		
	T. 29 S., R. 64 E.	
SO 06-04-1930	sec. 31,	Lots 1,2,3,4.
	T. 14 S., R. 65 E.	
S0 06-11-1943	sec. 25,	NW¼NW¼;
	sec. 27,	E½E½;
	sec. 34,	E½E½.
	sec. 35,	Lots. 3,4, SW¼,
		W½SE¼, SE¼SE¼.
	T. 20 S., R. 65 E.	
S0 04-19-1920	sec. 19,	All;
S0 03-13-1933	sec. 20-36,	All;
O 01-31-1903	Affects All Lands Lying Within 4 Miles of the Colorado River.	
	T. 21 S., R. 65 E.	
SO 04-19-1920	All Township Included.	
SO 01-31-1903	Affects All Lands Lying Within 4 Miles of the Colorado River.	
	T. 22 S., R. 65 E.	
SO 08-07-1920	All Township Included.	

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	T. 23 S., R. 65 E.	
SO 01-31-1903	sec. 5,	Within;
SO 08-07-1920	sec. 6-7,	All;
	sec. 8-9,	Within;
	sec. 16,	Within;
	sec. 17-20,	All;
	sec. 21,	Within;
	sec. 27-28,	Within;
	sec. 29,	All;
	sec. 34,	Within.
	T. 23½ S., R. 65 E.	
SO 01-31-1903	sec. 35,	Within.
SO 08-07-1920		
	T. 24 S., R. 65 E.	
SO 01-31-1903	sec. 1,	Within;
SO 05-08-1919	sec. 2,	Within;
	sec. 10,	Within;
	sec. 12-15,	Within;
	sec. 22-23,	Within;
	sec. 26-27,	Within;
	sec. 34-35,	Within;
	T. 25 S., R. 65 E.	
SO 01-31-1903	sec. 2,	Within;
SO 08-07-1920	sec. 11,	Within;
	sec. 14,	Within;
	sec. 23,	Within;
	sec. 26,	Within;
	sec. 35,	Within.
	T. 26 S., R. 65 E.	
SO 10-16-1931	sec. 2-3,	Within;
	sec. 11-14,	Within;
	sec. 23-26,	Within;
	sec. 35-36,	Within;
	T. 27 S., R. 65 E.	
SO 10-16-1931	sec. 1,	Within;
	sec. 13,	Within;
	sec. 23-26,	Within;
	sec. 36,	Within.
	T. 28 S., R. 65 E.	
SO-10-16-1931	sec. 1,	Within;
	sec. 12-13,	Within;
	sec. 23-25,	Within;
	sec. 36,	Within.
	T. 29 S., R. 65 E.	
SO 10-16-1931	sec. 1,	E½; (within)
	sec. 12,	E½; (within)
	sec. 13,	E½. (within)
	T. 33 S., R. 65 E.	
SO 10-16-1931	sec. 14,	Lot 1, N½, N½SW¼, SE¼SW¼, SE¼;
	sec. 23,	Lots 2,3,4, N½NE¼, SE¼NE¼.
	T. 20 S., R. 66 E.	
SO 04-19-1920	sec. 26-35,	All;
	T. 27 S., R. 66 E.	
SO 10-16-1931	sec. 6-7,	Within;
	sec. 18-19,	Within;
	sec. 31,	Within.
	T. 29 S., R. 66 E.	
SO 10-16-1931	sec. 8,	Within;
	sec. 17-21,	Within;
	sec. 28-30,	Within;

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	sec. 32-34,	Within;
	T. 30 S., R. 66 E.	
SO 01-31-1903	sec. 3,	Within;
SO 09-08-1903	sec. 5,	Within;
SO 10-16-1931	sec. 8-10,	Within;
	sec. 15-18,	Within;
	sec. 20-22,	Within;
	sec. 27-28,	Within;
	sec. 34,	Within.
	T. 31 S., R. 66 E.	
SO 01-31-1903	sec. 2,	Within;
SO 09-08-1903	sec. 3,	Within;
SO 10-16-1931	sec. 10-11,	Within;
	sec. 14,	Within;
	sec. 23,	Within;
	sec. 26,	Within;
	sec. 35-36,	Within;
	T. 32 S., R. 66 E.	
SO 01-31-1903	sec. 1,	Lots 1,4;
SO 10-16-1931	sec. 2,	S½NE¼, S½, Lots 1,2;
	sec. 10,	NE¼, S½NW¼, S½;
	sec. 11,	All;
	sec. 12,	Lots 6,7,9,12,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33;
SO 01-31-1903	sec. 29,	S½NE¼SE¼NE¼, SE¼NW¼SE¼NE¼,
SO 10-16-1931		E½SW¼SE¼NE¼, SE¼SE¼NE¼,
SO 10-28-1953		E½E½E½SE¼, NE¼NW¼NE¼SE¼,
		W½;
	sec. 30,	All;
	sec. 31,	NE¼, E½W½, Lots 1,2,
		3,4;
	sec. 32,	Lot 19. (W½)
	T. 34 S., R. 66 E.	
SO 01-31-1903	sec. 5,	Within.
SO 10-16-1931		
	T. 20 S., R. 66½ E.	
SO 01-31-1903	sec. 18,	Within;
	sec. 19,	All;
	sec. 30-31,	All;
	T. 16 S., R. 67 E.	
SO 05-08-1919	sec. 1,	Lot 1;
SO 04-21-1923	sec. 11,	SW¼NW¼, SW¼, SW¼SE¼;
	sec. 13,	SW¼SW¼;
	sec. 14,	W½NE¼, SE¼NE¼, W½,
		SE¼;
	sec. 24,	SW¼NE¼, W½, W½SE¼,
		SE¼SE¼.
SO 12-06-1937	sec. 36,	SE¼NE¼, E½SE¼.
	T. 17 S., R. 67 E.	
SO 12-06-1937	sec. 1,	Lots 5,6,9,10,11,
		SW¼NE¼, SW¼, E½SE¼;
	sec. 12,	Lots 1,2,3, W½NE¼,
		N½NW¼.
	T. 18 S., R. 67 E.	
SO 03-03-1933	sec. 36,	Lots 1,2,3,4,5,6,7,
		E½NE¼, NW¼, N½SW¼,
		NW¼SE¼.
	T. 19 S., R. 67 E.	
SO 05-08-1919	sec. 1,	E½. (within)
	T. 20 S., R. 67 E.	
SO 01-31-1903	sec. 12-13,	All;
SO 03-30-1921	sec. 24-30,	All;
SO 05-19-1921	sec. 31,	All.

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SO 03-03-1933	sec. 36,	All.
	T. 15 S., R. 68 E.	
SO 04-21-1923	sec. 1,	Lots 1,2, S½NE¼, S½;
	sec. 12,	N½, SW¼, W½SE¼;
	sec. 13,	W½NE¼, NW¼.
SO 03-03-1933	sec. 23,	SW¼;
	sec. 26,	W½;
	sec. 35,	W½;
SO 05-08-1919	sec. 36,	SE¼SE¼. (within)
	T. 17 S., R. 68 E.	
SO 05-08-1919	sec. 1-4,	Within;
	sec. 5-9,	All;
	sec. 10-11,	Within;
	sec. 12,	All;
	sec. 13,	E, N½S½NW¼NW¼;
	sec. 14,	Within;
	sec. 15-26,	All;
	sec. 27,	Within;
	sec. 28,	All;
	sec. 29,	Within;
	sec. 30-33,	All;
	sec. 34,	Within;
	sec. 35,	All;
	sec. 36,	E½, N½NW¼, SE¼NW¼, SW¼.
	T. 18 S., R. 68 E.	
SO 05-08-1919	sec. 1,	All;
SO 03-03-1933	sec. 2,	Lots 1,2,3,4, S½N½, SE¼SW¼, SE¼;
	sec. 3,	Lots 2,3,4, SW¼NE¼, S½NW¼, SW¼, W½SE¼;
	sec. 4-5,	All;
	sec. 9	Within;
	sec. 10,	N½, N½SW¼, SE¼;
	sec. 11,	All;
	sec. 12-14,	Within;
	sec. 15,	E½NE¼, S½SW¼, SE¼;
	sec. 16,	All;
	sec. 17,	Within;
	sec. 19-20,	Within;
	sec. 21,	N½, SW¼, W½SE¼;
	sec. 22,	N½N½, S½NE¼, SE¼NW¼, E½SW¼, SE¼;
	sec. 23,	Within;
	sec. 26,	Within;
	sec. 27,	E½, E½NW¼, SW¼NW¼, SW¼;
	sec. 28,	W½, SE¼;
	sec. 29,	All;
	sec. 30-32,	Within;
	sec. 33,	All;
	sec. 34-35,	Within;
	T. 19 S., R. 68 E.	
SO 05-08-1919	sec. 2,	Within;
SO 04-21-1923	sec. 3,	Within;
SO 03-31-1933	sec. 4,	All;
	sec. 5-11,	Within;
	sec. 14-17,	Within;
	sec. 20-22,	Within;
	sec. 27,	Within;
	sec. 28,	All;
	sec. 29,	Within;
	sec. 31-32,	Within;

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	sec. 33,	All;
	sec. 34,	Within.
	T. 20 S., R. 68 E.	
SO 01-31-1903	sec. 3,	Within;
SO 04-21-1923	sec. 4,	Within;
	sec. 5,	All;
	sec. 6-7,	Within;
	sec. 8,	All;
	sec. 9-10,	Within;
	sec. 15-16,	Within;
	sec. 17,	All;
	sec. 18,	Within;
	sec. 19,	All;
	sec. 20,	N½, SW¼, N½SE¼, SW¼SE¼;
	sec. 21,	All;
	sec. 22,	Within;
	sec. 26-27,	Within;
	sec. 28,	All;
	sec. 29	E½NE¼, SW¼NE¼, W½, SE¼;
	sec. 30,	Within;
	sec. 31-34,	All;
	sec. 35-36,	Within;
	T. 21 S., R. 68 E.	
SO 05-08-1919	All Township Included Except:	
	sec. 1,	NE¼NE¼.
SO 01-31-1903	Affects All Lands Lying Within 4 Miles of the Colorado River Except:	
	sec. 1,	NE¼NE¼.
	T. 15 S., R. 69 E.	
SO 04-21-1923	sec. 6,	Lots 3,4,5, SE¼NW¼.
	sec. 8,	E½, SW¼;
SO 03-21-1933	sec. 29,	All;
SO 05-08-1919	sec. 31,	Within;
SO 03-21-1933	sec. 32,	All.
	T. 16 S., R. 69 E.	
SO 04-21-1923	sec. 5,	All;
SO 05-08-1919	sec. 7,	Within;
SO 04-21-1923	sec. 8,	All;
SO 05-08-1919	sec. 18,	SE¼SE¼;
	sec. 19,	E½;
	sec. 30,	E½;
	sec. 31,	Within.
	T. 17 S., R. 69 E.	
SO 05-08-1919	sec. 6-7,	Within;
	sec. 18-19,	Within;
	sec. 29-30,	Within;
	sec. 31,	All;
	sec. 32,	Within.
	T. 18 S., R. 69 E.	
SO 05-08-1919	sec. 5-7,	Within;
	T. 20 S., R. 69 E.	
SO 01-31-1903	sec. 18-20,	Within;
	sec. 28-29,	Within;
	sec. 33-34,	Within;
SO 03-22-1933	sec. 34-36,	All;
	T. 21 S., R. 69 E.	
SO 01-31-1903	sec. 6,	Within;
SO 05-08-1919	sec. 7,	Within;
SO 05-19-1921	sec. 8,	Within;
	sec. 16-17,	Within;
	sec. 20-21,	Within;

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	sec. 27-29,	Within;			
	sec. 33-35,	Within;			
	T. 14 S., R. 70 E.				
SO 01-31-1903	sec. 31,	All;			
SO 05-08-1919	sec. 32-34,	All;			
	T. 21 S., R. 70 E.				
SO 01-31-1903	sec. 12,	Within;			
SO 05-08-1919	sec. 13,	Within;			
	sec. 14,	Within;			
	sec. 23,	Within;			
	sec. 26,	Within;			
	sec. 35,	Within.			
	T. 22 S., R. 70 E.				
SO 01-03-1903	sec. 2,	Within;			
SO 05-08-1919	sec. 9-11	Within;			
	sec. 14-18,	Within;			
	T. 19 S., R. 71 E.				
SO 01-31-1903	sec. 27-28,	Within;			
	sec. 31-32,	Within;			
	sec. 32,	Within;			
	sec. 33-34,	All;			
	T. 20 S., R. 71 E.				
SO 01-31-1903	sec. 10,	Within;			
SO 05-08-1919	sec. 15-16,	Within;			
	sec. 21,	Within;			
	sec. 28-32,	Within;			
	T. 21 S., R. 71 E.				
SO 01-31-1903					
SO 05-08-1919	sec. 6,	Within.	Colorado River		Public Land Laws
SO 03-03-1933	sec. 7,	Within.	Project	254.058	1872 Mining Law

NOTE: Secretarial Orders dated 01-31-1903 and 09-08-1903 do not segregate against the Homestead Act of May 20, 1862)

National Park Service Withdrawals

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Clark County -				
	T. 20 S., R. 63 E.				
Act of Congress Oct. 08, 1964					
(Nev-065135)	sec. 35-36,	All;			
	T. 21 S., R. 63 E.				
	sec. 1-2,	All;			
	sec. 11-13,	All;			
	sec. 14,	N½NE¼, NE¼NE¼SW¼NE¼, E½SE¼NE¼, N½NW¼SE¼NE¼, SE¼NW¼SE¼NE¼, E½SW¼SE¼NE¼, E½NE¼SE¼, SE¼SE¼;			
	sec. 23,	E½E½;			
	sec. 24,	All.			
	T. 21 S., R. 63½ E.				
	sec. 1,	Within;			
	sec. 12-13,	Within;			
	sec. 24-25,	Within;			
	sec. 36,	Within.			
	T. 20 S., R. 64 E.				
	sec. 25,	SE¼;			
	sec. 31-33,	All;			
	sec. 36,	All.			

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T. 21 S., R. 64 E.
All Township Included.
T. 22 S., R. 64 E.

sec. 1-2,	All;
sec. 3,	Lots 5,6,7,11,12, S½N½, S½;
sec. 4,	Lots 6,7,8,10,11, 14,15,16, S½N½, S½;
sec. 5,	All;
sec. 6,	Lots 8,9,10,11,14, 15,18, S½NE¼, SE¼NW¼, E½SW¼, SE¼;
sec. 7,	Lots 5,8,9,12, E½, E½W½;
sec. 8-17,	All;
sec. 18,	Lots 5,8,9,12, E½, E½W½;
sec. 19,	Lots 5,8,9,12, E½, E½W½;
sec. 20-23,	All;
sec. 24,	Lots 1,2,3,4,5,6, W½NE¼, NW¼, N½SW¼, SW¼SW¼, NW¼SE¼;
sec. 25,	Lots 1,2,3,4,5,6, 7,8,9,10,11,12, SW¼NE¼, NW¼NW¼, W½SE¼;
sec. 26-27,	All;
sec. 28,	N½, N½S½;
sec. 29,	N½, N½S½;
sec. 30,	Lots 5,6,7,8,9,10, NE¼, E½NW¼, NE¼SW¼, N½SE¼;
sec. 34,	N½;
sec. 35,	N½;
sec. 36,	Lots 1,2,3,4,5,6, W½E½, S½NW¼, SW¼.

T. 23 S., R. 64 E.

sec. 1,	All;
sec. 12-13,	All;
sec. 35-36,	All;

T. 23½ S., R. 64 E.

sec. 36,	Lots 1,2,3,4, N½.

T. 24 S., R. 64 E.

sec. 1,	All;
sec. 12-13,	All;
sec. 24-25,	All;
sec. 36,	All.

T. 20 S., R. 65 E.

sec. 1,	S½;
sec. 12-13,	All;
sec. 19-36,	All;

T. 21 S., R. 65 E.
All Township Included.
T. 22 S., R. 65 E.
All Township Included.
T. 23 S., R. 65 E.
All Township Included.
T. 23½ S., R. 65 E.
All Township Included.
T. 24 S., R. 65 E.
All Township Included.
T. 25 S., R. 65 E.
All Township Included.

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T. 26 S., R. 65 E.
All Township Included
T. 27 S., R. 65 E.
All Township Included Except Mineral Patent #338123.
T. 28 S., R. 65 E.
All Township Included Except Mineral Patents in Sec. 24.
T. 29 S., R. 65 E.
All Township Included.
T. 30 S., R. 65 E.

sec. 1-3.	All;
sec. 10-15.	All;
sec. 22-27.	All;
sec. 34-36.	All;

T. 31 S., R. 65 E.

sec. 1-3.	All;
sec. 10-15.	All;
sec. 22-27.	All;
sec. 34-36.	All;

T. 32 S., R. 65 E.

sec. 1.	All.

T. 20 S., R. 66 E.
All Township Included.
T. 21 S., R. 66 E.
All Township Included.
T. 27 S., R. 66 E.
All Township Included.
T. 29 S., R. 66 E.

sec. 8.	Lot 1;
sec. 17.	Lots 1,2,3,4, SW¼SW¼;
sec. 18.	Lot 4;
sec. 19.	Lots 1,2,3,4, S½NE¼, E½W½, SE¼;
sec. 20.	Lots 1,2,3, W½, NW¼SE¼, S½SE¼;
sec. 21.	Lots 1,2;
sec. 28.	Lots 1,2,3,4,5, NW¼NW¼, S½NW¼, SW¼, NW¼SE¼;
sec. 29-32.	All;
sec. 33.	Lots 1,2,3, W½, NW¼SE¼, S½SE¼;
sec. 34.	Lots 1,2.

T. 30 S., R. 66 E.
All Township Included.
T. 32 S., R. 66 E.

sec. 1.	Lots 1,4;
sec. 2.	Lots 1,2,3,4, S½N½, S½;
sec. 3.	S½;
sec. 4.	Lots 1,2,3,4, S½N½, S½;
sec. 5.	Lots 1,2,3,4, S½N½, S½;
sec. 6.	Lots 1,2,3,4,5,6,7, S½NE¼, SE¼NW¼, E½SW¼, SE¼;
sec. 10.	N½N½;
sec. 11.	N½N½;
sec. 12.	Lots 6,7,9,12,17,18, 19,20,21,22,23,24,25, 26,27,28,29,30,31,32, 33.

T. 33 S., R. 66 E.
All Township Included.
T. 20 S., R. 66½ E.

sec. 6-7.	All;
sec. 18-19.	All;

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sec. 30-31	All;
T. 18 S., R. 67 E.	
sec. 12-15,	All;
sec. 22-27,	All;
sec. 34-36,	All;
T. 19 S., R. 67 E.	
sec. 1-3,	All;
sec. 10-15,	All;
sec. 22-29,	All;
sec. 30,	Lots 3,4, E½SW¼, SE¼;
sec. 31-36,	All;
T. 20 S., R. 67 E.	
All Township Included.	
T. 15 S., R. 68 E.	
sec. 36,	NE¼NE¼SE¼, S½NE¼SE¼, SE¼NW¼SE¼, E½SW¼SE¼, SE¼SE¼.
T. 17 S, R. 68 E.	
sec. 1,	All;
sec. 2,	Within;
sec. 3,	S½N½; (within)
sec. 4,	Within;
sec. 5,	All;
sec. 8-9,	All;
sec. 10-11,	Within;
sec. 12,	All;
sec. 13,	E½, N½S½NW¼NW¼;
sec. 14,	Within;
sec. 15-26,	All;
sec. 27,	Within;
sec. 28,	All;
sec. 29,	Within;
sec. 30,	All;
sec. 32-33,	All;
sec. 34,	Within;
sec. 35,	All;
sec. 36,	E½, N½NW¼, SE¼NW¼, SW¼.
T. 18 S., R. 68 E.	
All Township Included.	
T. 19 S., R. 68 E.	
All Township Included.	
T. 20 S., R. 68 E.	
All Township Included.	
T. 21 S., R. 68 E.	
All Township Included.	
T. 15 S., R. 69 E.	
sec. 31,	Lots 3,4, E½SW¼.
T. 16 S., R. 69 E.	
sec. 7,	Lots 1,2,3,4, E½W½;
sec. 19,	Lots 1,2,3,4, E½W½;
sec. 30,	Lots 1,2,3,4, E½W½;
sec. 31,	Lots 1,2,4, E½W½, E½;
sec. 32,	All.
T. 17 S., R. 69 E.	
sec. 4-10	All;
sec. 15-18	All;
sec. 19,	Lots 1,4, E½, E½W½;
sec. 20-21	All;
sec. 28-33	All;
T. 18 S., R. 69 E.	
sec. 4-8	All;

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	sec. 18-19	All;			
	sec. 30-31	All;			
	T. 20 S., R. 69 E.				
	sec. 30-32	All;			
	T. 21 S., R. 69 E.				
	All Township Included.				
	T. 14 S., R. 70 E.				
	sec. 12-13	All;			
	sec. 23-26	All;			
	sec. 35-36	All;			
	T. 21 S., R. 70 E.				
	All Township Included.				
	T. 22 S., R. 70 E.				
	All Township Included.				
	T 20 S., R. 71 E.				
	All Township Included.				
	T. 21 S., R. 71 E.		Lake Mead National		Public Land Laws
	All Township Included.		Recreation Area	586.076	1872 Mining Law
	T. 17 S., R. 50 E.				
Proclamation 2961			Death Valley		Public Land Laws
	sec. 36.	SW¼SE¼.	National Monument	40	1872 Mining Law

Bureau of Indian Affairs Withdrawals

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Clark County -				
	T. 18 S., R. 59 E.				
PL 98-203	sec. 25.	All;			
(N-39027)	sec. 27.	All;			
	sec. 34-36.	All;			
	T. 20 S., R. 61 E.				
	sec. 27.	SE¼NW¼NE¼.	Las Vegas Paiute Tribe	3,901.79	All
	T. 14 S., R. 66 E.				Public Land Laws
SO 03-17-1916					1872 Mining Law
(Nev-054556)			Moapa Indian Tribe		1920 Mineral Leasing Act
	sec. 31.	Lots 20,23,25½,26,35,36.	Administration Site	13.12	1947 Materials Act
	T. 16 S., R. 64 E.				
PL 96-491	sec. 1-17.	All;			
(Nev-35395)	sec. 18.	Lots 1,2,3,4, N½NE¼, NW¼SW¼NE¼, NE¼SE¼NE¼, E½NW¼, E½SW¼, SW¼NW¼SE¼, SW¼SE¼;			
	sec. 19-36.	All;			
	T. 17 S., R. 64 E.				
	sec. 7.	Lots 5,6, S½NE¼.			
	T. 15 S., R. 65 E.				
	sec. 1.	Lots 1,6, S½NW¼, SW¼, W½SE¼, SE¼SE¼;			
	sec. 2-36.	All;			
	T. 16 S., R. 65 E.				
	sec. 1-30.	All;			
	sec. 31.	Lots 3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26, 27, NE¼, E½NW¼NE¼, SW¼NW¼NE¼, S½NE¼, SE¼SW¼, NE¼SE¼;			
	sec. 32-36.	All;			

	T. 14 S., R. 66 E.				
	sec. 29,	Lots 1,2,3,4,5,6,7, NW¼, NE¼SW¼;			
	sec. 30,	Lots 1,2,3,4,5,6,7,8,9, 10,11,12,13,14,15, NE¼NE¼; SE¼NW¼, E½SW¼, W½SE¼, SE¼SE¼;			
	sec. 31,	Lots 2,4,5, NE¼, E½NW¼, NE¼SW¼, SE¼;	Moapa Indian Reservation	70,355.99	Public Land Laws 1872 Mining Law 1947 Materials Act
	sec. 32,	Lots 1,2,3,4,5,6, SW¼.			
	T. 14 S., R. 65 E.				
SO 07-03-1875	sec. 25,	Lots 2,3,4,5,6,;			
(Nev-054557)	sec. 26,	Lots 4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19, 20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38;			
	sec. 35,	Lots 8,9,10,11,12,13,14,15,17,18,19,20,21,22,23,24,25,26,27, 28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46, 47,48,49,50,51,52,56,57,58,59,60,61,62,63,64,65,66,67,68, 69,70,71,72,73,7475,76,77,78; Lots 79,86,87; (within) Lots 88,89,90,91,92,93,94,95,96,97,98,99,100,101,102,103,104; Lots 105,106,108,109; (within) Lots 110,111,112,113,114,115,116,117,118,119, 120,121,122,123,124,125,126,127,128,129,130; Lot 131; (within) Lot 132,133,134,135,136,137,138,139,140,141,142, 143,144,145,146,147,148,149,150,151,152,153,154, 155,156,157,158,159,160,161,162,163,164,165,166, 167,168,169,170,172,173,174,175,176,177,178.			
EO 07-31-1903	sec. 36,	Lots 53,54,55; Lot 79; (within) Lots 80,81,82,83,84,85; Lots 86,87,105,106; (within) Lot 107; Lots 108,109,131; (within) Lot 178.			
SO 07-31-1875	sec. 1,	Lots 7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26; Lot 27; (within) Lots 29,30,31,32,33,34,35,38,39;			
EO 1649	sec. 1,	Lot 27; (within) Lots 28,36,37,40,41.			
	T. 14 S., R. 66 E.				
EO 07-31-1903	sec. 31,	Lots 55,6,7,8,9,10,11,12,13,			
EO 07-31-1875		Lot 14; (within) Lots 15,16,17,18,19; Lots 20,21; (within) Lot 22; Lots 23,24,27; (within) Lots 28,29,30,31,32; 33; (within) Lots 41,42; Lot 43; (within) Lot 44.			
EO 1649	sec. 31,	Lots 34,35,36,37,38,39,40.			
	T. 15 S., R. 66 E.				
SO 07-03-1875	sec. 6,	Lots 8,9,10,11,12,13,14, 15,16,17,18,19,20,21,22, 23,24,25,26.	Moapa Indian Reservation	1,112.12	Public Land Laws 1872 Mining Law 1947 Materials Act
	T. 33 S., R. 66 E.				
EO 09-19-1880	sec. 19,	Within;			
(Nev-054553)	sec. 20,	Within;			

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	sec. 21,	Within;			Public Land Laws
	sec. 22,	Within;			1872 Mining Law
	sec. 30,	Within;	Ft. Mohave Indian		1920 Mineral Leasing Act
	sec. 31,	Within.	Reservation		1947 Materials Act

Military Withdrawals

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Clark County -				
	T. 21 S., R. 61 E.				Public Land Laws
PLO 1485			LV Army Reserve		1872 Mining Law
(Nev-045218)	sec. 1, E½SE¼SE¼SW¼.		Training Center	5	1920 Mineral Leasing Act
	T. 18 S., R. 62 E.				
EO 8954	sec. 32,	All;			
(Nev-054510	sec. 33-36,	All;			
	T. 19 S., R. 62 E.				
	sec. 1-5,	All;			
	sec. 8,	All;			
	sec. 9-11,	All;			
	sec. 12,	W½;			
	sec. 16-17,	All;			
	T. 18 S., R. 63 E.				
					Public Land Laws
	sec 31,	Lots 1,2,3,4,	Nellis Air		1872 Mining Law
		E½NW¼, NE¼SW¼.	Force Base	10,759.54	1920 Mineral Leasing Act
	T. 19 S., R. 61 E.				
					Public Land Laws
PLO 1175					1872 Mining Law
(Nev-051793)			Nellis Air		
	sec. 35,	SE¼SW¼.	Force Base	40	1920 Mineral Leasing Act
	T. 19 S., R. 62 E.				
PLO 1638	sec. 25,	S½;			
(Nev-013137)	sec. 36,	W½.			
	T. 20 S., R. 62 E.				
	sec. 1,	Lots 3,4.			
	T. 19 S., R. 63 E.				
(Nev-014602)					Public Land Laws
					1872 Mining Law
	sec. 27,	SW¼;	Lake Mead		
	sec. 30,	Lots 3,4, E½SW¼.	Base	997.85	1920 Mineral Leasing Act
	T. 19 S., R. 62 E.				
PLO 841	sec. 36,	E½.			
(Nev-051790)	T. 20 S., R. 62 E.				
	sec. 1,	Lots 1,2, S½NE¼.			
	T. 19 S., R. 63 E.				
	sec. 28,	S½;			
	sec. 29,	S½;			
	sec. 30,	SE¼;			
	sec. 31-33,	All:			
	sec. 34,	NW¼, S½.			
	T. 20 S., R. 63 E.				
	sec. 3,	N½, SW¼;			
	sec. 4-5,	All;			
	sec. 6,	Within;			Public Land Laws
	sec. 8,	NE¼;	Lake Mead		1872 Mining Law
	sec. 9,	N½.	Base	6,192.94	1920 Mineral Leasing Act

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	T. 20 S., R. 63 E.				Public Land Laws
PLO 877			Lake Mead		1872 Mining Law
(Nev-051795)	sec. 8,	SE¼;	Base	480	1920 Mineral Leasing Act
	sec. 9,	S½.			

Withdrawal Applications Pending Within The Stateline Resource Area

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Nye County -				
	T. 17 S., R. 50 E.				
N-27612	sec. 26,	S½;			
(12-10-1979)	sec. 34,	NE¼;			
	sec. 35,	W½W½, NE¼NW¼, N½NE¼; SE¼NE¼, N½NE¼SE¼, NW¼SE¼;			
	sec. 36,	W½.			
	T. 18 S., R. 50 E.				
	sec. 1,	Lots 3,4;	Warm Springs		
	sec. 2,	Lots 1,2, S½NE¼.	Pupfish Area	1,419.04	None
	T. 18 S., R. 50 E.				
N-29915	sec. 13,	E½SW¼SE¼, E½W½SW¼SE¼;			
(05-15-1980)	sec. 24,	NE¼NE¼;			
	T. 18 S., R. 51 E.				
	sec. 19,	SW¼NE¼, SE¼NW¼.	As Meadows Fish and Plants	150	None
	T. 19 S., R. 56 E.				
Nev-054565	sec. 27,	SW¼SW¼;			
(08-01-1903)	sec. 28,	W½SW¼, SE¼SW¼, S½SE¼;			
	sec. 29,	SE¼SW¼, SE¼;			
	sec. 32,	Lots 1,2,3,4, NE¼; E½NW¼, N½S½;			
	sec. 33,	All;			
	sec. 34,	Lot 1, W½NW¼, NW¼SW¼.			
	T. 20 S., R. 56 E.				
	sec. 4,	N½, SW¼, NW¼SE¼;	Application to segregate		
	sec. 5,	All.	from mining location	1,623.6	1872 Mining Law

PUBLIC LAND SEGREGATIONS

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Nye County -				
	T. 21 S., R. 53 E.,				
N-40976	sec. 3,	Lots 2,3,4, SW¼NE¼, S½NW¼, SW¼, NW¼SE¼;			
(02-09-1970)	sec. 4,	All;	Pahrump Valley		
	sec. 9,	All;	Regional Airport		
	sec. 10,	W½E½, W½.	Application	2,168.07	All
	Clark County -				
	T. 19 S., R. 60 E.				
N-44642	sec. 16,	W½;			
	sec. 20,	E½NE¼NE¼;	Public Airport		
	sec. 21,	SW¼NW¼.	Lease Application	380	All

	T. 18 S., R. 60 E.				
N-38196	sec. 30,	Lots 3,4, SE¼SW¼;			
(01-07-1984)	sec. 31,	Lots 1,2,3,4, SW¼NW¼NE¼, SW¼NE¼, E½W½, SE¼;			
	sec. 32,	SW¼SW¼;			
	T. 19 S., R. 60 E.				
	sec. 5,	Lots 3,4, S½NW¼;			
	sec. 6,	Lots 1,2,3,4,5,9, S½NE¼, SE¼NW¼, NE¼SW¼, W½NE¼NW¼SW¼, NE¼NW¼SE¼NW¼SW¼, E½SE¼SW¼, SE¼;			
	sec. 7,	N½NE¼, NE¼SW¼NE¼, SE¼NE¼.	Public Airport Lease Application	1,514.65	All
	T. 19 S., R. 61 E.				
N-53110	sec. 13,	N½, NE¼SW¼, SE¼;			
(07-09-1990)	sec. 14,	N½;			
	sec. 15,	All;			
	sec. 16-18,	All;			
	sec. 19,	Lots 5,6,7,8,9,10, 11,12,13,14,15,16, 17,18;			
	sec. 20,	All;			
	sec. 21,	N½;			
	sec. 23,	N½NE¼, SW¼NE¼, E½NW¼;			
	sec. 24,	N½, NE¼SW¼, N½SE¼, SW¼SE¼.			
	T. 19 S., R. 62 E.				
	sec. 18,	All;			
	sec. 19,	All;	City of NLV Direct Sale Application	7,534.27	Public Land Laws 1872 Mining Law
	sec. 20,	All.			
	T. 22 S., R. 61 E.				
N-48869	sec. 8,	Lot 39;			
(06-04-1990 NTE 06-04-1992)	sec. 17,	NW¼NE¼, S½NE¼NE¼SW¼NE¼, W½NE¼SW¼NE¼, SE¼NE¼SW¼NE¼, W½SW¼NE¼, SE¼SW¼NE¼, W½E½NE¼NW¼SE¼, E½W½NE¼NW¼SE¼, E½NE¼NW¼NW¼SE¼, E½NE¼SW¼NW¼SE¼, N½SE¼NW¼SE¼.	Private Exchange Application	96.25	Public Land Laws 1872 Mining Law
	T. 13 S., R. 63 E.				
N-36878	sec. 25,	N½; (south of Hwy)			
(08-13-1982)	sec. 36,	All.			
	T. 13½ S., R. 63 E.				
	sec. 36,	N½.			
	T. 13 S., R. 64 E.				
	sec. 30,	SW¼; (south of Hwy 168)			
	sec. 31,	All;			
	sec. 32,	S½;			
	sec. 33,	S½;			
	sec. 34,	N½ (within), S½. (south of Hwy 168)			
	T. 13½ S., R. 64 E.				
	sec. 31-33,	All;			

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	sec. 35,	SW¼.			
	T. 14 S., R. 64 E.				
	sec. 1,	SW¼;			
	sec. 2,	W½, SE¼;			
	sec. 3,	All;			
	sec. 4,	N½, SW¼;			
	sec. 5,	N½;			
	sec. 10,	N½, SW¼;			
	sec. 11,	All;			
	sec. 12,	All;			
	sec. 13,	N½;			
	sec. 14,	N½.			
	T. 14 S., R. 65 E.				
	sec. 7,	All;	Arrow Canyon State Park R&PP Application	11,180	Public Land Laws 1872 Mining Law
	sec. 8,	N½NW¼, W½SW¼, SE¼SW¼;			
	sec. 18,	N½.			
	T. 15 S., R. 66 E.				
N-36868 (Application)	sec. 13,	All;			
	sec. 14,	All;			
	sec. 15,	E½;			
	sec. 22-24,	All;			
	sec. 25,	W½NE¼, W½;			
	sec. 26,	All;			
	sec. 27,	N½, W½NW¼NE¼SW¼, N½NW¼SW¼, SW¼NW¼SW¼, W½SE¼NW¼SW¼, W½W½SW¼SW¼, E½SE¼SE¼SW¼, E½SE¼, SE¼NW¼SE¼, E½SW¼NW¼SE¼, NE¼SW¼SE¼, E½NW¼SW¼SE¼, S½SW¼SE¼;			
	sec. 28,	All;			
	sec. 33,	W½E½E½E½, W½E½E½,W½E½, W½;			
	sec. 34,	E½, E½E½NW¼, E½NW¼NE¼NW¼, SW¼NE¼NW¼, E½SE¼NW¼NW¼, E½E½SW¼NW¼, SE¼NW¼, E½E½W½SW¼;			
	sec. 35,	All;			
	sec. 36,	NW¼.			
	T. 16 S., R. 66 E.				
	sec. 2,	Lots 2,3,4, SW¼NE¼, S½NW¼, SW¼, NW¼SE¼;			
	sec. 3,	Lots 1,2,3,4(within), S½N½, S½;			
	sec. 4,	Lot 1(within),2,3,4, S½N½,S½;			
	sec. 9,	All;			
	sec. 10,	All;			
	sec. 11,	W½W½;			
	sec. 14,	W½W½;			
	sec. 15-17,	All;			
	sec. 20-22,	All;			
	sec. 23,	W½NW¼;			
	sec. 27,	All;			
	sec. 28,	N½, E½SE¼;			
	sec. 29,	W½E½, W½;			
	sec. 30,	All;			
	sec. 31,	All;			
	sec. 32,	NW¼, S½SE¼;			
	sec. 33,	E½NE¼, E½W½NE¼, S½SW¼, NE¼SE¼, E½SE¼SE¼;			
	sec. 34,	W½W½.			

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	T. 15 S., R. 67 E.				
	sec. 7,	SW¼SE¼;			
	sec. 17,	W½W½(within), SE¼SW¼;			
	sec. 18-20,	All;			
	sec. 21,	W½, SW¼NE¼, W½SE¼.			
	T. 17 S., R. 67 E.				
	sec. 2,	All;			
	sec. 3,	Lots 5,6, S½NE¼, S½;			
	sec. 4,	SE¼, E½E½SW¼;			
	sec. 9,	NE¼, E½E½NW¼, E½SE¼, E½W½SE¼;			
	sec. 10,	All;			
	sec. 11,	N½, SW¼, N½SE¼.			
	T. 18 S., R. 67 E.				
	sec. 5,	SW¼;			
	sec. 9,	N½;	Valley of Fire State Park		
	sec. 10,	All;	R&PP Application	24,864.25	None
	sec. 11,	N½.			

Other Land Law Determinations Affecting Public Lands

Serial No.	Location		Purpose	Acres	Segregates from Appropriation under the following laws
	Clark County -				
	T. 33 S., R. 66 E.				
PL 31	sec. 4,	within;			
(05-22-1953)	sec. 5,	within;			
	sec. 9-10,	within;			
	sec. 15,	within;			
	sec. 22,	within.			
	T. 34 S., R. 66 E.		Established rights vested in States	Not	
	sec. 5,	within.	for submerged lands	available	None
	T. 18 S., R. 55 E.				
PL 167	sec. 10,	E½;			
(Nev-050646)	sec. 11-14,	All;			
	sec. 15,	E½;			
	sec. 23-25,	All;			
	sec. 36,	All.			
	T. 19 S., R. 55 E.				
	sec. 1,	Lots 1,2,3,4, S½NE¼, S½NW¼, SW¼, NE¼SE¼;			
	sec. 2,	Lots 1,2,3,4, S½N½, S½;			
	sec. 12,	S½NE¼, W½, SE¼;			
	sec. 13-14,	All;			
	sec. 24,	All.			
	T. 18 S., R. 56 E.				
	sec. 18-22,	All;			
	sec. 25,	N½, SW¼;			
	sec. 26-34,	All;			
	sec. 35,	E½NE¼, W½NW¼;			
	sec. 36	NE¼NE¼, S½SE¼SE¼NW¼NE¼, NW¼, SE¼.			
	T. 19 S., R.56 E.				
	sec. 1,	Lots 5,6,7,8,9,10,11, 12,13, SE¼NW¼, E½SW¼;			

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sec. 2,	Tract 40 (within), Lots 5,6,7;
sec. 3,	Tract 43 (within), Lots 5,6,7,8,9, S½N½, SW¼, N½SE¼, SW¼SE¼;
sec. 4,	Lots 5,6,7,8, S½N½, S½;
sec. 5,	Lots 5,6,7,8,9,10,13, 14,15,16, S½N½, E½SE¼;
sec. 6,	Lots 8,9,10,11,12,13, 14,15,16,17,19,20,21, 22, S½NE¼, SE¼NW¼, NE¼SW¼, N½SE¼;
sec. 7,	Lots 6,7,8,9,10,11,12, 13, S½NE¼, SE¼NW¼, E½SW¼, SE¼;
sec. 8,	Lots 1,2,3,4, NE¼NE¼, S½NE¼, S½NW¼, S¼;
sec. 9,	Tract 43 (within), Lots 1,2,3,4, W½E½, W½;
sec. 10,	Tract 43 (within), Tract 57 (all in sec.), Lots 1,2,3,4;
sec. 11,	Tract 43 (all in sec.), Tract 44;
sec. 12,	Tract 48 (all in sec.), Tract 58;
sec. 13,	Tract 37 (within), Tract 48 (all in sec.), Tract 58 (all in sec.), Lots 1,2,3,4,5,6,7, SW¼, SW¼SE¼;
sec. 14,	Tract 51 (all in sec.), Lots 1,2,3,4,5,6,7,8, SW¼SW¼;
sec. 15,	Tract 43 (all in sec.), Tract 51 (all in sec.), Tracts 52,53,54, Tract 57 (all in sec.), Lots 1,2,3,4,5,6;
sec. 16,	Tract 43 (all in sec.), Lots 1,2,3,4,5,6,7, NW¼NE¼, N½NW¼, SW¼NW¼, W½SW¼, SE¼SW¼;
sec. 17,	All;
sec. 18,	Lots 5,6,7,8, E½, E½W½;
sec. 19,	Lots 5,6,7,8, E½, E½W½;
sec. 20-21,	All;
sec. 22,	N½N½, SW¼NW¼, SW¼;
sec. 23,	Lots 1,2,3, SE¼NE¼, WNW, SENW, NSW, SESW, SE;
sec. 24,	Lots 1,2,3,4, W½E½, W½;
sec. 25,	Lots 1,2,3,4, W½E½, NW¼, N½SW¼, SE¼SW¼;
sec. 26,	N½, SW¼, NW¼SE¼;
sec. 27-29,	All;
sec. 30,	Lots 5,6,7,8, E½, E½W½;
sec. 31,	Lots 5,6,7,8,9,10,11, NE¼, E½NW¼, NE¼SW¼, N½SE¼;
sec. 32,	Lots 1,2,3,4, N½, N½S½;
sec. 33,	Lots 1,2,3,4, N½, N½S½;

sec. 34,	Lots 1,2,3,4, N½, N½S½;			
sec. 35,	Lots 1,2,3,4, W½NE¼, SE¼NE¼, NW¼, N½SW¼, N½SE¼;			
sec. 36,	Lots 1,2,3,4,5, E½NE¼ (within), SW¼NE¼, S½NW¼, N½SW¼, NW¼SE¼.			
T. 20 S., R. 56 E.				
sec. 1-5,	All;			
sec. 11-13,	All;			
T. 18 S., R. 57 E.				
sec. 30,	Lots 1,2,3,4, E½W½, E½;			
sec. 31,	Lots 1,2,3,4, E½W½, E½.			
T. 19 S., R. 57 E.				
sec. 5-6,	All;			
sec. 7,	E½;			
sec. 8,	All;			
sec. 17,	All;			
sec. 18,	Lots 2,3,5,6,7,8,9,10, 11,12,13,14,15, E½NW¼;			
sec. 19-20,	All;			
sec. 29-30,	All;			
sec. 31,	Lots 5,6,7,8,9,10,11, 12,13;			
sec. 32-33,	All;			
T. 20 S., R. 57 E.				
sec. 4-6,	All;			
sec. 7,	All;	Determined surface management responsibility on unpatented mining claims	38,436.85	None
sec. 8,	All;			
sec. 9,	All;			
sec. 18,	All.			

Areas of Critical Environmental Concern

ACEC Name	LOCATION		Acres

Legal descriptions reflect Bureau of Reclamation land within ACECs. If any of the BOR land is relinquished it will become part of the applicable ACEC. Acreage totals represent only the land managed by the Bureau of Land Management.

	Nye County -		
Amargosa Mesquite	T. 16 S., R. 51 E.		
	sec. 35,	All;	
	sec. 36,	SW¼.	
	T. 17 S., R. 51 E.		
	sec. 1,	Lots 3 - 4, S½NW¼, S½;	
	sec. 2,	All;	
	sec. 11,	E½;	
	sec. 12,	All;	
	sec. 13,	All;	
	sec. 14,	E½;	
	sec. 23,	E½;	
	sec. 24,	All;	
	sec. 25,	All;	
	sec. 26,	E½;	
	sec. 35,	All;	
	sec. 36,	All.	6,890.97

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	Clark County -		
Arden Historic Sites	T. 22S., R. 60 E.		
	sec. 32,	W½NE¼NE¼NE¼, W½NE¼NE¼, SE¼NE¼NE¼, W½NE¼, W½NE¼SE¼NE¼, W½SE¼NE¼, W½NE¼NE¼NW¼, S½NE¼NW¼, E½NE¼NW¼NW¼, E½SW¼NW¼NW¼, W½SE¼NW¼NW¼, E½NE¼SW¼NW¼, W½SW¼NW¼, SE¼SW¼NW¼, W½NE¼SE¼NW¼, W½SE¼NW¼, SE¼SE¼NW¼, S½;	1
	sec. 33,	NE¼NE¼SW¼, W½NW¼NE¼SW¼, S½NE¼SW¼, NW¼S¼W, W½NE¼SW¼SW¼, W½SW¼SW¼, SE¼SW¼SW¼, E½NE¼SE¼SW¼, W½SE¼SW¼.	
	T. 23 S., R 60 E.		
	sec 4,	Lots 1 - 4, S½N½;	
	sec. 5,	Lots 1 - 4, S½N½.	1,480.10
Arrow Canyon	T. 14 S., R. 64 E.		
	sec. 10,	NW¼, SE¼, E½SW¼;	
	sec. 11,	SW¼;	
	sec. 13,	All;	
	sec. 14,	N½, SE¼;	
	sec. 15,	NE¼, E½NW¼.	
	T. 14 S., R. 65 E.		
	sec. 7,	Lots 3 - 4, SE¼, E½SW¼.	2,083.68
	Nye County -		
Ash Meadows	T. 17 S., R. 50 E.		
	sec. 7,	All;	
	sec. 8,	All;	
	sec. 9,	Lots 1 - 12;	
	sec. 10,	Lots 1 - 8, 12;	
	sec. 11,	Lots 1 - 16;	
	sec. 12,	Lots 1 - 15;	
	sec. 13,	Lots 1 - 16;	
	sec. 14,	Lots 1 - 16;	
	sec. 15,	Lots 1 - 4;	
	sec. 17,	N½, SW¼, W½SE¼;	
	sec. 18,	All;	
	sec. 19,	All;	
	sec. 20,	NW¼, N½SW¼;	
	sec. 21,	Lots 5 - 6, E½SE¼;	
	sec. 22,	Lots 1 - 5, W½SE¼, S½N½SE¼SE¼, S½SE¼SE¼;	
	sec. 23,	Lots 1 - 6, N½SE¼, E½SW¼SE¼, SE¼SE¼;	
	sec. 24,	All;	
	sec. 25,	All;	
	sec. 26,	NE¼NE¼, E½NW¼NE¼, S½NE¼, SW¼NW¼, S½SE¼NW¼;	
	sec. 27,	All;	
	sec. 28,	E½NE¼;	
	sec. 29,	NE¼NW¼;	

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sec. 30,	Lots 3 - 10, E½SW¼, W¼SE¼;
sec. 31,	All;
sec. 32,	NE¼NE¼, S½NE¼, W½W½, N½SE¼;
sec. 34,	NE¼;
sec. 35,	N½NE¼, SE¼NE¼, NE¼NW¼, W½W½, N½NE¼SE¼, NW¼SE¼;
sec. 36,	NE¼, W½, N½SE¼, SE¼SE¼.
T. 18 S., R. 50 E.	
sec. 1,	Lots 1 - 4;
sec. 2,	Lots 1 - 2, S½NE¼, SE¼;
sec. 3,	SW¼SW¼;
sec. 5,	All;
sec. 6,	Lots 1 - 2, Lots 8 - 12, S½NE¼, SE¼NW¼, E½SW¼, E½W½SE¼;
sec. 7,	Lots 4 - 10, S½NE¼, E½NW¼, NE¼SW¼, N½SE¼;
sec. 8,	All;
sec. 9,	W½NW¼, SW¼;
sec. 10,	E½;
sec. 11,	N½NW¼, W½SW¼;
sec. 12,	W½NE¼, NW¼;
sec. 13,	SW¼NE¼, SE¼SW¼, NW¼SE¼, E½SW¼SE¼, E½W½SW¼SE¼;
sec. 14,	NE¼, NW¼SE¼, SE¼SE¼;
sec. 15,	E½, E½SW¼;
sec. 16,	Lot 2, W½E½, NW¼, E½SW¼, NW¼SW¼;
sec. 17 - 23,	All;
sec. 24,	N½N½, SE¼NE¼, W½SW¼;
sec. 25,	S½NE¼, W½NW¼, SE¼NW¼, S½;
sec. 26 - 29,	All;
sec. 33 - 36,	All.
T. 17 S., R. 51 E.	
sec. 7,	All;
sec. 8,	W½;
sec. 17,	S½NE¼NE¼, W½NE¼, SE¼NE¼, W½, SE¼;
sec. 18 - 20,	All;
sec. 29 - 30,	All;
sec. 31,	Lots 1 - 4, NE¼NE¼, W½E½, E½W½;
sec. 32,	Lots 1 - 4, NE¼, NW¼.
T. 18 S., R. 51 E.	
sec. 5,	Lot 1;
sec. 6,	Lots 2 - 6, SW¼NE¼, SE¼NW¼, NE¼SW¼, SE½;
sec. 7,	NE¼, E½NW¼;
sec. 8,	NW¼;
sec. 17,	E½E½;
sec. 18,	Lots 2 - 4,

		SW¼NE¼, SE¼NE¼,	
		E½SW¼;	
	sec. 19,	Lots 1 - 2,	
		E½, E½NW¼, E½SW¼;	
	sec. 20,	All;	
	sec. 29,	All;	
	sec. 30,	Lots 2 - 4,	
		E½NE¼, N½NE¼NW¼NE¼,	
		S½NE¼NW¼NE¼ except for the land patented under Mining Claim Occupancy Act Patent No. 27-70-0091	
		N½SE¼NW¼NE¼ except for the land patented under Mining Claim Occupancy Act Patent No. 27-70-0091	
		S½SE¼NW¼NE¼, W½NW¼NE¼,	
		SW¼NE¼, E½NW¼,	
		E½SW¼, SE¼;	
	sec. 31,	Lots 1 - 4,	
		E½, E½W½;	
	sec. 32,	All.	37,151.52
Big Dune	T. 15 S., R. 48 E.		
	sec. 8,	S½;	
	sec. 9,	S½;	
	sec. 16,	All;	
	sec. 17,	All.	1,920
	Clark County		
Bird Spring	T. 24 S., R. 59 E.		
	sec. 4,	lots 1 - 2,	
		S½NE¼.	160.77
Coyote Springs Valley	T. 13 S., R. 63 E.		
	sec. 5,	All except the land east of U. S. 95 centerline; Nevada Highway 168 centerline;	
	sec. 21,	S½ except the land north of NV Hwy 168 centerline;	
	sec. 22,	S½ except the land north of NV Hwy 168 centerline;	
	sec. 23,	S½ except the land north of NV Hwy 168 centerline;	
	sec. 26,	All except the land north of NV Hwy 168 centerline;	
	sec. 27 - 35,	All.	
	T. 13½ S., R. 63 E.		
	sec. 31 - 35,	All.	
	T. 14 S., R. 63.		
	sec. 2 - 11,	All;	
	sec. 14 - 23,	All;	
	sec. 26 - 35,	All.	
	T. 15 S., R. 63 E.		
	sec. 2 - 11,	All;	
	sec. 14 - 22,	All;	
	sec. 27 - 34,	All.	
	T. 16 S., R. 63 E.		
	sec. 3 - 10,	All;	
	sec. 15 - 22,	All;	
	sec. 28 -33,	All;	
	T. 17 S., R. 63 E.		
	sec. 7 - 9,	All;	
	sec. 16 - 21,	All;	
	sec. 28 - 31,	All;	
	sec. 32,	All except the land east of powerline R/W N-53399 centerline.	
	T. 18 S., R. 63 E.		
	sec. 5,	W½ except the land east of powerline R/W N-53399 centerline;	
	sec. 6 - 7,	All;	
	sec. 8,	W½ except the land east of powerline R/W N-53399 centerline;	
	sec. 17,	W½W½ except the land east of powerline R/W N-53399 centerline;	

	sec. 18,	All except the land east of powerline R/W N-53399 centerline;	
	sec. 19,	All except the land east of powerline R/W N-53399 centerline;	
	sec. 29,	W½W½ except the land east of powerline R/W N-53399 centerline;	
	sec. 30,	All except the land east of powerline R/W N-53399 centerline;	
	sec. 31,	E½ except the land east of powerline R/W N-53399 centerline, SE¼SW¼ except the land east of powerline R/W N-53399 centerline.	
	T. 19 S., R. 63 E.		
	sec. 6,	Lots 3 - 4 except the land east of powerline R/W N-53399 centerline.	
			75,500
Crescent Townsite	T. 28 S., R.61 E.		
	sec. 29,	SW¼, W½SE¼ except the land patented under MS 2571 and 2572;	
	sec. 30,	E½SW¼ except the land patented under MS 2571 and 3246;	
	sec. 32,	E½NW¼, W½NE¼.	
			437
Desert Tortoise Center	T. 23 S. R. 59 E.		
	sec. 12,	E½;	
	sec. 13,	All;	
	sec. 24,	All.	
	T. 23 S., R. 60 E.		
	sec. 2 - 4,	All;	
	sec. 5,	Lots 1 - 2, S½NE¼, S½;	
	sec. 6,	SE¼;	
	sec. 7 - 11,	All;	
	sec. 15,	N½;	
	sec. 16 - 21,	All.	11,000.30
	(total acreage excludes 474.97 acre overlap w/Arden ACEC)		
Devil's Throat	T. 17 S., R. 70 E.		
	sec. 26,	All.	640.00
Gold Butte	T. 14 S., R. 69 E.		
	sec. 24 - 26,	All;	
	sec. 34 - 36,	All.	
	T. 15 S., R. 69 E.		
	sec. 1 - 3,	All;	
	sec. 9 - 10,	All;	
	sec. 11,	N½, N½S½, SW¼SW¼, SE¼SE¼;	
	sec. 12 - 13,	All;	
	sec. 14,	NE¼NE¼, NW¼NW¼, S½N½, S½;	
	sec. 15 - 16,	All;	
	sec. 21 - 28,	All;	
	sec. 33 - 36,	All.	
	T. 16 S., R. 69 E.		
	sec. 1 - 5,	All;	
	sec. 8,	All;	
	sec. 9 - 28,	All;	
	sec. 33 - 36,	All.	
	T. 17 S., R. 69 E.		
	sec. 1 - 3,	All;	
	sec. 11 - 14,	All;	
	sec. 22 - 23,	All;	
	sec. 24,	All;	
	sec. 25,	All except that portion patented under MS 4709;	
	sec. 26,	All except that portion patented under MS 4709;	
	sec. 27,	All;	
	sec. 34,	All;	400

sec. 35,	All except that portion patented under MS 4709.
sec. 36,	All except that portion patented under MS 4709 & 4710.
T. 18 S., R. 69 E.	
sec. 1,	All except that portion patented under MS 4710;
sec. 2,	All except that portion patented under MS 4709;
sec. 3,	All;
sec. 9 - 10,	All;
sec. 11 - 12,	All except that portion patented under MS 4710;
sec. 13,	All;
sec. 14,	All except that portion patented under MS 4710;
sec. 15 - 17,	All;
sec. 20 - 29,	All;
sec. 32 - 36,	All.
T. 19 S., R. 69 E.	
sec. 1 - 2,	All except that portion patented under MS 4707;
sec. 3 - 10,	All;
sec. 11,	All except that portion patented under MS 4707;
sec. 12 - 36,	All.
T. 20 S, R. 69 E.	
sec. 1 - 29,	All;
sec. 33 - 36,	All.
T. 14 S., R. 70 E.	
sec. 1,	All;
sec. 10 - 36,	All.
T. 15 S., R. 70 E.	
sec. 1,	All;
sec. 2 - 14,	All;
sec. 15 - 20,	All;
sec. 21 - 22,	All except that portion patented under MS 1988;
sec. 23 - 36,	All.
T. 16 S., R. 70 E.	
sec. 1 - 22,	All;
sec. 23,	N½, SW¼.
sec. 24 - 36,	All.
T. 17 S., R. 70 E.	
sec. 1 - 6,	All;
sec. 7,	N½,SW¼;
sec. 8,	N½,SE¼;
sec. 17,	NE¼, S½;
sec. 18,	NW¼, S½;
sec. 19 - 25,	All;
sec. 27 - 36,	All.
T. 18 S., R. 70 E.	
sec. 1 - 6,	All;
sec. 7 - 9,	All;
sec. 10 - 15,	All;
sec. 16 - 21,	All;
sec. 22 - 27,	All;
sec. 28 - 33,	All.
sec. 34 - 36,	All.
T. 19 S., R. 70 E.	
sec. 1 - 16,	All;
sec. 18 - 36,	All.
T. 20 S., R. 70 E.	
sec. 1 - 11,	All;
sec. 14 - 22,	All;
sec. 27 - 34,	All.
T. 13 S., R. 71 E.	
sec. 32,	All;
sec. 33,	All except the land east of range improvement (fence) 0101.
T. 14 S., R. 71 E.	
sec. 4,	All except the land east of range improvement (fence) 0101;

	sec. 5 - 8,	All;	
	sec. 9,	All except the land east of range improvement (fence) 0101;	
	sec. 10,	W½W½ except the land east of range improvement (fence) 0101;	
	sec. 15,	W½ except the land east of range improvement (fence) 0101;	
	sec. 16 - 20,	All;	
	sec. 21,	All except the land east of range improvement (fence) 0101;	
	sec. 22,	W½W½ except the land south of range improvement (fence) 0101;	
	sec. 28,	All except the land east of range improvement (fence) 0101;	
	sec. 29 - 31,	All.	
	T. 15 S., R. 71 E.		
	sec. 3 - 10,	All;	
	sec. 15 - 22,	All;	
	sec. 27 - 34,	All;	
	T. 16 S., R. 71 E.		
	sec. 3 - 10,	All;	
	sec. 15 - 21,	All;	
	sec. 22,	Lots 1, 2, W½NW¼, NW¼SW¼;	
	sec. 27,	Lots 2-4, SW¼NW¼, W½SW¼;	
	sec. 28 - 34,	All.	
	T. 17 S., R. 71 E.		
	sec. 3 - 10,	All;	
	sec. 15 -22,	All;	
	sec. 27 - 34,	All.	
	T. 18 S., R. 71 E.		
	sec. 3 - 10,	All;	
	sec. 15 - 22,	All;	
	sec. 27 - 34,	All.	
	T. 19 S., R. 71 E.		
	sec. 3 - 8,	All;	
	sec. 9 - 10,	All;	
	sec. 17 - 20,	All;	
	sec. 15 - 16,	All;	
	sec. 21 - 22,	All;	
	sec. 27 - 28,	All;	
	sec. 29 - 32,	All;	
	sec. 33 - 34,	All.	342,837.38
Gold Butte Townsite	T. 19 S., R. 70 E.		
	sec. 17,	S½NW¼, N½SW¼.	160
Hidden Valley	T. 18 S., R. 65 E.		
	sec. 26,	W½;	
	sec. 27,	E½;	
	sec. 34,	All;	
	sec. 35,	All.	
	T. 19 S., R. 65 E.		
	sec. 2,	W½;	
	sec. 3,	All;	
	sec. 10,	N½;	
	sec. 11,	NW¼.	3,360
Keyhole Canyon	T. 26 S., R. 63 E.		
	sec. 3,	Lots 6 - 8, SW¼NE¼, S½NW¼.	360.53
Mormon Mesa	T. 13 S., R. 63 E.		
	sec. 25,	All except the land north of NV Hwy 168 centerline;	
	sec. 36,	All.	
	T. 13½ S., R. 63 E.		
	sec. 36,	All.	

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T. 14 S., R. 63 E.	
sec. 1,	All.
T. 13 S., R. 64 E.	
sec. 1 - 5,	All;
sec. 6,	E½;
sec. 7,	NE¼, E½SE¼;
sec. 8 - 17,	All;
sec. 20 - 29,	All;
sec. 30,	All except the land north of NV Hwy 168 centerline;
sec. 31 - 36,	All.
T. 13½ S., R. 64 E.	
sec. 31 - 35,	All;
sec. 36,	All except the land south of NV Hwy 168 centerline.
T. 14 S., R. 64 E.	
sec. 2 - 6,	All;
sec. 8 - 11,	All;
sec. 15-16,	All.
T 13 S., R. 65 E.	
sec. 1,	Lots 2 - 4, SW¼NE¼, S½NW¼, SW¼, W½SE¼;
sec. 2 - 24,	All;
sec. 26 - 27,	N½;
sec. 28,	N½, SW¼;
sec. 29 - 30,	All;
sec. 31,	All except the land south of NV Hwy 168 centerline;
sec. 32,	All;
sec. 33,	W½.
T. 13 S., R. 66 E.	
sec. 1 - 5,	All;
sec. 6,	Lots 1 - 4, S½NE¼, SE¼NW¼, E½SW¼, SE¼;
sec. 7 - 18,	All;
sec. 19,	Lots 1 - 4, SE¼NW¼, E½SW¼, SW¼SE¼;
sec. 20 - 24,	All.
T. 13 S., R. 67 E.	
sec. 1 - 36,	All.
T. 14 S., R. 67 E.	
sec. 1 - 5,	All;
sec. 6,	E½;
sec. 7,	NE¼;
sec. 8 - 11,	All;
sec. 12,	All except the land south of I-15 centerline;
sec. 13,	NW¼ except the land south of I-15 centerline;
sec. 14,	All except the land south of I-15 centerline;
sec. 15,	All except the land south of I-15 centerline;
sec. 16,	All;
sec. 17,	N½, SE¼;
sec. 20,	E½;
sec. 21 - 22,	All except the land south of I-15 centerline;
sec. 23,	NW¼NW¼ except the land south of I-15 centerline.
T. 13 S., R. 68 E.	
sec. 1 - 32,	All;
sec. 33 - 35,	All except the land south of I-15 centerline;
sec. 36,	N½ except the land south of I-15 centerline.
T. 14 S., R. 68 E.	
sec. 4,	N½ except the land south of I-15 centerline;
sec. 5 - 6,	All except the land south of I-15 centerline;
sec. 7,	Lots 1 & 2 except the land south of I-15 centerline.

	T. 13 S., R. 69 E.		
	sec. 1 - 24,	All;	
	sec. 25 - 26,	All except the land south of I-15 centerline;	
	sec. 27,	N½ except the land south of I-15 centerline;	
	sec. 28 - 30,	All except the land south of I-15 centerline;	
	sec. 31,	N½NW¼ except the land south of I-15 centerline.	
	T. 13 S., R. 70 E.		
	sec. 4,	Lots 8 - 9, SW¼NW¼, W½SW¼;	
	sec. 5 - 8,	All;	
	sec. 9,	W½W½;	
	sec. 16,	W½W½;	
	sec. 17 - 20,	All;	
	sec. 21,	W½W½;	
	sec. 28,	W½W½;	
	sec. 29,	All;	
	sec. 30,	All except the land south of I-15 centerline;	
	sec. 31,	N½N½ except the land south of I-15 centerline;	
	sec. 32,	N½ except the land south of I-15 centerline;	
	sec. 33,	NW¼ except the land south of I-15 centerline.	151.360
Piute-Eldorado Valley	T. 28 S., R. 60 E.		
	sec. 2 - 3,	All;	
	sec. 10 - 11,	All;	
	sec. 13,	W½;	
	sec. 14 - 17,	All;	
	sec. 21 - 23,	All;	
	sec. 24,	All except the land within patented Mineral Entries;	
	sec. 25 - 26,	All except the land south of NV Hwy 164 centerline.	
	T. 26 S., R. 61 E.		
	sec. 1 - 2,	All;	
	sec. 11 - 14,	All;	
	sec. 24 - 25,	All;	
	sec. 36,	All.	
	T. 27 S., R. 61 E.		
	sec. 1,	All;	
	sec. 12 - 13,	All;	
	sec. 23 - 26,	All;	
	sec. 35 - 36,	All.	
	T. 28 S., R. 61 E.		
	sec. 1 - 2,	All;	
	sec. 10 - 12,	All;	
	sec. 13 - 14,	N½ except the land south of NV Hwy 164 centerline;	
	sec. 15,	All except the land south of NV Hwy 164 centerline;	
	sec. 16,	All;	
	sec. 19,	All except the land within patented Mineral Entries;	
	sec. 20,	All except the land south of NV Hwy 164 centerline or within patented Mineral Survey 4916-A;	
	sec. 21,	All except the land south of NV Hwy 164 centerline;	
	sec. 22,	N½ except the land south of NV Hwy 164 centerline;	
	sec. 29 - 30,	All except the land south of NV Hwy 164 centerline.	
	T. 29 S., R. 61 E.		
	sec. 36,	All.	
	T. 26 S., R. 62 E.		
	sec. 3 - 10,	All;	
	sec. 15 - 20,	All;	
	sec. 22,	E½, N½NW¼;	
	sec. 23 - 26,	All;	
	sec. 27,	NE¼;	
	sec. 29 - 32,	All;	
	sec. 35 - 36,	All.	

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T. 27 S., R. 62 E.	
sec. 1,	All;
sec. 5 - 8,	All;
sec. 12,	All;
sec. 17 - 20,	All;
sec. 29 - 36,	All.
T. 28 S., R. 62 E.	
sec. 1 - 17,	All;
sec. 20 - 21,	All;
sec. 22,	N½, N½SW¼, SE¼;
sec. 23 - 26,	All;
sec. 27,	NE¼, S½NW¼, S½;
sec. 28 - 29,	All;
sec. 31,	SE¼ except the land patented under MS 2518;
sec. 32 - 36,	All.
T. 29 S., R. 62 E.	
sec. 1 - 5,	All;
sec. 6,	E½;
sec. 7 - 32,	All;
sec. 33,	NE½NE¼, NW¼NW¼;
sec. 34 - 36,	All.
T. 27 S., R. 62½ E.	
sec. 1,	All;
sec. 12 - 13,	All;
sec. 24 - 25,	All;
sec. 36,	All.
T. 26 S., R. 63 E.	
sec. 19,	All;
sec. 20,	All except the land east of U. S. 95 centerline and north of powerline right-of-way N-869 centerline;
sec. 21 - 24,	S½ except the land north of powerline right-of-way N-869 centerline;
sec. 25,	All except the land north of powerline right-of-way N-869 centerline;
sec. 26 - 36,	All.
T. 27 S., R. 63 E.	
sec. 1 - 36,	All.
T. 28 S., R. 63 E.	
sec. 1 - 8,	All;
sec. 9,	All except the E½SW¼SW¼SE¼;
sec. 10 - 11,	All;
sec. 12,	All except the land patented under MS 3964;
sec. 13,	All except the land patented under MS 3964 or other patented Mineral Entries;
sec. 14 - 15,	All except the land within patented Mineral Entries;
sec. 16 - 20,	All;
sec. 29,	All except the land south of NV Hwy 164 centerline;
sec. 30,	W½, W½E½, E½E½ except the land south of NV Hwy 164 centerline;
sec. 31,	All;
sec. 32,	W½SW¼, SE¼SW¼.
T. 29 S., R. 63 E.	
sec. 5 - 10,	All;
sec. 15 - 22,	All;
sec. 23,	All except the land east of U. S. 95 centerline;
sec. 24,	W½W½ except the land east of U. S. 95 centerline;
sec. 25,	W½ except the land east of U. S. 95 centerline;
sec. 26 - 35,	All;
sec. 36,	All except the land east of U. S. 95 centerline.
T. 30 S., R. 63 E.	
sec. 1,	All except the land east of U. S. 95 centerline;
sec. 2 - 11,	All;
sec. 12 - 13,	All except the land east of U. S. 95 centerline;

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sec. 14 - 24,	All;
sec. 25,	All except the E½SE¼SE¼;
sec. 26 - 29,	All;
sec. 32 - 35,	All;
sec. 36,	All except the N½N½NE¼NE¼NE¼.
T. 31 S., R. 63 E.	
sec. 1 - 5,	All;
sec. 8 - 16,	All;
sec. 22 - 26,	All;
sec. 36,	All.
T. 26 S., R. 64 E.	
sec. 19,	S½SW¼ except the land north of powerline R/W N-869 centerline;
sec. 29 - 30,	All except the land north of powerline R/W N-869 centerline;
sec. 31 - 33,	All.
T. 27 S., R. 64 E.	
sec. 4 - 9,	All;
sec. 16 - 23,	All;
sec. 25,	All except the land patented under MS 4071;
sec. 26 - 27,	All;
sec. 28 - 29,	All except the land patented under MS 3541;
sec. 30 - 31,	All;
sec. 32 - 33,	All except the land patented under MS 3541;
sec. 34 - 36,	All.
T. 28 S., R. 64 E.	
sec. 1 - 6,	All;
sec. 7,	All except the land patented under MS 3788 or other patented Mineral Entries;
sec. 8,	All except the land patented under MS 3788;
sec. 9 - 16,	All;
sec. 17,	All except the land patented under MS 3755 & 3788;
sec. 18,	All except the land patented under MS 3755 or other patented Mineral Entries;
sec. 21 - 26,	All;
sec. 35 - 36,	All.
T. 29 S., R. 64 E.	
sec. 1 - 3,	All;
sec. 9 - 16,	All;
sec. 21 - 28,	All;
sec. 31 - 36,	All.
T. 30 S., R. 64 E.	
sec. 1 - 29,	All;
sec. 31,	Lots 13 - 68, E½NE¼, S½;
sec. 32 - 36,	All.
T. 31 S., R. 64 E.	
sec. 1 - 31,	All;
sec. 32,	N½, SW¼;
sec. 33 - 36,	All.
T. 32 S., R. 64 E.	
sec. 1 - 3,	All;
sec. 4,	Lots 1 - 2, 5 - 24, 34 - 47, 59 - 82, 84 - 128, S½SE¼NW¼, SW¼, S½NE¼SE¼, SE¼NW¼SE¼, E½SW¼SE¼, SE¼SE¼;
sec. 5,	Lots 6 - 9, 12 - 13, 15 - 22, 25 - 29, 32 - 37, 40 - 45, 47 - 75, SW¼NE¼, SE¼NW¼, NW¼SE¼;
sec. 6,	All;
sec. 8,	All;
sec. 9,	Lots 1 - 2, 7 - 8, 10 - 21, 27 - 30, 38 - 41, 48 - 49, 56, 63, 75 - 77, 79 - 84, SW¼NE¼, NW¼SE¼.

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	T. 30 S., R. 65 E.		
	sec. 4 - 6,	All;	
	sec. 7,	All except the land patented under MS 3942;	
	sec. 8,	All except the land patented under MS 3936 & 3942;	
	sec. 9,	All except the land patented under MS 3936;	
	sec. 16,	All;	
	sec. 17 - 18,	All except the land patented under MS 3942;	
	sec. 19 - 21,	All;	
	sec. 30 - 31,	All.	
	T. 31 S., R. 65 E.		
	sec. 6,	All;	
	sec. 28 - 33,	All.	
	T. 32 S., R. 65 E.		
	sec. 2 - 8,	All;	
	sec. 9 - 11,	All except the land south of NV Hwy 163 centerline;	
	sec. 12,	All except the land south or east of NV Hwy 163 centerline;	
	sec. 17 - 20,	All;	
	sec. 29 - 32,	All.	
	T. 33 S., R. 65 E.		
	sec. 5,	All.	329.440
Rainbow Gardens	T. 20 S., R. 62 E.		
	sec. 12,	All;	
	Sec. 13,	All;	
	sec. 24,	All;	
	sec. 25,	All;	
	sec. 35,	Lots 1 - 4;	
	sec. 36,	All.	
	T. 21 S., R. 62 E.		
	sec. 1,	Lots 5 - 20;	
	sec. 2,	Lots 5 - 6,	
		Lots 9 - 12,	
		Lots 17 - 18.	
	sec. 11,	Lots 1 - 12;	
	sec. 12,	All;	
	sec. 13,	All;	
	sec. 14,	N½, N½SW¼, SE¼;	
	sec. 23,	NE¼NE¼, E½SE¼;	
	sec. 24,	All;	
	sec. 25,	E½NE¼, NW¼NE¼,	
		NE¼NW¼.	
	T. 20 S., R. 63 E.		
	sec. 1,	N½, NW¼NE¼SW¼; N½NW¼SW¼,	
		SW¼NW¼SW¼, SW¼SW¼, W½SE¼SW¼;	
	sec. 2,	All;	
	sec. 3,	SE¼;	
	sec. 7,	All;	
	sec. 8,	W½;	
	sec. 11,	All except the land patented under ME patent No. 1125850;	
	sec. 12,	W½SW¼, NW¼NW¼;	
	sec. 13,	W½E½NW¼, W½NW¼, SW¼,	
		S½NE¼SE¼, W½NW¼SE¼, S½SE¼;	
	sec. 14 - 34,	All.	
	T. 21 S., R. 63 E.		
	sec. 3,	All;	
	sec. 4,	All except the land patented under ME Nev-062235;	
	sec. 5,	All;	
	sec. 6,	All;	
	sec. 7,	All;	
	sec. 8,	All except the land patented under MS 4807;	
	sec. 9,	All except the land patented under MS 4807;	
	sec. 10,	All;	

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	sec. 16,	All except the land patented under MS 4807;	
	sec. 17,	All except the land patented under MS 4807;	
	sec. 18,	All;	
	sec. 19,	All;	
	sec. 20,	All except the land patented under MS 4807 and 4808;	
	sec. 21,	N½,SW¼,N½SE¼,SW¼SE¼;	
	sec. 30,	Lots 1 - 2, NE¼, E½NW¼.	
	T. 20 S., R. 64 E.		
	sec. 4,	All;	
	sec. 5,	All;	
	sec. 8,	N½, SE½;	
	sec. 9,	All;	
	sec. 16,	All;	
	sec. 19,	Lots 7 - 8, SE¼SW¼;	
	sec. 20,	S½NE¼, NE¼SW¼, S½SW¼, SE¼;	
	sec. 21	All;	
	sec. 28 - 30,	All.	37,620.15
Red Rock Spring	T. 17 S., R. 70 E.		
	sec. 7,	SE¼;	
	sec. 8,	SW¼;	
	sec. 17,	NW¼;	
	sec. 18,	NE¼;	640
River Mountains	T. 21 S., R. 63 E.		
	sec. 25,	All except the land west of NV Hwy 147 centerline;	
	sec. 26,	All except the land west of NV Hwy 147 centerline or within Mineral Entries;	
	sec. 35,	Lots 1, 4 - 10, S½SW¼, SW¼SE¼;	
	sec. 36,	All.	
	T. 22 S., R. 63 E.		
	sec. 1,	All;	
	sec. 2,	All;	
	sec. 3,	S½;	
	sec. 10,	NE¼, E½SE¼, NE¼NW¼;	
	sec. 11 - 13,	All;	
	sec. 14,	N½, SE¼;	
	sec. 23,	E½;	
	sec. 25,	All;	
	sec. 26,	E½;	
	sec. 36,	All.	
	T. 22 S., R. 63½ E.		
	sec. 1,	All;	
	sec. 12 - 13,	All;	
	sec. 24 - 25,	All;	
	sec. 36,	All;	
	T. 23S., R. 63½ E.		
	sec. 1,	Lots 1 - 7, S½NE¼.	5,616.78
Sloan Rock Art	T. 23 S., R. 61 E.		
	sec. 35,	S½S½.	
	T. 24 S., R. 61 E.		
	sec. 2,	Lots 1 - 4,	319.88
Stump Spring	T. 22 S., R. 55 E.		
	sec. 32,	S½;	
	T. 23 S., R. 55 E.		

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	sec. 5,	Lots 1 - 4, S½N½.	641.32
Virgin River	T. 14 S., R. 69 E.		
	sec. 11,	SE¼;	
	sec. 12 - 13,	All federal land north of Gold Butte Back Country Byway Rd;	
	sec. 14,	N½NE¼, NW¼, N½SW½, SE¼SW¼;	
	sec. 15,	SE¼;	
	sec. 22,	NE¼, S½;	
	sec. 23,	All federal land north of Gold Butte Back Country Byway Rd;	
	sec. 26 - 28,	All land north of Gold Butte Back Country Byway Rd;	
	sec. 29,	S½;	
	sec. 32,	N½, SW¼, SE¼SE¼;	
	sec. 33,	All land west of the Gold Butte Back Country Byway Rd.	
	T. 13 S., R. 70 E.		
	sec. 27,	All federal land south of the southernmost lane of I-15;	
	sec. 33,	All land south of the southernmost lane of I-15;	
	sec. 34,	All federal land south of the southernmost lane of I-15 and north of NV Hwy 170;	
	T. 14 S., R. 70 E.		
	sec. 3,	All land north of NV Hwy 170;	
	sec. 4,	All land north of NV Hwy 170;	
	sec. 5,	All land north of NV Hwy 170;	
	sec. 6,	NE¼, S½;	
	sec. 7,	All federal land north of NV Hwy 170 or Gold Butte Back County Byway Rd;	
	sec. 8,	All land north of NV Hwy 170.	6,410.52
Whitney Pocket	T. 16 S., R. 70 E.		
	sec. 23,	SE¼.	160

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APPENDIX E

LIVESTOCK GRAZING, EPHEMERAL RANGE
ARIZONA, CALIFORNIA AND NEVADA

In accordance with 43 CFR 4114.2-4 regarding special rules for grazing districts and pursuant to the receipt of recommendations of the State Directors for Arizona, California and Nevada, and a factual showing of its necessity, a special rule for range designated as ephemeral is hereby approved.

Ephemeral (annual) ranges lie within the general southwest desert region extending primarily into southern Arizona, southern California and Southern Nevada, and which include portions of the Mojave, Sonoran and Chihuahuan deserts. The region is characterized by desert type vegetation some of which may be classed as ephemeral only. Ephemeral range does not consistently produce forage, but periodically provides annual vegetation suitable for livestock grazing. In years of abundant moisture and other favorable climatic conditions, a large amount of forage may be produced. Favorable years are unpredictable and the season is usually short-lived. ephemeral areas fall generally below the 3200 foot contour and below the 8-inch precipitation isoline. A minor percentage of the total plant composition is made up of desirable perennial forage plants, and potential to improve range condition and produce a dependable supply of forage by applying intensive management practices is lacking. Because of the unique characteristics of ephemeral range the following special rule shall apply as follows:

Applicable allotments or use areas shall be formally designated by the District Manager as ephemeral range.

An annual application by qualified licensees or permittees is not required unless grazing use is desired. On a year to year basis whenever forage exists or climatic conditions indicate the probability of an ephemeral forage crop, livestock grazing may be authorized upon application, pursuant to any management requirements for the allotment.

Use of base property (water base) during nonforage years is not feasible or economical, and no use of base property is required except during those periods when ephemeral forage is available and livestock grazing occurs.

Therefore:

An annual application, per 43 CFR 4114.2-1(e)(9), is not required unless grazing use is desired.

Grazing capacity, per 43 CFR 4225.2-1(e)(3), may be based on a reasonable potential for forage.

Substantial use of grazing privileges, per 43 CFR 4115.2-1(e)(7) is not required.

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A year-round operation, per 43 CFR 4115.2-1(e)(1) is not required.

Substantial use of base property, per 43 CFR 4115.2-1(e)(7), is not required.

This special rule shall immediately apply to the Phoenix, Safford and St. George Districts in Arizona, the Bakersfield District in California and the Las Vegas District in Nevada, upon recommendation for adoption in that District by the respective District Advisory Board and concurrence by the State Director.

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APPENDIX F

The Biological Opinion will be sent under a seperate letter upon completion and approval by the U.S. Fish and Wildlife Service.

APPENDIX G

PRIMARY STANDARDS

EPA has established primary standards (or "maximum contaminant level", in technical language) for ten chemicals, six pesticides, bacteria, radioactivity, and turbidity (cloudiness).

Most of these substances occur naturally in our environment and in the food we eat. The national drinking water standards set by EPA and adopted by the State of Nevada reflect the levels we can safely consume in our water, taking into account the amounts we are exposed to from these other sources.

Only two substances for which standards have been set pose an immediate threat to health whenever they are exceeded:

BACTERIA - Coliform bacteria is a common bacteria found in the soil and in human and animal wastes. It may also be found in drinking water if the water is not properly protected or treated. These bacteria may cause disease themselves or indicate that other harmful organisms may be present in the water. Waterborne diseases such as typhoid, cholera, infectious hepatitis, and dysentery have been traced to improperly protected or improperly disinfected drinking water.

NITRATE - Nitrate in drinking water above the national standard poses an immediate threat to children under three months of age. In some infants, excessive levels of nitrate have been known to react with the hemoglobin in the blood to produce an anemic condition commonly known as "blue baby". Drinking water that contains an excessive amount of nitrate must not be given to infants under three months of age or used to prepare formula. The maximum amount of nitrate allowed in drinking water is 10 milligrams nitrate as N per liter of water or 45 milligrams of nitrate as NO_3 per milliliter of water.

Following is a brief outline of the other substances covered by the national drinking water standards. Water exceeding the maximum contaminant levels for these elements, for short periods of time, will pose no immediate threat to health, however, these substances must be controlled as drinking water that exceeds these standards over long periods of time may prove harmful:

ARSENIC - This element occurs naturally in the environment, especially in the western United States, and it is also used in insecticides. It is found in foods, tobacco, shellfish, drinking water, and in the air in some locations.

The maximum amount of arsenic allowed in drinking water is 0.05 milligrams per liter of water.

Water that continuously exceeds the standard by a substantial amount may cause fatigue and loss of energy if consumed over a lifetime. Extremely high levels can cause poisoning.

BARIUM - Although not as widespread as arsenic, this element also occurs naturally in the environment in some areas. It can also enter water supplies through industrial waste discharges.

Small doses of barium are not harmful. However, it is quite dangerous when consumed in large quantities and will bring on increased blood pressure, nerve damage, and even death.

The maximum amount of barium allowed in drinking water is 1 milligram per liter of water.

CADMIUM - Only minute amounts of this element are found in natural waters in the United States. Waste discharges from the electroplating, photography, insecticide, metallurgy industries can increase cadmium levels, however. The most common source of cadmium in our drinking water is from galvanized pipes and fixtures. But the main source of cadmium exposure are the foods we eat and cigarette smoking.

As far as is known, cadmium is biologically a nonessential, non-beneficial element of high toxic potential. Evidence for the serious toxic potential of cadmium is provided by:

(a) poisoning from cadmium contaminated food and beverages
(b) epidemiologic evidence that cadmium may be associated with renal arterial hypertension under certain conditions and
(c) long term oral toxicity studies in animals.

The maximum amount of cadmium allowed in drinking water is 0.010 milligrams per liter of water.

CHROMIUM - This metal is found in cigarettes, some of our foods, in the air, and in some water supplies. Some studies suggest that in minute amounts, chromium may be essential to human beings, but this has not been proven. At present, the levels of chromium that can be tolerated by man for a lifetime without adverse effects on health are still undetermined. From toxicity studies that have been done, it would appear that a concentration of 0.05 milligrams of chromium per liter of water incorporates a reasonable factor of safety to avoid any hazard to human health.

The maximum amount of chromium allowed in drinking water is 0.05 milligrams per liter of water.

FLUORIDE - This is a natural mineral and all drinking water contains some. High levels of fluoride in drinking water can cause brown spots on the teeth, or mottling, in children up to 12 years of age. Adults can tolerate ten time more than children. In the proper amounts, however, fluoride in drinking water prevents cavities during formative years. this is why many communities add fluoride in controlled amounts to their water supply.

The maximum amount of fluoride allowed in drinking water ranges from 1.4 milligrams per liter of water to 2.4 milligrams per liter of water depending on the average daily air temperature. (The hotter the climate, the lower the amount allowed, for people tend to drink more water in hot climates.)

The maximum level of fluoride allowed in drinking water in this area is 1.6 milligrams per liter of water.

LEAD - This metal is found in the air and in our food. It comes from lead and galvanized pipes, auto exhausts, and other sources.

The maximum amount of lead permitted in drinking water is 0.05 milligrams per liter of water. Excessive amounts well above this standard may result in nervous system disorders or brain and kidney damage.

MERCURY - Mercury is found naturally throughout the environment. Large increases in mercury levels in water can be caused by industrial and agricultural use. The health risk from mercury is greater from mercury in fish than simply from waterborne mercury.

Mercury poisoning may be acute, in large doses, or chronic, from lower doses taken over an extended period of time.

The maximum amount of mercury allowed in drinking water is 0.002 milligrams per liter of water. That level is 13 percent of the total allowable daily intake of mercury.

SELENIUM - This mineral occurs naturally in soil and plants, especially in western States. It is found in meat and other foods. Although it is believed to be essential in the diet, there are indications that excessive amounts of selenium may be toxic. Studies are underway to determine the amount required for good nutrition and the amount that may be harmful.

The maximum amount of selenium allowed in drinking water is 0.01 milligrams per liter of water. If selenium came only from drinking water, it would take an amount many times greater than the standard to produce any ill effects.

SILVER - Silver is sometimes used in disinfecting water. The chief effect of silver in the body is cosmetic. It consists of a permanent blue-grey discoloration of the skin, eye, and mucous membranes which is unsightly and disturbing to the observer as well as the victim.

The maximum amount of silver allowed in drinking water is 0.05 milligrams per liter of water.

Maximum Contaminant Levels

PRIMARY STANDARDS

Maximum contaminated levels for inorganic chemicals.

(a) The maximum contaminant level for nitrate is applicable to both community water systems and non-community water systems. The levels for the other inorganic chemicals apply only to community water systems. Compliance with maximum contaminant levels for inorganic chemicals is calculated pursuant to § 141.23.

(b) The following are the maximum contaminant levels for inorganic chemicals other than fluoride:

Contaminant	*Level, milligrams per liter*
Arsenic	0.05
Barium	1.
Cadmium	0.010
Chromium	0.05
Lead	0.05
Mercury	0.002
Nitrate (as N)	10.
Selenium	0.01
Silver	0.05

(c) When the annual average of the maximum daily air temperatures for the location in which the community water system is situated is the following, the maximum contaminant levels for fluoride are:

Temperature Degree Fahrenheit	Degrees Celsius	Level, milligrams per liter
53.7 and below	12.0 and below	2.4
53.8 to 58.3	12.1 to 14.6	2.2
58.4 to 63.8	14.7 to 17.6	2.0
63.9 to 70.6	17.7 to 21.4	1.8
(70.7 to 79.2	21.5 to 26.2	1.6)
79.3 to 90.5	26.3 to 32.5	1.4

Maximum contaminant levels for organic chemicals.

The following are the maximum contaminant levels for organic chemicals. They apply only to community water systems. Compliance with maximum contaminant levels for organic chemicals is calculated pursuant to § 141.24.

		Level, milligrams per liter
(a)	Chlorinated hydrocarbons:	
	Endrin (1,2,3,4,10, 10-hexachloro-6,7-epoxy-1, 4, 4a, 5, 6, 7, 8, 8a-octahydro-1, 4-endo, endo-5, 8 - dimethano naphthalene).	0.0002
	Lindane (1,2,3,4,5,6-hexachlorocyclohexane, gamma isomer).	0.004
	Methoxychlor (1,1,1-Trichloroethane).2,2-bis [p-methoxypheny].	0.1
	Toxaphene ($C_{10}H_{10}Cl_8$-Technical chlorinated camphene, 67-69 percent chlorine).	0.005
(b)	Chlorophenoxys:	
	2,4 - D, (2, 4-Dichlorophenoxyacetic acid).	0.1
	2,4,5-TP Silvex (2,4,5-Trichlorophen-oxypropionic acid).	0.01

Maximum contaminant levels for turbidity.

The maximum contaminant levels for turbidity are applicable to both community water systems and non-community water systems using surface water sources in whole or in part. The maximum contaminant levels for turbidity in drinking water, measured at a representative entry point(s) to the distribution system, are:

(a) One turbidity unit (TU), as determined by a monthly average pursuant to § 141.22, except that five or fewer turbidity units may be allowed if the supplier of water can demonstrate to the State that the higher turbidity does not do any of the following:

(1) Interfere with disinfection;

(2) Prevent maintenance of an effective disinfectant agent throughout the distribution system; or

(3) Interfere with microbiological determinations.

(b) Five turbidity units based on an average for two consecutive days pursuant to § 141.22.

Maximum microbiological contaminant levels.

The maximum contaminant levels for coliform bacteria, applicable to community water systems and non-community water systems, are as follows:

(a) When the membrane filter technique pursuant to § 141.21(a) is used, the number of coliform bacteria shall not exceed any of the following:

(1) One per 100 milliliters as the arithmetic mean of all samples examined per month pursuant to § 141.21 (b) or (c);

(2) Four per 100 milliliters in more than one sample when less than 20 are examined per month; or

(3) Four per 100 milliliters in more than five percent of the samples when 20 or more are examined per month.

(b) (I) When the fermentation tube method and 10 milliliter standard portions pursuant to § 141.21(a) are used, coliform bacteria shall not be present in any of the following:

(i) more than 10 percent of the portions in any month pursuant to § 141.21 (b) or (c);

(ii) three or more portions in more than one sample when less than 20 samples are examined per month; or

(iii) three or more portions in more than five percent of the samples when 20 or more samples are examined per month.

(2) When the fermentation tube method and 100 milliliter standard portions pursuant to § 141.21(a) are used, coliform bacteria shall not be present in any of the following:

(i) more than 60 percent of the portions in any month pursuant to § 141.21 (b) or (c);

(ii) five portions in more than one sample when less than five samples are examined per month; or

(iii) five portions in more than 20 percent of the samples when five or more samples are examined per month.

(c) For community or non-community systems that are required to sample at a rate of less than 4 per month, compliance with paragraphs (a), (b) (1), or (b) (2) of this section shall be based upon sampling during a 3 month period, except that, at the discretion of the State, compliance may be based upon sampling during a one-month period.

Maximum contaminant levels for radium-226, radium-228, and grow alpha particle radioactivity in community water systems. The following are the maximum contaminant levels for radium-226, radium-228, and gross alpha particle radioactivity:

(a) Combined radium-226 and radium-228--5 pCi/1.

(b) Gross alpha particle activity (including radium-226 but excluding radon and uranium) -- 15 pCi/1.

Maximum contaminant levels for beta particle and photon radioactivity from man-made radionuclides in community water systems.

(a) The average annual concentration of beta particle and photon radioactivity from man-made radionuclides in drinking water shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year.

(b) Except for the radionuclides listed in Table A, the concentration of man-made radionuclides causing 4 mrem total body or organ dose equivalents shall be calculated on the basis of a 2 liter per day drinking water intake using the 168 hour data listed in "*Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure,*" NBS Handbook 69 as amended August 1963, U.S. Department of Commerce. If two or more radinuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed 4 millirem/year.

SECONDARY STANDARDS

Secondary Standards are those which deal with the esthetic quality of drinking water. The contaminants for which secondary maximum contaminant levels are set may not have a significant direct impact on the health of consumers, but their presence in excessive quantities may discourage the utilization of a drinking water supply by the public.

Secondary Standards adopted by the State of Nevada contain maximum contaminant levels for chloride, color, copper, foaming agents, iron, magnesium, manganese, odor, pH, sulfate, TDS, zinc. Brief statements on the effects of these on water are listed below:

CHLORIDE in reasonable concentrations is not harmful to humans, but in concentration above 250 milligrams per liter, chloride causes a salty taste in water which is objectionable to many people. Chloride should not exceed 250 milligrams per liter of water unless no other suitable source of water is or can be made available, in which case the maximum chloride level allowed is 400 milligrams per liter of water.

COLOR may be indicative of dissolved organic material, or by inorganic material such as manganese and iron. Color becomes objectionable and unesthetic to most people over 15 color units. Color should not exceed 15 color units.

COPPER is an essential and beneficial element in human metabolism, but copper imparts a considerable taste to drinking water. Small amounts of copper are generally regarded as non-toxic. Copper should not exceed 1 milligram per liter of water.

FOAMING is a characteristic of water caused principally by the presence of detergents and similar substances. Water which foams is definitely unesthetic and considered unfit for consumption. Foaming agents should not exceed 0.5 milligrams per liter of water.

IRON is a highly objectionable constituent of water supplies for either domestic or industrial use. Iron may impart brownish discolorations to laundered goods. The taste that it imparts to water may be described as bitter or astringent, and iron may adversely affect the taste of other beverages that are made from water. The amount of iron causing objectionable taste or laundry staining constitutes only a small fraction of the amount normally consumed in the daily diet and this does not have toxicologic significance. Iron should not exceed 0.3 milligrams per liter of water unless no other suitable source of water is or can be made available, in which case the maximum iron level allowed is 0.6 milligrams per liter of water.

MAGNESIUM is an essential element in human, animal and plant nutrition. An excess of magnesium in the diet is seldom harmful as it is promptly excreted. High concentrations of magnesium sulfate in drinking water have a laxative effect on users, but a tolerance is soon acquired. Magnesium should not exceed 125 milligrams per liter of water unless no other suitable source of water is or can be made available, in which case the maximum magnesium level allowed is 150 milligrams per liter of water.

MANGANESE, like iron, produces discoloration in laundered goods and imparts the taste of drinking water and beverages, including tea and coffee. At concentrations in excess of 0.05 milligrams per liter of water, manganese can occasionally cause a buildup of coatings in distribution piping which slough off and cause brown spots on laundered items and unesthetic precipitates. Manganese should not exceed 0.05 milligrams per liter of water unless no other suitable source of water is or can be made available, in which case the maximum manganese level allowed is 0.1 milligrams per liter of water.

ODOR is an important esthetic quality of water for domestic consumers and process industries such as food, beverages and pharmaceutical manufacturers which require water essentially free of taste and odor. The threshold odor number should not exceed 3.

pH - the range of pH in public water systems may have a variety of esthetic and health effects. Corrosion effects are commonly associated with pH levels below 6.5. As pH levels are increased above 8.5, mineral incrustations and bitter taste can occur. However, the impact of pH in any one water system will vary depending on the overall chemistry and composition of the water so that a more or less restrictive range may be appropriate under specific circumstances. The range of pH should be 6.5 - 8.5.

SULFATE may cause detectable tastes at concentrations of 300-400 milligrams per liter of water; at concentrations of 600 milligrams per liter it may have a laxative effect. High concentrations of sulfate also contribute to the formation of scale in boilers and heat exchangers. The laxative effect noted above seldom effects regular users of the water but transients are particularly susceptible. Sulfate should not exceed 250 milligrams per liter of water unless no other suitable source of water is or can be made available, in which case the maximum sulfate level allowed is 500 milligrams per liter of water.

TOTAL DISSOLVED SOLIDS (TDS), or the total amount of solids dissolved in the water, may have an influence on the acceptability of water in general, and in addition a high TDS may be an indication of the presence of an excessive concentration of some specific substance that would be esthetically objectionable to the consumer. Excessive hardness, taste, mineral deposition

or corrosion are common properties of highly mineralized water.

TDS should not exceed 500 milligrams per liter of water unless no other suitable source of water is or can be made available, in which case the maximum TDS level allowed is 1000 milligrams per liter of water.

ZINC, like copper, is an essential and beneficial element in human metabolism. Zinc can also impart an undesirable taste to water at high concentrations. Zinc salts impart a milky appearance to water. Zinc should not exceed 5.0 milligrams per liter of water.

Reference. "Environmental Protection Agency National Secondary Drinking Water Regulations. Proposed Regulations". Federal Register, Vol. 42, No. 62, March 31, 1977, pp. 17143 - 17145.

State of Nevada Water Supply Regulations, Part I. Adopted by the State Board of Health October 19, 1977.

SECONDARY STANDARDS

The following chemical substances should not be present in a public water supply in excess of the listed levels where, in the judgment of the health authority, other more suitable supplies are or can be made available. Such alternate supplies must be economically feasible, available under law in sufficient quantities and of a significant higher quality.

Substance	Level, Milligrams Per Liter
Chloride	250
Color	15 Color Units
Copper	1
Foaming Agents	0.5
Iron	0.3
Magnesium	125
Manganese	0.05
Odor	3 Threshold Odor Number
pH	6.5 - 8.5
Sulfate	250
TDS (Total Residue dried at 103 - 105OC)	500
Zinc	5

Whenever a standard established by Article 4.1 is exceeded, the supplier of water should give notice to the public. Such notice should insure that the public using the system is adequately informed.

The following chemical substances shall not be present in a public water supply in excess of the listed levels:

Substance	Level, Milligrams Per Liter
Chloride	400
Iron	0.6
Magnesium	150
Manganese	0.1
Sulfate	500
TDS (Total Residue dried at 103 - 105OC)	1000

APPENDIX H

445A.121 Standards applicable to all waters. The following standards are applicable to all waters of the state:

1. Waters must be free from substances attributable to domestic or industrial waste or other controllable sources that will settle to form sludge or bottom deposits in amounts sufficient to be unsightly, putrescent or odorous or in amounts sufficient to interfere with any beneficial use of the water.

2. Waters must be free from floating debris, oil, grease, scum and other floating materials attributable to domestic or industrial waste or other controllable sources in amounts sufficient to be unsightly or in amounts sufficient to interfere with any beneficial use of the water.

3. Waters must be free from materials attributable to domestic or industrial waste or other controllable sources in amounts sufficient to produce taste or odor in the water or detectable off-flavor in the flesh of fish or in amounts sufficient to change the existing color, turbidity or other conditions in the receiving stream to such a degree as to create a public nuisance or in amounts sufficient to interfere with any beneficial use of the water.

4. Waters must be free from high temperature, biocides, organisms pathogenic to human beings, toxic, corrosive or other deleterious substances attributable to domestic or industrial waste or other controllable sources at levels or combinations sufficient to be toxic to human, animal, plant or aquatic life or in amounts sufficient to interfere with any beneficial use of the water. Compliance with the provisions of this subsection may be determined in accordance with methods of testing prescribed by the department. If used as an indicator, survival of test organisms must not be significantly less in test water than in control water.

5. If toxic materials are known or suspected by the department to be present in a water, testing for toxicity may be required to determine compliance with the provisions of this section and effluent limitations. The department may specify the method of testing to be used. The failure to determine the presence of toxic materials by testing does not preclude a determination by the department, on the basis of other criteria or methods, that excessive levels of toxic materials are present.

6. Radioactive materials attributable to municipal, industrial or other controllable sources must be the minimum concentrations which are physically and economically feasible to achieve. In no case must materials exceed the limits established in the 1962 Public Health Service Drinking Water Standards (or later amendments) or 1/30th of the MPC values given for continuous occupational exposure in the "National Bureau of Standards Handbook No. 69." The concentrations in water must not result in accumulation of radioactivity in plants or animals that result in a hazard to humans or harm to aquatic life.

7. Wastes from municipal, industrial or other controllable sources containing arsenic, barium, boron, cadmium, chromium, cyanide, fluoride, lead, selenium, silver, copper and zinc that are reasonably amenable to treatment or control must not be

discharged untreated or uncontrolled into the waters of Nevada. In addition, the limits for concentrations of the chemical constituents must provide water quality consistent with the mandatory requirements of the 1962 Public Health Service Drinking Water Standards.

8. The specified standards are not considered violated when the natural conditions of the receiving water are outside the established limits, including periods of extreme high or low flow. Where effluents are discharged to such waters, the discharges are not considered a contributor to substandard conditions provided maximum treatment in compliance with permit requirements is maintained.

[Environmental Comm'n, Water Pollution Control Reg. § 4.1.2 subsecs. a-g, eff. 5-2-78]--(NAC A 9-26-90)--(Substituted in revision for NAC 445.119)

445A.122 Standards applicable to beneficial uses.

1. The following standards are intended to protect both existing and designated beneficial uses and must not be used to prohibit the use of the water as authorized under Title 48 of NRS:

(a) Watering of livestock. The water must be suitable for the watering of livestock without treatment.

(b) Irrigation. The water must be suitable for irrigation without treatment.

(c) Aquatic life. The water must be suitable as a habitat for fish and other aquatic life existing in a body of water.

This does not preclude the reestablishment of other fish or aquatic life.

(d) Recreation involving contact with the water. There must be no evidence of manmade pollution, floating debris, sludge accumulation or similar pollutants.

(e) Recreation not involving contact with the water. The water must be free from:

(1) Visible floating, suspended or settled solids arising from man's activities;

(2) Sludge banks;

(3) Slime infestation;

(4) Heavy growth of attached plants, blooms or high concentrations of plankton, discoloration or excessive acidity or alkalinity that leads to corrosion of boats and docks:

(5) Surfactants that foam when the water is agitated or aerated; and

(6) Excessive water temperatures.

(f) Municipal or domestic supply. The water must be capable of being treated by conventional methods of water treatment in order to comply with Nevada's drinking water standards.

(g) Industrial supply. The water must be treatable to provide a quality of water which is suitable for the intended use.

(h) Propagation of wildlife. The water must be suitable for the propagation of wildlife and water fowl without treatment.

2. This section does not entitle an appropriator to require that the source meet his particular requirements for water quality.

[Environmental Comm'n, Water Pollution Control Reg. § 4.1.1, eff. 5-2-78]--(NAC A 11-22-82; 12-3-84)--(Substituted in revision for NAC 445.120)

445A.170 Beneficial uses for part of Colorado River, Beaver Dam Wash and certain creeks.

1. The standards of water quality for:

(a) The Colorado River below Davis Dam are prescribed in NAC 445A.192;

(b) Chiatovich Creek in Esmeralda County are prescribed in NAC 445A.171;

(c) Indian Creek are prescribed in NAC 445A.172;

(d) Leidy Creek are prescribed in NAC 445A.173;

(e) Beaver Dam Wash are prescribed in NAC 445A.178;

(f) Snake Creek are prescribed in NAC 445A.179; and

(g) The Colorado River below Hoover Dam are prescribed in NAC 445A.193.

2. The beneficial uses for these areas are:

(a) Irrigation;

(b) Watering of livestock;

(c) Recreation involving contact with the water;

(d) Recreation not involving contact with the water;

(e) Industrial supply;

(f) Municipal or domestic supply, or both;

(g) Propagation of wildlife; and

(h) Propagation of aquatic life.

(Added to NAC by Environmental Comm'n, 7-31-85, eff. 8-1-85)--(Substituted in revision for NAC 445.134355)

445A.174 Beneficial uses for Virgin River, Meadow Valley Wash and part of Muddy River. The standards of water quality for the Virgin River, Muddy River below Glendale and Meadow Valley Wash are prescribed in NAC 445A.175, 445A.176, 445A.177, 445A.211 and 445A.212. The beneficial uses for these areas are:

1. Watering;
2. Watering of livestock;
3. Recreation not involving contact with the water;
4. Industrial Supply;
5. Propagation of wildlife; and
6. Propagation of aquatic life.

(Added to NAC by Environmental Comm'n, 7-31-85, eff. 8-1-85)--(Substituted in revision for NAC 445.13439)

445A.175 Virgin River at Mesquite.

STANDARDS OF WATER QUALITY
Virgin River

Control Point at Mesquite. The limits of this table apply from Mesquite to the Arizona state line near Littlefield,Arizona.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	BENEFICIAL USES
Temperature °C - Maximum		Nov.-Jun.: ≤21°C Jul.-Oct: ≤32°C	Aquatic life.
ΔT°	ΔT = 2°C	ΔT ≤2°C	
pH Units	--	S.V.: 7.0 - 9.0 ΔpH: ±0.5 Max.	Wildlife propagation, aquatic life, non-contact recreation, irrigation, stock watering and industrial supply.
Total Phosphates (as P) - mg/l		Avg.: ≤0.1	Aquatic life, and noncontact recreation.
Nitrogen Species (N) - mg/l	Total Nitrogen A-Avg.: ≤0.6 S.V.: ≤1.6	Nitrate S.V.:≤90 Nitrite S.V.:≤5.0 Ammonia S.V.:≤.06 (un-ionized)	Aquatic life, stock watering, wildlife propagation and noncontact recreation.
Dissolved Oxygen - mg/l	--	S.V.: ≥5.0	Aquatic life, noncontact recreation, wildlife propagation and stock watering.
Turbidity - NTU	--	e	Aquatic life.
Color - PCU	d	Aquatic life.	
Total Dissolved Solids - mg/l	--	c	Irrigation and stock watering.
Alkalinity (as $CaCO_3$) -mg/l	--	less than 25% change from natural conditions	Aquatic Life and wildlife propagation.
Fecal Coliform-No./100 ml	A.G.M.:≤300 S.V.: ≤550	A.G.M.:≤1000 S.V.: ≤2000	Noncontact recreation, irrigation, wildlife propagation and stock watering.

a. Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the single value standard.
b. The most restrictive beneficial use.
c. The salinity standard for the Colorado River System is specified in NAC 445.1337.
d. Increase in color must not be more than 10 PCU above natural conditions.
e. Increase in turbidity must not be more than 10 NTU above natural conditions.

[Environmental Comm'n. Water Pollution Control Reg. part § 4.2.5, Table 22, eff. 5-2-78; A 1-25-79; 8-28-79; 1-25-80; 12-3-80]--(NAC A 7-31-85, eff.8-1-85)--(Substituted in revision for NAC 445.1344)

445A.176 Virgin River at state line near Littlefield.

STANDARDS OF WATER QUALITY
Virgin River

Control Point at state line (near Littlefield, Arizona). The limits of this table apply at the Arizona-Nevada state line (near Littlefield, Arizona).

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	BENEFICIAL USES
Temperature °C - Maximum ΔT^a	ΔT = 0°C	Nov.-Jun.: ≤21°C Jul.-Oct: ≤32°C ΔT ≤2°C	Aquatic life[b].
pH Units	--	S.V.: 7.0 - 9.0 ΔpH: ±0.5 Max.	Wildlife propagation[b], aquatic life[b], non-contact recreation, irrigation, stock watering and industrial supply.
Total Phosphates (as P) - mg/l	A-Avg.: ≤0.6 S.V.: ≤.0.1	Avg.: ≤0.1	Aquatic life[b], and noncontact recreation.
Nitrogen Species (N) - mg/l	Total Nitrogen A-Avg.: ≤2.4 S.V.: ≤.3.2	Nitrate S.V.:≤90 Nitrite S.V.:≤5.0 Ammonia S.V.:≤.06 (un-ionized)	Aquatic life[b], stock watering, wildlife propagation and noncontact recreation.
Dissolved Oxygen - mg/l	--	S.V.: ≥5.0	Aquatic life[b], noncontact recreation, wild-life propagation, and stock watering.
Turbidity - NTU	--	e	Aquatic life[b].
Color - PCU	--	d	Aquatic life[b].
Total Dissolved Solids - mg/l	--	c	Irrigation and stock watering.
Alkalinity (as $CaCO_3$) - mg/l	--	less than 25% change from natural conditions	Aquatic Life[b] and wildlife propagation.
Fecal Coliform-No./100 ml	A.G.M.:≤450 S.V.: ≤1800	A.G.M.:≤1000 S.V.: ≤2000	Noncontact recreation[b], irrigation, wildlife, propagation and stock watering.

a. Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the single value standard.
b. The most restrictive beneficial use.
c. The salinity standard for the Colorado River System is specified in NAC 445.1337.
d. Increase in color must not be more than 10 PCU above natural conditions.
e. Increase in turbidity must not be more than 10 NTU above natural conditions.

[Environmental Comm'n, Water Pollution Control Reg. part § 4.2.5, Table 22.1, eff. 5-2-78; A 1-25-79; 8-28-79; 1-25-80; 12-3-80]-- (NAC A 7-31-85, eff. 8-1-85)--(Substituted in revision for NAC 445.13441)

445A.177 Virgin River at Riverside.

STANDARDS OF WATER QUALITY
Virgin River

Control Point at Riverside. The limits of this table apply from the river mouth at Lake Mead to Mesquite.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	BENEFICIAL USES
Temperature °C - Maximum ΔT^a	ΔT = 0°C	Nov.-Jun.: ≤21°C Jul.-Oct: ≤32°C ΔT ≤2°C	Aquatic life[b].
pH Units	--	S.V.: 7.0 - 9.0 ΔpH: ±0.5 Max.	Wildlife propagation[b], aquatic life[b], noncontact recreation, irrigation, stock watering and industrial supply.
Total Phosphates (as P) - mg/l		Avg.: ≤0.1	Aquatic life[b], and noncontact recreation.
Nitrogen Species (N) - mg/l	Total Nitrogen A-Avg.: ≤2.9 S.V.: ≤6.1	Nitrate S.V.:≤90 Nitrite S.V.:≤5.0 Ammonia S.V.:≤.06 (un-ionized)	Aquatic life[b], stock watering, wildlife propagation and noncontact recreation.
Dissolved Oxygen - mg/l	--	S.V.: ≥5.0	Aquatic life[b], noncontact recreation, wildlife propagation, and stock watering.
Turbidity - NTU	--	e	Aquatic life[b].
Color - PCU	--	d	Aquatic life[b].
Total Dissolved Solids - mg/l	--	c	Irrigation[b] and stock watering.
Alkalinity (as $CaCo_3$) -mg/l	--	less than 25% change from natural conditions	Aquatic Life[b] and wildlife propagation.
Fecal Coliform-No./100 ml	A.G.M.:≤625 S.V.: ≤1250	A.G.M.:≤1000 S.V.: ≤2000	Noncontact recreation[b], irrigation, wildlife, propagation and stock watering.

a. Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the single value standard.
b. The most restrictive beneficial use.
c. The salinity standard for the Colorado River System is specified in NAC 445.1337.
d. Increase in color must not be more than 10 PCU above natural conditions.
e. Increase in turbidity must not be more than 10 NTU above natural conditions.

[Environmental Comm'n, Water Pollution Control Reg. part § 4.2.5, Table 22.2, eff. 5-2-78; A 1-25-79; 8-28-79; 1-25-80; 12-3-80]--(NAC A 7-31-85, eff. 8-1-85)--(Substituted in revision for NAC 445.13442)

445A.178 Beaver Dam Wash.

STANDARDS OF WATER QUALITY
Beaver Dam Wash

Control Point above Schroeder Reservoir. The limits of this table apply above Schroeder Reservoir.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	BENEFICIAL USES
Temperature °C - Maximum		Nov.-Apr.: ≤13°C May-Jun.: ≤17°C Jul.-Oct.: ≤23°C	Aquatic life[b] and water contact recreation.
ΔT[a]	ΔT = 0°C	ΔT ≤2°C	
pH Units	--	S.V.: 7.0 - 8.3 ΔpH: ±0.5 Max.	Water contact recreation[b], wildlife propagation[b], aquatic life, irrigation, stock watering, municipal or domestic supply and industrial supply.
Total Phosphates (as P) - mg/l	A-Avg.: ≤.01 S.V.: ≤.013	Avg.: ≤0.05 --	Aquatic life[b], water contact recreation[b], municipal or domestic supply and noncontact recreation.
Nitrogen Species (N) - mg/l	Nitrate S.V.: ≤0.22	Nitrate S.V.:≤10 Nitrite S.V.:≤.06 Ammonia S.V.:≤.02 (un-ionized)	Municipal or domestic supply[b], aquatic life[b], water contact recreation, stock watering, wildlife propagation and noncontact recreation.
Dissolved Oxygen - mg/l	-- --	S.V.: Nov.-May.: ≥6.0 Jun-Oct.: ≥5.0	Aquatic life[b], water contact recreation, wildlife propagation, stock watering, municipal or domestic supply and noncontact recreation.
Suspended Solids - mg/l	--	S.V.: ≤25	Aquatic life[b].
Turbidity - NTU	--	S.V.: ≤10	Aquatic Life[b] and municipal or domestic supply.
Color - PCU	--	e	Aquatic life[b] and municipal or domestic supply.
Total Dissolved Solids - mg/l	--	c	Municipal or domestic supply[b], irrigation and stock watering.
Alkalinity (as $CaCO_3$) - mg/l	--	less than 25% change from natural conditions	Aquatic life[b] and wildlife propagation.
Fecal Coliform-No./100 ml	--	≤200/400[d]	Water contract recreation[b], noncontact recreation, municipal or domestic supply, irrigation, wildlife propagation and stock watering.

a. Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the single value standard.
b. The most restrictive beneficial use.
c. The salinity standard for the Colorado River System is specified in NAC 445.1337.
d. Based on the minimum of not less than 5 samples taken over a 30-day period, the fecal coliform bacterial level may not exceed a geometric mean of 200 per 100 ml nor may more than 10 percent of the total samples taken during any 30-day period exceed 400 per 100 ml.
e. Increase in color must not be more than 10 PCU above natural conditions.

[Environmental Comm'n, Water Pollution Control Reg. part § 4.2.5. Table 23. eff. 5-2-78; A 1-25-79; 8-28-79; 1-25-80; 12-3-80]--(NAC A 7-31-85, eff. 8-1-85)--(Substituted in revision for NAC 445.13443)

445A.192 Colorado River below Davis Dam.

STANDARDS OF WATER QUALITY
Colorado River

Control Point below Davis Dam. The limits of this table apply from the state line below Davis Dam to Lake Mohave Inlet.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	BENEFICIAL USES
Temperature °C - Maximum		Nov.-Apr.: ≤13°C May-Jun.: ≤17°C Jul.-Oct.: ≤23°C	Aquatic life[b] and water contact recreation.
ΔTa	ΔT = 0°C	ΔT ≤2°C	
pH Units	-- --	S.V.: 7.0 - 8.3 ΔpH: ≤0.5 Max.	Water contact recreation[b], wildlife propagationb, aquatic life, irrigation, stock watering, municipal or domestic supply and industrial supply.
Total Phosphates (as P) - mg/l	A-Avg.: ≤.02 S.V.: ≤.03	A-Avg.: ≤0.05 --	Aquatic life[b], water contact recreation[b], municipal or domestic supply and noncontact recreation.
Nitrogen Species (N) - mg/l	Nitrate A-Avg.: ≤1.1 S.V.: ≤1.6	Nitrate S.V.:≤10 Nitrite S.V.:≤.06 Ammonia S.V.:≤.02 (un-ionized)	Municipal or domestic supply[b], aquatic life[b], water contact recreation, stock watering, wildlife propagation and noncontact recreation.
Dissolved Oxygen - mg/l	-- --	S.V.: Nov.-May: ≥6.0 Jun.-Oct.:≥5.0	Aquatic life[b], water contact recreation, wildlife propagation, stock watering, municipal or domestic supply and noncontact recreation.
Suspended Solids - mg/l	-- --	S.V.: ≤25	Aquatic life[b].
Turbidity - NTU	-- --	S.V.: ≤10	Aquatic life[b] and municipal or domestic supply.
Color - PCU	--	e	Aquatic life[b] and municipal or domestic supply[b].
Total Dissolved Solids - mg/l	--	c	Municipal or domestic supply[b], irrigation and stock watering.
Alkalinity (as CaCO3) - mg/l	-- --	less than 25% change from natural conditions	Aquatic life[b] and wildlife propagation.
Fecal Coliform-No./100 ml	A.G.M.: ≤50 S.V.: ≤100	≤200/400d	Water contact recreation[b], noncontact recreation, municipal or domestic supply, irrigation, wildlife propagation and stock watering.

a. Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the single value standard.
b. The most restrictive beneficial use.
c. The salinity standard for the Colorado River System is specified in NAC 445.1337.
d. Based on the minimum of not less than 5 samples taken over a 30-day period, the fecal coliform bacterial level may not exceed a geometric mean of 200 per 100 ml nor may more than 10 percent of the total samples taken during any 30-day period exceed 400 per 100 ml.
e. Increase in color must not be more than 10 PCU above natural conditions.

[Environmental Comm'n, Water Pollution Control Reg. part § 4.2.5, Table 46, eff. 5-2-78; A 1-25-79; 8-28-79; 1-25-80; 12-3-80]--(NAC A 7-31-85, eff. 8-1-85)--(Substituted in revision for NAC 445.13495)

445A.193 Colorado River below Hoover Dam.

STANDARDS OF WATER QUALITY
Colorado River

Control Point below Hoover Dam. The limits of this table apply from Lake Mohave Inlet to Hoover Dam.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	BENEFICIAL USES
Temperature °C - Maximum		Nov.-Apr.: ≤13°C May-Jun.: ≤17°C Jul.-Oct.: ≤23°C	Aquatic life[b] and water contact recreation.
ΔTa	ΔT = 0°C	ΔT ≤2°C	
pH Units	-- --	S.V.: 7.0 - 8.3 ΔpH: ≤0.5 Max.	Water contact recreation[b], wildlife propagation[b], aquatic life, irrigation, stock watering, municipal or domestic supply and industrial supply.
Total Phosphates (as P) - mg/l	A-Avg.: ≤.02 S.V.: ≤.033	A-Avg.: ≤0.05 --	Aquatic life[b], water contact recreation[b], municipal or domestic supply and noncontact recreation.
Nitrogen Species (N) - mg/l	Total Nitrogen A-Avg.: ≤1.0 S.V.: ≤1.5	Nitrate S.V.:≤10 Nitrite S.V.:≤.06 Ammonia S.V.:≤.02 (un-ionized)	Municipal or domestic supply[b], aquatic life[b], water contact recreation, stock watering, wildlife propagation and noncontact recreation.
Dissolved Oxygen - mg/l	-- --	S.V.: Nov.-May: ≥6.0 Jun.-Oct.:≥5.0	Aquatic life[b], water contact recreation, wildlife propagation, stock watering, municipal or domestic supply and noncontact recreation.
Suspended Solids - mg/l	-- --	S.V.: ≤25	Aquatic life[b].
Turbidity - NTU	-- --		Aquatic life[b] and municipal or domestic supply. S.V.: ≤10
Color - PCU	--	e	Aquatic life[b] and municipal or domestic supply.
Total Dissolved Solids - mg/l	--	c	Municipal or domestic supply[b], irrigation and stock watering.
Alkalinity (as $CaCO_3$) - mg/l	-- --	less than 25% change from natural conditions	Aquatic life[b] and wildlife propagation.
Fecal Coliform- No./100 ml	A.G.M.: ≤50 S.V.: ≤100	≤200/400[d]	Water contact recreation[b], noncontact recreation, municipal or domestic supply, irrigation, wildlife propagation and stock watering.

a. Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the single value standard.
b. The most restrictive beneficial use.
c. The salinity standard for the Colorado River System is specified in NAC 445A.143.
d. Based on the minimum of not less than 5 samples taken over a 30-day period, the fecal coliform bacterial level may not exceed a geometric mean of 200 per 100 ml nor may more than 10 percent of the total samples taken during any 30-day period exceed 400 per 100 ml.
e. Increase in color must not be more than 10 PCU above natural conditions.

(Added to NAC by Environment Comm'n, 7-31-85; eff. 8-1-85)--(Substituted in revision for NAC 445.13496)

445A.194 Beneficial uses for area of Lake Mead not covered by NAC 445A.196. The water quality standards for the area of Lake Mead which is not covered by NAC 445A.197 are prescribed in NAC 445A.195. The beneficial uses for this area are:

1. Irrigation;
2. Watering of livestock;
3. Recreation involving contact with the water;
4. Recreation not involving contact with the water;
5. Industrial supply;
6. Municipal or domestic supply, or both;
7. Propagation of wildlife; and
8. Propagation of aquatic life, including a warmwater fishery.

(Added to NAC by Environmental Comm'n, eff. 11-22-82; A 12-17-87)--(Substituted in revision for NAC 445.1350)

445A.195 Lake Mead excluding area covered by NAC 445A.197.

Lake Mead

	WATER QUALITY STANDARDS[a]		
PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARD FOR BENEFICIAL USES	BENEFICIAL USE
Temperature °C ΔT Single Value[a]	0	2	Warmwater fishery.[b]
pH - Standard Unit Single Value	95% of samples not to exceed 8.8	Within Range 7.0 - 9.0	Bathing and water contact sports.[b] wildlife propagation[b], warmwater fishery.aquatic life, drinking water supply, industrial supply, agricultural use.
Dissolved Oxygen-mg/l Single Value in 90% of Samples	--	≥5 mg/l in the epilimnion ≥5 mg/l average in water column during periods of nonstratification	Warmwater fishery,[b] aquatic life, stock watering, bathing & contact sports, noncontact sports & esthetics, drinking water supply, wildlife propagation.
Chlorophyll a - µg/l	c.k		Bathing and water contact sports.[b] warmwater fishery.[b] aquatic life.[b] noncontact sports & esthetics.[b] drinking water supply.[b]
Un-ionized Ammonia - mg/l	--	d	Warmwater fishery. [b] aquatic life.
Total Dissolved Solids - mg/l Flow Weighted Annual Average Single Value	≤723 measured below Hoover Dam[h] --	-- ≤1000	Drinking water supply.[b] agricultural use.

Chloride - mg/l Single Value	e	≤400[e]	Drinking water supply,[b] stock watering. wildlife propagation.
Sulfate - mg/l Single Value	e	≤500[e]	Drinking water supply.[b]
Suspended Solids - mg/l Single Value	--	≤25	Warmwater fishery,[b] aquatic life. esthetics.
Nitrogen Species as N - mg/l	Total Inorganic Nitrogen	Nitrate Nitrite	Drinking water supply,[b] stock watering, warmwater fishery, aquatic life. wildlife propagation. ion.
Single Value in 90% of Samples	≤4.5	≤10 ≤1	Wildlife propagation.
Turbidity - NTU Single Value	f	≤25	Warmwater fishery,[b] aquatic life, drinking water supply, esthetics. bathing & water contact sports.
Fecal Coliform MV/100 ml	--	≤200/400[g]	Bathing & water contact sports.[b] agricultural use. noncontact sports & esthetics. drinking water supply. wildlife propagation.
Color-Pt-Co Units Single Value	i		Esthetics,[b] drinking water supply.[b]

[a] Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone.

[b] The most significant beneficial uses.

[c] Not more than one monthly mean in a calendar year at Station 3 may exceed 45 μgl. The mean for chlorophyll a in summer (July-September) must not exceed 40 μg/l at Station 3. and the mean for 4 consecutive summer years must not exceed 30 μg/l. "Mean" indicates the average of not less than 2 samples per month. The samples must consist of the average of the data collected from not less than 3 sites within a cross section of Station 3 that are representative of the top 5 meters of the cross section. "Station 3" means the center of the channel at which depth is from 16 to 18 meters.

[d] See footnote c to NAC 445A.197.

[e] The combination of this constituent with other constituents comprising TDS must not result in the violation of the TDS standards for Lake Mead and the Colorado River.

[f] Turbidity must not exceed that characteristic of natural conditions by more than 10 Nephelometric Units.

[g] Based on a minimum of not less than five samples taken over a 30-day period, the fecal coliform bacterial level must not exceed a log mean of 200 per 100 ml. nor must more than 10 percent of the total samples taken during any 30-day period exceed 400 per 100 ml.

[h] The details of this standard are specified in the "1981 Review - Water Quality Standards for Salinity, Colorado River System." approved by the state environmental commission on June 8, 1982.

[i] Color must not exceed that characteristic of natural conditions by more than 10 units Platinum-Cobalt Scale.

[j] The Commission recognizes that at entrances of tributaries to this reach, localized violations of standards may occur.

[k] The mean for chlorophyll a in the growing season (April-September) must not exceed 5 μgl in the open water of Boulder Basin. Virgin Basin. Gregg Basin and Pierce Basin. The single value must not exceed 10 μg/l for more than 10 percent of the samples. "Mean" indicates the average of not less than 2 samples per month.

The "Guidelines for Formulating Water Quality Standards for the Interstate Waters of the Colorado River System," adopted January 13, 1967, are incorporated as a supplement to the standards for this stream.

(Added to NAC by Environmental Comm'n, eff. 11-22-82; A 12-17-87)--(Substituted in revision for NAC 445.1351

445A.196 Beneficial uses for Lake Mead from western boundary of Las Vegas Marina Campground to confluence of Las Vegas Wash. The water quality standards for Lake Mead from the western boundary of the Las Vegas Marina Campground to the confluence of the Las Vegas Wash are prescribed in NAC 445A.197. The beneficial uses for this area are:

1. Irrigation;
2. Watering of livestock;
3. Recreation not involving contact with water;
4. Industrial supply;
5. Propagation of wildlife; and
6. Propagation of aquatic life, including a warmwater fishery.

(Added to NAC by Environmental Comm'n, eff. 11-22-82; A 12-17-87)--(Substituted in revision for NAC 445.1352)

445A.197 Lake Mead from the western boundary of Las Vegas Marina Campground to the confluence of Las Vegas Wash. Control point at the Western Boundary of Las Vegas Marina Campground.

	WATER QUALITY STANDARDS[f]		
PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARD FOR BENEFICIAL USES	BENEFICIAL USE
Temperature °C _T Single Value[a]	0	2	Warmwater fishery.[b]
pH - Standard Unit Single Value	95% of samples not to exceed 8.9	Within Range 7.0 - 9.0	Wildlife propagation,[b] agricultural use, warmwater fishery,aquatic life, industrial supply.
Dissolved Oxygen-mg/l Single Value in 90% of Samples	--	≥5 mg/l	Warmwater fishery,[b] aquatic life, stock watering, noncontact sports, noncontact sports & esthetics, wildlife propagation.
Nitrogen Species as N-mg/l Single Value in 90% of samples	Total Inorganic Nitrogen ≤5.3	Nitrate ≤90	Warmwater fishery,[b] stock watering, wildlife propagation.
Single Value	--	Nitrite ≤10	Stock watering,[b] wildlife propagation.[b]
Un-ionized Ammonia as N -mg/l	--	c	Warmwater fishery,[b] aquatic life[b].
Total Dissolved Solids - mg/l			Stock watering,[b] irrigation.
Single Value	e	≤3000	
Suspended Solids - mg/l Single Value	--	≤25	Warmwater fishery,[b] aquatic life, esthetics.
Turbidity - NTU Single Value	d	≤25	Warmwater fishery,[b] aquatic life, esthetics.
Fecal Coliform MV/100 ml Single Value	--	g	Agricultural use,[b] wildlife propagation[b] noncontact sports & esthetics.

[a] Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone.

[b] The most significant beneficial uses.

[c] The 4-day average for the concentration of un-ionized ammonia must not exceed 0.05 mg/l more often than once every 3 years. The daily value for this average must consist of the average of the data collected from not less than 3 sites within a cross section of Station 2 that are representative of the top 2.5 meters of the cross section, and must account for diurnal fluctuation. This average is not applicable to the area between Station 2 and the confluence of the Las Vegas Wash. The single value must not exceed 0.45 mg/l more often than once every 3 years. When the temperature exceeds 20°C, these standards must be adjusted pursuant to methods accepted by the United States Environmental Protection Agency. "Station 2" means the center of the channel at which the depth is 10 meters.

[d] Turbidity must not exceed that characteristic of natural conditions by more than 10 Nephelometric Units.

[e] Any increase in Total Dissolved Solids must not result in a violation of the standards specified in "1981 Review--Water Quality Standards for Salinity, Colorado River System," approved by the state environmental commission on June 8, 1982.

[f] The Commission recognizes that because of discharges of tributaries that localized violations of standards may occur in this reach.

[g] Any discharge from a point source into Las Vegas Wash must not exceed a log mean of 200 per 100 ml. based on a minimum of not less than five samples taken over a 30-day period nor may more than 10 percent of the total samples taken during any 30-day period exceed 400 per 100 ml.

The "Guidelines for Formulating Water Quality Standards for the Interstate Waters of the Colorado River System," adopted January 13, 1967, are incorporated as a supplement to the standards for this stream. The guidelines may be obtained from the division of environmental protection at no cost.

(Added to NAC by Environmental Comm'n, eff. 11-22-82; A 12-17-87; 7-5-94)

445A.198 Beneficial uses for Las Vegas wash from Pabco Road to city and county sewage treatment plants. The water quality standards for the Las Vegas Wash from Pabco Road to the confluence of the discharges from the city and county sewage treatment plants are prescribed in NAC 445A.199. The beneficial uses are:

1. Irrigation;
2. Watering of livestock;
3. Recreation not involving contact with water;
4. Maintenance of a freshwater marsh;
5. Propagation of wildlife; and
6. Propagation of aquatic life, excluding fish. This does not preclude the establishment of a fishery.

(Added to NAC by Environmental Comm'n, eff. 11-22-82; A 12-17-87)--Substituted in revision for NAC 445.1354)

445A.199 Las Vegas Wash from Pabco Road to city and county sewage treatment plants. Control point at Pabco Road. The limits in this table apply from Pabco Road to the confluence of the discharges from the city and county sewage treatment plants.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARD FOR BENEFICIAL USES	BENEFICIAL USE
Temperature °C ΔT Single Value[a]	0	--	--
pH - Standard Unit Single Value of 90% of samples	 Within Range 6.5 - 7.8	 Within Range 6.5 - 9.0	Wildlife propagation,[d] agricultural uses.[d]

Dissolved Oxygen-mg/l	--	b	Stock watering[d], noncontact sports, & esthetics,[d] wildlife propagation.[d]
Nitrogen Species as N-mg/l Single Value in 90% of samples	Total Inorganic Nitrogen ≤20	Nitrate Nitrite ≤100 ≤10	Stock water,[d] wildlife propagation.[d]
Total Filterable Residue at 180°C-mg/l Single Value in 90% of samples	≤2300	≤3000	Stock water,[d] irrigation, freshwater marsh maintenance.
Fecal Coliform MV/100 ml	--	c	Noncontact sports,[d] esthetics,[d] wildlife propagation, agricultural use.

[a] Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone except during storm flow conditions.

[b] It is known that aerobic conditions are desirable for the beneficial uses of stock watering, noncontact sports and esthetics, and wildlife propagation. Existing conditions prevent the attainment of aerobic conditions as of September 9, 1982. Therefore aerobic conditions are established as a goal rather than a standard and is not intended to preclude development of a limited fishery in selected areas. Aerobic conditions is intended to mean the absence of objectionable odors that may be caused by wastewater discharges in excess of existing odors.

[c] Any discharge from a point source into Las Vegas Wash must not exceed a log mean of 200 per 100 ml. based on a minimum of not less than five samples taken over a 30-day period nor may more than 10 percent of the total samples taken during any 30-day period exceed 400 per 100 ml.

[d] The most significant beneficial uses.

(Added to NAC by Environmental Comm'n, eff. 11-22-82)--(Substituted in revision for NAC 445.1355)

445A.200 Beneficial uses for Las Vegas Wash from Pabco Road to Lake Mead. The water quality standards for the Las Vegas Wash from Pabco Road to the confluence of Las Vegas Wash with Lake Mead are prescribed in NAC 445A.201. The beneficial uses for this area are:

1. Irrigation:
2. Watering of livestock;
3. Recreation not involving contact with the water;
4. Maintenance of a freshwater marsh;
5. Propagation of wildlife; and
6. Propagation of aquatic life, excluding fish. This does not preclude the establishment of a fishery.

(Added to NAC by Environmental Comm'n, eff. 11-22-82; A 12-17-87)--(Substituted in revision for NAC 445.1356)

445A.201 Las Vegas Wash.

WATER QUALITY STANDARDS

Las Vegas Wash

The limits in this table apply from Pabco Road to the confluence of the Las Vegas Wash with Lake Mead.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARD FOR BENEFICIAL USES	BENEFICIAL USE
Temperature °C ΔT Single Value[a]	0	--	--
pH - Standard Unit Single Value of 90% of samples	Within Range 7.2 - 8.7	Within Range 7.0 - 9.0	Wildlife propagation,[d] agricultural uses.[d]
Dissolved Oxygen-mg/l		b	Stock watering[d], noncontact sports, & esthetics,[d] wildlife propagation.[d]
Nitrogen Species as N-mg/l Single Value in 90% of samples	Total Inorganic Nitrogen ≤17	Nitrate Nitrite ≤100 ≤10	Stock watering,[d] wildlife propagation.[d]
Total Filterable Residue at 180°C-mg/l Single Value in 90% of samples	≤2600	≤3000	Stock water,[d] irrigation, freshwater marsh maintenance.
Fecal Coliform MF/100 ml	--	c	Noncontact sports & esthetics,[d] wildlife propagation,[d] agricultural use.

[a] Maximum allowable increase in temperature above receiving water temperature at the boundary of an approved mixing zone.

[b] It is known that aerobic conditions are desirable for the beneficial uses of stock watering, noncontact sports and esthetics, and wildlife propagation. Existing conditions prevent the attainment of aerobic conditions at this time. Therefore September 9, 1982. Therefore aerobic conditions are established as a goal rather than a standard and is not intended to preclude development of a limited fishery in selected areas. Aerobic conditions is intended to mean the absence of objectionable odors that may be caused by wastewater discharges in excess of existing odors.

[c] Any discharge from a point source into Las Vegas Wash must not exceed a log mean of 200 per 100 ml. based on a minimum of not less than five samples taken over a 30-day period nor may more than 10 percent of the total samples taken during any 30-day period exceed 400 per 100 ml.

[d] The most significant beneficial uses.

[Environmental Comm'n, Water Pollution Control Reg. part § 4.2.5, Table 47. eff. 5-27-78; A 1-25-79; 8-28-79; 1-25-80; 12-3-80]--(NAC A 11-22-82)--(Substituted in revision for NAC 445.1367)

445A.209 Beneficial uses for Muddy River at Glendale Bridge. The standards for water quality for the Muddy River at Glendale Bridge are prescribed in NAC 445A.210. The beneficial uses for this area are:

1. Irrigation;
2. Watering of livestock;
3. Recreation not involving contact with the water;
4. Industrial supply;
5. Municipal or domestic supply, or both;
6. Propagation of wildlife; and
7. Propagation of aquatic life.

(Added to NAC by Environmental Comm'n, 7-31-85, eff. 8-1-85)--(Substituted in revision for NAC 445.1379)

445A.210 Muddy River at Glendale Bridge.

STANDARDS OF WATER QUALITY
Muddy River

Control Point at Glendale Bridge. The limits of this table apply from the Glendale Bridge upstream to the river source.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	BENEFICIAL USES
Temperature °C - Maximum		Nov.-Jun.: ≤21°C Jul.-Oct.: ≤32°C	Aquatic life[b].
ΔT[a]	ΔT = 0°C	ΔT ≤2°C	
pH Units		S.V.: 7.0 - 9.0 ΔpH: ±0.5 Max.	Wildlife propagation[b], aquatic life[b], non-contact recreation, irrigation, stock watering, municipal or domestic supply and industrial supply.
Total Phosphates (as P) - mg/l	--.	A-Avg.: ≤0.1	Aquatic life[b], noncontact recreation, and municipal or domestic supply.
Nitrogen Species (N) - mg/l	Total Nitrogen A-Avg.: ≤1.3 S.V.: ≤1.4	Nitrate S.V.:≤10 Nitrite S.V.:≤1.0 Ammonia S.V.:≤.06 (un-ionized)	Municipal or domestic supply[c], aquatic life, water contact recreation, stock watering, wild-life propagation and noncontact recreation.
Dissolved Oxygen - mg/l	--	S.V.: ≤5.0	Aquatic life[b], noncontact recreation, wild-life propagation, stock watering and municipal or domestic supply.
Turbidity - NTU	--	e	Aquatic life[b] and municipal or domestic supply.
Color - PCU	--	d	Aquatic life[b] and municipal or domestic supply.
Total Dissolved Solids - mg/l	--	c	Municipal or domestic supply[c], irrigation and stock watering.
Alkalinity (as $CaCO_3$) - mg/l	--	less than 25% change from natural conditions	Aquatic life[b] and wildlife propagation.
Fecal Coliform-No./100 ml	-- --	A.G.M.: ≤1000 S.V.: ≤2000	Noncontact recreation[b], municipal or domestic supply[b], irrigation, wildlife propagation and stock watering.

a. Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the single value standard.
b. The most restrictive beneficial use.
c. The salinity standard for the Colorado River System is specified in NAC 445.1337.
d. Increase in color must not be more than 10 PCU above natural conditions.
e. Increase in turbidity must not be more than 10 NTU above natural conditions.

[Environmental Comm'n, Water Pollution Control Reg. part § 4.2.5, Table 54, eff. 5-2-78; A 1-25-79; 8-28-79; 1-25-80; 12-3-80]--(NAC A 7-31-85; eff. 8-1-85)--(Substituted in revision for NAC 445.1381)

445A.211 Muddy River at Overton.

STANDARDS OF WATER QUALITY
Muddy River

Control Point at Overton. The limits of this table apply from the mouth of the river at Lake Mead to the Glendale Bridge.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	BENEFICIAL USES
Temperature °C - Maximum		Nov.-Jun.: ≤21°C Jul.-Oct.: ≤32°C	Aquatic life[b].
ΔT[a]	ΔT = 0°C[a]	ΔT ≤2°C	
pH Units	--	S.V.: 7.0 - 9.0 ΔpH: ±0.5 Max.	Wildlife propagation[b], aquatic life[b], non-contact recreation, irrigation, stock watering and industrial supply.
Total Phosphates (as P) - mg/l	--	A-Avg.: ≤0.3	Aquatic life[b] and noncontact recreation.
Nitrogen Species (N) - mg/l	Total Nitrogen A-Avg.: ≤1.3 S.V.: ≤1.8	Nitrate S.V.:≤90 Nitrite S.V.:≤5.0 Ammonia S.V.:≤.06 (un-ionized)	Aquatic life[b], stock watering, wildlife propagation and noncontact recreation.
Dissolved Oxygen - mg/l	--	S.V.: ≥5.0	Aquatic life[b], noncontact recreation, wild-life propagation and stock watering.
Turbidity - NTU	--	e	Aquatic life[b].
Color - PCU	--	d	Aquatic life[b].
Total Dissolved Solids - mg/l	--	c	Irrigation[b] and stock watering.
Alkalinity (as $CaCO_3$) - mg/l	--	less than 25% change from natural conditions	Aquatic life[b] and wildlife propagation.
Fecal Coliform-No. 100 ml	A.G.M.: ≤500 S.V.: ≤1300	A.G.M.: ≤1000 S.V.: ≤2000	Noncontact recreation[b], irrigation, wildlife propagation and stock watering.

a. Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the single value standard.
b. The most restrictive beneficial use.
c. The salinity standard for the Colorado River System is specified in NAC 445.1337.
d. Increase in color must not be more than 10 PCU above natural conditions.
e. Increase in turbidity must not be more than 10 NTU above natural conditions.

[Environmental Comm'n, Water Pollution Control Reg. part § 4.2.5, Table 55, eff. 5-2-78; A 1-25-79; 8-28-79; 1-25-80; 12-3-80]--(NAC A 7-31-85; eff. 8-1-85)--(Substituted in revision for NAC 445.1382)

445A.212 Meadow Valley Wash.

STANDARDS OF WATER QUALITY
Meadow Valley Wash

Control Point at confluence with Muddy River. The limits of this table apply from the confluence of the Meadow Valley Wash with the Muddy River to the bridge above Rox.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	BENEFICIAL USES
Temperature °C - Maximum		Nov.-Jun.: ≤21°C Jul.-Oct.: ≤32°C	Aquatic life[b].
ΔT[a]	ΔT = 0°C	ΔT ≤2°C	
pH Units	--	S.V.: 7.0 - 9.0 ΔpH: ±0.5 Max.	Wildlife propagation[b], aquatic life[b], non-contact recreation, irrigation, stock watering and industrial supply.
Total Phosphates (as P) - mg/l	--	A-Avg.: ≤0.1	Aquatic life[b] and noncontact recreation.
Nitrogen Species (N) - mg/l	Total Nitrogen A-Avg.: ≤2.0 S.V.: ≤3.3	Nitrate S.V.:≤90 Nitrite S.V.:≤5.0 Ammonia S.V.:≤.06 (un-ionized)	Aquatic life[b], stock watering, wildlife propagation and noncontact recreation.
Dissolved Oxygen - mg/l	--	S.V.: ≥5.0	Aquatic life[b], noncontact recreation, wild-life propagation, stock watering.
Turbidity - NTU	--	e	Aquatic life[b].
Color - PCU	--	d	Aquatic life[b].
Total Dissolved Solids - mg/l	--	c	Irrigation[b] and stock watering.
Alkalinity (as $CaCO_3$) - mg/l	--	less than 25% change from natural conditions	Aquatic life[b] and wildlife propagation.
Fecal Coliform-No. 100 ml	-- --	A.G.M.: ≤1000 S.V.: ≤2000	Noncontact recreation[b], irrigation, wildlife propagation and stock watering.

a. Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the single value standard.
b. The most restrictive beneficial use.
c. The salinity standard for the Colorado River System is specified in NAC 445.1337.
d. Increase in color must not be more than 10 PCU above natural conditions.
e. Increase in turbidity must not be more than 10 NTU above natural conditions.

[Environmental Comm'n, Water Pollution Control Reg. part § 4.2.5, Table 56, eff. 5-2-78; A 1-25-79; 8-28-79; 1-25-80; 12-3-80]--(NAC A 7-31-85; eff. 8-1-85)--(Substituted in revision for NAC 445.1385)

APPENDIX I

CUMULATIVE IMPACT ANALYSIS

INTRODUCTION

Cumulative impacts result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts could result from individually minor, but collectively significant actions, taking place over a period of time (Council on Environmental Quality, Regulations for Implementation of National Environmental Policy Act, 1508.7).

This section identifies past, present, and reasonably foreseeable future actions so that their contribution to cumulative impacts toward recovery of the desert tortoise can be considered. Past actions are those that have been completed to date, present actions may have been started in the past but are ongoing and not completed yet, and future actions are anticipated but have not yet begun.

This analysis of cumulative impacts considers the connected actions of BLM and other agency efforts to implement the goals and objectives of the **Desert Tortoise Recovery Plan** within the Northeastern Mojave Recovery Unit (see **Map 1**).

Certain land jurisdictions, or programs, consisting of the Washington County Habitat Conservation Plan, Pahranagat National Wildlife Refuge, Las Vegas Piute Reservation, Bureau of Reclamation, Spring Mountain National Recreation Area, Utah State Lands, Arizona State Lands, and California State Lands include insignificant amounts of the tortoise habitat within the Northeastern Mojave Recovery Unit and are inconsequential to the analysis or to the decision to be made, therefore, their contribution to cumulative impacts will not be considered further.

INCOMPLETE AND/OR UNAVAILABLE INFORMATION

Management of Desert Tortoise Habitat in the California Portion of the Northeastern Mojave Recovery Unit

The Mojave National Preserve, administered by the National Park Service in California and the Bureau of Land Management, California Desert District are currently undertaking a planning efforts which include a small portion of desert tortoise habitat within the Northeastern Mojave Recovery Unit. Since this planning is only beginning (public scoping meetings were held in April 1997), documentation on future management for this tortoise habitat within the Northeastern Mojave Recovery Unit in California is lacking. However, only a small portion of the Northeastern Mojave Recovery Unit is located in California and, because of their mandates, the National Park Service and the BLM would manage for ecosystem integrity. This specific information, therefore, is not essential to a reasoned choice among alternatives and the decision on how to implement the goals and objectives of the Recovery Plan within the Planning Area.

Tortoise Population Numbers and Trends

Precise numbers of tortoise are unknown to the BLM, Nevada Division of Wildlife and the Service, and population trend information is inconclusive. According to the Recovery Plan, "Our analysis indicates that areas receiving summer rains and are relatively free from human-induced mortality show no statistically significant population trend..." (USFWS, p. C8, 1994a) and "Because of the difficulty in obtaining accurate population size estimates on these cryptic, semi-fossorial, and sparse animals, most data collected over the last 15 years on the dynamics of desert tortoise populations are insufficient to determine whether a population is stationary, fluctuating stochastically, or undergoing a population trend" (USFWS, p. C8, 1994a).

Monitoring has, however, demonstrated concerns with population trends and recruitment of young into the

population in some areas. Some researchers warn that although populations in the Northeastern Mojave Recovery Unit do not appear to be undergoing major changes in numbers or density in most places, population levels are dangerously low (Brussard 1994, written communication). The lack of exact population numbers or trend information from all portions of the Northeastern Mojave Recovery Unit is not an impediment to implementation of the goals and objectives of the Recovery Plan. Since the desert tortoise has been listed as threatened by the USFWS, the mandate of the BLM is to help recover the species.

Effect of Livestock Grazing on Desert Tortoise

It is known that tortoise rely on new spring growth once they emerge from their burrows, and that livestock use decreases both the quantity and quality of this growth. According to the 1988 BLM Range wide Plan, livestock grazing is one of the detrimental impacts to tortoise in the Eastern Mojave. Since 1988, there have been studies showing the negative impacts of grazing on desert tortoise and its habitat.

According to the 1988 BLM Rangewide Plan, however, data gaps include the effects of grazing on tortoise populations and habitats. And, "At this time there are no data showing that continued livestock grazing is compatible with recovery of the desert tortoise, although it appears that cattle grazing under certain circumstances can be compatible with desert tortoise survival." (Tracy et. al. quoted in USFWS, p. 58, 1994a) It should be noted, however, that desert tortoise "survival" is not necessarily sufficient for "recovery" of a species. The Recovery Team who wrote the Recovery Plan for the Desert Tortoise determined that domestic livestock grazing is incompatible with desert tortoise recovery.

According to the federal register announcement designating critical habitat for the desert tortoise, "Although no definitive studies on the relation between livestock grazing and the welfare of desert tortoises have yet been completed there is significant amount of scientific literature on the adverse effects of livestock grazing on desert ecosystems, in terms of vegetation changes, soil compaction and erosion, and reduction of microorganisms in the soil." (USFWS, p. 5839, 1994c). "Experimental information to assess the effect of livestock grazing on tortoises is lacking, and researchers have not yet examined whether the forage that remains after grazing is sufficient to meet the nutritional needs of desert tortoise." (Oldemeyer, p. 95, 1994). Several recent studies by the Smithsonian intuition have focused on the nutritional requirements of desert tortoise, the relationship of native herbaceous species to meeting these needs, and amounts and types of forages important to desert tortoise.

While there is some differences of opinion regarding impacts of livestock grazing on desert tortoise, conclusions drawn by professionals in the Service, BLM, University scientists, and the Recovery Team for desert tortoise indicate that livestock grazing can have a number of negative impacts on desert tortoise and their habitat as described in the Recovery Plan and in this plan. The preponderance of scientific evidence indicates that livestock grazing can have a number of different negative impacts to tortoise and its habitat. The Recovery Plan advised that livestock grazing should be prohibited in special management areas established for desert tortoise recovery.

It was necessary to use professional judgement to establish the impact-link between livestock and tortoise rather than a definitive study since, "Studies designed to detect this linkage (between grazing and species declines) are, interalia, logistically difficult, expensive, politically contentious, and statistically indefensible. On the other hand, there is strong circumstantial evidence that grazing is a major problem" (Carrier and Czech, p. 39, 1996).

ASSUMPTIONS FOR ANALYSIS

Certain assumptions are necessary for analysis. These assumptions help form the basis for the Reasonably Foreseeable Future Actions projections, and may also suggest areas for needed research.

Approximately 1.5 million acres of BLM Wilderness Study Areas are within the Northeastern Mojave Recovery Unit. The Desert National Wildlife Range also includes a proposed wilderness area. Management of these Wilderness Study Areas and future designated wilderness have implications for management of the desert

tortoise. It is assumed that these areas will remain in a wilderness study area status until after the ongoing BLM land use planning efforts within the Northeastern Mojave Recovery Unit are finalized. While Congress could eventually designate none, part or all of the areas as wilderness, it is assumed for analysis purposes that Congress will designate as wilderness those wilderness study areas recommended as suitable by the BLM.

For the BLM land use plans or amendments in progress within the Northeastern Mojave Recovery Unit (Las Vegas, Caliente, Tonopah, and Dixie) it is assumed that the ultimate decision will be the current agency preferred alternative or the agency proposed action.

Desert tortoise habitat includes all portions of the Northeastern Mojave Recovery Unit below 4,000 feet in elevation with suitable vegetation present.

It is assumed that the human population within the Northeastern Mojave Recovery Unit will continue to grow; at a rapid rate within the urban areas and at a slower rate in the rural areas.

It is assumed that recreational use of the desert environments will continue to grow as a direct result of the increase in human populations and the increase in sales and use of off-highway vehicles.

Based on projections in the Las Vegas District Resource Management Plan and considering the size and extent of the Northeastern Mojave Recovery Unit, it is assumed that about 170,000 acres of public lands within the Northeastern Mojave Recovery Unit will be transferred into private ownership during the life of the plan. Of the 170,000 acres it is assumed that 80% would be within tortoise habitat.

It is assumed that all 113,900 acres of private land authorized to be developed during the 30 year life of the Clark County Desert Conservation Plan will be developed.

AREA OF ANALYSIS

The area of analysis for cumulative impacts is the Northeastern Mojave Recovery Unit (see **Map 1**). This is the appropriate area of analysis since the Fish and Wildlife Service will evaluate tortoise population recovery on a Recovery Unit basis. "Recovery units are considered distinct population segments and may be individually delisted if they meet the recovery criteria." (USFWS, p. 43, 1994a) This area includes portions of four states (Utah, Arizona, Nevada and California), six BLM districts, the United States Fish and Wildlife Service (Desert National Wildlife Range), Department of Energy (Nevada Test Site), and Department of the Air Force (Weapons and Tactics Center Range Complex) and a variety of other land administrations. The Northeastern Mojave Recovery Unit was identified by the Recovery Team based on genetic, morphological, ecological and physiological similarities among the desert tortoise.

A total of 6.4 million acres has been designated by the Fish and Wildlife Service as critical habitat for the Mojave population of the desert tortoise. Of this, 1.2 million acres of the critical habitat is in Nevada. Approximately 1.5 million acres of this designated critical habitat occurs in the Northeastern Mojave Recovery Unit. Approximately 846,000 acres of the designated critical habitat in Nevada is within the Northeastern Mojave Recovery Unit. In Nevada, the majority (approximately 87%) of the total desert tortoise habitat is managed by the BLM.

The Northeastern Mojave Recovery Unit includes the Gold Butte-Pakoon, Mormon Mesa, Beaver Dam Slope, Coyote Spring, the eastern third of the Ivanpah and the northern third of the Piute-Eldorado Desert Wildlife Management Areas as proposed in the Recovery Plan (**see map 4**). While the Northeastern Mojave Recovery Unit is the area of analysis, tortoise habitat is assumed to only occur below 4,000 feet in elevation within the area, therefore, actions or projects above this elevation would not directly affect tortoise or its habitat but could result in indirect effects.

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TIME FRAME FOR ANALYSIS

The time frame for impact analysis is 25 years, which represents one tortoise generation and is the minimum period of time the Recovery Plan determined is appropriate to use monitoring data to evaluate success of the recovery efforts, and consider delisting of the species. The time frame for cumulative impact analysis defines how far into the past and how far into the future additive impacts will be considered. The appropriate time frames for cumulative impact analysis varies by impact or resource consideration. For example, while the Northeastern Mojave Recovery Unit has been grazed by domestic livestock since the mid 1800s, the explosive human population growth in the Las Vegas Valley is a relatively recent development. It is recognized that the cumulative impact of recovery of the desert tortoise which could result from the combination of proposals in the Northeastern Mojave Recovery Unit, would likely extend beyond the life of the plan.

RELEVANT PAST, PRESENT AND REASONABLY FORESEEABLE FUTURE ACTIONS

Introduction

Past, present and reasonably foreseeable future actions which impact desert tortoise or their habitat must be identified so that their contribution to cumulative impacts in the Northeastern Mojave Recovery Unit can be considered. Certain actions have been administrative or planning in nature and did not, by themselves, directly impact desert tortoise, but they are identified since they did have indirect impacts by providing important management direction.

Quad-State County Government Coalition

Eight counties, (including Lincoln County) in four southwestern states, have founded the Quad-State County Government Coalition. "The coalition will seek to overturn the desert tortoise 'critical habitat' designation and to stop enforcement of the Tortoise Recovery Plan, efforts which the counties argue go too far and tie up too much otherwise useable land." (Las Vegas Review Journal, March 23, 1998).

Catron County Ruling on National Environmental Policy Act Compliance for Designation of Critical Habitat

The Catron County Tenth Circuit Court of Appeals ruling, issued February 2, 1996 (No. 94-2280) determined that the Fish and Wildlife Service is required to comply with the National Environmental Policy Act when designating critical habitat for threatened species. This was not done for designation of critical habitat for the desert tortoise. The parts of the Northeastern Mojave Recovery Unit which are in Utah and Arizona are within the jurisdiction of the Tenth Circuit Court. The other parts of the Northeastern Mojave Recovery Unit are within the jurisdiction of the Ninth Circuit Court of Appeals which ruled in Douglas County, Oregon vs. Babbit that the Fish and Wildlife Service did not have to comply with the National Environmental Policy Act when designating critical habitat.

U. S. Supreme Court Ruling on the Endangered Species Act

The U.S. Supreme Court ruled unanimously on March 18, 1997 that people whose economic interests are affected by actions taken to protect endangered species may sue under the Endangered Species Act to stop what they view as overregulation. Property owners affected by decisions made under the Act now can challenge in court under the Act whether those decisions were properly made and necessary to protect a species from extinction. People who suffer economic harm as a result of efforts to protect endangered species have standing to sue under the Act.

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Protection Under State Laws

The desert tortoise has been classified in Nevada as protected since 1969 (NRS 501.110).

The Arizona Game and Fish Commission extended full protection from take to the desert tortoise effective January 1, 1988.

The California Fish and Game Commission listed the desert tortoise as a state threatened species on June 22, 1989.

In Utah the desert tortoise is considered a "prohibited reptile" and is protected from collection, importation, transportation, possession, sale, transfer or release.

BLM

In November of 1988 the BLM published their "Desert Tortoise Habitat Management on Public Lands: A Rangewide Plan". This Plan which considered the tortoise habitat in Nevada, California, Utah and Arizona identified management actions and goals meant to prevent "listing" of the tortoise. This Rangewide Plan required that BLM categorize all tortoise habitat in regard to four pertinent criteria. The BLM has categorized tortoise habitat in Nevada into 341,400 acres of Category I, 643,600 acres of category II, and 1,704,800 acres of Category III. The BLM committed to maintaining viable populations in category I and II habitats and identified objectives and management actions to benefit tortoise and protect their habitat. This plan, however, "does not address site-specific, population-specific, or individual on-the-ground management actions." In spite of this BLM effort, the Mojave tortoise population was listed as threatened approximately one and one half years later.

The 20,800 acre Beaver Dam Slope Area of Critical Environmental Concern in Arizona was established by the BLM in 1992 to protect sensitive tortoise habitat.

BLM and the State Trust Administration in Utah have exchanged State lands that possess critical habitat for the desert tortoise with public lands that would enhance Utah's future urban development needs.

The Desert Tortoise Conservation Center in Las Vegas, Nevada was established pursuant to a $2.5 million research program under a Section 10(a)(1)(A) research permit as part of the Las Vegas Suit Settlement Agreement in March 1991. The Center is owned and operated by the BLM which also coordinates all research activities at the facility. Research is primarily focused on information which will help the long-term survival of the tortoise in the wild. Research completed at the Center between 1991 and 1993 included Desert Tortoise Physiology, Behavior, and Reproduction; Reproductive Biology; and Cause and Transmission of Upper Respiratory Tract Disease.

A wide variety of activities on public lands in Clark County and southern Nye County have undergone Section 7 consultation. Section 7 requires Federal agencies to: 1) Consult with the Service on discretionary actions that may affect listed species, and 2) assist in recovery of listed species. Federal agencies then review their activities and when consultation is necessary, prepare a biological assessment or evaluation which evaluates the affects of the agency -proposed action on the listed species and designated critical habitat. This is then submitted to the Service, which 1) determines whether the proposed action will jeopardize the listed species or adversely modify designated critical habitat, and 2) prepares and issues a biological opinion. These activities have resulted in take of tortoise and the loss of habitat. There have been few Section 7 consultations for desert tortoise in Nevada outside of the Las Vegas Field Office.

Due to the listing of the desert tortoise, BLM initiated Section 7 consultation on the Bureau's livestock grazing program in desert tortoise habitat. Full Force and Effect grazing decisions (69) were issued from January 1992 to March 1993 to implement the Biological Opinion pursuant to Section 7 of the Endangered Species Act.

Approximately 70 additional full force and effect decisions have been issued since the first set of 69. These decisions prohibited livestock grazing from March 1 to June 14 in all Category I and II and III Intensive desert tortoise habitat. In category III non-intensive desert tortoise habitat grazing is restricted by percent utilization and not by season of use.

The BLM manages over 3.5 million acres of the approximately 5 million acres of desert tortoise habitat in Nevada. The BLM, throughout the Northeastern Mojave Recovery Unit covering portions of four states, is amending their Land Use Plans to implement the goals and objectives of the Recovery Plan for the Desert Tortoise. In addition to this plan, there are four other BLM planning efforts which are in various stages of completion. The BLM is completing the Caliente Management Framework Plan amendment, the Tonopah Resource Management Plan, and the Dixie Resource Management Plan all of which propose Special Management Areas for tortoise and management actions to implement the goals and objectives of the Desert Tortoise Recovery Plan. The Arizona Strip Resource Management Plan amendment was completed in April 1998.

Ongoing BLM actions include monitoring livestock grazing, monitoring vegetation condition and trend, routine law enforcement patrols and full suppression of wildfires in tortoise habitat. The Las Vegas District of the BLM established a policy generally prohibiting speed off road vehicle events in proposed desert tortoise Areas of Critical Environmental Concern.

Caliente Management Framework Plan Amendment

The Ely Field Office of the BLM manages 754,600 acres of desert tortoise habitat. The proposed action in the Draft Caliente Management Framework Plan Amendment proposes the designation of 219,000 acres as Areas of Critical Environmental Concern for desert tortoise. These areas would encompass 86% of the designated critical habitat in Lincoln County.

Tonopah Resource Management Plan

The Nevada Tonopah Resource Area of the BLM manages 70,600 acres of tortoise habitat in the Northeastern Mojave Recovery Unit. They have completed a Resource Management Plan and Final Environmental Impact Statement which is currently under protest. In the plan it is proposed to maintain population numbers of desert tortoise, restrict grazing to be consistent with the Biological Opinion, and limit vehicle use to existing roads and trails within all 70,600 acres of tortoise habitat. Approximately 30,000 acres of known desert tortoise habitat is identified for disposal.

Dixie Resource Management Plan

The Dixie Draft Resource Management Plan was published in Draft in October 1995. The Beaver Dam Slope portion of the Dixie Resource Area contains a population of desert tortoise which are within the Northeastern Mojave Recovery Unit. Under the preferred alternative the BLM would acquire up to 16,000 acres, partially within the Northeastern Mojave Recovery Unit, of some of the highest quality desert tortoise habitat in Washington County, Utah. There could be up to 6,205 acres of additional surface disturbance in the Beaver Dam Slope area from powerline and pipeline construction from previously issued rights-of-way. There would be additional surface disturbance from mining on 800 acres within the 63,630 acres of high mineral potential areas in the Beaver Dam Slope outside of tortoise habitat. Also, 83,765 acres outside of the proposed corridors within the Northeastern Mojave Recovery Unit would be established as right-of-way avoidance and exclusion areas. Approximately 2,000 acres in the Beaver Dam Slope Area would be withdrawn from mineral entry. Spring grazing would be deferred on 61,150 acres of desert tortoise critical habitat. All desert tortoise habitat in the Beaver Dam Slope Area would be closed to off-highway vehicle use. No off-road vehicle use for fire suppression would be allowed in the Beaver Dam Slope. Options for predator control will be evaluated.

Arizona Strip Land Use Plan Amendment Resource Management Plan

The Arizona Strip contains 300,000 acres of tortoise habitat in the Northeastern Mojave Recovery Unit. Their Land Use Plan Amendment for the purposes of incorporating the goals and objectives of the Recovery Plan into their Resource Management Plan was signed in April 6, 1998. The Amendment designated two Areas of Critical Environmental Concern; Beaver Dam Slope of 48,200 acres and Virgin Slope of 40,300 acres. In addition, the Pakoon Desert Wildlife Management Area of 81,900 acres was designated. These areas will be managed for the recovery of the tortoise.

Las Vegas District Resource Management Plan

In May 1992 BLM issued the Draft Stateline Resource Management Plan for the management of 3.7 million acres in Clark and southern Nye counties. When completed, the Plan (now the Las Vegas Resource Management Plan) will replace both the Clark County Management Framework Plan and the Esmeralda-Southern Nye Resource Management Plan. The Draft Resource Management Plan alternatives all proposed to establish Areas of Critical Environmental Concern for management of desert tortoise with varying levels of protection by alternative. In part due to the management recommendations of the Desert Tortoise Recovery Plan, a supplement to the Stateline Resource Management Plan was released in May 1994. One purpose of the supplement was to ensure that there was an alternative which would incorporate the goals and objectives of the Desert Tortoise Recovery Plan.

Activity Plans

All desert tortoise habitat in Arizona is within the Arizona Strip BLM Pakoon Basin Habitat Management Plan, a cooperative Sikes Act document written by the BLM and the Arizona Game and Fish Department.

In June 1992, a Piute-Eldorado Habitat Management Plan (which included a portion of the Northeastern Mojave Recovery Unit) was prepared by the Las Vegas District BLM in cooperation with the National Park Service, Nature Conservancy and Nevada Division of Wildlife. It proposes management plans and policies for about 430,000 acres in the Eldorado, Cottonwood and Piute Valleys. It is not yet finalized and approved.

Management established in the Piute/Eldorado Tortoise Management Area under the Clark County Short-Term Habitat Conservation Plan will be carried forward into the Las Vegas Resource Management Plan as valid existing management. Grazing allotments currently under non-use status would be closed to grazing. Off highway vehicle designations would be set in the plan, replacing an interim closure which is currently in effect.

United States Fish and Wildlife Service

On August 20, 1980 the Service determined the Beaver Dam Slope population of the desert tortoise to be threatened and also designated 35 square miles of critical habitat.

In August of 1989 the Mojave population of desert tortoise north and west of the Colorado River was listed as endangered under emergency rule. Emergency listings are only effective for 180 days and the desert tortoise (Mojave population) was listed as threatened under the normal listing procedure in 1990.

In January 1993 environmental organizations sued the Service for not designating critical habitat pursuant to the 1990 Federal listing of the desert tortoise as a threatened species throughout its range in the Mojave Desert. As a result of this suit, the Service designated critical habitat for the listed populations of desert tortoise on February 8, 1994. Of the acreage designated, 846,000 acres of critical habitat were designated within the Northeastern Mojave Recovery Unit. Critical habitat was not designated within the Lake Mead National Recreation Area nor the Desert National Wildlife Range because land management practices already provided sufficient protection. The Service will revise critical habitat in the future as land management plans, recovery plans, or other

conservation strategies are developed and fully implemented reduce the need for the additional protection provided by critical habitat designation.

The Recovery Plan for the Desert Tortoise was completed in June 1994. The Plan provided direction to land management agencies on geographic areas to be protected for the tortoise and management prescriptions for these areas. The objective of the Recovery Plan is the recovery and delisting of the desert tortoise. The Service is working with the BLM and other land management agencies to implement the goals and objectives of the Recovery Plan for the Desert Tortoise. The Service has a contract with the Nature Conservancy to develop site-specific management plans for the proposed Desert Wildlife Management Areas in Nevada. Section 7 funding has been authorized for purchase of grazing allotments, a monitoring program and signs for tortoise management areas, removal of burros, a public education program, testing tortoise for exposure to upper respiratory tract disease prior to release, a study of barrier effectiveness, data development and habitat restoration.

Clark County Habitat Conservation Plans

In July 1991 the Short-Term Habitat Conservation Plan for the Desert Tortoise in Las Vegas Valley, Clark County, Nevada was approved. It allowed incidental take of 3,710 tortoise on 22,352 acres in the Las Vegas Valley for a period of three years. Prior to habitat disturbance, a survey and removal of desert tortoise was required. In July 1994, an amendment to the permit was issued that increased the acreage to 30,352 and extended the period by one year. On August 1, 1995 the Service issued Clark County a long-term 30-year Incidental Take Permit and approved the accompanying Desert Conservation Plan. The long-term permit extended coverage county-wide.

In 1991 a tortoise management area was established in Piute and Eldorado Valleys in southern Nevada. This tortoise management area was established through the implementation of the Clark County Short-Term Habitat Conservation Plan. In order to qualify as conserved habitat, certain land-use controls had to be implemented by the Land Management Agency. This included the removal of livestock from the area, restriction of vehicles to designated roads and trails, limitations on commercial and competitive off-highway vehicle events and additional law enforcement. Since approval of the plan in 1991, the BLM has implemented all of the required actions except for the mining claim validation. The BLM and National Park Service established an area including approximately 541,000 acres of conserved habitat. Of this about 139,500 acres is within the Northeastern Mojave Recovery Unit.

Under the County's Habitat Conservation Plan, the BLM agreed to manage public lands in which Clark County acquired the grazing privileges on a willing seller basis, as part of a "Tortoise Management Area" for the conservation of desert tortoises. From 1991 to 1994 Clark County, through an agreement with the Nature Conservancy, acquired three grazing allotments (Christmas Tree Pass, McCullough Mountain and Jean Lake) of which the first two listed became the foundation for the establishment of the Piute/Eldorado Tortoise Management Area. Ireteba Peaks and Crescent Peak Allotments were subsequently acquired. As a signatory to the Implementation Agreement for implementing the Habitat Conservation Plan, the BLM agreed to: 1) allow nonuse of the allotments for conservation reasons; 2) implement a road closure by designating certain roads and trails as open and closing others; 3) not approve competitive, commercial, or organized events within the Tortoise Management Area (except for parts of Eldorado Valley); 4) not allow additional landfills to be established within the Tortoise Management Area; 5) not take any action which would increase the recreational activities within the Tortoise Managment Area; and 6) otherwise manage the Tortoise Management Area on public lands for the conservation of desert tortoises. These conservation actions were to be incorporated into the Las Vegas Resource Management Plan once approved.

In 1995 Boulder City acquired 107,500 acres of Public Lands under the authority of the Eldorado Valley Transfer Act. In conjunction with this purchase Clark County acquired a conservation easement on approximately 85,000 acres of the purchased lands. The conservation easement requires that the covered lands be managed consistent with the Desert Tortoise Recovery Plan for the conservation of desert tortoises and other species as identified in

Clark County's Desert Conservation Plan. This conservation easement is contiguous to the proposed Piute/Eldorado Area of Critical Environmental Concern and tortoise habitat on Lake Mead National Recreation Area.

Three interim road closures were implemented between December 1992 and July 1994. The off highway vehicle designations were changed from "open" or "limited to existing roads and trails" to "limited to designated roads and trails". These management actions were implemented on approximately 401,000 acres of BLM lands. Of this approximately 73,500 acres is within the Northeastern Mojave Recovery Unit.

Under the Short-Term Habitat Conservation Plan, a trust fund of over $3,000,000 was established to assist ongoing management of conserved habitat. An additional $1,000,000 was added to the trust fund as mitigation for a one-year amendment and extension of the section (10)(a) permit.

In July 1995, the Short-Term Habitat Conservation Plan with a one year extension, expired. The subsequent plan, called the Clark County Desert Conservation Plan, was approved on July 11, 1995 and became effective on August 1, 1995. This plan provides funding for implementation of recovery actions, research and environmental education. The Section 10(a) permit associated with the Clark County Desert Conservation Plan provides for incidental take of desert tortoise on private land in Clark County for a 30 year period. The area covered by the Section 10 (a) permit includes all non-Federal lands in Clark County (412,000 acres) which consists of 170,000 acres of developed land and 242,000 acres of undeveloped land. Take of desert tortoise is authorized on up to 113,900 acres of non-federal lands. Disturbance is expected to occur mostly within the Las Vegas Valley.

The Desert Conservation Plan requires a $550 per acre development fee on disturbance of private property throughout Clark County. Fees collected are held in an endowment fund. Clark County administers and invests the endowment fund in accordance with the laws of the State of Nevada. The Desert Conservation Plan proposes to mitigate the impacts of incidental take of tortoises on nonfederal lands in Clark County through the expenditure of funds to assist in implementation of conservation activities, primarily within desert wildlife management areas or tortoise areas of critical environmental concern.. Between $1.35 and $1.65 million per year will be available for the first 10 years and a minimum of $1.35 million per year for the rest of the 30 year period will be allocated and spent for mitigation measures outlined in the Desert Conservation Plan. Specific conservation measures to be funded include: funding for law enforcement; designation, signing, and closure of roads; restoration or acquisition of habitat; construction and maintenance of tortoise barriers along roads; tortoise inventory; monitoring and multiple species inventory; and other protective measures within Clark County.

It is possible that some of the money could be spent outside of Clark County, and may be used to purchase grazing permits within tortoise habitat in Lincoln County. In the event that grazing permits are acquired, the BLM has agreed that Clark County need not maintain or remove any range improvements because the land would be retained as habitat.

There is a potential loss through development of 113,900 acres of privately owned land within desert tortoise habitat authorized under the permit to Clark County. This includes lands currently in federal ownership which are transferred to private ownership during the life to the permit. This permit includes incidental take of the desert tortoise over a 30 year period. The permit area includes all of the non-Federal lands within Clark County, approximately 325,000 acres. The Desert Conservation Plan would impact less than 4% of the more than 3.5 million acres of desert tortoise habitat in the county. Of that 113,900 acres, 80% is likely to support desert tortoise habitat. It is projected that during the life of the permit (1994-2023) $44,757,642 will be raised to be used for conservation of the desert tortoise (USFWS, 1995).

For a two year period after issuance of the July 1995 permit, payments from the principal of the Clark County Desert Conservation Plan endowment fund were committed to purchase (on a willing-seller/willing-buyer basis) grazing privileges and/or private inholding, provided the cost does not jeopardize the ability of the fund to provide sufficient money to fulfill the other minimization and mitigation requirements of the plan for the term of

the permit. In order to qualify, contracts or options to purchase grazing privileges and other real property must have been entered into within two years after the long-term permit is issued (July 1995) and the money must actually be expended within five years after the long-term permit is issued. Grazing privileges which have been canceled will not be purchased. However, in the event the decision canceling any grazing privilege is under review by the Interior Board of Land Appeals or any court, that grazing privilege shall still qualify for purchase.

Until the Las Vegas Resource Management Plan is approved the non-use provision of the Implementation Agreement for the Desert Conservation Plan is in effect. It reads, "Non-use status for conservation and protection purposes shall be approved and grazing shall not be permitted...until such time as a definitive study of livestock/tortoise interrelationships has been completed and has scientifically demonstrated that livestock grazing can be conducted on the acreage affected by the acquired grazing permits under conditions that will improve tortoise habitat and will not impair recovery of the species."

Some tortoises removed from lands to be developed in the Las Vegas Valley have been translocated to an area of public lands outside of the Las Vegas Valley. The translocation site is located west of I-15 and south of Highway 161. The purpose of the translocation is to 1) provide a means in which otherwise healthy desert tortoise may have a reasonable chance of long-term survival in the wild; 2) study various translocation techniques; 3) determine if large scale translocation can be successfully implemented where existing tortoise populations occur or once occurred; and 4) to reduce the number of tortoise held at the Desert Tortoise Conservation Center which is nearing capacity. The project is mostly funded with Habitat Conservation Plan and Section 7 funding.

Nye County Habitat Conservation Plan

A 30-year Permit issued by the Service to Nye County became effective on February 10, 1995. It allows for the incidental take of 20 desert tortoise during construction, operation and rehabilitation of the Pahrump Landfill, which will affect 80 acres of desert tortoise habitat. The Habitat Conservation Plan submitted with the permit application outlines measures to minimize and monitor the effects of the take. Over the term of the permit, Nye County shall transfer up to a total of $25,920 into a desert tortoise trust fund as mitigation for the alteration of these 80 acres. These funds will be used to purchase, install, and maintain cautionary tortoise road signs. Surplus funds will be used for public education on the Mojave Desert and its inhabitants, including the desert tortoise.

Desert Tortoise Management Oversight Group

A Management Oversight Group consisting of the BLM State Directors for Nevada, Utah, Arizona and California; the three Regional Directors of the U.S. Fish and Wildlife Service regions which cover desert tortoise habitat; the four state wildlife agency Directors; representatives from the National Park Service, and Military Departments provides direction for the coordinated management of desert tortoise habitat. In addition, the group, through their Technical Advisory Committee, prioritize research activities to benefit desert tortoise. The Management Oversight Group also proposes rangewide management policies.

Desert National Wildlife Range

The Desert National Wildlife Range was established in 1936 primarily for the preservation of the desert bighorn sheep. The Desert Range originally contained 2,250,000 acres. In 1966 it was reduced in size to it's current 1,588,000 acres which includes 150,000 acres of desert tortoise habitat. Public use of the Desert Range has historically been restricted through limitations on vehicle access. Tortoise habitat in the Desert Range is managed in accordance with the Recovery Plan for the desert tortoise. Critical habitat for the tortoise was not designated within the Desert Range because land management practices were determined to provide sufficient protection.

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The Nellis Air Force Range utilizes approximately 836,000 acres of the Desert Range for air-to-air and air-to-ground testing and training. Historic desert tortoise habitat loss in this area can be attributed to military bombing and gunnery activities. While the number of tortoises that currently occupy these denuded sites is unknown, bombing continues to kill some tortoise and disturb remaining tortoise habitat within the 100,000 acre target impact area of the Desert Range which overlaps with the Nellis Air Force Range. There are 800,000 acres in use by the Air Force with a target impact area of 100,000 acres and with active bombing on 50,000 acres of low density tortoise habitat. A "jurisdictional" exchange has been proposed by the Service to relieve the Service and the Desert Range of incompatible uses as represented by the military use. This is currently under negotiation with the Military.

The Department of Defense

The Department of Defense manages approximately 275,000 acres of tortoise habitat on the combination of the Nellis Air Force Range, the Small Arms Range and the Nellis Air Force Base. The Nellis Air Force Range contains about 260,000 acres of mostly low density tortoise habitat. The 10,240 acres within the Small Arms Range is of low to moderate habitat value for tortoise. Sixty three percent of the historic ordnance impact areas (67,655 acres) are in desert tortoise habitat. Portions of 21 historic target impact zones (1,056 acres) are within desert tortoise habitat.

The habitat supports very low to moderate density tortoise populations. The Nellis Range is restricted to public access, protecting tortoises from collection or harassment by the public. These animals are also isolated from exposure to released pet tortoises which may be infected with Upper Respiratory Tract Disease. No off-road travel is allowed and there is no livestock grazing or mining. A few wild burros may use tortoise habitat, however, numbers are low. Air Force personnel and contractors using the range must complete a tortoise education program. Because of target closures, only 970 acres of disturbed desert tortoise habitat within the Nellis Air Force Range will continue to be degraded by weapons testing/training.

Nevada Test Site

Department of Energy manages approximately 285,440 acres of tortoise habitat which occurs on the southern third of the Nevada Test Site. Defense related, nuclear testing activities have disturbed an unknown acreage of desert tortoise habitat. Public access and use has always been severely restricted. Portions of the area have remained in primarily a natural condition with no other uses allowed. Department of Energy is currently preparing a Resource Management Plan which will lay out how natural resources are managed on the Test Site.

Tortoise densities on Nevada Test Site range from very low to low. Habitat is contiguous with tortoise habitat on public land to the south and the Nellis Air Force Range to the east. It is isolated from the proposed Coyote Springs Area of Critical Environmental Concern by the Nellis Air Force Range and is not identified as a potential desert wildlife management area in the Tortoise Recovery Plan. No critical habitat was designated on the Nevada Test Site.

The Draft Environmental Impact Statement for the Nevada Test Site and Offsite Locations in the State of Nevada was completed in January 1996. This document covers the entire Test Site and includes comprehensive considerations of the desert tortoise. On August 22, 1996 the Service issued a programmatic biological opinion (File No. 1-5-96-F-33) to the Department of Energy/Nevada Operations which covered implementation of proposed actions on the Nevada Test Site.

As of spring 1997 the Yucca Mountain Project began an Environmental Impact Statement with the BLM as a cooperating agency. The Environmental Impact Statement will include consideration of desert tortoise and will evaluate effects on natural resources.

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Harrick Investments (formerly Aerojet)

On March 31, 1988, PL 100-275, the Nevada Land Exchange Authorization Act of 1988 was passed. This legislation authorized the transfer of approximately 29,000 acres of moderate to high density tortoise habitat on Public land in Clark and Lincoln counties to Aerojet Corporation. An additional 13,800 acres of tortoise habitat were leased to Aerojet for a term of 99 years. These transferred and leased lands create a doughnut hole within the proposed Coyote Springs Area of Critical Environmental Concern. Recent transfer of the leased lands to Harrick Investments lands was approved by the BLM on November 15, 1996.

Approximately 13,800 acres of tortoise habitat are leased to Harrick Investments under a 99 year lease (6,400 acres in Clark County and 7,370 acres in Lincoln County). Under the terms of the lease, these lands are withdrawn from mineral entry and livestock grazing. The area is closed to off highway vehicle use. While Harrick has the authority to construct various facilities on the leased land, they are required to minimize impacts to desert tortoise and to comply with federal, state and local laws and regulations. Minimization measures include fencing of construction sites and roads which traverse high density tortoise habitat, providing a tortoise education program for all workers and relocating tortoises from fenced areas to undisturbed areas. Development of the leased lands is also subject to Section 7 consultation.

Lake Mead National Recreation Area

The establishment of Lake Mead National Recreation Area on one hand protected tortoise habitat from development, but on the other hand focused intense recreational use on portions of tortoise habitat. The Recreation Area contains tortoise habitat around the edges of Lake Mead within the Northeastern Mojave Recovery Unit. The area is managed to maintain natural conditions while providing for visitor recreational use. The National Park Service emphasizes public education and preservation of the desert ecosystem. The National Park Service has completed a draft management plan for the desert tortoise to implement the goals and objectives of the Tortoise Recovery Plan.

Valley of Fire State Park

This State Park manages for natural conditions and visitor use within 36,000 acres of desert tortoise habitat and environmental education for the desert ecosystem, including the desert tortoise, is emphasized for the visitors.

Moapa Piute Indian Reservation

The Moapa Piute Reservation contains approximately 72,000 acres of tortoise habitat. Land use activities on the Reservation which affect desert tortoise are subject to Section 7 consultation through the Bureau of Indian Affairs.

Other Actions

Environmental Education

A Public Affairs Plan was developed by the Las Vegas District BLM in October of 1989 as a result of the BLM Rangewide Plan. This was used to guide public education efforts in regard to protection of the desert tortoise. Four "Fact Sheets" have been developed and are being distributed to the public. Clark County in cooperation with BLM, other governmental agencies and interest groups, has developed public education videos for desert tortoise environmental education. Clark County has also developed several desert tortoise environmental education "public service announcements" for radio and TV broadcast which have been aired in the Las Vegas area.

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The BLM is currently working on establishing two kiosks in the Piute/Eldorado Tortoise Management Area. A school curriculum on desert etiquette has been developed by the Nevada Cooperative Extension Service under contract to Clark County. Environmental education to assist survival of the desert tortoise is done at the local schools and is also conducted at The Spring Mountain National Recreation Area, Desert Tortoise Conservation Center, Red Rock Canyon National Conservation Area, Lake Mead National Recreation Area, and Valley of Fire State Park.

Research

There is ongoing research to aid in the recovery of the desert tortoise. The Recovery Plan identified 10 research needs among the recovery tasks recommended for agency implementation. The research is being coordinated by the Management Oversight Group. Research continues to be conducted at the Desert Tortoise Conservation Center. The Smithsonian is currently conducting desert tortoise nutrition research at the Center with funds provided by the Desert Conservation Plan and Section 7 mitigation funds derived from community sand and gravel pits on public lands.

In the Desert Tortoise Translocation and Habitat Efficiency Study, desert tortoise are being released on land south of Las Vegas. The purpose of the project is to provide researchers and land managers with techniques for improving desert tortoise translocation efforts at other underpopulated sites, and learn more about the habitat requirements of desert tortoise.

Implementation of the results of the current research by Biological Resources Division of U.S. Geological Survey and the Smithsonian Institution will provide scientific data as guidance for more effective management of the desert tortoise. The ongoing research includes such topics as effects of livestock grazing on tortoise growth rates, effectiveness of fences and culverts in preventing tortoise highway mortality, and effectiveness of raven control in reducing juvenile tortoise predation. Monitoring will be done in accordance with the methods developed through the Management Oversight Group.

The College Of Natural Resources at Utah State University has received funding to study the Mojave Desert ecosystem which would include considerations of desert tortoise. The principals in this "Mojave Desert Ecosystem Initiative" are the Department of Defense, the BLM and Utah State University. This study would provide an ecological data base for future management decisions within the Mojave Desert.

Transportation Corridors

Highways, roads and railroads have been built throughout desert tortoise habitat to interconnect the population centers within the Northeastern Mojave Recovery Unit, with concentrations located around the major population centers. Nevada Department of Transportation manages approximately 1,000 miles of roadway through desert tortoise habitat in Clark, Lincoln, Nye, Esmeralda, and Mineral Counties. About 900 miles of this is within the Northeastern Mojave Recovery Unit. In addition there are many miles of County and BLM roads throughout tortoise habitat.

The Clark County Desert Conservation Plan specifies procedures for Nevada Department of Transportation to follow during normal and emergency maintenance activities and construction activities in order to protect tortoise. The area of Nevada Department of Transportation activity covered by this plan includes approximately 1,000 miles of roadway (affecting about 2,900 acres) through desert tortoise habitat in Nevada. Incidental take will be allowed in connection with the maintenance of roads, highways and material sites.

During 1997 highway barriers were installed along I-15 south of Jean, Nevada and along State Route 161 in conjunction with a tortoise relocation program. Tortoise proof barriers are also being installed along US Highway 95 in Piute Valley. These barriers will be monitored and evaluated for their effectiveness and longevity. Currently, Clark County's Implementation and Monitoring Committee is looking at which roads should have

priority for fencing over the next few years. Highway barriers and underpasses will continue to be constructed for the benefit of desert tortoise as monitoring demonstrates the effectiveness of the current barriers and openings. Clark County through Habitat Conservation Plan funding intends to spend at least $500,000 per year to construct tortoise proof barriers along highways and roads where tortoise mortalities are known or expected to occur due to traffic. Underpasses for tortoises would probably be installed during new road construction projects. Current culverts may be modified to provide better access for tortoises.

The Nevada Division of Transportation anticipates 26 road widening projects resulting in 494 acres of disturbance and the need for about three new materials sites per year for the next three to five years and one per year thereafter adjacent to existing roadways in Clark, Lincoln and Nye Counties. A maximum of about 2,400 acres of land may be developed as material sites over the thirty year term of the Service Section 10 (a) permit. While this permit includes the majority of desert tortoise habitat in Nevada, similar types of disturbances will occur in other portions of the Northeastern Mojave Recovery Unit in Utah, Arizona and California, but to a lesser degree.

As specified in the Clark County Desert Conservation Plan, Nevada Department of Transportation will relinquish and rehabilitate unused and unneeded material sites (about 160 acres) within the proposed Piute/Eldorado Area of Critical Environmental Concern. An estimated 120 acres of these would be within the Northeastern Mojave Recovery Unit.

Residents of Scenic, Arizona have approached Mojave County and the BLM in regard to a potential bridge over the Virgin River near Big Bend that would connect with Highway 91. This would alter travel patterns within that portion of the Northeastern Mojave Recovery Unit.

Collection as Pets

Desert tortoise have been taken from the wild and brought home as pets for many decades. According to the Service, throughout its range, over 100,000 individuals of this species existed in captivity prior to its listing in 1990.

Landfills

In the past, landfills had developed near all populated areas throughout the Northeastern Mojave Recovery Unit. As a result of the EPA regulations for landfills, Clark County has closed all but two landfill sites in the County; Apex and Laughlin. A majority of the solid waste in the County will be sent to the Apex site (USFWS, p. 77, 1995) Other landfills throughout the Northeastern Mojave Recovery Unit have been closed and regional, more closely regulated landfills established as a result of the EPA regulations. Unregulated landfills served as a food source to maintain populations of ravens and other natural predators of the tortoise.

BLM is in the process of identifying and closing illegal dumps which are located on public lands. Landfills in Searchlight, Mesquite, Indian Springs, Sandy Valley, Logandale, Overton, and Pahrump have been closed. Silver State Disposal has proposed the development of transfer stations throughout Clark County. A landfill has been opened on private land near Mesquite. A 30 year permit issued to Nye County became effective on February 10, 1995. It allows the incidental take of desert tortoise during construction and operation of the Pahrump landfill, which will affect 80 acres of desert tortoise habitat.

Urban Development

Clark County is one of the fastest-growing counties in the nation. Clark County contains nearly 65% of the population of Nevada. The Las Vegas Valley is the fastest growing metropolitan area in the United States. Approximately 4,000 new residents move to the area each month. The Las Vegas metropolitan area ranked second in the nation with an economic growth rate of 10.8 percent. From 1983 to 1993 Clark County's population increased from 535,108 to 919,388. By 2020 the population is expected to grow to 1,450,409.

(USFWS, p. 79, 1995). Urban development in Las Vegas Valley has all but eliminated what may have been one of the largest and densest tortoise populations in Nevada. In addition, the remaining habitat in the Las Vegas Valley has been seriously fragmented.

This explosive growth is expected to continue, resulting in an increasing demand on public lands in southern Nevada for infrastructure needs, utility and road corridors and recreational opportunities. Other portions of the Northeastern Mojave Recovery Unit including Moapa, Mesquite, Alamo and Ash Springs, southeastern Utah, Northwestern Arizona and southern California will likely also experience population growth. "Historically, habitat reduction and fragmentation have not been uniform throughout the desert tortoise's range, but have been concentrated around populated areas, such as; Las Vegas, Laughlin, and Mesquite, Nevada and St. George, Utah." (USFWS, p. 5823, 1994c).

On April 11, 1996 the Service issued a programmatic biological opinion to the Bureau's Las Vegas Field Station for implementation of multiple use activities within the Las Vegas Valley. Consultation was reinitiated on a 1991 opinion to expand the programmatic boundary from 263,267 acres to 378,956 acres to meet the needs of development in the Las Vegas Valley and to implement Bureau land use plans. The opinion concluded that increasing the acreage of desert tortoise habitat potentially affected within the expanded programmatic area to 121,000 acres, and taking all of the tortoise occurring on those lands was not likely to jeopardize the continued existence of the species. The programmatic area does not include desert tortoise critical habitat or areas proposed as areas of critical environmental concern.

Minimal development is expected over the next several decades within the proposed areas of critical environmental concern and desert wildlife management areas. Public lands within the proposed these areas would not be available for sale, lease or exchange. There is relatively more private land within the Coyote Springs Area of Critical Environmental Concern due to the Areojet Legislation. Some of this land is expected to be developed. About 170,000 acres of land in tortoise habitat in the Northeastern Mojave Recovery Unit is projected to be developed during the life of the plan.

Minerals

Mining activity has historically been minimal within the Northeastern Mojave Recovery Unit. Locatable and salable minerals have accounted for the majority of minerals surface disturbance within the recovery unit. The Nevada portions of the recovery unit have had the most activity with the resulting surface disturbance. Mineral potentials average between low to high for fluid minerals; low for non-energy leasables; high for locatable minerals; and high for mineral materials. Since 1992, changes in the mining regulations have resulted in approximately a 50% reduction in the number of mining notices filed annually within the Las Vegas Field Office. This is representative of the decline in notices throughout the Northeastern Mojave Recovery Unit.

Development of mineral materials (sand and gravel) appears to be the most economic type of mineral development during the past and is projected to be so into the future. Most of this development is from the demand created by the expansion of Las Vegas, and Mesquite, Nevada, and St. George, Utah. The total disturbance in the recent past is estimated to be 6,030 acres within the Northeastern Recovery Unit. This includes mineral material right of ways for the various state Departments of Transportation.

With the known mineral deposits in Nevada and the high mineral potential for locatable minerals, development is expected within the life of this plan. Exploration and development has been moderate with an estimated 1,012 acres of disturbance within the Northeastern Mojave Recovery Unit. Exploration and development of leasable minerals has been low and an estimated 22 acres of surface disturbance has occurred in the Northeastern Mojave Recovery Unit.

Extensive reclamation is being completed on minerals activities within the Northeastern Mojave Recovery Unit. All past surface disturbances for leasable minerals and an estimated 512 acres of locatable minerals activity has

been reclaimed. Mineral material pits have not been reclaimed and to meet the increasing demand a 200 acre community pit has been established in the Northeastern Mojave Recovery Unit. Total surface disturbance for mineral materials is 6,230 acres and 500 acres from locatable minerals. Within the Caliente Resource Area there has been an estimated 200 acres disturbed by mineral development which is in the process of being reclaimed.

Future development scenarios have been developed based on the potential future market demands and commodity prices. These scenarios are projections for analysis purposes only. Leasable minerals have been determined to have continued exploration in Nevada and potential development of a small producing field. This type of activity would result in development of roads, drill pads, geophysical exploration and field development. There would be an estimated 325 acres of disturbance for this type of activities.

It is expected that the exploration for locatable minerals will continue at it present rate. Most of the activity will occur in portions of the Northeastern Mojave Recovery Unit in Nevada but activity is expected in Utah and Arizona portions of the Northeastern Mojave Recovery Unit. This activity will mainly occur under notices outlined under 43 CFR 3809 regulations. These operations are usually under five acres and consist of exploration drilling and trenching. It is expected some minerals development would occur under plans of operation which would include larger exploration/development plans and mining operations. It is expected that any mining operation would be small in size and range between 50 to 150 acres. There would be an estimated 2,130 acres of additional disturbance from locatable mineral activity.

Demand for mineral materials would remain high. There would be the need for additional community pits and the expansion of existing material sources. A community pit would be opened once every five years and would be restricted to 20 acres, except in the Las Vegas Field Office where community pits may be several hundred acres in size. There would be an expansion of the current pits. The Nevada Department of Transportation anticipates the need for about three new material sites per year for the next three to five years and one per year thereafter adjacent to existing roadways in Clark, Lincoln and Nye Counties (Clark County, p. 53, 1994)). A maximum of about 2,400 acres of land may be developed as material sites over the thirty year term of the Service Section 10 (a) permit (Clark County, p. 53, 1994). While this permit includes the majority of desert tortoise habitat in Nevada, similar types of disturbances will occur in other portions of the Northeastern Mojave Recovery Unit in Utah, Arizona and California, but to a lesser degree since there is a lower rate of population growth in these rural areas. It is, therefore, estimated that there would be an additional 3,500 acres of surface disturbance form mineral materials throughout the Northeastern Mojave Recovery Unit. In the Las Vegas Field Office, expansion of existing material pits within tortoise Areas of Critical Environmental Concern would be limited to a cumulative total of 1,000 acres.

There are existing mining claims throughout the proposed Areas of Critical Environmental Concern in the Northeastern Mojave Recovery Unit. Some surface disturbance from exploration and mine development is expected to occur. Any Mining Plan of Operation, would be subject to Section 7 Consultation with the Service. There are three gypsum mineral patents in or near the Gold Butte Area of Critical Environmental Concern. However, due to the distance from the market, it is unlikely that they would be economical to mine in the near future. Should the patents be developed in the future the only access into the area is through the proposed Area of Critical Environmental Concern.

Off-Highway Vehicle Use

Off-highway vehicle use in the Northeastern Mojave Recovery Unit has increased and proliferated since the 1960s (USFWS, p. D-16, 1994a). "As of 1980, off-highway vehicle activities affected approximately 25% of all desert tortoise habitat in California, as well as substantial portions in southern Nevada." (USFWS, p. 5823, 1994c).

After the listing of the desert tortoise, Las Vegas District set a policy prohibiting high-speed off-highway vehicle events in Category 1 and 2 tortoise habitat. Traditional events were relocated to courses outside of Category 1

and 2 habitat, with minor exceptions where no other alternative was available. After approval of the Short-Term Habitat Conservation Plan, the BLM agreed to prohibit high-speed events in the Piute/Eldorado Tortoise Management Area except for that portion of Eldorado Valley and Nelson Hills where racing was currently ongoing. Based upon the Tortoise Recovery Plan and the designation of critical habitat, the areas closed to off-highway vehicle events were redefined to be the proposed tortoise Areas of Critical Environmental Concern. Some areas of category 2 habitat that were previously closed, were reopened to these types of events.

As of April 1, 1994, and for the next three years, the BLM determined that in the Ivanpah Valley Area, ten (10) off-highway vehicle events would be allowed annually. The BLM determined that in the Eldorado Valley Tortoise Management Area, nine (9) events would be allowed annually. In addition permits are issued for events in other parts of the District. About 25 to 30 events are permitted annually. A programmatic biological opinion (File No. 1-5-95-F-237) for speed based off-highway vehicle events in the Las Vegas District (Stateline and Caliente Resource Areas) and Battle Mountain District (Tonopah Resource Area) was issued to the Bureau on August 30, 1995, which encompassed or replaced previous biological opinions issued to the Bureau for off-highway vehicle events.

Off-Highway Vehicle events are a popular activity on public land in southern Nevada. These types of events are expected to continue increase in the future. Non-competitive events such as dual sport rides and poker runs will probably increase due to overall increased population within the Northeastern Mojave Recovery Unit. Also, mountain bike events are becoming very popular.

The Las Vegas District Resource Management Plan proposes to limit speed events to approximately one-third of the Las Vegas District. This will preserve most areas where racing is currently allowed while prohibiting racing in Tortoise Areas of Critical Environmental Concern. Most activity would be restricted to existing race courses which will limit new disturbance. Non-speed events may be allowed on designated roads within Tortoise Areas of Critical Environmental Concern. There would be no competitive off-highway vehicle events allowed off of designated roads in Desert Wildlife Management Areas or Areas of Critical Environmental Concern throughout the Northeastern Mojave Recovery Unit. Access would be limited to designated roads and trails. The Biological Opinion for off-highway vehicle races allows for transfer sections of one motorcycle rally annually in the Beaver Dam Slope Area of Critical Environmental Concern.

"The ruggedness of the terrain and relatively few roads, especially in the Gold Butte and Pakoon Basin areas, tend to limit human impacts to desert tortoise habitat. Recently, however, there have been noticeable increases in off-highway vehicle activity, especially both north and south of the Virgin River in Arizona and Nevada." (USFWS, p. 56, 1994b). The BLM in 1989 designated the Bitter Springs and Gold Butte Back Country Byways, which may have increased vehicle use in tortoise habitat.

Fire Management

During the period 1980 to 1990 a total of 5,126 fires burned 554,569 acres in the Mojave Desert (USFWS, p. D-24, 1994a). Over the years, fires have been more frequent and more intense within the Northeastern Mojave Recovery Unit because of the introduced annuals which dry out and serve as a flash fuel, and the presence of increasingly more people who can accidentally start fires. Grass fires have increased in the Mojave Desert since the 1970s (USFWS, 1991). BLM has reported that historically the Mojave Desert did not have enough vegetation to keep a fire burning more than a few yards. However, the introduction of the prolific non-native annuals provides a flash fuel source that easily carries fires, (USFWS Bio Op, p. 9, 1991). Many native desert shrubs did not evolve with fire and have no particular adaption to survive any but very low intensity fires. Intense fires and repeated burning lead to the replacement of native annual species by exotic species.

Full suppression of wildfires is done in tortoise habitats with restrictions on surface disturbing activities and with educational briefings for the fire crews. Fires are expected to increase in numbers with the increase in human population within the Northeastern Mojave Recovery Unit.

Domestic Livestock Grazing

Grazing by cattle and sheep has occurred in the Northeastern Mojave Recovery Unit since the mid 1800s, with an increase in intensity near the turn of the century to the mid-1930s (USFWS, p. 5824, 1994c). This has caused changes within portions of the Northeastern Mojave Recovery Unit including change in vegetation composition to include more exotic annuals, an increase in brush species and a reduction in perennial grasses, and increased soil compaction and erosion. "There is little doubt that livestock grazing has changed the vegetative composition in the Mojave Desert during the past 140 years..." (Oldemeyer, p. 97, 1994). Some trampling of tortoise, tortoise burrows and/or dens has also occurred. As recently as 1988, about 30,000 animal unit months of use occurred within the Las Vegas Field Office. This had decreased to 7,730 by 1994.

Due to the listing of the desert tortoise, BLM initiated Section 7 consultation on the Bureau's livestock grazing program in desert tortoise habitat. As a result of the biological opinion issued by the Service, full force and effect grazing decisions (69) were issued from January 1992 to March 1993 to implement the Biological Opinion pursuant to Section 7 of the Endangered Species Act. Approximately 70 additional full force and effect decisions have been issued since the first set of 69. These decisions prohibited livestock grazing from March 1 to June 14 in all Category I, II and III Intensive desert tortoise habitat. In category III non-intensive desert tortoise habitat grazing is restricted by percent utilization and not by season of use.

The "terms and conditions" of the Biological Opinion were included in grazing permits issued for allotments in the Las Vegas Field Office and the Caliente Resource Area in desert tortoise habitat. In category I, II and "intensive" III habitat areas livestock grazing in Nevada was restricted through full force and effect decisions to the period of June 14 to February 28 and utilization restrictions were established. The BLM decision to implement this seasonal restriction was initially stayed by an Administrative Law Judge and upheld by Interior Board of Land Appeals. However, on November 11, 1995 a decision by Adminstrative Law Judge Child upheld the BLM decisions on 49 grazing/tortoise appeals for decisions issued 1992 and 1994. The BLM and appellants have appealed his decision to Interior Board of Land Appeals.

Several programmatic and other biological opinions have resulted in limitations of grazing activities within desert tortoise habitat in California. Biological opinions have resulted in the limitation of sheep grazing to category 3 habitats on public land within the North Eastern Mojave Recovery Unit in California (USFWS, p. 5829, 1994c).

Under the Short-Term Habitat Conservation Plan, the BLM agreed to manage public lands in which Clark County acquired the grazing privileges on a willing seller basis as part of a "Tortoise Management Area" for the conservation of desert tortoises. From 1991 to 1995 Clark County acquired six grazing allotments. As a signatory to the Implementation Agreement for implementing the Habitat Conservation Plan, the BLM agreed to allow nonuse of the allotments for conservation reasons.

Approximately 540,000 acres of desert tortoise habitat have been conserved by federal land managers as a direct result of the Clark County's habitat conservation efforts. Grazing privileges on five allotments totaling 753,500 acres of BLM managed land have been purchased and put into non-use. Some of these allotments included National Park Service lands. Those portions of the allotments in Lake Mead National Recreation Area, 435,900 acres were closed to grazing. Approximately 594 ,900 acres in the Northeastern Mojave Recovery Unit (435,900 BLM and 159,000 National Park Service) has either been closed to grazing or is managed under voluntary non-use. An estimated 419,150 acres of this is tortoise habitat. A sixth allotment, Jean Lake, was purchased by Clark County but is not scheduled for closure under the Las Vegas Resource Management Plan.

The Desert Conservation Plan allowed for continued purchase of grazing privileges for two years after approval of the permit. This two year period has expired. Only allotments with transactions in progress now qualify for purchase by Clark County. Additional livestock grazing permits within the Northeastern Mojave Recovery Unit may be purchased in the future for the benefit of desert tortoise or other species, through other funding sources.

Negotiations involving the permittees on the Sand Hollow and Beacon allotments have been ongoing regarding the retirement of grazing privileges which include lands in the Beaver Dam Slope (Nevada) tortoise critical habitat unit. Once the Caliente Plan Amendment is completed, both the Sand Hollow and the Beacon allotments would be closed to grazing. Negotiations are also underway with the Moapa Piute concerning retirement of the grazing privileges on the Rox Tule allotment.

Predation

A variety of animals prey on the desert tortoise or their eggs including foxes, coyotes, raptors, badgers and ravens. Ravens are federally protected through the Migratory Bird Treaty Act. In general, raven populations have increased dramatically over historical levels and may have an negative impact on tortoise populations in some locations. "...the Fish and Wildlife Service's Breeding Bird Survey Program provided data to show a 15-fold increase in raven populations in the Mojave Desert..." (USFWS, p. 6, 1994a). Raven populations will likely continue to increase within the Northeastern Mojave Recovery Unit because of a combination of factors.

Populations of ravens have increased in the Northeastern Mojave Recovery Unit because of a variety of factors: increased numbers of landfills and feedlots which provide a source of food, range developments have provided a source of water, construction of electrical transmission lines provide an unnaturally high number of nesting and roosting sites, increased miles of roads and highways which result in increased road kills which ravens use as a food source and protection of the species under the Migratory Bird Treaty Act.

In 1994 a raven control program was initiated by the BLM in California in cooperation with the National Biological Service and the Wildlife Service. The need for such a program was based on such evidence as 250 juvenile tortoise shells being found beneath single raven nests. Because of public concern with killing of the ravens the program was short-lived and the effectiveness of the program could not be evaluated.

Utilities

A wide variety of utilities including transmission lines, telephone lines, fiberoptic lines, and pipelines have been installed throughout the Northeastern Mojave Recovery Unit, concentrated around population centers. This type of development has also resulted in surface disturbance in previously undisturbed, backcountry areas. The maintenance roads created to serve these linear facilities have provided access routes for the public into the desert backcountry.

Hoover Dam, constructed in the 1930s and 1940s is located northeast of the Piute/Eldorado Area of Critical Environmental Concern. A portion of the power generated at Hoover Dam is distributed locally by Nevada Power Company through its transmission network. However, the bulk of the power generated is transmitted to California through Southern Nevada Edison and Las Angeles Water and Power lines which cross the Area of Critical Environmental Concern. In addition, the Navaho-McCullough transmission line transmits power from Page, Arizona to southern California.
Several large interstate transmission lines cross the Mormon Mesa proposed Area of Critical Environmental Concern. In addition, the Kern River Natural Gas Pipeline crosses the proposed Area of Critical Environmental Concern and extends through the Beaver Dam Slope Area of Critical Environmental Concern.

There is an existing Nevada-McCullough powerline across the Utah, Beaver Dam Slope Area of Critical Environmental Concern. A mile wide corridor has been legislatively designated by the Nevada-Florida Exchange Authorization Act of 1988, which parallels US 93 on the east side of the highway. A corridor exists on the Moapa Indian Reservation, which extends 1,500 feet westerly from the Reid Gardner-Pecos transmission line and 1,500 feet easterly of the McCullough transmission line. The Intermountain Power Project transmission line traverses the Recovery Unit. These powerlines provide roosting and nesting sites for ravens and the associated maintenance roads provide public access into the backcountry. Utility transmission line corridors and access roads increase the visibility of tortoises to predators.

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The Service and the BLM are currently developing a programmatic approach to long-term pipeline maintenance (USFWS, p. 5829, 1994c). A second yet unconstructed powerline will parallel the existing Navaho-McCullough ROW across the Beaver Dam Slope. Approx. 5,000 acres of lands in Areas of Critical Environmental Concern within the Las Vegas District could be disturbed due to anticipated utility corridors. Approximately 1,800 acres are in the Rainbow Gardens corridor which cannot be activated unless the Sunrise Mountain Wilderness Study Area is released from wilderness consideration.

The final Environmental Impact Statement for the Southwest Intertie Power Project has been completed and a Record of Decision issued. This project is anticipated to begin construction during the time frame of this analysis and is projected to disturb tortoise habitat along 52 miles of the line in the Coyote Springs Area of Critical Environmental Concern.

Approximately 30,000 acres within the proposed Areas of Critical Environmental Concern in the Las Vegas District would be designated as utility corridors. Approximately 13,000 acres of this are within the Northeastern Mojave Recovery Unit. There would be designated corridors through all of the proposed Areas of Critical Environmental Concern except for Gold Butte. In addition, about 12,400 acres of the Boulder City Conservation Easement is within reserved corridors. Approximately 6% of the Area of Critical Environmental Concern acreage within the Las Vegas District would be within designated utility corridors.

If the Sunrise Mountain Wilderness Study Area is released from wilderness consideration, it would open the Rainbow Gardens Corridor for use. This would increase the likelihood of transmission lines from northern Nevada going through the Boulder City Conservation Easement or the Piute/Eldorado Area of Critical Environmental Concern.

The Intermountain Power Project could have an additional powerline added to their corridor during the life of this plan. This would disturb additional tortoise habitat within the Northeastern Mojave Recovery Unit.

Human Predation

Desert tortoise served as a staple food for thousands of years for the aboriginal inhabitants of what is now the Northeastern Mojave Recovery Unit, as evidenced through data recovered through archeological sites such as tortoise roasting pits, and ethnographic reports of early explorers.

"Human 'predation' is a major factor in the decline of the desert tortoise" (USFWS, p.6, 1994a). Mortality of desert tortoise due to gunshot is common in many parts of the Mojave Region. "At the BLMs Western Mojave Desert Study Plots, 14.6% to 28.9% of all desert tortoise carcasses bore evidence of gunshots..." (USFWS, p. D-6, 1994a). Approximately 10% of the tortoise shell remains from a study plot near Littlefield, Arizona had gunshot wounds. (USFWS, p. 5823, 1994c) "The threat of collections should not be underestimated and will continue to remain high for three reasons. First, most new arrivals to the Southwest are unaware that desert tortoises are protected. Second, the presence of law enforcement officers in open desert lands is inadequate. And third, commercial poaching of rare, threatened, and endangered species is well documented, and in some cases, a lucrative business." (USFWS, p. D-5, 1994a). Tortoise are a traditional food in some developing countries and, "...many former residents of these areas are bringing their traditional practices with them as they migrate to...Las Vegas and elsewhere in the west." (USFWS, p. D-3, 1994a).

Wilderness Study Areas

There is total of 1,507,821 acres of BLM Wilderness Study Areas in the Nevada portion of the Northeastern Mojave Recovery Unit. A total of 406,266 acres of these have been recommended to Congress as "suitable" by the BLM for wilderness designation. A portion of these areas contain tortoise habitat, below 4,000 feet in elevation. These lands are managed under "interim management". The primary objective of the management of these lands is to manage them in such a manner as to not to impair their suitability for designation as wilderness

(FLPMA, section 603). Wilderness study area status would continue to provide interim protection from surface disturbance within some of the tortoise habitat in the Northeastern Mojave Recovery Unit. Portions of the existing Wilderness Study Areas are projected to be designated as Wilderness by Congress during the life of this plan. Portions of tortoise habitat released from wilderness consideration would still be subject to Section 7 Consultation with the Service or in some cases will be incorporated into Areas of Critical Environmental Concern.

Upper Respiratory Tract Disease

Upper Respiratory Tract Disease is a respiratory disease which is easily transmitted and is potentially fatal to the desert tortoise. It appears to be spreading and may have been introduced to wild populations through illegal releases of diseased captive desert tortoises. Reduced nutritional conditions for desert tortoise, as a result of alterations in native vegetation communities and the native forage species availability caused by years of livestock grazing, has increased desert tortoise susceptibility to this and other diseases. Wild desert tortoises with signs of Respiratory Tract Disease are commonly found near cities and towns with concentrations of captive tortoises (USFWS p. 5824, 1994c). Respiratory Tract Disease has been documented in Nevada and California tortoise populations.

WHAT RESOURCES WILL BE IMPACTED CUMULATIVELY

According to the BLM "Guidelines For Assessing and Documenting Cumulative Impacts" handbook, the amount of analysis that is necessary can be greatly reduced by limiting cumulative analysis only to those issues and resource values identified during scoping that are of major importance. The issues and resource values of major importance or public concern which will be analyzed for cumulative impacts are impacts to the desert tortoise and to OFF-HIGHWAY VEHICLE events.

IMPACT ANALYSIS

Desert Tortoise:

Introduction

This impact discussion is common to all action alternatives. All habitat disturbing actions and actions funded, authorized or carried out by Federal agencies which may affect the desert tortoise must undergo a section 7 consultation with the Service. The subsequent "terms and conditions" of the biological opinions would be incorporated in the decision document and the permit or grant issued. Federal actions within designated critical habitat would be more likely to result in a jeopardy opinion since this type of designation is evaluated for "adverse modification of habitat" as well as "take".

This is expected to be the case for the next 25 years, the earliest time at which the Service would consider delisting of the tortoise on a Recovery Unit basis. This would minimize the effects of activities on the desert tortoise throughout the Northeastern Mojave Recovery Unit.

Management Direction

There are 856,000 acres of designated critical habitat for the desert tortoise within the Northeastern Mojave Recovery Unit. These are managed by a variety of agencies. In the attempt to recover the desert tortoise, the goals and objectives of the Desert Tortoise Recovery Plan would be implemented through a combination of management directions including the Arizona Strip Plan Amendment; Tonopah Resource Management Plan; Las Vegas Resource Management Plan; Caliente Plan Amendment; Dixie, Utah Resource Management Plan; Lake Mead National Recreation Area General Management Plan; and the Clark, Washington and Lincoln Counties Habitat Conservation Plans. **Table 1** "Proposed Management Areas Within the Northeastern Mojave Recovery

Unit", shows the proposed acreage within each Desert Wildlife Management Area or Area of Critical Environmental Concern by jurisdictional unit.

There are approximately 1,780 square miles of desert tortoise habitat within the Northeastern Mojave Recovery Unit proposed for tortoise management by the BLM. An additional 280 square miles have been proposed for Area of Critical Environmental Concern designation for the management of tortoise, by the BLM. These Areas of Critical Environmental Concern would be managed for recovery of the desert tortoise. Additional acreage would be designated in the Ivanpah Valley in California by the National Park Service and California Desert District BLM, but further details are lacking. The Service and the National Park Service have committed to manage tortoise habitat on these administrative units in accordance with Recovery Plan recommendations. For a comprehensive overview of the implementation of management prescriptions on BLM administered lands in the Northeastern Mojave Recovery Unit, see **Table 2** "Proposed Management Prescriptions for Desert Tortoise Management Areas in the Northeastern Mojave Recovery Unit". The combination of protective designations and management prescriptions would implement the goals and objectives of the Recovery Plan and ensure management attention for the desert tortoise.

The combination of areas which are proposed for tortoise recovery can be seen on **Map 1**. The boundary of the combination of areas does not follow the preferred reserve design as recommended in the Recovery Plan, particularly in regard to having a low edge to area ratio, and being unfragmented. However, it is not be possible for two out of the five proposed Desert Wildlife Management Areas in the Northeastern Mojave Recovery Unit to meet the preferred reserve design. In regard to the Beaver Dam Slope Management Area, the Recovery Team states, "A more compact, circular shape would be preferred, but is not possible." (USFWS, p. 47, 1994b). In regard to the Gold Butte-Pakoon Area the Recovery Team states, "The Gold Butte-Pakoon Desert Wildlife Management Area should contain between 270 and 310 square miles in an elongate 'C' shape opening to the east..." (USFWS, p. 55, 1994b). An elongate "C" design does not meet the listed preferred reserve design.

The proposed combination of Desert Wildlife Management Areas/Areas of Critical Environmental Concern contain a high percentage of the best remaining habitat, much of which is relatively inaccessible to human disturbance. "The plan recommends reserves that are at least 1,000 sq. miles in extent with boundaries that include the best examples of desert tortoise habitat." (Duck, p. 7, 1996). The combination of agency proposals within the Northeastern Mojave Recovery Unit is almost twice that which is recommended in the Recovery Plan. This vast amount of acreage set aside and more intensive management for desert tortoise management compensates for the failure to meet all aspects of reserve design.

In addition to the acreage set aside for protection of desert tortoise, more intensive management is being proposed outside of the areas of critical environmental concern for tortoise within the Caliente Planning Area. As the Recovery Plan states on pages ii, 43 and 47; more intensive management of tortoise habitat can compensate for any lack of appropriate acreage within a Recovery Unit. Surface disturbance would be minimized within the Special Management Areas, thus protecting tortoise habitat.

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Table 1. Proposed Management Area Within the Northeastern Mojave Recovery Unit.

MANAGEMENT AREA	UNIT	AREA (SQ. MI.)[1]	AREA (ACRES)[2]
COYOTE SPRING (NV BLM)	LAS VEGAS FIELD OFFICE	118	75,500
KANE SPRINGS (NV BLM)	CALIENTE FIELD STATION	103	65,900
MORMON MESA (NV BLM)	LAS VEGAS FIELD OFFICE CALIENTE FIELD STATION	237 172	151,400 109,700
PAKOON - GOLD BUTTE (AZ/NV BLM, NATIONAL PARK SERVICE)	LAS VEGAS FIELD OFFICE SHIVWITS RESOURCE AREA LAKE MEAD NAT. REC. AREA	293 128 81	187,400 81,900 51,800
BEAVER DAM SLOPE (AZ/NV/UT BLM)	CALIENTE FIELD STATION SHIVWITS RESOURCE AREA DIXIE RESOURCE AREA	69 76 64	44,000 48,400 41,100
VIRGIN SLOPE (AZ BLM)	SHIVWITS RESOURCE AREA	72	45,900
DESERT NATIONAL WILDLIFE RANGE	FISH AND WILDLIFE SERVICE	241	154,000
PIUTE/ELDORADO (BLM, NATIONAL PARK SERVICE)	LAS VEGAS FIELD OFFICE LAKE MEAD NAT. REC. AREA	327 83	209,800 53,400
IVANPAH VALLEY (NATIONAL PARK SERVICE, MOJAVE NATIONAL PRESERVE, CA BLM)	No data available on future designations. Total of approximately 450 sq. miles within NE Mojave Recovery Unit in California.		No data available on future designations. Total area within NE Mojave Recovery Unit in California is equal to approximately 300,000 ac.
TOTAL: w/no livestock grazing allowed TOTAL: w/livestock grazing allowed		1,783[3] 280	1,141,000[3] 179,400

1 - Area in sq. miles rounded to nearest mile.
2 - Area in acres rounded to nearest 100 acres.
3 - Area in California not included in total acreage.

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Table 2. Proposed Management Prescriptions for Desert Tortoise Management Area in the Northeastern Mojave Recovery Unit.

DESERT TORTOISE RECOVERY PLAN IMPLEMENTATION - NORTHEASTERN MOJAVE RECOVERY UNIT DESERT WILDLIFE MANAGEMENT AREA/AREA OF CRITICAL ENVIRONMENTAL CONCERN PRESCRIPTION PROPOSALS				
RECOVERY PLAN RECOMMENDATION	SHIVWITS RESOURCE AREA, ARIZONA BLM	DIXIE RESOURCE AREA, UTAH BLM	CALIENTE FIELD STATION, NEVADA BLM	LAS VEGAS FIELD OFFICE, NEVADA BLM
PROHIBITED: All vehicle activity off of designated roads, all competitive and organized events on designated roads.	Limit vehicle activity to designated roads - no competitive or commercial organized events. Allow limited non-speed and other permitted events on existing, designated roads. Maintenance of designated roads.		Limit vehicle activity to designated roads - no competitive speed events allowed. Allow limited non-speed and other permitted events on existing, designated roads. Consider non-off highway vehicle events and commercial uses only on a case-by-case basis and evaluate any proposals against recovery objectives.	
PROHIBITED: Habitat destructive military maneuvers, clearing for agriculture, landfills, and any other surface disturbance that diminishes the capacity of the land to support desert tortoises, other wildlife, and native vegetation.				
PROHIBITED: Domestic livestock grazing.	Closed to sheep use. Pakoon Area: closed to grazing. Beaver Dam/Virgin Slopes: non-active season grazing from Oct. 15 to March 15.	Beaver Dam Slope: allow non-active season grazing from Oct. 15 to March 15.	Closed to sheep use. No domestic livestock grazing authorized inside Areas of Critical Environmental Concern w/following exception. Within Beaver Dam Slope: Allow non-active season grazing from Oct. 16, to March 14.	
Each BLM office that plans to continue to authorize livestock grazing on a seasonal basis would authorize non-use if requested by a permittee (for example, if an allotment were to be purchased by a conservative group).				
PROHIBITED: Grazing by wild burros and horses.	Set Tassi herd level to 0. Remove all burros from Pakoon Area.	N/A The Beaver Dam Slope has no burros or wild horses.	Set herd level at 0 within Areas of Critical Environmental Concern. Maintain herds outside of Areas of Critical Environmental Concern.	
PROHIBITED: Vegetation harvest, except by permit.	No commercial vegetation harvest, except on salvage basis after consultation.	No vegetative material sales.	Allow vegetative harvest on salvage basis only after consultation.	
PROHIBITED: Collection of biological specimens, except by permit.			No commercial collection of flora and fauna	
PROHIBITED: Dumping and littering.				
PROHIBITED: Deposition of captive or displaced desert tortoises or other animals, except under authorized translocation research projects.				
COMPATIBLE: Limited speed travel on designated, signed roads.	Allow organized, limited non-speed events on designated roads within Areas of Critical Environmental Concern. Casual use limited to designated roads and trails. Closed to speed competitive off-highway vehicle events.			
COMPATIBLE: Non-consumptive recreation (e.g., hiking, bird watching, casual horseback riding, and photography).	Non-consumptive recreation allowed subject to off-highway vehicle and commercial restrictions. Evaluate proposals against recovery objectives.			

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DESERT TORTOISE RECOVERY PLAN IMPLEMENTATION - NORTHEASTERN MOJAVE RECOVERY UNIT DESERT WILDLIFE MANAGEMENT AREA/AREA OF CRITICAL ENVIRONMENTAL CONCERN PRESCRIPTION PROPOSALS				
RECOVERY PLAN RECOMMENDATION	SHIVWITS RESOURCE AREA, ARIZONA BLM	DIXIE RESOURCE AREA, UTAH BLM	CALIENTE FIELD STATION, NEVADA BLM	LAS VEGAS FIELD OFFICE, NEVADA BLM
COMPATIBLE: Parking and camping in designated areas.	Parking within 25 feet of designated roads, all areas open to camping. Camping limit 14 days.	Camping limit 14 days. Restrict camping within ¼ mile of catchments, guzzlers, designated waters.	Establish sites for parking and camping as appropriate and necessary. Camping limits of 14 days.	
COMPATIBLE: Fire suppression that minimizes surface disturbance.	Same as Recovery Plan. Emphasize aerial, hand attack. Minimize surface disturbances. Desert tortoise resource advisor on site whenever possible, firefighter education program. Locate camps and staging areas in previously disturbed areas wherever practical.			
COMPATIBLE: Permitted or otherwise controlled maintenance of existing utilities.	Non-emergency maintenance limited to inactive season.	No restrictions other than those in right-of-way grant specific for each utility.		
COMPATIBLE: Surface disturbances that enhance the quality of habitat for wildlife, enhance watershed protection, or improve non-motorized recreation opportunities.	Permitted activities include surface disturbance that enhance quality of other uses such as wildlife habitat, watershed protection, etc., including population enhancement of other wildlife species, except tortoise predators.	Surface disturbance allowed where no impact to listed or candidate species would occur.	Allow construction of upland game guzzlers and other waters for wildlife as long as it doesn't conflict with desert tortoises.	Allow construction of upland game guzzlers and other waters for wildlife as long as it doesn't conflict with desert tortoises.
Realty Actions/Rights-of-Way (Not addressed in Desert Tortoise Recovery Plan)	Retain all habitat in Public ownership. Areas of Critical Environmental Concern are avoidance areas; rights-of-way not allowed unless no reasonable alternative exists. Require compensation for unmitigated impacts.	Retain all habitat in Public ownership. Beaver Dam Slope is a right-of-way avoidance area, except within fenced boundary of Highway 91.	Retain in Public ownership. Consider as right-of-way avoidance areas; all applications evaluated on a case-by-case in the context of the recovery. New communication sites would be limited to existing sites whenever feasible. Areas of Critical Environmental Concern would be right-of-way exclusion areas for new material site rights-of-way under Federal Aid Highway Act.	Retain in Public ownership. Consider as right-of-way avoidance areas; all applications evaluated on a case-by-case in the context of recovery. New communication sites would be limited to existing sites whenever feasible. Outside of 1/2 mile corridor along highways, would be right-of-way exclusion areas for new material site rights-of-way.

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DESERT TORTOISE RECOVERY PLAN IMPLEMENTATION - NORTHEASTERN MOJAVE RECOVERY UNIT DESERT WILDLIFE MANAGEMENT AREA/AREA OF CRITICAL ENVIRONMENTAL CONCERN PRESCRIPTION PROPOSALS				
RECOVERY PLAN RECOMMENDATION	SHIVWITS RESOURCE AREA, ARIZONA BLM	DIXIE RESOURCE AREA, UTAH BLM	CALIENTE FIELD STATION, NEVADA BLM	LAS VEGAS FIELD OFFICE, NEVADA BLM
COMPATIBLE: Mining on case-by-case basis, provided that cumulative impacts do not significantly impact desert tortoise habitat or populations, that any potential effects on tortoise populations are carefully mitigated during the operation, and that the land is restored to its pre-disturbance condition.	Locatable: Plan of Operation required. Same as Recovery Plan. Bonding as appropriate to assure restoration. Leasable: Seasonal restrictions; no surface occupancy authorized until after completion of consultation. Saleable: Closed to sales except hand picking of rocks within 100' of designated open roadways.	Locatable: Plan of Operation required. Leasable: Category 2 special stipulations. Saleable Minerals: Closed.	Locatable: Plan of Operation required. Same as Recovery Plan. Leasable: No surface occupancy. Saleable: Closed to sales except allow free-use material sales and rights-of-way to local government agencies within one mile of highways or county roads.	Locatable: Withdrawn Fluid Leasable: Open to development subject to no surface occupancy. Solid Leasable: Closed Saleable Minerals: Closed, except for existing designated material pits, community pits, and free use permits within 1/2 mile of specified roads and highways.
COMPATIBLE: Population enhancement of native wildlife species.	Same as Recovery Plan. Population enhancement of native wildlife species.	Enhancement of other species allowed when consistent with desert tortoise objectives.	Allow enhancement of native wildlife species if it is consistent with desert tortoise recovery.	Population enhancement of native wildlife species.

Importance of Cumulative Impacts

The desert tortoise was listed as threatened primarily because a variety of human impacts which cumulatively have resulted in widespread and severe desert tortoise population decline and habitat loss. "A variety of other human uses have caused significant quantitative and qualitative losses of desert tortoise habitat. Urbanization; agricultural development; construction and use of transportation routes and corridors; development of utility corridors; exploration for and development of hard rock minerals, sand and gravel pits, oil and gas, and other mineral resources; and concentrated visitor use are all important causes of widespread habitat destruction. In some portions of the desert, military activities...also contribute to the degradation and loss of tortoise habitat...The combined effects of these various activities have resulted in extirpations and population declines of desert tortoise throughout the Mojave region." (USFWS, p. 10, 1994a).

There would be long-term, cumulative impacts to the desert ecosystem, its wildlife and special status species from implementation of the combination of proposed actions throughout the Northeastern Mojave Recovery Unit. Protection of desert tortoise habitat through Area of Critical Environmental Concern designation, implementation of management actions and protection from disturbance on approximately 1.1 million acres of tortoise habitat in southern Nevada, Northwestern Arizona, southeast California and southwest Utah would provide additional protection for the habitat of many wildlife and plant species.

Tracking of Cumulative Impacts

The potential, future tracking system for analyzing cumulative impacts within the Areas of Critical Environmental Concern in the Las Vegas Field Office would help ensure that individually minor but collectively significant

impacts do not occur. This tracking system can be considered for use throughout the desert tortoise habitat on public lands. This is consistent with the Service Conservation Recommendation in their Biological Opinion of 8/14/91 which stated, that the BLM should use a Geographical Information System to analyze the cumulative impacts of livestock grazing on desert tortoise habitats on a range-wide basis.

Urbanization of Tortoise Habitat

According to the Final Environmental Impact Statement for the Desert Conservation Plan, "The greatest threat to the continued existence of the desert tortoise in Clark County has been and continues to be loss and degradation of habitat." (USFWS, Appendix A, p. 17, 1995). According to the Tortoise Group public information pamphlet, "The rapid destruction of habitat in the Las Vegas area was one of the major reasons for the Federal listing of the tortoise as a Threatened species". "Urban development in Las Vegas Valley has all but eliminated what may have been one of the largest and densest tortoise populations in Nevada" (USFWS, p. 68, 1995c). In addition, the remaining habitat in the Las Vegas Valley has been seriously fragmented.

The Las Vegas metropolitan area ranked second in the nation with an economic growth rate of 10.8 percent. From 1983 to 1993 Clark County's population increased from 535,108 to 919,388. By 2020 the population is expected to grow to 1,450,409 (USFWS, p 79, 1995). Over the next ten years the Valley as a whole is expected to gain over 215,000 residents, with about 43% of the increase occurring in the Valley's unincorporated areas (USFWS, p. 80, 1995b). This explosive growth is expected to continue, resulting in an increasing demand on public lands in southern Nevada for infrastructure needs, utility and road corridors and recreational opportunities. Other portions of the Northeastern Mojave Recovery Unit including Moapa, Mesquite, Alamo and Ash Springs, southeastern Utah, Northwestern Arizona and southern California will likely also experience population growth.

According to the Companion Document to the Recovery Plan, (USFWS, 1994b) few human activities are expected over the next several decades within the mostly undisturbed, isolated and rugged terrain of the proposed Gold Butte-Pakoon and Coyote Springs Areas of Critical Environmental Concern. This is probably an accurate statement for Gold Butte-Pakoon. However, Coyote Springs has a state highway intersecting it from north to south, as well as designated utility corridors and extensive private land which may be developed in the future.

"Population declines or extirpations attributable to cumulative impacts have occurred ... near Las Vegas, Laughlin, and Mesquite, Nevada; and St George, Utah... Future extirpations can be expected in the vicinities of all cities, towns and settlements." (USFWS, p. 3, 1994a) There are inherent impacts to the tortoise at the interface of the urban areas and desert tortoise habitat including uncontrolled dogs, off-highway vehicle use, indiscriminate shooting, collecting of tortoise and vandalism.

Human population growth and urbanization is projected to continue within the Northeastern Mojave Recovery Unit which will have localized severe impacts on tortoise populations primarily through loss of habitat but also from increases in killing and harassment from people, vehicles, and domestic and feral dogs. Desert tortoise habitat around cities and towns will continue to be sacrificed to urbanization. Land disposal and conversion of habitat would continue to be one of the most important impacts to the desert tortoise and tortoise habitat. However, public lands within the proposed Areas of Critical Environmental Concern would not be available for sale, lease or exchange.

It is estimated that more than 170,000 acres of public lands, mostly in the Las Vegas Valley, would be transferred into private ownership within the Northeastern Mojave Recovery Unit during the life of this plan. Much of this land would be developed and become unsuitable as tortoise habitat but will be mitigated through collection of an off-site mitigation fee which would go into one of two tortoise conservation funds adminstered by Clark County. The Clark County Desert Conservation Plan requires the collection of an off-site mitigation fee

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of $550 per acre prior to development of private property. This money is used to fund the Habitat Conservation Plan. Through Section 7 consultation, the Service requires the payment of an off-site mitigation fee on federal actions. This fee is currently $578 per acre but will be indexed for inflation annually. Section 7 money would be used to support efforts to recover and delist the tortoise.

Habitat Conservation Plans in place within the Northeastern Mojave Recovery Unit include the Washington County, Utah, Pahrump Landfill and the Clark County Desert Conservation Plan. The Ash Springs and the Lincoln County Plans are currently under consideration. These Plans provide a mechanism for community growth, incidental take of tortoise, and destruction of tortoise habitat while providing money to fund projects, purchase habitat and research to help insure the survival of the species. The Clark County Desert Conservation Plan may impact up to 113,900 acres, less than 4% of the more than 3.5 million acres of desert tortoise habitat in the county. Of that 113,900 acres, 80% is likely to support desert tortoise habitat.". It is projected that during the life of the permit (1994-2023) $44,757,642 will be raised to be used for conservation of the desert tortoise (USFWS, 1995).

The Harrick Investments property (formerly Aerojet) includes some of the best remaining undisturbed tortoise habitat in Coyote Springs/Kane Springs Valleys (Karl, 1981). The future of this property is unknown. If it were to return to federal ownership, it would be managed for tortoise conservation purposes. Conversely, if more land were to be developed in this area, human impacts would increase in the Coyote Springs Areas of Critical Environmental Concern.

Habitat fragmentation from human impacts would continue in tortoise habitat throughout the Northeastern Mojave Recovery Unit. These impacts would be minimized in the Areas of Critical Environmental Concern which would be managed to preserve and/or restore their natural integrity. In these areas the affects of existing habitat fragmentation would be lessened through reclamation and public lands within these areas would be retained in public ownership.

Management Oversight Group

The majority of land in the Northeastern Mojave Recovery Unit is public land, which facilitates recovery of the tortoise. The fact that these public lands are managed by a variety of agencies could potentially hamper efforts to achieve a consolidated approach to desert tortoise recovery. However, the Management Oversight Group, as an interagency coordinating committee includes representatives of all affected agencies to ensure a coordinated effort in regard to implementation of the goals and objectives of the Recovery Plan.

Monitoring

The Tortoise Recovery Plan recommends extensive population monitoring to determine progress toward recovery. Several methods of monitoring have been tested by the Biological Resources Division of U.S. Geological Survey and a monitoring method has been selected by the Management Oversight Group. The coordination of monitoring by the Interagency Monitoring Committee which is proposed in the Arizona Strip and the Caliente Land Use Plan Amendments would help to provide accurate information on population numbers and trends in order to successfully evaluate recovery of the desert tortoise. It is likely that State wildlife agencies, the Service and the Geological Survey would take the lead in tortoise population monitoring while the land management agencies would take the lead in habitat monitoring.

Transportation Routes and Corridors

Tortoises would continue to be killed by vehicles on the roads and highways in proportion to the volume of traffic during the tortoise active season and the density of the tortoise population. Disruption would also occur from construction, maintenance and loss of habitat. New barriers to movements would be created by the addition of roads within the Northeastern Mojave Recovery Unit. As the volume and speed of traffic increases in the

Northeastern Mojave Recovery Unit there would be the potential for increased numbers of tortoise killed on roads. This trend would be tempered by the construction of highway fences and road barriers as required in Clark County's Sec. 10(a) permit for their Desert Conservation Plan. Also, the impact would be reduced by modification of existing culverts to allow tortoises to move under fenced roads and highways.

Nevada Department of Transportation manages approximately 1,000 miles of roadway throughout desert tortoise habitat in Clark, Lincoln, Nye, Esmeralda, and Mineral Counties. About 900 miles of this is within the Northeastern Mojave Recovery Unit. These highways would continue to be maintained and upgraded as needed to provide for continued growth in the Northeastern Mojave Recovery Unit. In addition there are many miles of County and BLM roads throughout tortoise habitat. The Clark County Habitat Conservation Plan allows for incidental take of desert tortoise in connection with the maintenance of roads, highways and material sites.

All roads within the proposed northern Areas of Critical Environmental Concern (Coyote Springs, Mormon Mesa and Gold Butte-Pakoon) have been surveyed using Global Information Systems. The BLM will use this information to determine appropriate road designations so that when the planning process are completed the road designations can be made and the signs posted. Roads selected for closure may be reclaimed.

Interstates such as I-15, US 93 and US 95, and railroads, concentrated around major population centers, would continue to form important barriers to movement of the desert tortoise throughout the Northeastern Mojave Recovery Unit. The high speed roads constitute major barriers to tortoise movements and have created "sinks" where as tortoise are killed on roads, other tortoise move into the area to take their place, only to meet the same fate. The modification of existing underpasses would allow for movements and gene flow between populations. The proposed tortoise proof fencing along roads would limit their movement but would reduce the number of road kills. The proposed road closures in Special Management Areas and limitations of casual use to designated roads and trails would protect the tortoise by limiting and directing public backcountry use.

Mining

There is relatively little surface disturbance from active mining or oil and gas activities throughout the Northeastern Mojave Recovery Unit. Sand and gravel extraction is expected to be the most active future mining use. The Nevada Department of Transportation anticipates 26 road widening projects resulting in 494 acres of disturbance and the need for about three new materials sites per year for the next three to five years and one per year thereafter adjacent to existing roadways in Clark, Lincoln and Nye Counties (Clark County, p. 53, 1994)). A maximum of about 2,400 acres of land may be developed as material sites over the thirty year term of the Service Section 10 (a) permit (Clark County, p. 53, 1994). While this permit includes the majority of desert tortoise habitat in Nevada, similar types of disturbances will occur in other portions of the Northeastern Mojave Recovery Unit in Utah, Arizona and California, but to a lesser degree since there is a lower rate of population growth in these rural areas. The Las Vegas Field Office will limit material site rights-of-way within Areas of Critical Environmental Concern to a cumulative total of 1,000 acres of expansion of existing rights-of-way.

The material sites created to provide sand and gravel for the roads would destroy tortoise habitat. However, Nevada Department of Transportation has agreed to relinquish four material sites rights-of-way in the Piute/Eldorado Area of Critical Environmental Concern. They would also be locating their regional material sites outside of any Special Management Areas. No new material sites would be located within the designated Areas of Critical Environmental Concern for tortoise. Existing sites within these areas would be rehabilitated once they are relinquished by the permit holder.

Military Activities

According to the biological opinion for the Nellis Air Force Range, continued weapons testing/training at Nellis Air Force Base may affect an estimated 12 desert tortoises annually. Plus, these activities would further annually degrade 971 acres of disturbed desert tortoise habitat associated with target impact zones. Desert tortoise may be

impacted by vehicles on maintenance roads or traveling off-road, by ordnance activities within unfenced target impact zones, wildfires caused by ordnance, illegal collecting of tortoise, or from noise and vibrations. Weapons testing/training on the Desert National Wildlife Range would likely continue, although the lands involved may be transferred to the Air Force at some future date. No impacts to desert tortoise from military activities would occur in Areas of Critical Environmental Concern.

Department of Energy

Any activity on the Nevada Test Site which may affect desert tortoise is carefully regulated and efforts are made to minimize negative impacts. Access is highly restricted. This protects tortoises from collection or harassment by the public. Since Nevada Test Site is restricted access, no permits for commercial or competitive events are issued. Department of Energy, Nevada security and management guidelines prohibit grazing, hunting, trapping, carrying firearms, off-road driving and harassing wildlife. Use of hazardous materials is strictly controlled. Employees and contractors must complete a tortoise education program (U.S. Department of Energy, Nevada Field Office, Biological Assessment of the Effects of Activities of the U.S. Department of Energy, Field Office, Nevada on the Threatened Desert Tortoise, July 1991). Tortoise habitat on the Nevada Test Site is not contiguous with proposed Areas of Critical Environmental Concern and activities on the site would not affect tortoise recovery efforts by BLM.

Wilderness

More than one and a half million acres within the Northeastern Mojave Recovery Unit are under consideration for designation as wilderness. Some of these lands inolude tortoise habitat. The eventual designation as wilderness would serve to provide additional long term protection for these areas. For the tortoise habitat within wilderness study areas which are released from consideration for wilderness, Section 7 consultation with the Service would provide a mechanism to minimize impacts to tortoises. Those portions of Areas of Critical Environmental Concern within wilderness study areas which are released from further consideration as Wilderness would be managed under their respective desert tortoise protective designation.

Upper Respiratory Tract Disease

Upper Respiratory Tract Disease would continue to be endemic within the tortoise population and continue to cause fatalities. At this time, there is no known cure for infected tortoise. Public education, law enforcement and limitations on public access would help to minimize release of diseased tortoises and spread of the disease. The tortoise populations within the more isolated habitats would be less likely to contract the disease since release of infected tortoise is unlikely to occur in the more remote locations. Improved nutrition for the desert tortoise through improvement in their habitat will likely cause the tortoise to be less susceptible to this and other diseases.

Environmental Education

The combination of environmental education efforts by the variety of agencies would promote public awareness and should help to reduce vandalism, unauthorized collection and the spread of Upper Respiratory Tract Disease. Education of the public on road designations within Areas of Critical Environmental Concern should reduce degradation of habitat from off road activity and reduce the number of road killed tortoises.

Law Enforcement

Implementation of the goals and objectives of the Recovery Plan would strengthen existing regulatory mechanisms to protect tortoise and their habitat. Since the listing of the desert tortoise as threatened, protection of their habitats would also be a higher priority for law enforcement. Designation of Areas of Critical Environmental Concern and implementation of completed BLM Land Use Plans would increase regulatory

controls in these areas. The Clark County Desert Conservation Plan currently provides funding for two full time law enforcement positions in the Las Vegas District. These postitions are dedicated to patroling the tortoise Areas of Critical Environmental Concern.

Off-Highway Vehicle Activities

Motorized travel would be limited to designated roads and trails within all Areas of Critical Environmental Concern, once established through the BLM planning process. This would reduce degradation of tortoise habitat from off-road vehicle activities and road kill of tortoises. Impacts to tortoise habitat in these would be minimized by closing some of the existing trails, restricting organized off-highway vehicle events to designated roads, and limiting casual use to designated roads and trails. Recreational use of tortoise habitat would continue to cause direct mortality of tortoise, habitat damage, and result in collection and unauthorized release of tortoise. "The use of off-highway vehicles appears to have a significant effect on tortoise abundance and distribution. Although road closures have been implemented in some areas illegal vehicle route proliferation has also occurred in many areas and can result in significant cumulative loss of habitat." (USFWS, p, 5824, 1994c). Casual off-highway vehicle activity not associated with organized events occurs continuously, is not regulated and likely has a much greater effect on the desert tortoise and its habitat than regulated events.

Outside of Areas of Critical Environmental Concern, impacts of off-highway vehicle events would continue and would include habitat impacts such as loss of soil from erosion, soil compaction, destruction of plants, burrows, and crushing of some individual tortoises. Spectators at competitive events can have as much or more impact on tortoise and their habitat as the actual participants. This would be controlled through the use authorization and law enforcement. Casual recreational use on public lands is expected to increase.

Human Predation

According to the Recovery Plan, (USFWS, p. D-3, 1994a) many former residents of other countries are bringing their traditional practices of using tortoise for human consumption as they immigrate to Las Vegas and elsewhere in the west. Also, "...commercial poaching of rare, threatened, and endangered species is well documented, and in some cases, a lucrative business." (USFWS, p. D-5, 1994a). Human predation and vandalism of desert tortoise would continue but at a lesser rate in spite of the increasing human population. Factors which would contribute to this decrease consist of the variety of environmental education efforts ongoing and proposed, increased law enforcement activity, and limitations on public access into the tortoise Areas of Critical Environmental Concern.

Predation

Common raven populations have increased significantly in the southwestern deserts since the 1940s. Human use and activities have increased available foraging, roosting and nesting opportunities for ravens. These birds are highly opportunistic in their feeding habits and concentrate on easily available seasonal sources of food such as juvenile tortoise (USFWS, p. 5824, 1994c). "Predation by the common raven *(Corvus corax)* is intense on younger age classes of the desert tortoise and the Fish and Wildlife Service's Breeding Bird Survey Program provided data to show a 15-fold increase in raven populations in the Mojave Desert...from 1968 to 1988..." (USFWS, p. 6, 1994a). "Berry (1990, as amended) believes that predation pressure from ravens probably has resulted in such high losses of juveniles in some portions of the Mojave region that recruitment of immature desert tortoises into the adult population has been halted." (USFWS, pp. 6-7, 1994a).

The closure of the scattered open dumps throughout the Northeastern Mojave Recovery Unit would help to limit the raven and coyote population, both of which prey on the tortoise. In spite of this effort the trend of an increase in the raven population within the Northeastern Mojave Recovery Unit is expected to continue from a

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combination of factors including road kills as a food source, refuse, feedlots, range water developments and the raven's status as a Federally protected species. The anticipated increase in the raven population would increase the raven's detrimental impact to small tortoises, mostly less than 4 inches in shell length.

"Towers supporting transmission lines also provide predatory birds with new perching and nesting sites which are otherwise scarce in the generally treeless habitat of the Mojave region..." (USFWS p. D-14, 1994a). In one three year California study 62% of the 564 shells of juvenile desert tortoise were found associated with raven perch or nest sites, most of which were along powerlines (USFWS, p. D33, 1994a). The transmission towers would continue to serve as perches from which ravens will continue to prey on tortoise. Designation of utility corridors through many of the Areas of Critical Environmental Concern would allow for the construction of additional perches for ravens.

Because raven populations are projected to increase throughout the Northeastern Mojave Recovery Unit they will continue to have a serious impact on survival of juvenile tortoise. The Recovery Plan recommends raven control to reduce predation on juvenile tortoise for portions of the Northeastern Mojave Recovery Unit (USFWS, p. F-14, 1994a). Localized control on predator populations, as proposed in the Caliente Amendment, and the Dixie Resource Management Plan would allow for survival of a greater number of juvenile tortoise to a reproductive age. The proposed management actions which limit their food source, nesting and roosting opportunities may result in lower rates of population increase.

Forage Utilization

Grazing by domestic livestock has changed the vegetative composition within the Northeastern Mojave Recovery Unit (Oldemeyer, p. 97, 1994). There is scientific disagreement as to whether or not this change in vegetation is permanent. With the existing surface disturbance, the establishment of exotic annuals and the fire re-burn cycle, the native perennial may never be able to become predominate again. Even with limitations on grazing in tortoise habitat, the low precipitation zones which exist throughout the Northeastern Mojave Recovery Unit would not allow for rapid improvement in vegetative conditions for tortoise. Shreve and Hinkley (1937) and other researchers have shown slow increases in native perennial grass cover in deserts with protection from grazing. Sid Slone, Wildlife Biologist for the BLM, has observed an increase in bush muhly in the Piute Valley since grazing was eliminated (Slone, 1997, personal communication).

If grazing privileges are retired as anticipated, then 36,900 acres of tortoise critical habitat in the Nevada portion of the Beaver Dam Slope Area of Critical Environmental Concern and 25,600 acres of the Rox Tule Allotment would be closed to grazing. In addition, efforts are underway to fund the purchase of allotments in the Pakoon Basin which would then be retired. The combination of these proposals would lessen grazing use in the Northeastern Mojave Recovery Unit and potentially provide more forage for the tortoise as well as improve the quality of forage in the long term.

One livestock grazing allotment and parts of three others would be closed to livestock grazing in Arizona. Five allotments in Arizona would have no spring or summer grazing. Grazing on one entire allotment and two pastures of a second allotment in Utah would be restricted to the period October 15 to March 15 of each year. In Caliente, three entire allotments and portions of 6 others, affecting approximately 12 operators would be closed. Monitoring of livestock grazing and vegetation utilization in grazed allotments would help to maintain vegetation for the tortoise and other users. In the Las Vegas Field Office, 39 allotments over approximately 2.2 million acres would be closed to grazing. Of these, about 12 of these overlap or are within Areas of Critical Environmental Concern in the Northeast Mojave Recovery Unit.

The designated critical habitat within the Northeastern Mojave Recovery Unit is overlapped by 45 different grazing allotments. Approximately 100% of the acreage within the designated critical habitat has been grazed by

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livestock in the past (USFWS, 1997b). Twenty three percent (349,225 acres) of the of the critical habitat within the Northeastern Mojave Recovery Unit is not grazed by livestock because of voluntary non-use for conservation purposes under the Clark County Desert Conservation Plan.

Limitations on grazing by domestic livestock and wild horses would increase the amount of spring forage available for desert tortoise and reduce the trampling of shallow dens. In the long term, the amount of perennial grasses would increase, improving forage and cover for desert tortoise. Outside of the tortoise Areas of Critical Environmental Concern, grazing would be managed in accordance with the modified 1991 Biological Opinion on livestock grazing in tortoise habitat.

Throughout the Northeastern Mojave Recovery Unit tortoise would benefit in the long term from reduction in grazing pressure from cattle since desert tortoise and cattle have an overlap in food habits (Oldemeyer, p. 100, 1994). The lessened competition would be most beneficial during the spring months. Although, recent data compiled by the Smithsonian Institution indicates that perennial grasses may be an important food item for desert tortoise and a standing crop of perennial grasses, particularly bush muhly and Indian ricegrass, may be important for tortoises yearlong. An increase in perennial cover also would provide additional cover sites for desert tortoise. "An analysis of exclosures and other protected areas revealed the perennial-grass cover in deserts has increased with protection from grazing...The rate of succession is controlled to a large extent by the moisture conditions of the substrate...thus one expects deserts to improve very slowly after reductions in livestock numbers. However, the ecological condition may never improve as long as exotic annuals are a permanent component of the flora." (Oldemeyer, p. 98, 1994). Thus, the moisture conditions and the presence of exotic annuals will be determining factors as to whether or not there are changes in ecological condition after removal of grazing.

The results of the spring 1997 Ely Field Office ecological status inventory of critical desert tortoise habitat within Lincoln County predicted that change in the vegetation to a dominance of native perennial plants after removal of grazing would not occur during the short term, and probably not during the life of the plan (25 years), but could occur in some portions of the Recovery Unit at some unidentifiable point in the future.

Grazing by wild horses and burros would be excluded from the Special Management Areas in order to preserve the habitat for desert tortoise. This would result in the reduction of 20-75 animals and the loss of 2 herd management areas.

The limitations on grazing would result in a change in the vegetation composition over the long-term in portions of the Northeast Mojave Recovery Unit to native perennials becoming a greater component in relationship to annual exotics. This would help to meet tortoise nutritional needs and likely result in greater reproductive success and better resistance to disease. The vegetation change would also provide for more escape cover from predators. If tortoise nutrition is improved they would grow to an adult size more quickly and there would be fewer years during which each individual would be vulnerable to predation.

Fire

Fires become more frequent as they feed on the exotic annuals. The cured annuals would also carry the fires into the desert shrub communities which can eliminate important thermal cover for the tortoise. Fire causes loss of vegetation cover, changes in plant species composition and diversity, an increase in soil erosion and flooding, and direct mortality of desert tortoise (or their eggs). The effect on desert tortoise populations has not been quantified, but is potentially considerable.

Fire and suppression activities in the Northeastern Mojave Recovery Unit would continue to affect tortoise and their habitat in direct and indirect ways. The direct effects include injury or death from heat or smoke, and crushing of the tortoise or their burrow from vehicles used in suppression activities. Indirect effects include the invasion of exotic annuals leading to a more flammable fuel type, more frequent, larger and intense fires; and a

loss of shrubs which provide important thermal cover for tortoise. Fire suppression activities may create additional access into previously unroaded areas. Fire management would be done in accordance with the Recovery Plan and with consideration of the direction provided by the fire management guidance from the interagency effort at the Boulder City Fire Management for the Desert Tortoise Conference in January of 1995.

Habitat Restoration

The Las Vegas Field Office will develop a land disturbance rehabilitation plan for the Piute-Eldorado Area of Critical Environmental Concern so that on-the-ground rehabilitation can commence in FY 1998. Likewise the BLM will develop a rehabilitation plan for the other Areas of Critical Environmental Concern. These rehabilitation plans could serve as a model for the rest of the Northeastern Mojave Recovery Unit. Over the long-term, desert tortoise would benefit from the rehabilitation of their native habitats. One of the primary benefits would be closure of undesignated roads within Areas of Critical Environmental Concern. This would reduce fragmentation of habitat, off-road vehicle traffic and the potential for road kill or harassment of tortoises. Revegetation of denuded areas would also provide additional cover for hatchling and juvenile tortoises. However, based upon helicopter surveys of the Areas of Critical Environmental Concern in the Las Vegas Field Office, existing disturbed areas are generally small and comprise a very small percentage of the critical habitat. For example, exclusive of roads, less than 1% of the Piute/Eldorado Area of Critical Environmental Concern is disturbed from past surface disturbing activities. This does not include dispersed disturbance due to livestock grazing.

Utilities

Powerline and telephone line structures would continue to provide nesting and roosting sites for predators of the desert tortoise. The maintenance and access roads for these facilities would provide for public access routes into the backcountry. Underground pipe lines and fiber optic lines would result in degradation of habitat and additional road access into tortoise habitat. In the Las Vegas Field Office, there is a designated utility corridor through all the Areas of Critical Environmental Concern with the exception of Gold Butte. The location of Hoover Dam in southern Nevada ensures that there will be a demand for utility lines through critical tortoise habitat in southern Nevada for the life of the plan. Expanding human populations would result in continually increasing demand for electricity, natural gas and telephone service.

Off-Highway Vehicles

The varied management strategies for non-speed off-highway vehicle events among BLM Offices would have the effect of limiting these types of events to the most restrictive management prescription in all cases where the event would cross administrative boundaries. The Code of Federal Regulations (43 CFR 8372.1-1) requires a special recreation permit to be issued in most circumstances involving 50 or more vehicles. Although the Ely Field Office continues to rely on this threshold for requiring a permit, the Las Vegas Field Office would require a permit for any organized event involving 25 or more vehicles.

Together with other regulatory differences between jurisdictions, promoters would be faced with navigating through a variety of differences to conduct a multi-jurisdictional organized event. For instance, the Ely Field Office would allow a group of 35 vehicles to conduct a non-speed event through Areas of Critical Environmental Concern on designated roads at any time of year without a special recreation permit. However, if the event originated within the Las Vegas Field Office jurisdiction, the event would not be allowed at all between April 1 and June 1, or between August 15 and October 15. Outside of those dates, the event would likely be allowed, subject to approval of a special recreation permit (because the event would involve more than 25 vehicles).

By the same token, the same event originating within the Ely Field Office jurisdiction would not be allowed to pass into the Las Vegas area without meeting their requirements. Since the Ely Field Office would not require a permit, the event organizer would have to apply for approval from the Las Vegas Field Office. Similar

circumstances exist between Ely or Las Vegas, and the Arizona Strip District, which would not allow the event to be conducted during the tortoise active season. Events that could be allowed during the tortoise active season by either Ely or Las Vegas would not be allowed to pass into the jurisdiction of the Arizona Strip District.

Of the six corridors designated for use by non-speed off-highway vehicle events by the Ely Field Office, only one -- Kane Springs Road -- lies entirely within that Office's jurisdiction. The Kane Springs Road, which branches off highway 93 some 75 miles north of Las Vegas (and approximately 75 miles west of Mesquite via state highway 168) would be an unlikely place for an event promoter to begin their event since it would involve considerable shuttle time and cost for participants. It would not be expected to receive many, if any, events displaced by surrounding restrictions, but might be expected to be used as a corridor for events permitted through Las Vegas and using other lands within Clark County. Even if Kane Springs Road became the target of displaced events from other areas, the character of the road -- a wide, hard-surface, county-maintained road -- would easily accommodate events without disturbing additional tortoise habitat.

The inconsistency between jurisdictions could result in confusion among event organizers, and perhaps a concomitant level of inadvertent non-compliance with restrictions in the more restrictive areas, at least in the short term. However, because there is no substantial population base in the vicinity of the planning area to originate events from the less-restrictive Ely Field Office jurisdiction, very few, if any, events would be likely to originate in Lincoln County and cross into the more restrictive surrounding jurisdictions. Virtually all events would continue to originate in Las Vegas, or Mesquite, Nevada; and St. George, Utah.

In the long term, the restrictions imposed in some areas would reduce use levels in the adjacent, less restrictive areas. Even though the Ely Field Office has not adopted the regulatory strategy of the surrounding field offices, use levels might be expected to drop off in Lincoln County due to event promoters' inability to navigate through surrounding field office's regulations in order to gain access to southern Lincoln County, and points north.

Within the Las Vegas Field Office restrictions on off-highway vehicle events have been in place since the listing of the desert tortoise. Therefore, events have already been relocated outside of proposed Areas of Critical Environmental Concern and little change in use levels is anticipated. Beneficial impacts to desert tortoise and their habitat in the Areas of Critical Environmental Concern have already been realized. Negative impacts to tortoise and habitat would continue outside of Areas of Critical Environmental Concern.

Conclusion

For an overview of the cumulative impacts as they specifically relate to the desert tortoise see the Cumulative Impacts Summary **Table 3** at the end of this section. According to the Recovery Plan (USFWS, p. C-12, 1994a) the most important condition of extinction which desert tortoise must contend with today are the extrinsic forces which have increased to levels never encountered by the desert tortoise during its evolutionary history. These include urbanization, Upper Respiratory Tract Disease, raven predation, habitat fragmentation and changes in the vegetative composition. "... maintaining high survivorship of adult tortoises is the key factor in the recovery of this species." (USFWS, p. 27, 1994a).

It is the cumulative impacts which have led to the listing of the species as threatened, not any one factor. Some of the important contributors to the demise of the desert tortoise are impossible to halt, such as the continued urbanization in the prime tortoise habitat of the Las Vegas Valley. Addressing all of the controllable factors which minimize the extrinsic forces and maintain survivorship of adult tortoises will maximize the potential for recovery and delisting.

"An obstacle to past and current research is the preponderance of unpublished literature and lack of scientific hypothesis, especially on studies of desert tortoise (G. agassizii). Important management decisions have been made without adequate knowledge about the biology of the affected species." (Germano, p. 187, 1994). "Retention of the threatened status of the tortoise is a conservative strategy for the conservation of natural

resources but should be reassessed when additional data are available." (Corn, p. 85, 1994). The increasing knowledge of tortoise biology and the interagency monitoring of tortoise populations and trends will combine to provide the data needed to determine whether the goals and objectives of the Recovery Plan are being met.

There is professional disagreement regarding whether or not livestock can be allowed to graze and still provide for recovery of the desert tortoise. The cost of waiting to proceed until the agencies have more definitive information on this subject has been considered. Delaying implementation of the goals and objectives of the Recovery Plan until definitive studies of the interaction between livestock and desert tortoise have been completed, could be detrimental to the species within the Northeastern Mojave Recovery Unit.

Implementation of the goals and objectives of the Recovery Plan as coordinated by the Management Oversight Group throughout the Northeastern Mojave Recovery Unit would help maintain portions of the Northeastern Mojave Recovery Unit in a natural condition; and would have important local, but minor regional social and economic impacts.

The cumulative effect implementation of the **Desert Tortoise Recovery Plan** throughout the Northeastern Mojave Recovery Unit, would preserve and protect an adequate amount of habitat to meet the goals and objectives of the Desert Tortoise Recovery Plan. Additionally, adverse impacts from human activities would be reduced in accordance with the Recovery Plan. Implementation of the goals and objectives of the Recovery Plan throughout the Northeastern Mojave Recovery Unit would result in a long-term increase in the desert tortoise population and meeting the de-listing criteria ultimately justifying the delisting of the species. There will be a period of time, however, during which beneficial impacts to the tortoise would still be forthcoming. "These populations grow slowly, and significant improvement in the status of the Mojave population will be a very long process..." (USFWS, p. 5823, 1994c).

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TABLE 3. DESERT TORTOISE CUMULATIVE IMPACT ANALYSIS SUMMARY

Issue	Past Actions	Present Actions	Proposed Action or Reasonable Alternative	Future Actions	Cumulative Effects
Management Direction	No special status prior to the state laws protecting tortoise. The 1988 BLM Rangewide Plan attempted to prevent the need for listing of the species by the Service. Listed as Threatened in 1990 by the Service. Critical habitat of 846,000 acres within the Northeast Mojave Recovery Unit designated in 1994. Recovery Plan completed in 1994.	Land management agencies within the Northeastern Mojave Recovery Unit are implementing the goals and objectives of the Recovery Plan through modification of land use plans. The Management Oversight Group is coordinating the effort. Land management agencies are consulting with the Service under Section 7 of the Endangered Species Act when their actions affect desert tortoise or their habitat.	Implementation of the goals and objectives of the Recovery Plan within the Las Vegas Field Office.	Implementation of the goals and objectives of the Recovery Plan throughout the Northeastern Mojave Recovery Unit by the land management agencies. More intensive management within Areas of Critical Environmental Concern on approximately 2,000 square miles of tortoise habitat within the Northeastern Mojave Recovery Unit. Improved public education could result in fewer impacts to desert tortoise even outside of special management areas.	The individual agencies efforts to recover and delist the desert tortoise would not, by themselves, achieve the purpose of the Recovery Plan. The proposed management actions, in combination, would enhance the probability of the tortoise being delisted after 25 years within the Northeast Mojave Recovery Unit.

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TABLE 3. DESERT TORTOISE CUMULATIVE IMPACT ANALYSIS SUMMARY

Issue	Past Actions	Present Actions	Proposed Action or Reasonable Alternative	Future Actions	Cumulative Effects
Predation	Major natural predators have been ravens and coyotes.	Ravens are Federally protected species. Raven population increasing tremendously within the Northeastern Mojave Recovery Unit.	Some direct control of natural predators is proposed. Indirect control of predator populations through cleanup of dumps, routing of transmission lines, and placement of anti-perching devices on existing structures.	Continued increase in raven population in the Northeastern Mojave Recovery Unit in spite of the direct and indirect control. Some localized control of predator populations.	Increasing raven predation on juvenile tortoise throughout the Northeastern Mojave Recovery Unit. Localized predator control would minimize predation within small portions of the Northeastern Mojave Recovery Unit. Higher survival of juvenile tortoise in those areas with predator control. Predicted long-term increase in perennial vegetation would provide for escape cover from predators.

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TABLE 3. DESERT TORTOISE CUMULATIVE IMPACT ANALYSIS SUMMARY

Issue	Past Actions	Present Actions	Proposed Action or Reasonable Alternative	Future Actions	Cumulative Effects
Human Predation	Historic use as food by Native Americans. Collection of the tortoise as pets or for food. Indiscriminate shooting of tortoise in the past especially near urban areas.	Public education efforts to prevent shooting and collection. Tortoise available to be adopted from Centers.	Law enforcement presence for control of human use within Areas of Critical Environmental Concern. Environmental education efforts to minimize human predation. Restrictions on public access.	Continued public education and law enforcement efforts and monitoring of road closures.	Less human predation, vandalism and collection of the tortoise as pets throughout the Northeastern Mojave Recovery Unit.

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TABLE 3. DESERT TORTOISE CUMULATIVE IMPACT ANALYSIS SUMMARY

Issue	Past Actions	Present Actions	Proposed Action or Reasonable Alternative	Future Actions	Cumulative Effects
Urbanization/Development of Habitat	Establishment of cities and towns throughout the Northeastern Mojave Recovery Unit within tortoise habitat.	Growth of the cities and towns throughout the Northeastern Mojave Recovery Unit. Use of Habitat Conservation Plans to allow growth of cities while mitigating impacts to tortoise.	Lands within the Areas of Critical Environmental Concern and within designated critical habitat would be retained in public ownership.	Continued urbanization within portions of the Northeastern Mojave Recovery Unit. Development of more Habitat Conservation Plans to allow for community growth and mitigation for habitat destruction. Protection of 2,000 square miles of habitat from urbanization.	Desert tortoise habitat around cities and towns would be sacrificed to urbanization. Money raised through an impact mitigation fee would be used to promote recovery efforts for the tortoise. Critical habitat and lands within Special Management Areas would be retained in public ownership. Surface disturbances within Special Management Areas would be minimized. 2,000 square miles of habitat would be protected from urbanization.

TABLE 3. DESERT TORTOISE CUMULATIVE IMPACT ANALYSIS SUMMARY

Issue	Past Actions	Present Actions	Proposed Action or Reasonable Alternative	Future Actions	Cumulative Effects
Transportation Routes and Corridors	Development of a transportation network to connect and service the population centers and provide public access has created barriers to tortoise movements and created "sinks" where tortoise are killed.	Expansion and maintenance of the transportation routes.	Public access limited into the Special Management Areas by restricting travel to designated roads and trails. Close some roads and trails.	Future expansion and maintenance of the transportation routes would consider impacts to the tortoise in the design plans and mitigate impacts. Tortoise barriers would be erected to keep tortoise off of some of the roads. Underpasses created where tortoise can safely cross.	Barriers to tortoise movements mitigated and road kills lessened to the extent of the effectiveness of the tortoise proof fences and underpasses. The major barriers of highways and railways would remain in some areas.
Visitor Use of Tortoise Habitat	Relatively little recreation use of the backcountry in the Northeastern Mojave Recovery Unit.	Expanding recreation use of the backcountry within the Northeastern Mojave Recovery Unit as a result of increasing population, road proliferation and increasing ownership of off-road vehicles.	The Las Vegas Resource Management Plan would direct intensive recreational use away from Management Areas and designated critical habitat. Public education efforts in regard to avoiding harm to tortoise while visiting the backcountry. Increased law enforcement presence to control visitor use.	Control public use of Management Areas, designated critical habitat and all others areas within known tortoise habitat. Continue public education and law enforcement efforts.	Control of public recreational use, public education efforts, and increased law enforcement efforts should lessen backcountry visitors impacts on tortoise in spite of the projected increase in visitors. Vehicle use in management areas would be limited to designated roads and trails.

TABLE 3. DESERT TORTOISE CUMULATIVE IMPACT ANALYSIS SUMMARY

Issue	Past Actions	Present Actions	Proposed Action or Reasonable Alternative	Future Actions	Cumulative Effects
Fire	Historically, there were few fires within the Northeastern Mojave Recovery Unit. The introduction of non-native annuals provided a fuel source to carry fire within the Northeastern Mojave Recovery Unit.	Fire size, intensity and frequency has increased over the past due to fuel buildup and the presence of more people who can accidentally start fires.	Maximum fire control with minimum impact to the tortoise and it's habitat.	Do fire control in accordance with accepted practices within tortoise habitat. Minimize acreage burned within management areas.	Fire would continue to have direct and indirect impacts to tortoise. Minimum impacts to tortoise habitat from fire control methods. Wet years would create greater potential for larger and more intense fires with direct and indirect impacts to tortoise. The reburn cycle would lessen the potential of conversion of ecological sites from exotic annuals to native perennials.

TABLE 3. DESERT TORTOISE CUMULATIVE IMPACT ANALYSIS SUMMARY

Issue	Past Actions	Present Actions	Proposed Action or Reasonable Alternative	Future Actions	Cumulative Effects
Forage Utilization	Introduction of domestic livestock and buildup of wild horse herds within the Northeastern Mojave Recovery Unit. Grazing by domestic livestock for the past 140 years.	Wild horses are being kept within appropriate management levels within herd management areas. Livestock use throughout the Northeastern Mojave Recovery Unit much reduced over historic levels. Purchase by Clark County of grazing privileges within tortoise management areas on a willing seller basis.	Close allotments within Tortoise Areas of Critical Environmental Concern in the Las Vegas Field Office. Close any allotment purchased by Clark County for conservation purposes. Eliminate wild horses from within the tortoise Areas of Critical Environmental Concern.	Purchase of grazing privileges within tortoise management areas on a willing seller basis. Some allotments closed to grazing. Allotment evaluations will be completed which could result in adjustments to grazing. Allotments outside of tortoise management areas would remain open to grazing.	Less grazing within the Northeastern Mojave Recovery Unit, and none or very limited grazing within the tortoise management areas. More total forage and essential spring forage available for tortoise. Some change from exotic annuals to native perennials would occur but the change would be slow and would only be expected over the long term (>25 years). Lessened predation expected from an increase in escape cover. Tortoise nutritional needs more adequately met which would likely lead to more reproduction and better tolerance to diseases.

TABLE 3. DESERT TORTOISE CUMULATIVE IMPACT ANALYSIS SUMMARY

Issue	Past Actions	Present Actions	Proposed Action or Reasonable Alternative	Future Actions	Cumulative Effects
Upper Respiratory Tract Disease	Probably introduced to the populations of wild tortoise by release of infected pet tortoise.	Public education efforts to prevent spread of the disease to wild tortoise. Research into the prevention of the disease.	Public education and law enforcement efforts. Additional research in treatment or prevention of the disease.	Continued public education and law enforcement. Additional research in treatment or prevention of the disease.	Respiratory Tract Disease would continue to be endemic in the tortoise population and contribute to mortality. Less transmission of the disease with fewer pet tortoise released into the wild, and less relocation of wild tortoise.
Habitat Acquisition	None	Habitat is being secured through funds generated through Habitat Conservation Plans.	Secure habitat as opportunity allows. If the Aerojet property or the Harrick Investment lease returns to Federal ownership, incorporate into the Coyote Springs Area of Critical Environmental Concern.	There is very limited opportunities for habitat acquisition in the Northeastern Mojave Recovery Unit since the proposed management areas are virtually all public lands with the exception of Harrick Investment and Aerojet lands in Coyote Springs Valley.	Any habitat acquisition would protect habitat from development and enhance tortoise recovery.

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TABLE 3. DESERT TORTOISE CUMULATIVE IMPACT ANALYSIS SUMMARY

Issue	Past Actions	Present Actions	Proposed Action or Reasonable Alternative	Future Actions	Cumulative Effects
Off-Highway Vehicle Use	Historical increase in off-highway vehicle use throughout the Northeastern Mojave Recovery Unit. Little to no regulation.	Use concentrated around population centers. Close regulation of competitive events, ongoing casual use with little restriction.	Use limited to designated roads and trails within Areas of Critical Environmental Concern. Some roads and trails closed to limit public access. No competitive events within Areas of Critical Environmental Concern.	Increasing use throughout the Northeastern Mojave Recovery Unit. Limit use in Areas of Critical Environmental Concern, through road closures, law enforcement and public education. Increasing disturbance outside of the management areas from casual use.	Minimal disturbance of tortoise habitat within the Areas of Critical Environmental Concern. Increasing disturbance outside of the management areas from casual use.
Mining	Little surface disturbance from mining activities within the Northeastern Mojave Recovery Unit.	High interest in mineral materials to serve the needs of the expanding communities.	Withdraw Areas of Critical Environmental Concern from locatable mineral entry. Close to leasable. No surface occupancy for fluid minerals. Limit salable minerals to governmental entities.	There would be an estimated 6,000 acres of surface disturbance from mining activities throughout the Northeastern Recovery Unit during the life of the plan.	Tortoise habitat would be impacted by surface disturbance from projected mining activities. Required reclamation would help to minimize this impact. Over the long-term, withdrawal from locatable mineral entry would reduce the potential for future mining activity.

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Issue	Past Actions	Present Actions	Proposed Action or Reasonable Alternative	Future Actions	Cumulative Effects
Utilities	Powerlines, transmission lines and telephone lines constructed throughout the Recovery Unit, often with an developed maintenance road.	Maintenance of existing structures, lines and roads. Expansion of the utility network.	Avoidance of the tortoise management Areas in routing of new lines, and/or the attempt to confine lines to designated corridors. Mitigation of impacts for new lines.	Continued expansion of the utility network to serve the growing population needs.	Continued existence and expansion of the utility structures from which predatory birds can predate on tortoise and build nests, in an otherwise generally treeless desert. Maintenance roads for the utilities would continue to provide public access into the backcountry.
Wilderness	Designation of over 1.5 million acres within the Recovery Unit as Wilderness Study Areas.	Maintenance of the wilderness characteristics of these areas through application of the Interim Management Policy.	Wilderness Study Areas within Areas of Critical Environmental Concern which are released from consideration for wilderness would be managed as part of the Area of Critical Environmental Concern.	It is unknown when the wilderness designations will take place. It is also unknown which portions of the study areas will be designated as wilderness. Portions of the Recovery Unit will be designated as wilderness. Portions will also be released from wilderness consideration.	Interim protection of the desert tortoise habitat that is within Study Areas. Perpetual protection of the desert tortoise habitat that is included within the designated wilderness.

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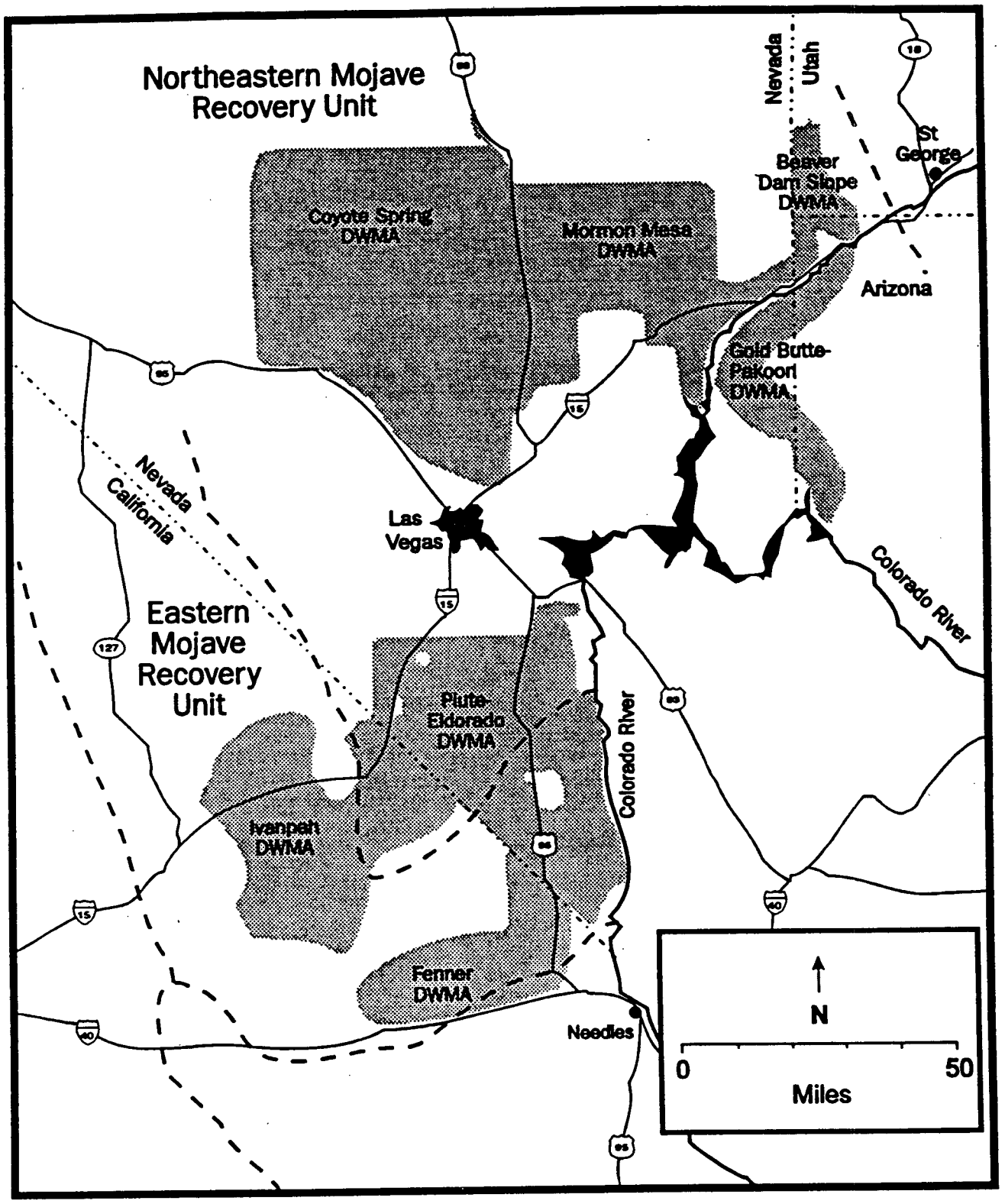

MAP 1: Proposed Desert Tortoise Recovery Areas, Northeastern Recovery Unit

APPENDIX J

Terms and Conditions and Supplemental Stipulations Applicable to Special Recreation Permits necessary to protect desert tortoises.

The following Terms and Conditions and Supplemental Stipulations have been adapted from U.S. Fish and Wildlife Service Biological Opinion 1-5-95-F-237, stipulations commonly used by BLM and discussions of the Non-speed OHV working group. The following terms and conditions, special stipulations and use limits apply to all tortoise habitat within the planning area covered by the Resource Management Plan.

Terms and Conditions for OHV events in tortoise habitat

The Bureau proposes to issue special recreation use permits for speed and non-speed OHV events and horse endurance rides in desert tortoise habitat in the Las Vegas District. Events outside areas of critical environmental concern, determined to have no effect on the desert tortoise will not be subject to these terms and conditions. Determination of effect will be based on: (1) Location of the event, (2) type of habitat, (3) tortoise survey data, and (4) type of event, as described below.

Speed-based sections of OHV events will not be authorized in Areas of Critical Environmental Concern (ACECs). The Bureau will reinitiate consultation if the final designations of ACEC boundaries differ substantially from those that are currently proposed.

Outside of proposed ACECs, events will be authorized on existing roads and trails. Such events may include truck/buggy races, motorcycle races, all-terrain vehicle (ATV) races, rallys, mountain bike events, dual sport rides, poker runs and horse endurance rides.

Within the Las Vegas District, events will be permitted on existing roads and trails over the majority of the District. In designated open areas, such as the Nellis Dunes Recreation Lands or dry lake beds, events may be permitted off-road (generally, there are no consistent roads on sand dunes or dry lake beds). If the RMP varies from this **Description of the Proposed Action** with regard to types of events within ACECs, designated routes, and seasonal restrictions, the Bureau should reinitiate consultation.

Speed events will be authorized in critical habitat in Nelson Hills and McCullough Pass, and will be limited to those agreed to in consultation with the Service and the Clark County Habitat Conservation Plan Implementation and Monitoring (I&M) Committee. Nelson Hills and McCullough Pass are not included in the Bureau's proposed ACECs. The number of proposed events for the Eldorado Valley and Nelson Hills was determined in consultation with the Service and the Clark County I&M Committee, and was limited to nine (which is the number of events allowed in the past). These events will be limited to previously used courses. Minor modifications to existing courses may be made to resolve other resource conflicts, in coordination with the Service, (i.e., to avoid sections made impassable by rain, or to avoid areas designated as critical habitat). However, in no case will "new" courses be created. Substantial portions of some courses in the Eldorado Valley are now on lands owned and controlled by Boulder City due to a purchase under the provisions of the Eldorado Valley Lands Sale Act.

Outside of critical habitat, new areas for spectators to observe OHV events may be established. These areas will be selected in coordination with the Service and, in general, will be areas that have been previously disturbed. If spectators are able to see exciting portions of an event from a specific location, they are less likely to drive cross-county to try to get to a better vantage point. New spectator areas should make crowds easier to control, and should decrease habitat disturbance. The primary problem areas for spectator control are Ivanpah Valley and Nellis Dunes.

Types of Events

1. ORV Races are speed events which involve ATVs, motorcycles, trucks, or buggies. Vehicles do not have to be street legal. The winner is the participant who completes the course in the least amount of time. There may be spectators. ORV races will not be allowed in ACECs. ORV races may be allowed in critical habitat in the Nelson Hills and McCullough Pass areas, outside of an ACEC, only during tortoise inactive periods. Non-speed (transfer) sections of speed events may pass through ACECs on existing roads in conformance with the terms and conditions for nonspeed events. Pit and spectator areas will not be authorized in ACECs nor will ACEC roads be used by pit crews or spectators to travel from one section of race course to another.

2. Dual Sport Events are non-speed, non-competitive, non-spectator self-guided motorcycle scenic touring. Motorcycles are street legal, licensed and are off-road capable. Events occur on existing roads and motorcycle trails. The purpose of these events is back country scenic viewing and camaraderie. A permittee/promoter provides entrants with a map of the route to be followed. Entrants follow detailed maps of the route and navigate the route on their own. Entrants may opt to terminate their participation at numerous points and return home on existing County and State roads and highways. All entrants must adhere to posted speed limits and highway laws.

3. Poker Runs are non-speed, non-spectator, competitive events. Entrants follow a predefined route and stop at check points to pick up a playing card. The winner is the entrant with the best poker hand at the end of the event. All entrants must adhere to posted speed limits and highway laws.

4. All-Terrain Bike Races are organized, speed events involving the use of mountain bikes. The winner is the participant who completes the course in the least amount of time. These events will not be allowed in tortoise ACECs.

5. Mini-Events involve minors, and are held either the day before or the morning of the main event. The course is near the start/finish area, with the length depending on the age of the minors (i.e., 1/4 mile for young children and up to 2 miles for teenagers). These events are associated with races and will not be allowed in tortoise ACECs. They may be allowed in critical habitat in the Nelson Hills and McCullough Pass areas, outside of an ACEC, only during the tortoise inactive season.

6. Publicity Runs are held prior to ORV races and allow participants an opportunity to see the course. Participants are escorted by the race promoter or a Bureau employee, who sets the speed and keeps it limited to 25 miles per hour. These events are associated with races and will not be allowed in tortoise ACECs. They may be allowed in critical habitat in the Nelson Hills and McCullough Pass areas, outside of an ACEC, only during the tortoise inactive season.

7. High-Speed Testing is sometimes allowed prior to competitive events on a portion of the designated course. The distance can be a few hundred yards for motorcycles and ATVs, and up to several miles for buggies. Participants accelerate their vehicles to high speeds to determine if adjustments are needed to the carburetor or other engine components. These activities are associated with races and will not be allowed in tortoise ACECs, but may be allowed in critical habitat in Nelson Hills during the tortoise inactive season.

8. Horse Endurance and Trail Rides are organized, horseback events. Horse endurance rides are competitive, "speed" events. The rider who completes the course in the shortest amount of

time, while keeping their horse in a state of good health, wins the event. A trail ride is a non-competitive event, where a group of riders follows a predetermined trail. The event is primarily social and riders enjoy the scenery along the trail. Speed of the horses varies at the discretion of the riders. There are no requirements for the riders to keep their horses at a walk. However, given the length of most trail rides, horses would either be walking or jogging the majority of the time.

Description of Proposed Action (management of OHV events)

The following tables and 17 mitigation measures outline restrictions which will apply to each type of event in the Las Vegas District. For speed events in critical habitat, the number of entrants will be limited to preclude the large races which traditionally attract more spectators.

The Bureau proposes the following Reasonable and Prudent Measures to avoid or mitigate adverse effects to the desert tortoise and its habitat from the proposed action:

1. Entrants, pit crew members, crowd control officials, race monitors, checkpoint personnel, and clean-up crews shall be informed, either through a presentation or a pamphlet, of the occurrence of desert tortoises in the race area, and the threatened status of the species. All such personnel shall be advised of the definition of "take," the potential for impacts to the desert tortoise, and the potential penalties (up to $25,000 in fines and 6 months in prison) for taking a threatened species in a manner not permitted in the incidental take statement. The permit holder shall provide a written statement for signature acknowledging receipt of information regarding the desert tortoise and any special stipulations in place for tortoise protection from all entrants. All race monitors and check-point personnel shall be provided the race stipulations and the procedures for reporting permit violations.

   Minors and responsible adults participating in mini-events shall be informed that they shall not ride their ATVs or motorcycles in the desert after they finish a mini-event. This includes the open desert as well as roads and trails. Failure to comply with this condition by any child associated with a particular rider shall result in the disqualification of that rider.

2. If a vehicle breaks down, it will be moved to the side of the race course, avoiding damage to vegetation to the extent possible. Participants who stop to rest will pull over onto side roads or areas devoid of perennial vegetation. Riders who retire from the race will either wait along the course for their crew to pick them up, or travel along the course to a pit area. Chase crews will be limited to retrieving vehicles that are broken down along the course. All chase vehicles must have a pit pass, retrieval pass or other form of access permission.

3. Spectator vehicles will be allowed in designated spectator areas only. Within critical habitat, outside areas of critical environmental concern, spectator areas shall be confined to existing disturbed areas. Outside critical habitat, new spectator areas shall be selected in coordination with the Service.

   Within critical habitat, temporary or permanent fences/boundary markers shall be installed around spectator areas to clearly delineate the boundaries of these areas from adjacent desert habitat. The promoter will be required to mark the boundaries of the spectator area so that spectators can readily tell where the boundary is located. Rope or wire with warning triangles or other similar sturdy materials shall be used. A monitor will be placed at each spectator area to ensure that spectators remain within the designated boundary. Anyone found outside of the designated area(s) will be subject to citation by a Bureau law enforcement officer.

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TABLE 1: RESTRICTIONS ON SPEED EVENTS

	INSIDE ACECs	CRITICAL HABITAT (outside ACECs)	OUTSIDE CRITICAL HABITAT AND OUTSIDE ACECs
MAXIMUM NUMBER ENTRANTS (BUGGY RACES)	No races permitted	100	determine on case-by-case basis
MAXIMUM NUMBER ENTRANTS (MC[1]/ ATV RACES)	No races permitted	60	determine on case-by-case basis
MAXIMUM NUMBER LAPS	N/A	5	determine on case-by-case basis
MAXIMUM NUMBER EVENTS ANNUALLY	N/A	5 MC/ATV[2] 4 BUGGY[2]	38 VARIOUS TYPES
SEASONAL CONSTRAINTS (BUGGY)	N/A	Allow racing 11/1 - 2/28(29)	no seasonal restrictions
SEASONAL CONSTRAINTS (MC/ATV)	N/A	Allow racing 11/1 - 2/28(29)	no seasonal restrictions
PUBLICITY RUN ALLOWED	NO	11/1 - 2/28(29)	no seasonal restrictions
MINI-EVENTS ALLOWED	NO	YES[2]	YES
STARTING INTERVAL (BUGGY)	N/A	1 every 30-60 seconds	1 to 2 every 30-60 seconds
STARTING INTERVAL (MC/ATV)	N/A	2 every 30 seconds	By class, on a case-by-case basis, not to exceed 12 at a time[3]
HIGH SPEED TESTING ALLOWED	NO	YES (Nelson Hills only)	YES

[1] Motorcycle
[2] Nelson Hills and McCullough Pass (Boulder City Conservation Easement)
[3] The starting interval is 5 to 10 minutes, depending on the size of the vehicle.

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TABLE 2: RESTRICTIONS ON NON-SPEED EVENTS AND NON-SPEED SECTIONS OF EVENTS

	INSIDE ACECs	CRITICAL HABITAT (outside ACECs)	OUTSIDE CRITICAL HABITAT AND ACECs
MAXIMUM NUMBER ENTRANTS (3/1-31, 6/2-8/14, 10/16-11/1)(ALL USES)	100	100	determine on case-by-case basis
MAXIMUM NUMBER ENTRANTS (11/1-2/28(29)(ALL USES) [1]	300	300	determine on case-by-case basis
MINIMUM NUMBER ENTRANTS REQUIRING PERMIT	26	26	50
MAXIMUM NUMBER LAPS OR PASS THROUGHS	1	5	determine on case-by-case basis
MAXIMUM NUMBER EVENTS ACTIVE SEASON 3/1-31, 6/2-8/14, 10/16-11/1)	10 with no more than three events per ACEC.	Include within 10 allowed in ACEC limit.	NONE
MAXIMUM NUMBER EVENTS INACTIVE SEASON 11/1-2/28(29)	12 with no more than four events per ACEC.	Include within 12 allowed in ACEC limit.	NONE
SEASONAL CONSTRAINTS - DATES [2]	No events 4/1-6/1 and 8/15-10/15	No events 4/1-6/1 and 8/15-10/15	NONE
PUBLICITY RUN ALLOWED	NO	NO	determine on case-by-case basis
MINI-EVENTS ALLOWED	NO	NO	NO
STARTING INTERVAL	determine on case-by-case basis	determine on case-by-case basis	determine on case-by-case basis
HIGH SPEED TESTING ALLOWED	NO	NO	NO

[1] Existing Barstow to Vegas Dual Sport Ride at 500 entrants as long as CA BLM maintains that as an allowable limit.

[2] Dates will be adjusted annually due to calendar changes to ensure a complete (Sat/Sun) weekend if 4/1 falls on a Sunday and 3 full weekends prior to (or including) 11/1. October opening date will range between 10/12 and 10/18.

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4. Pit crews will use only authorized pit areas. Whenever possible, pits shall be confined to existing disturbed areas. On buggy races with pits, pit areas will be marked with a sign stating that a pit pass is required. A maximum of 10 pit passes will be issued to each entrant. Pit passes will have the name and date of the event and will be affixed to the windshield of the vehicle. If not removed, vehicles without pit passes will be towed at the owners' expense.

   Within critical habitat, outside areas of critical environmental concern, pit area boundaries will be clearly marked to delineate the pit from the surrounding desert. This barrier will be made from rope or wire with warning triangles, temporary fencing, or other similar sturdy materials. A monitor will be placed at each pit area to ensure pit crew members remain within the designated boundary. Anyone found outside of the designated area will be subject to citation by a Bureau law enforcement officer.

5. All event-related activities will be confined to authorized vehicle routes, pit areas, spectator areas and the course itself, and will not stray into vegetated areas. All major access routes leading into restricted areas will be monitored, or marked closed and bannered off. Road markers, vehicle barriers or signs will be installed either the day of the race or the day before the race. Personnel shall be stationed at these areas, as appropriate, to enforce access restrictions. Directional signs to spectator and pit areas will be posted at all main access points. Race-in-progress signs will be posted at each location where the race crosses another road. Other disqualification or hazard zones will be monitored periodically during the event.

6. Bureau staff will be present to check for compliance with stipulations of the race permit. The importance of staying on the race course will be stressed to all participants by the Bureau and promoter.

7. A sufficient number of monitors and crowd control officials, as determined by the Bureau, will be required to enforce compliance with stipulations of the race permit. A monitor shall be stationed at all disqualification or hazard areas to record any violations.

8. Permittees shall be responsible for trash and litter clean-up along the course and in spectator and pit areas. Stakes, flagging materials, temporary facilities, litter, and all other event-related materials shall be removed from the course and pit, parking, and spectator areas. The race courses and parking areas shall be restored, at a minimum, to pre-race conditions within 15 days after the event. Garbage and food will be removed from the site of the event and will be disposed of in authorized sanitary landfills.

9. To reduce casual use within the vicinity of race courses, on a case-by-case basis race areas may be legally closed to casual use on the day of the race. The determination as to whether to close the race area will be made after reviewing the type of event, number of spectators and pit crews expected, location, ability to access the race area and history of similar events. If an area is closed, the promoter will be required to station monitors and/or post signs at road intersections, prohibiting public access, where the general public is likely to access the race course. If the promoter can or does not control access, BLM will perform this function and bill the promoter for costs. A Federal Register notice providing authority to close race areas in the Las Vegas District will be issued on an as-needed basis. This will allow Bureau law enforcement officers to enforce regulations. A legal notice will be published in the *Las Vegas Review Journal*, or other appropriate publication, before the permitted events take place. (A Federal Register notice was published in July 1994 and is currently in effect for the Stateline Resource Area.)

10. During permitted activities, any desert tortoises found on or adjacent to the race course shall be moved into undisturbed desert within 1,000 feet by Bureau personnel experienced or trained in the handling of tortoises or Bureau contractors experienced and trained in the handling of tortoises according to current approved protocol. This protocol is found in "Guidelines for Handling Desert Tortoises During Construction Projects (Desert Tortoise Council 1994, revised 1996)". Tortoises shall be deliberately moved solely for the purpose of moving them out of harm's way. Desert tortoises shall not be placed on lands not under the ownership of the BLM without the written permission of the landowner. All personnel involved in tortoise capture shall obtain appropriate permits from the Nevada Division of Wildlife (NDOW) prior to handling any desert tortoise. All road repair and course cleanup crews shall be accompanied by Bureau personnel or their designee to ensure that no tortoises or tortoise burrows are harmed during repair and cleaning operations.

11. Mitigation measures 1, 2, 7, 8, 10, 13, and 14 shall apply to publicity runs and mini-events.

Because mini-events are held in conjunction with larger race events, mitigation measures 3, 5, 7, 12, and 15 already will be in effect.

On publicity runs, event-related vehicular activity will be confined to authorized routes and the course itself, and will not stray into vegetated areas.

12. To the extent possible, the race course shall be cleared of all unauthorized vehicles and personnel prior to each race.

13. A representative shall be designated who will be responsible for overseeing compliance with the reasonable and prudent measures, terms and conditions, reporting requirements, and reinitiation requirements contained in this Biological Opinion. The designated representative shall provide coordination among the permit holder, the Bureau, and the Service.

14. Participants in each event who violate any stipulation for that event shall be disqualified from the event.

Additionally, failure to comply with the above stipulations by any member of the support team or spectators associated with a particular driver or rider shall result in the disqualification of that driver or rider.

15. To help control spectators, the event promoter will station at least one person at the primary entrance to the spectator area for at least 2 hours before the start of the race and one hour after the start of the race. This individual will stop all cars coming into the area, give the occupants information on the limits of the spectator area, and advise them where they can and cannot park. (This will not apply to the Nellis Dunes Recreation Lands, which are primarily sand dunes and gypsum hills. The area supports low densities of tortoises, and receives high casual use by the public.)

16. BLM will develop a monitoring plan in coordination with the Service to monitor impacts to the Piute-Eldorado ACEC from speed OHV events in the adjacent Nelson Hills and Eldorado Valley.

17. ACECs shall be designated as Special Areas under 43 CFR 8372 and the following additional stipulations and specifics in Tables 1 and 2 above applied:

a) Speed events shall not be permitted.

b) Allow non-speed events subject to the following limitations:

1) For events involving more than 25 vehicles, require Recreation Use Permits.

2) For events involving more than 100 vehicles, issue permits only during the tortoise inactive season (Nov. 1 through end of February). To maintain consistency with California vehicle limit restrictions. limit the number of vehicles in any one event to 300 motorcycles or 300 four-wheeled vehicles (including All Terrain Vehicles). With the exception that if a alternative route for the Barstow-to-Vegas event is not found, resulting in the need to traverse the Piute Area of Critical Environmental Concern, the number of entrants permitted in Nevada will be consistent with that permitted by California.

3) Do not permit off-highway vehicle non-speed events between approximately April 1 to June 1 and between August 15 to October 15 (dates may vary slightly from year to year to provide a full Saturday/Sunday weekend if April 1 is during the weekend and to provide three full weekends for events prior to or including November 1).

4) Allow a maximum of 10 permitted non-speed events annually with no more than three events per ACEC during the tortoise active season (March 1 to October 31), with specific allowed dates being between March 1 to 31, June 1 and August 14, and October 16 to October 31 (see date variances in directly preceding guidance). Based on historic use, an exception to this guidance will be granted to allow an event from Mesquite through the Mormon Mesa ACEC. This event, having as many as 200 entrants and constituting two of the three annual events, will be limited to a one-way route (north-south or south-north).

5) Allow a maximum of 12 permitted non-speed events annually during the tortoise inactive season (November 1st to end of February), with no more than four events per Area of Critical Environmental Concern.

6) Restrict speed of vehicles in permevents (including but not limited to motorcycle or buggy rallies and mountain bike rides) to the legal, posted or unposted, speed limit of roads used during the event. (Note: Clark County has 25 miles per hour speed limit for unposted roads.)

7) Vehicles shall not exceed the legal speed limit (posted or unposted) of the roads used during the event (43 CFR 8341.1(f)(2). Speed limit for unposted roads in Clark County is 25 MPH.

18. Horse Endurance Rides - Horse endurance rides will be limited to existing roads and trails. Horse endurance rides will not be permitted in tortoise ACECs between 4/1 and 10/31 unless the Service concurs that the proposed use will have no impact on the tortoise. Use in other ACECs will be evaluated on a case-by-case basis. A maximum of 10 horse endurance rides will be allowed annually within the planning area.

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Supplemental Stipulations - Typical Off-Highway Vehicle Permit

******** Off-Highway Vehicle RACE**
Special Recreation Permit Stipulations

The following are additional stipulations of the special recreation permit (SRP) NV5-9*-**. Stipulations 1-16 are located on the reverse side of the special recreation permit application.

Proposed Activity

Publicity Run

17. A publicity run is authorized by this permit. Participants shall be escorted by the race promoter or a Bureau employee, who sets the speed and keeps it limited to 25 miles per hour. On publicity runs, event-related vehicular activity will be confined to authorized routes and the course itself, and will not stray into vegetated areas. Mitigation measures 1, 2, 7, 8, 10, 11 ,13, & 14 apply to publicity runs (FWS, 11).

Casual Use/Spectator Control

18. Permittee is responsible for clearing all unauthorized vehicles and personnel prior to each race (FWS, 12).

19. To help control spectators, the permittee shall station at least one person at the primary entrance to the spectator area for at least two hours before the start of the race and one hour after the start of the race. This individual will stop all cars coming into the area, give the occupants information on the limits of the spectator area, and advise them where they can and cannot park (FWS, 15).

20. Race officials are responsible for enforcing 'no racing or vehicle free-play' within spectator areas Minors and responsible adults participating in events shall be informed that they shall not ride their ATVs/MC in the desert after they finish an event.

21. Race officials will ensure that spectators remain fifty feet from the course in all spectator areas.

22. Spectator vehicles will be allowed in designated spectator areas only.

23. Within critical habitat (outside ACECs), temporary or permanent fences/boundary markers shall be installed around spectator areas to clearly delineate the boundaries of these areas from adjacent desert habitat. The promoter shall mark the boundaries of the spectator area so that spectators can readily tell where the boundary is located, using strudy materials such as plastic fencing. (FWS, 3).

24. A monitor shall be placed at each spectator area, to ensure spectators remain within the designated boundary. Anyone found outside of the designated area will be subject to citation by a Bureau law enforcement officer (T&C).

Maximum Number of Laps

25. Maximum number of laps permitted is five.

Maximum Number of Entrants

26. Maximum number of entrants is 100 people within critical habitat (outside ACECs).

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Mandatory Drivers Meeting

27. Permittee shall conduct a mandatory drivers meeting in the form of a mass meeting to inform participants of the permit stipulations.

Pit Areas/Pit Passes

28. Pit crews shall use only authorized pit areas. Pit areas will be marked with a sign stating that a pit pass is required. A maximum of 10 pit passes will be issued to each entrant. Pit passes will be identified by color or a unique number with the name and date of the event and distinguish the pit to which the pass applies, and will be affixed to the windshield of the vehicle. If not removed, vehicles without pit passes will be towed at the owners' expense (FWS, 4). Unauthorized duplication of pit passes will result in disqualification of the entrant and this shall be stated on each pass.

    Within critical habitat, pit area boundaries shall be clearly marked to delineate the pit from the surrounding desert. This barrier shall be made from rope or wire with warning triangles, temporary fencing, or other similar sturdy materials, such as temporary fencing (FWS, 4).

29. A monitor shall be placed at each pit area, to ensure pit crew members remain within the designated boundary. Anyone found outside of the designated area will be subject to citation by a Bureau law enforcement officer (T&C).

Course & Passing Restrictions

30. Participants shall be informed that passing on buggy, ATV, and motorcycle courses will be limited to the disturbed areas of roads, trails, and washes and will not occur in vegetated areas adjacent to the course (FWS,T&C).

31. Permittee shall inform participants about the importance of staying on the race course (FWS, 6)

Pre-running & Mass Starts

32. Pre-running and mass starts are prohibited.

Starting Interval

33. Starting interval for race entrants shall be one participant every 30-60 seconds (FWS).

Access Routes

34. All event-related vehicular activities will be confined to authorized vehicle routes and the course itself, and will not stray into vegetated areas. All major access routes leading into restricted areas will be monitored, or marked closed and bannered off. Road marker, vehicle barricades, or signs will be installed either the day of the race or the day before the race. Personnel shall be stationed at these areas, as appropriate, to enforce access restrictions. Directional signs to spectator and pit areas will be posted at all main access points. *Area Closed* signs will be posted at each location where the race crosses a road. Other disqualification or hazard zones will be monitored periodically during the event (FWS, 5).

35. *Area Closed* signs will include the organization's name, type of event, date and time. This information will be displayed with four inch letters (minimum size). Signs will be posted the day before the event and checked prior to the race to ensure that they have not been taken down.

Course Monitors

36. A sufficient number of monitors and crowd control officials shall be present to enforce compliance with the permit stipulations (FWS-7). During daylight hours of each race, a monitor shall be stationed at all disqualification or hazard areas to record any violations (FWS-T&C).

37. Permittee is responsible for stationing monitors and/or post signs at road intersections, prohibiting public access, where the general public is likely to access the race course (FWS, 9).

38. All race officials and course monitors must be easily identifiable as race-related personnel.

Course Markings & Signs

39. Course marking and signs that are displaced, removed or destroyed shall be replaced the day before the race.

Spark Arrester

40. The permittee shall ensure all race vehicles are equipped with U.S.D.A. approved spark arresters.

Broken Vehicles

41. If a vehicle should break down, it shall be moved to the side of the race course, avoiding damage to vegetation to the extent possible. Participants who stop to rest shall pull over onto side roads or areas devoid of perennial vegetation. Riders who retire from the race shall either wait along the course for their crew to pick them up, or travel along the course to a pit area (FWS, 2).

Road & Other Repairs

42. The permittee shall be responsible for repair/restoration to roads on public lands. Other repairs and/or restorations shall be accomplished within 72 hours after notification by BLM.

43. All road repair and course cleanup crews shall be accompanied by Bureau personnel or their designee to ensure that no tortoises or tortoise burrows are harmed during repair and cleaning operations (FWS, T&C).

44. The permittee shall be responsible for the prompt repair of any race-related damages to utilities and related improvements to a condition which is at least as good as the condition just prior to the race. The permittee will be responsible for the repair and/or restoration of any improvements placed on public lands by BLM or its authorized users that may be damaged as a result of the event.

Course Clean-up

45. Permittee shall be responsible for trash and litter clean-up along the course and in spectator and pit ares. Stakes, flagging materials, temporary facilities, litter, and all other event-related materials will be removed from the course, pit, parking, and spectator areas. The race course and parking ares will be restored, at a minimum, to pre-race conditions within 15 days after the event. Garbage and food will be removed from the site of the event and will be disposed of in authorized sanitary landfills (FWS, 8).

Disqualification

46. Permittee shall disqualify any participant who violates any stipulation of the permit. Additionally, failure to comply with the permit stipulations by any member of the support team or spectators associated with a particular driver or rider shall result in the disqualification of that driver or rider (FWS, 14).

Chase Vehicles

47. Chase crews shall be limited to retrieving vehicles that are broken down along the course. All chase vehicles must have a pit pass or another form of access permission from BLM (FWS, T&C).

48. Chase crews towing vehicles will travel the same direction as race traffic. Vehicles towed will be towed to the closest pit.

Fees/Post-Use Report/Tortoise Acknowledgement Forms

49. Use-fees will be computed as follows: 3% of the gross receipts or $2.00 per participant (whichever is greater).

50. Use-fees, post-use report, and tortoise acknowledgement forms are due 15 days following the event. Send to the Bureau of Land Management, 4765 W. Vegas Drive, Las Vegas, Nevada 89108.

Natural Resources

51. Painting of rocks or establishment of other permanent markers or improvements is prohibited.

Public Health and Safety

52. The permittee shall be responsible for ensuring that adequate sanitation facilities for participants and spectators are provided.

53. Permittee shall provide first-aid services sufficient to ensure that any accident victim can be located, treated, and evacuated immediately following receipt of an accident report.

54. Permittee is responsible for public safety in the event area.

55. Permittee shall notify the BLM immediately and confirm it within 24 hours after an event-related incident/accident. The BLM will supply the necessary forms for reporting the incident.

Wildlife

56. The permittee shall do everything possible to ensure that race participants and spectators do not harass or collect wildlife, plants, or livestock.

Threatened and Endangered Species

57. Entrants, pit crew members, crowd-control officials, race monitors, checkpoint personnel, and cleanup crews shall be informed, either through a presentation or pamphlet, of the occurrence of desert tortoises in the race area, and the threatened status of the species. All such personnel shall be advised of the definition of "take," the potential for impacts to the tortoise, and the potential penalties (up to $25,000 in fines and 6 months in prison) for taking a threatened species. The permittee shall provide a written statement for signature acknowledging receipt of information regarding the desert tortoise and any special stipulations in place for tortoise protection from all entrants. All race monitors and check-point personnel shall be provided with the race stipulations and the procedures for reporting permit violations (FWS, 1).

58. During race activities, any desert tortoise found on or adjacent to the race course shall be moved into undisturbed desert within 1,000 feet by Bureau personnel experienced and trained in the handling of tortoises or Bureau contractors experienced and trained in the handling of tortoises according to current approved protocol. This protocol is found in Guidelines for Handling Desert Tortoises During Construction Projects (Desert Tortoise Council 1994). Tortoises shall be deliberately moved solely for the purpose of moving them out of harm's way. Desert tortoise shall not be placed on lands not under the ownership of the Federal Government without the written permission of the landowner. All personnel involved in tortoise capture shall obtain appropriate permits from the Nevada Division of Wildlife (NDOW) prior to handling any desert tortoise (FWS, 10).

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59. If any desert tortoise are killed or injured during the event, the permittee shall notify Bureau personnel as soon as possible, but no later than two days following the event, disclosing the location and condition of the tortoise.

Cultural Resources

60. If archaeological resources are discovered prior to, during, or after the event in the proposed use area, the ADM for Renewable Resources will be notified immediately. These resources shall not be removed or disturbed in any way.

Hazardous Material

61. Permittee is responsible for clean-up of and assumes liability for any and all releases of hazardous substances and/or oil as defined in the National Oil and Hazardous Substances Contingency Plan.

62. Permittee shall immediately notify the Authorized Officer of any release of hazardous substances and/or oil on public land.

63. Permittee shall not dispose of any hazardous substance or oil on public land.

General

64. The Authorized Officer, or any other duly authorized representative of the BLM may examine any of the permittee's records or other documents related to the permit.

65. This permit does not give permission to cross over or use any private lands during the event. The permittee will be fully responsible for all trespass on and/or damages to private land which result from the conduct of the event.

Compliance

66. Non-compliance with any permit stipulation will be grounds for denial of future permits, and/or race cancellation.

1. (FWS) - This symbol denotes a requirement of the biological opinion (File Number 1-5-95-F-237) issued by the U.S. Fish and Wildlife Service for this event. A number following this symbol indicates that it is a mitigation measure of the biological opinion and T&C indicates that the requirement is a term and condition of the document.

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APPENDIX K

SUMMARY OF THE ACEC NOMINATION SCREENING PROCESS

ACEC NOMINATIONS

More than 80 individual nominations for various ACECs were received during the planning process. Many of the nominations were vague and some did not include any maps or legal locations. Often, only a general place name was used to identify the area. Many areas overlapped with areas nominated by other individuals or areas nominated internally by the BLM.

We developed a form (ACEC Nomination Evaluation) which was filled it out for each area nominated. When the same area was nominated by more than one group or individual, the nominations were combined onto one form. The staff specialist in each given area filled out the forms for the nominations pertaining to their expertise (ie: the archeologist filled out the form for cultural sites). The staff specialist was responsible for evaluating the nomination against the relevance and importance criteria based upon their expertise and available data, and providing rational for a determination.

Based upon the evaluation, a recommendation was made on whether to carry the nomination forward or not. Several nominations were made for private property or lands managed by other federal agencies. A form was filled out for these but, they were not evaluated against the relevance and importance criteria because the BLM had no jurisdiction. Some nominations were not evaluated because they were too vague to measure against the criteria. However, in all cases except those discussed below, a form was filled out for each nomination.

In some cases, several smaller areas located close to one another were combined into one larger ACEC. Appropriate boundaries for ACECs were determined by the staff specialists and coordinated with other team members to eliminate conflicts. Boundaries for the potential ACECs were developed based upon maps submitted with the nominations, input from BLM specialists and the intent of the nomination.

Several ACECs was nominated internally by BLM staff. We failed to fill out a form for Amargosa Mesquite ACEC. Therefore, although the ACEC was included in chapter two of the Draft RMP, there was no evaluation of it in Appendix E of the Draft. One additional ACEC was nominated internally during development of the Supplemental RMP (Arden Historic Sites). Since Appendix E was not in the Supplemental RMP, there has never been an evaluation of Arden Historic Site ACEC published.

Appendix E is carried forward into the Proposed RMP/Final EIS as Appendix K. Evaluations for Amargosa Mesquite and Arden Historic Site ACECs will be included in the Proposed RMP.

Since publishing the Draft, additional information has become available on the distribution and abundance of bear poppy, a special status plant species. During the original nomination process, several areas supporting bear poppy populations were nominated. Based upon the information available at the time, it was determined that the areas did not meet the relevance and importance criteria. Using updated information, it appears that several of these areas do meet the criteria. These areas will be reconsidered for ACEC status through a plan amendment process.

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ACEC NOMINATION EVALUATION

NAME: Ash Meadows LOCATION: T17-18S, R50E, Nye County, NV

SIZE: 4,518-7,296 acres NOMINATED BY: USFWS-Desert Range Complex, USFWS-Reno, Howard Booth, UNLV-Biological Sciences, Sierra Club (only lands within current boundary) & BLM.

RATIONALE: Federally listed threatened and endangered species, and candidate species.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **Yes; special status species**
3. Natural process or system? **Yes; unique riparian habitat, springs and meadows**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Thirteen threatened, endangered or candidate species occur on public lands outside the Ash Meadows National Wildlife Refuge (NWR), of which seven are endemic. There are no similar resources within the planning area with which to make a comparison. Some portions of Death Valley National Monument support similar resources. Ash Meadows NWR supports a total of 25 endemic species.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Seven endemic species on public lands; large acreage of riparian and meadow habitat surrounded by desert; some species are restricted to a single spring.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8)of FLPMA and the Endangered Species Act of 1973, as amended.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The nominated area meets both the relevance and importance criteria. Special management attention is needed to protect and preserve the large number of sensitive biological resources found in this unique area.

513

ACEC NOMINATION EVALUATION

NAME: Big Dune LOCATION: Amargosa Valley, Nye Co, NV.

SIZE: About 1,680 acres NOMINATED BY: USFWS-Reno, Nature Conservancy, NORA (Nevada Outdoor Recreation Association), Sierra Club and BLM.

RATIONALE: Endemic, special status species

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **Yes; special status species unique to the area**
3. Natural process or system? **Yes; dune ecosystems**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Three special status species which are endemic to Big Dune.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Habitat for four special status species, three of which are endemic to Big Dune. Big Dune is one of only three dune ecosystems in the planning area.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102 (a)(8) of FLPMA and Bureau Manual 6840.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

This area meets the relevance and importance criteria. Due to the extremely limited extent of the ecosystem and lack of other similar ecosystems in the planning are, special management attention is needed to protect and preserve both the biological values and the scenic integrity of the area.

514

ACEC NOMINATION EVALUATION

NAME: Sunrise-Frenchman Mtns., Rainbow Garden and Gypsum Cave

LOCATION: East of Las Vegas, Clark Co., NV.

SIZE: 33,000 acres

NOMINATED BY: UNLV-Geosciences, Nature Conservancy, NORA and Sierra Club

RATIONALE: Geological values (educational, scientific and recreational), special status plant and animal species and cultural/historic

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RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; scenic and cultural**
2. Fish and wildlife resource? **None unique to the area**
3. Natural process or system? **Yes; geological features and gypsiferous soils which support a unique plant community**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Gypsum Cave is eligible for the National Register of Historic Places and is regionally to nationally significant. Frenchman Mountain exposes strata of the Grand Canyon in an easily accessible area. The area is used for university research and field trips.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **The Sunrise Mtn./Frenchman Mtn. complex is a visual landmark from Las Vegas and is one of the most photographed mountains in aviation photography due to its proximity to Nellis Air Force Base. Exposure of Paleozoic and Mesozoic strata similar to the geology of the Grand Canyon. Proximity to Las Vegas results in heavy use by the public (OHV, target shooting, illegal trash dumping, etc.). The area provides habitat for bear poppy (*Arctomecon californica*) a special status species.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **Yes. Proximity to Las Vegas results in heavy use by recreationists, including target shooting, drinking, illegal trash dumping, etc.**
5. Poses a significant threat to human life and safety or to property? **Potentially dangerous due to amount of illegal activities and high visitation.**

RECOMMENDATION

The area meets the relevance and importance criteria, and due to its "landmark" status in the Las Vegas area and the types and amount of public use of the area, special management attention is required in order to resolve ongoing problems and preserve the geological and scenic integrity of the area.

515

ACEC NOMINATION EVALUATION

NAME: Toquop Wash LOCATION: North of Mesquite, Clark Co., NV.

SIZE: Unspecified NOMINATED BY: Nature Conservancy

RATIONALE: Habitat for *Astragalus triquetrus* and *Eriogonum viscidulum*, both special status plant species.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **None unique to the area; low density desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Habitat for desert tortoise, a threatened species .**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Habitat for two special status plants, *Eriogonum viscidulum*, and *Astragalus triquetrus* and desert tortoise.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102 (a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria to a limited extent. Existing laws and regulations, including the Endangered Species Act and the National Historic Preservation Act, provide an adequate level of protection to the values in the area. Although surveys are still incomplete, it appears that these species are more widely distributed than once thought. In addition, much of the habitat supporting these species is either on National Park Service Lands or within the Mormon Mesa and Gold Butte ACECs.

516

ACEC NOMINATION EVALUATION

NAME: Virgin and Muddy River LOCATION: Virgin & Muddy Rivers. Clark Co., NV.

SIZE: Unspecified NOMINATED BY: USFWS-Reno

RATIONALE: These rivers provide habitat for threatened and endangered species, including the endangered Virgin River round-tail chub, Moapa dace, woundfin minnow and southwest willow flycatcher.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **Yes; threatened and endangered fish**
3. Natural process or system? **Yes; riparian habitat**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Habitat for endangered fish species. Moapa National Wildlife Refuge is located on the Muddy River and Overton Wildlife Management Area (State of Nevada) is located on the Virgin River. Breeding habitat for Southwest willow flycatcher, an endangered species.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Riparian and aquatic habitats are very sensitive to changes in stream flow, salinity and erosion. Habitat for endangered and special status fish species. Riparian habitat is rare in the resource area and provides habitat for a large number of plant and animal species. Breeding habitat for Southwest willow flycatcher.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, Section 102(a)(8) of FLPMA applies to the Virgin River floodplain. The Muddy River is primarily owned by private, state or other federal agencies and thus would not fall under FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

Public lands along the Virgin River provide habitat for endangered species and are riparian in nature; these lands therefore meet the relevance and importance criteria, and special management attention is warranted to protect those values.

There are no public lands along the Muddy River that provide potential habitat for the endangered fishes, and the potential for riparian habitat is extremely limited due to the small acreage of public lands and the land ownership pattern; these lands do not meet the relevance and importance criteria and special management attention is not warranted.

517

ACEC NOMINATION EVALUATION

NAME: Goodsprings Valley LOCATION: Near Goodsprings, Clark Co., NV.

SIZE: Unspecified NOMINATED BY: Nature Conservancy

RATIONALE: Sensitive plants and animals, threatened and endangered species

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RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; historical mining district**
2. Fish and wildlife resource? **None unique to the area; desert tortoise and gila monster habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Habitat for the desert tortoise, a federally listed, threatened species.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Desert tortoise habitat.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA and the Endangered Species Act of 1973, as amended.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The portion of the area that is desert tortoise habitat meets the relevance and importance criteria and warrants special management attention in order to ensure the continued existence of the desert tortoise. However, this area was not designated as critical desert tortoise habitat, nor was it identified in the Tortoise Recovery Plan as a Recovery area. Therefore, it was not carried forward into the proposed RMP as an ACEC. The remainder of the area does not meet the relevance and importance criteria and therefore does not warrant special management attention.

518

ACEC NOMINATION EVALUATION

NAME: Crystal Pass LOCATION: South Spring Mountains, near Goodsprings, Clark Co., NV

SIZE: Unspecified NOMINATED BY: NORA

RATIONALE: Geological features

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known; possibly historic values**
2. Fish and wildlife resource? **None unique to the area**
3. Natural process or system? **Yes; formation of crystals**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Some crystals found in the area are uncommon but don't appear to be more than locally significant.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Yes. Hewett (1931) recognized cerargyrite (Agcl) and iodyrite (AgI), both found at Crystal Pass, as being uncommon.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

Although the area meets the relevance and importance criteria to a limited extent, there are no unique values present in the area, and special management attention is not warranted.

519

ACEC NOMINATION EVALUATION

NAME: Gold Butte Native American Sites LOCATION: Gold Butte Area, Clark Co., NV

SIZE: Seven sites of various sizes NOMINATED BY: Moapa Band of Paiutes

RATIONALE: Significance to the Moapa Band of Paiutes

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; cultural significance to Moapa Band of Paiutes**
2. Fish and wildlife resource? **None unique to the area; desert tortoise habitat, gila monster habitat and *Phainopepla***
3. Natural process or system? **Vegetation used as food and medicine by the Moapa Band of Paiutes**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **The values present in the nominated areas are of significance only to the Moapa Band of Paiutes.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Most of the areas identified are located around springs and riparian habitat which is rare in the planning area and sensitive to disturbance.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The areas meet the relevance and importance criteria to a limited extent, and special management attention is warranted to protect the riparian habitat, Several special status plant and animals and other vegetation in the areas.

520

ACEC NOMINATION EVALUATION

NAME: Whitney Pockets LOCATION: Gold Butte, Clark Co., NV

SIZE: Unspecified NOMINATED BY: Sierra Club, Moapa Band of Paiutes

RATIONALE: Cultural, scenic and geological values

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; cultural and historic values**
2. Fish and wildlife resource? **None unique to the area; gila monster and desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Yes, the area is critical desert tortoise habitat and contains significant cultural and historical resources.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Yes, critical desert tortoise habitat, cultural and historic sites.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria and special management attention is needed to protect and preserve the cultural and biological values of the area.

521

ACEC NOMINATION EVALUATION

NAME: Virgin Mountains LOCATION: Virgin Mountains. Clark Co., NV

SIZE: Unspecified NOMINATED BY: Howard Booth and Sierra Club

RATIONALE: Designated Natural Area, riparian habitat, scenic, remnant ponderosa pine and white fir community, wildlife habitat and both Great Basin and Colorado Plateau vegetation.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **None unique to the area; potential peregrine falcon habitat**
3. Natural process or system? **Yes; pinyon-juniper/mixed conifer ecosystem unique to the area in Nevada**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Occurrence of conifer vegetation type within the Mojave Desert ecosystem is restricted to a few mountain ranges, and this one is the only mountain range administered entirely by the BLM. Part of the Virgin Mountains are a designated Natural Area and as such is regionally significant.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Designated natural area of 6,560 acres, relic stand of ponderosa pine and white fir, southern most stand of douglas fir in Nevada, and the only occurrence of Arizona cypress known in Nevada. All these rare or remnant vegetation types are vulnerable to loss by fire, disease or insects.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA. The area is currently managed under IMP- all designated natural areas are currently Instant Study Areas (Section. 603 (a)). In addition, Bureau manual 1623.3 requires that all designated natural areas be designated as ACEC's.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria, and special management attention is warranted to preserve the unique biological resources of the area.

522

ACEC NOMINATION EVALUATION

NAME: Virgin Mountain (Whitney Pockets area, south toward Bitter Ridge). LOCATION: South of Virgin Mountains, Clark Co., NV

SIZE: Unspecified NOMINATED BY: Nature Conservancy

RATIONALE: Special status plants and animals

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; historic and cultural values**
2. Fish and wildlife resource? **None unique to the area; gila monster and desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Habitat for a federally listed threatened species and significant cultural and historical values.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Cultural resources and historic sites; critical desert tortoise habitat; Habitat for California Bear Poppy, *Arctomecon californica*, and gila monster, *Heloderma suspectum*, both special status species.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria and special management attention is needed to help ensure that the cultural and biological values are protected.

523

ACEC NOMINATION EVALUATION

NAME: Virgin Valley scenic area LOCATION: South of Mesquite, Clark Co., NV

SIZE: Unspecified NOMINATED BY: NORA

RATIONALE: Geology, scenery, cactus and succulents and Devil's Throat sinkhole

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RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; cultural values**
2. Fish and wildlife resource? **None unique to the area; critical desert tortoise habitat**
3. Natural process or system? **Geological process resulting in Devil's Throat sinkhole**
4. Natural hazard? **Yes, Devil's Throat sinkhole**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Critical desert tortoise habitat). Sinkholes are uncommon in desert regions.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Critical desert tortoise habitat and Devil's Throat sinkhole.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **Devil's Throat sinkhole is approximately 165 feet deep and 80 feet in diameter and is located in a relatively flat area. Presently, the sinkhole is fenced to prevent vehicular access.**
5. Poses a significant threat to human life and safety or to property? **If an individual fell or drove into the sinkhole, the probability of serious injury or death would be high.**

RECOMMENDATION

The area meets the relevance and importance criteria, and special management attention is warranted to both protect the scenic, cultural, geological, and biological values of the area, and to ensure public safety and welfare due to the presence of a natural hazard.

524

ACEC NOMINATION EVALUATION

NAME: Gold Butte Scenic Area LOCATION: South of Mesquite, Clark Co.. NV. Area runs from the Saint Thomas Gap Road south to Lake Mead NRA.

SIZE: Unspecified (>90,000 acres) NOMINATED BY: NORA

RATIONALE: Scenery, vegetation and springs

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; historic values**
2. Fish and wildlife resource? **None unique to the area; low to moderate density desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Habitat for a threatened species.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Historical sites and desert tortoise habitat.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

Portions of the area meet the relevance and importance criteria and special management attention is needed to protect biological and cultural values. The remainder of the area does not warrant special management attention.

525

ACEC NOMINATION EVALUATION

NAME: Bitter Ridge LOCATION: SW end of the Virgin Mountain range, near Overton Arm of Lake Mead, Clark Co., NV

SIZE: 17,920 acres NOMINATED BY: National Park Service, Lake Mead

RATIONALE: Scenic and wildlife values

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; cultural resources**
2. Fish and wildlife resource? **None unique to the area; low density desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Desert tortoise habitat and significant cultural values.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Habitat for a threatened species, sensitive species, and cultural values.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

Portions of the area meet the relevance and importance criteria and special management attention is needed to protect and preserve the values within that area.

526

ACEC NOMINATION EVALUATION

NAME: Joshua Tree Natural area LOCATION: S. Eldorado and N. Piute Valleys, Clark Co., NV

SIZE: Unspecified NOMINATED BY: NORA

RATIONALE: Scenic values and Mojave Desert ecosystem.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **None unique to the area; desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Yes; threatened species habitat.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Yes; critical desert tortoise habitat.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under section 102.(a)(8) of FLMPA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

A portion of the area meets the relevance and importance criteria and warrants special management attention to protect the biological values of that area.

527

ACEC NOMINATION EVALUATION

NAME: Desert View Natural Environment Area LOCATION: Lee Canyon Road NW of Las Vegas, Clark Co., NV.

SIZE: Unspecified NOMINATED BY: NORA, Nature Conservancy

RATIONALE: Mojave Desert vegetation, potential habitat for special status animals and plants, and the area is shown on several maps as a designated natural area.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **None unique to the area; desert tortoise habitat and potential gila monster habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **The area was nominated as a "Natural Area" during the last planning phase and has been shown on most BLM maps as a "Natural Environment Area", but records indicate that the area was never officially designated.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **The area is habitat for a threatened species (desert tortoise) and several special status species. The plant species mentioned by the nominator are; Rosy King's Sandwort, Arenaria kingii var. rosea, Clokey's milk-vetch, Astragalus aequalis, and Half-ring pod milk-vetch, Astragalus mohavensis var. hemigyrus. The first two species occur in Clark County, the third species, half-ring pod milk vetch, is apparently relatively rare in Nevada.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, Section 102(a)(8) of FLPMA. The area does not qualify under Bureau Manual 1623.3 as it was never formally designated as a natural area although it is shown as such on several maps.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The portion of the area that is desert tortoise habitat meets the relevance and importance criteria and warrants special management attention to protect the biological values of that area. The remainder of the nominated area does not meet the relevance criteria, and existing laws and regulations, including the Endangered Species Act, provide an adequate level of protection. Part of this area was incorporated into the Red Rock Canyon National Conservation Area, designation as an ACEC is unnecessary. The remainder of the area, although desert tortoise habitat was not designated as critical habitat or recommended as a recovery area in the Tortoise Recovery Plan. Therefore, the ACEC designation was not carried forward into the Proposed RMP.

528

ACEC NOMINATION EVALUATION

NAME: Indian Springs LOCATION: Near Indian Springs, Clark Co., NV.

SIZE: Unspecified NOMINATED BY: Nature Conservancy

RATIONALE: Sensitive and special status plant species.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **None unique to the area; desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **None known.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Yes. Habitat for a threatened species (desert tortoise) and two special status plant species. Merriam bear poppy, Arctomecon merriami is widely distributed and is found on the Desert Natl. Wildlife Refuge where it is well protected. Half-ring pod milk-vetch, Astragalus mohavensis var.hemigyrus, is fairly rare in Nevada and the type locality is Indian Springs. This species also occurs in California.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The portion of the area that is desert tortoise habitat meets the relevance and importance criteria and warrants special management attention. However, it was not designated as critical tortoise habitat or identified in the Tortoise Recovery Plan as a Recovery area, therefore, the ACEC designation was not carried forward into the Proposed RMP.

529

ACEC NOMINATION EVALUATION

NAME: Highland Range LOCATION: NW of Searchlight, Clark Co., NV

SIZE: Unspecified NOMINATED BY: City of Boulder City, Nature Conservancy

RATIONALE: Habitat for sensitive and special status plant and animal species.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **None unique to the area**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **None known.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **A cause for concern is the low numbers of bighorn the range currently supports. The habitat is good and much of the range is watered by several springs. The area should support a larger resident herd. Competition with livestock around waters may be a factor. The riparian habitat around the springs is degraded. The mountain range is also high in scenic value. The Highland Range was designated as crucial bighorn sheep habitat and is shown on BLM maps as the "highland Range Bighorn Habitat Area".**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes. under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria to a limited extent. The values present in the area are not unique, however, and existing laws and regulations provide an adequate level of protection for the biological values of the area.

S30

ACEC NOMINATION EVALUATION

NAME: Arrow Canyon, Hidden Wash and Pahranagat Wash. LOCATION: N end of the Arrow Canyon Range, Clark Co.

SIZE: Unspecified NOMINATED BY: NORA, Howard Booth, Sierra Club

RATIONALE: Cultural and geological resources

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; cultural**
2. Fish and wildlife resource? **None unique to the area; critical desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Arrow Canyon is regionally significant in the Great Basin Region for cultural resources. It is eligible for the national register of historic places. It is also significant for paleontological resources, including the type locality for many species.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Slot canyon, petroglyphs, displays numerous layers of Paleozoic carbonates and paleontological resources. Habitat for the desert tortoise, a threatened species.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria and special management attention is needed to protect the cultural, geological, and biological resources of the area.

531

ACEC NOMINATION EVALUATION

NAME: River Mountains LOCATION: North of Boulder City, Clark Co.

SIZE: 10,880 acres NOMINATED BY: Natl. Park Service-Lake Mead, City of Boulder City, City of Henderson and BLM

RATIONALE: Habitat for a sensitive species (desert bighorn)

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Veiwshed for Boulder City and Henderson**
2. Fish and wildlife resource? **None unique to the area; bighorn sheep, gila monster and chuckwalla**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **This range supports one of the highest density herds of bighorn sheep in southern Nevada. Three hundred and forty-one bighorn, from this herd, have been transplanted into 18 different mountain ranges in four states. Habitat for two special status species.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Population pressures from Henderson, Boulder City and Las Vegas are placing an increasing demand on the area. There is a potential for adverse impacts to the River Mountain bighorn sheep herd and its habitat from increased human use of the area.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria. Based on the area's importance to Nevada's overall desert bighorn management program, including providing transplant and reintroduction stock for unoccupied desert bighorn habitat both in Nevada and other states, and its proximity to the most populated area in Nevada, special management attention is warranted.

532

ACEC NOMINATION EVALUATION

NAME: Arden Historic Sites LOCATION: Southwest Las Vegas Valley, Clark Co.. NV

SIZE: 6,320 acres NOMINATED BY: BLM

RATIONALE: Cultural values and threats to those values

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; cultural**
2. Fish and wildlife resource? **None unique to the area**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **The area contains the remains of a 10 mile long pipeline project constructed in 1905 to supply water to steam engines. The remains of several construction and mining related sites are also located in the area.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Significant cultural resources occur in the area. The integrity of the sites is threatened by urban development.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria, and based on the high level of use of the area and potential for future impacts, special management attention is warranted to protect the values of the area.

533

ACEC NOMINATION EVALUATION

NAME: Keyhole Canyon LOCATION: W. side of Eldorado Mtns, Clark Co., NV

SIZE: Unspecified NOMINATED BY: Howard Booth and Sierra Club

RATIONALE: Scenic, geologic and cultural values

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; cultural**
2. Fish and wildlife resource? **None unique to the area**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Keyhole canyon is on the National Register of Historic Places.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Significant cultural resources occur in the area and are being impacted. The area is heavily used by a variety of recreationists, including rock climbers and OHV enthusiasts, and the area is also close to the mining area of Nelson, making it subject to mining related impacts.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria, and based on the high level of use of the area and potential for future impacts, special management attention is warranted to protect the values of the area.

534

ACEC NOMINATION EVALUATION

NAME: Cholla Forest LOCATION: E. of Searchlight, Clark Co., NV

SIZE: 19,200 acres NOMINATED BY: Natl. Park Service-Lake Mead

RATIONALE: Occurrence of teddy bear cholla, Opuntia bigelovii

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RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **None unique to the area; desert tortoise habitat**
3. Natural process or system? **Disjunct plant community is representative of the Sonoran Desert**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **This id one of the northernmost extension of Opuntia bigelovii; and may also be the densest stand of teddy bear cholla in Nevada.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Unusually dense stand of teddy bear cholla; May be the densest stand of teddy bear cholla in Nevada. Critical habitat for desert tortoise, a threatened species.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria. Based on the areas location adjacent to a heavily used National Recreation Area, its designation as critical desert tortoise habitat and two areas historic mining areas, special management attention is warranted to preserve this unique resource.

535

ACEC NOMINATION EVALUATION

NAME: Newberry Mountains LOCATION: NW of Laughlin, Clark Co., NV

SIZE: 26,240 NOMINATED BY: Natl. Park Service-Lake Mead

RATIONALE: Scenic values

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes**
2. Fish and wildlife resource? **None unique to the area; bighorn sheep, gila monster and chuckwalla**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Spirit Peak, which is culturally significant to the Chemehuevi Indians is immediately adjacent to the proposed ACEC. Spirit Peak is regionally significant as a traditional lifeway candidate. This sacred mountain of the Mohave is also known as Avikwame. It is regarded as the place of creation for all the Yuman groups contiguous to the Lower Colorado River. In addition, it is sacred to the Diegueno and Kamia.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **The area supports an isolated stand of pinyon-juniper which, although uncommon, is found in widely scattered locations throughout the Mojave desert. Habitat for two special status species of wildlife.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria to a limited extent, but no critical resources or values unique to the area are known. Existing laws and regulations provide an adequate level of protection for the values in the area, and therefore special management attention is not warranted. That portion of the Newberry Range which includes Spirit Mountain is within the Piute-Eldorado ACEC.

ACEC NOMINATION EVALUATION

NAME: North McCullough Mountains LOCATION: S. of Las Vegas, Clark Co., NV

SIZE: Unspecified NOMINATED BY: Nature Conservancy

RATIONALE: Rare and sensitive plants and animals

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes, cultural**
2. Fish and wildlife resource? **None unique to the area; gila monster, chuckwalla and bighorn sheep habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **The Sloan Petroglyph National Historic Register site.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **The North McCulloughs are volcanic in origin and exhibit many good examples of volcanism. This mountain range also supports some Sonoran desert plants such as teddy bear cholla. The North McCulloughs supports a herd of desert bighorn sheep.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria to a limited extent. Existing laws and regulations, including the National Historic Preservation Act, provide an adequate level of protection for the area and therefore, special management attention is not needed.

537

ACEC NOMINATION EVALUATION

NAME: Old Spanish Trail/Mormon Trail LOCATION: S. Pahrump Valley, Nye Co., NV

SIZE: Unspecified NOMINATED BY: NORA

RATIONALE: Cultural and historic values

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; historic and cultural resources**
2. Fish and wildlife resource? **None unique to the area; desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Stump springs cultural site is eligible for the National Register of Historic Places. Five miles of the Old Spanish Trail/Mormon Trail in Pahrump Valley is eligible for the National Register of Historic Places (eligible section begins at Stump Spring and runs east for five miles).**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Significant cultural and historical resources and habitat for a threatened species.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

Portions of the area meet the relevance and importance criteria and warrant special management attention to preserve the integrity of the cultural resources; the remainder of the area is adequately protected by existing laws and regulations.

538

ACEC NOMINATION EVALUATION

NAME: Buffington Pockets LOCATION: Muddy Mountains, Clark Co., NV

SIZE: Unspecified NOMINATED BY: NORA

RATIONALE: Cultural sites, scenic, geology and vegetation

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; cultural resources**
2. Fish and wildlife resource? **None unique to the area; desert tortoise, bighorn sheep, gila monster and chuckwalla habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **A series of cultural sites in this area potentially could qualify as an archeological district. Some sites may be eligible for the National Register of Historic Places.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Cultural sites and habitat for special status species.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA. This site is within the portion of the Muddy Mountain WSA which is recommended as not suitable.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

Portions of the area meet the relevance and importance criteria to a limited extent. Existing laws and regulations, including the National Historic Preservation Act, provide an adequate level of protection and therefore, special management attention is not needed.

539

ACEC NOMINATION EVALUATION

NAME: Southwest Boundary Area LOCATION: Gale Hills, Muddy Mountains, boundary between BLM and Lake Mead National Recreation Area

SIZE: Unspecified NOMINATED BY: Sierra Club

RATIONALE: Scenic and geological values.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **None unique to the area; low density desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **None known.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Habitat for desert tortoise, a threatened species and fragile soils. Gypsiferous soils provide habitat for several special status plants, including bear poppy, *Arctomecon californica, Enceliopsis argophylla* and *Eriogonum corymbosum* var. *aureum*.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, Section 102(a)(8). Partially within the Muddy Mountain WSA, but the majority of the nominated area is outside of the recommended suitable portion of the WSA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

A determination was made in the Draft RMP that the values of the area do not warrant ACEC designation. Existing laws and regulations, including the Endangered Species Act, would provide an adequate level of protection the values of the area, and therefore special management attention is not warranted. However, since that time additional data on the distribution, abundance and threats to bear poppy have become available. Portions of this area may be reevaluated for ACEC status through the plan amendment process.

540

ACEC NOMINATION EVALUATION

NAME: Hidden Valley LOCATION: Muddy Mountains, Clark Co., NV

SIZE: Unspecified NOMINATED BY: Howard Booth and Sierra Club

RATIONALE: Eligible for the National Register of Historic Places, cultural sites, bighorn sheep habitat, geology and scenic values.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; cultural resources**
2. Fish and wildlife resource? **None unique to the area; desert bighorn sheep**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Preliminary data indicates that Hidden Valley is a potential cultural district with several sites which are eligible for the National Register of Historic Places.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Significant cultural resources. The area has some of the few natural waters in the Muddy Mountains, making the area very important for resident wildlife.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLMPA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The values of the area meet both the relevance and importance criteria, and special management attention is needed to protect the integrity of the area and its cultural resources.

541

ACEC NOMINATION EVALUATION

NAME: Echo Basin Scenic Area LOCATION: E. of Las Vegas, Muddy Mountains, Clark Co., NV

SIZE: Unspecified NOMINATED BY: NORA

RATIONALE: Geological formations and scenic values.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **None unique to the area; low density desert tortoise habitat**
3. Natural process or system? **Gypsiferous soils support a unique plant community**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Has potential for an archeological district, but more surveys are needed for a conclusive analysis.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Habitat for desert tortoise, a threatened species and fragile soils. Gypsiferous soils provide habitat for several special status plants, including bear poppy, *Arctomecon californica, Enceliopsis argophylla* and *Eriogonum corymbosum* var. *aureum*.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, Section 102(a)(8). This area is partially within the portion of the Muddy Mountain WSA that was recommended as non-suitable.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

A determination was made in the Draft RMP that the values of the area do not warrant ACEC designation. Existing laws and regulations, including the Endangered Species Act, would provide an adequate level of protection for the values of the area, and therefore special management attention is not warranted. However, since that time additional data on the distribution, abundance and threats to bear poppy have become available. Portions of this area may be reevaluated for ACEC status through the plan amendment process.

542

ACEC NOMINATION EVALUATION

NAME: White Basin Scenic Corridor

LOCATION: E. of Las Vegas, Muddy Mountains, Clark Co., NV

SIZE: Unspecified

NOMINATED BY: NORA

RATIONALE: Geology and rare plants

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Possibly historic/cultural values**
2. Fish and wildlife resource? **None unique to the area; low density desert tortoise habitat**
3. Natural process or system? **Gypsiferous soils support a unique plant community**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Preliminary data indicates that the area has the potential of qualifying as an archeological district. The Bitter Springs Trail Backcountry Byway traverses the area.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **The area contains highly erodible, cryptogamic soils and provides habitat for the desert tortoise, a threatened species. Gypsiferous soils provide habitat for several special status plants, including bear poppy, *Arctomecon californica*, *Enceliopsis argophylla* and *Eriogonum corymbosum* var. *aureum*.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

A determination was made in the Draft RMP that the values of the area do not warrant ACEC designation. Existing laws and regulations, including the Endangered Species Act, would provide an adequate level of protection for the values of the area, and therefore special management attention is not warranted. However, since that time additional data on the distribution, abundance and threats to bear poppy have become available. Portions of this area may be reevaluated for ACEC status through the plan amendment process.

543

ACEC NOMINATION EVALUATION

NAME: Valley of Fire-BLM (White Basin) LOCATION: E. of Las Vegas, Muddy Mtns., Clark Co., NV

SIZE: Unspecified NOMINATED BY: NORA

RATIONALE: Geological, scenic, cultural and riparian habitat.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **None unique to the area; desert tortoise habitat and potentially gila monster habitat**
3. Natural process or system? **Gypsiferous soils support a unique plant community**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **None known.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Highly erodible, cryptogamic soils, cultural sites, low density tortoise habitat, scenic viewshed, and at least one special status plant species, *Arctomecon californica*. Gypsiferous soils provide habitat for several special status plants, including bear poppy, *Arctomecon californica*, *Enceliopsis argophylla* and *Eriogonum corymbosum* var. *aureum*.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, Section 102(a)(8). Outside of the Muddy Mountain WSA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

A determination was made in the Draft RMP that the values of the area do not warrant ACEC designation. Existing laws and regulations, including the Endangered Species Act, would provide an adequate level of protection the values of the area, and therefore special management attention is not warranted. However, since that time additional data on the distribution, abundance and threats to bear poppy have become available. Portions of this area may be reevaluated for ACEC status through the plan amendment process.

544

ACEC NOMINATION EVALUATION

NAME: Bowl of Fire/Bitter Spring Valley LOCATION: E. of Las Vegas, Muddy Mts, Clark Co., NV

SIZE: 40,960 acres NOMINATED BY: National Park Service-Lake Mead, Nature Conservancy

RATIONALE: Protect scenic values from Northshore Road, Candidate plant species.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **None unique to the area; desert tortoise and bighorn sheep**
3. Natural process or system? **Gypsiferous soils support a unique plant community**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **None known; Potentially an archeological district.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Low density tortoise habitat, cultural and historic sites, scenic viewshed, highly erodible soils. Viewshed from Lake Mead area. Gypsiferous soils provide habitat for several special status plants, including bear poppy, *Arctomecon californica, Enceliopsis argophylla* and *Eriogonum corymbosum* var. *aureum*.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, Section 102(a)(8). The area nominated is partially within the portion of the Muddy Mountain WSA which was recommended as non-suitable for wilderness.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

A determination was made in the Draft RMP that the values of the area do not warrant ACEC designation. Existing laws and regulations, including the Endangered Species Act, would provide an adequate level of protection for the values of the area, and therefore special management attention is not warranted. However, since that time additional data on the distribution, abundance and threats to bear poppy has become available. Portions of this area may be reevaluated for ACEC status through the plan amendment process.

545

ACEC NOMINATION EVALUATION

NAME: Red Rocks Canyon Recreation Lands (RRCRL) LOCATION: Spring Mts., Clark Co., NV

SIZE: Approximately 62,000 acres NOMINATED BY: BLM

RATIONALE: Ten separate ACEC nominations were submitted for Red Rocks. Rather than have several small ACECs scattered throughout Red Rocks, it would be easier to designate the entire area. The entire recreation area is a special management area and as such qualifies as an ACEC according to Bureau policy.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; scenic, cultural and historic values**
2. Fish and wildlife resource? **None unique to the area; Forty-five species of mammals, more than 100 species of birds and 30 species of reptiles and amphibians**
3. Natural process or system? **Yes; several different plant communities and at least 7 endemic plant species**
4. Natural hazard? **Yes; cliffs up to 3,000 feet of vertical relief**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Approximately 1/2 million people visit Red Rocks annually. Brownstone Canyon is on the National Register of Histo Places. Red Rocks is an internationally recognized rock climbing area. The escarpment potentially suitable nesting habitat for the peregrine falcon, an endangered species. Expansion of Las Vegas is putting increasing demands on the area.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Numerous cultural sites; Diverse flora and fauna including several special status species; Potential nesting habitat for peregrine falcon, an endangered species; Relic stands of ponderosa pine and possibly white fir.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) and Section 103.(a) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **The proximity to Las Vegas and the high number of visitors increases the potential for accidents, violence and unlawful actions. Many visitors attempt to climb the cliffs, requiring search and rescue efforts by Bureau Rangers.**
5. Poses a significant threat to human life and safety or to property? **Red Rocks receives an extremely high level of visitation because of it's proximity to the largest population center in Nevada; when combined with the terrain, the result is a very high potential accidental injury or death.**

RECOMMENDATION

The area meets the relevance and importance criteria and special management attention is needed to prote and preserve the scenic, biological, cultural, and geologic values of the area. This area has been designat as a National Conservation Area, providing sufficient protection and management attention to the area. Designation as an ACEC is no longer appropriate.

546

ACEC NOMINATION EVALUATION

NAME: Pine Creek Canyon LOCATION: RRCRL

SIZE: Unspecified NOMINATED BY: NORA, Howard Booth, Sierra Club, Walter Barbuck

RATIONALE: Relic stands of ponderosa pine, riparian habitat, rare and endemic plants and animals, designated natural area and current heavy use by visitors.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; scenic, historic and possibly cultural values**
2. Fish and wildlife resource? **None unique to the area**
3. Natural process or system? **Yes; relict ponderosa pine stand**
4. Natural hazard? **Yes; cliffs up to 3,000 feet of vertical relief**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **The area is a designated Research Natural Area.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **The lowest elevational occurrence of ponderosa pine in the Las Vegas District, riparian habitat, and historical/cultural sites.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA. Bureau Manual 1623.3 requires that all designated natural areas be designated as ACECs.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **The proximity to Las Vegas and the high number of visitors increases the potential for accidents, violence and unlawful actions. Many visitors attempt to climb the cliffs, requiring search and rescue efforts by Bureau Rangers.**
5. Poses a significant threat to human life and safety or to property? **Red Rocks receives an extremely high level of visitation because of it's proximity to the largest population center in Nevada; when combined with the terrain, the result is a very high potential accidental injury or death.**

RECOMMENDATION

The area meets the relevance and importance criteria and special management attention is needed to protect and preserve the scenic, biological, cultural, and geologic values of the area. This area has been designated as a National Conservation Area, providing sufficient protection and management attention to the area. Designation as an ACEC is no longer appropriate.

547

ACEC NOMINATION EVALUATION

NAME: Brownstone Canyon LOCATION: RRCRL

SIZE: Unspecified NOMINATED BY: NORA, Sierra Club, Howard Booth

RATIONALE: Cultural Resources, wildlife habitat, eligible for the National Register of Historic Places, remnant stands ponderosa pines and current heavy use and abuse by visitors.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; cultural and scenic values**
2. Fish and wildlife resource? **None unique to the area; gila monster and chuckwalla habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **Yes; cliffs up to 3,000 feet of vertical relief**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Brownstone Canyon is on the National Register of Historic Places.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Cultural resources, heavy use by recreationists, and uncommon vegetative communities.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **Yes, heavy visitation and natural hazards.**
5. Poses a significant threat to human life and safety or to property? **Red Rocks receives an extremely high level of visitation because of it's proximity to the largest population center in Nevada; when combined with the terrain, the result is a very high potential accidental injury or death.**

RECOMMENDATION

The area meets the relevance and importance criteria and special management attention is needed to protect and preserve the scenic, biological, cultural, and geologic values of the area. This area has been designated as a National Conservation Area, providing sufficient protection and management attention to the area. Designation as an ACEC is no longer appropriate.

548

ACEC NOMINATION EVALUATION

NAME: Calico Basin LOCATION: RRCRL

SIZE: Unspecified NOMINATED BY: Nature Conservancy, NORA

RATIONALE: Rare and candidate plant and animal spp., geology and riparian habitat.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; scenic and possibly cultural values**
2. Fish and wildlife resource? **None unique to the area; potentially gila monster habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **Yes; cliffs up to 3,000 feet of vertical relief**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Calico Basin is located within the Red Rock Canyon Recreation Area. Approximately 1/2 million people visit Red Rocks annually. Red Rocks is an internationally recognized rock climbing area. The escarpment is potentially suitable nesting habitat for the peregrine falcon, an endangered species. Expansion of Las Vegas is putting increasing demands on the area.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **High visitor use and proximity of private property to wildlife habitat and riparian systems; habitat for alkali mariposa lily, *Calochortus striatus*, a special status species which appears to be uncommon in Nevada.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **Yes, high visitor use and natural hazards.**
5. Poses a significant threat to human life and safety or to property? **Red Rocks receives an extremely high level of visitation because of it's proximity to the largest population center in Nevada; when combined with the terrain, the result is a very high potential accidental injury or death.**

RECOMMENDATION

The area meets the relevance and importance criteria and special management attention is needed to protect and preserve the scenic, biological, cultural, and geologic values of the area. This area has been designated as a National Conservation Area, providing sufficient protection and management attention to the area. Designation as an ACEC is no longer appropriate.

549

ACEC NOMINATION EVALUATION

NAME: Red Rock Canyon Joshua Forest LOCATION: RRCRL

SIZE: Unspecified NOMINATED BY: NORA

RATIONALE: Mojave Desert flora and scenic values

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; scenic values**
2. Fish and wildlife resource? **None unique to the area; desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **Yes; cliffs up to 3,000 feet of vertical relief**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **The area is located within the Red Rock Canyon Recreation Area. Approximately 1/2 million people visit Red Rocks annually. Red Rocks is an internationally recognized rock climbing area. The escarpment is potentially suitable nesting habitat for the peregrine falcon, an endangered species. Expansion of Las Vegas is putting increasing demands on the area.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **High visitor use and proximity of private property to wildlife habitat and riparian systems; desert tortoise habitat.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **Yes, high visitor use and natural hazards.**
5. Poses a significant threat to human life and safety or to property? **Red Rocks receives an extremely high level of visitation because of it's proximity to the largest population center in Nevada; when combined with the terrain, the result is a very high potential accidental injury or death.**

RECOMMENDATION

The area meets the relevance and importance criteria and special management attention is needed to protect and preserve the scenic, biological, cultural, and geologic values of the area. This area has been designated as a National Conservation Area, providing sufficient protection and management attention to the area. Designation as an ACEC is no longer appropriate.

550

ACEC NOMINATION EVALUATION

NAME: First Creek LOCATION: RRCRL

SIZE: Unspecified NOMINATED BY: NORA

RATIONALE: Riparian habitat, Mojave Desert flora and scenic values

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RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; scenic and possibly cultural values**
2. Fish and wildlife resource? **None unique to the area**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **Yes; cliffs up to 3,000 feet of vertical relief**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **First Creek is located within the Red Rock Canyon Recreation Area. Approximately 1/2 million people visit Red Rocks annually. Red Rocks is an internationally recognized rock climbing area. The escarpment is potentially suitable nesting habitat for the peregrine falcon, an endangered species. Expansion of Las Vegas is putting increasing demands on the area.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **High visitor use and proximity of private property to wildlife habitat and riparian systems; desert tortoise habitat.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **Yes, high visitor use and natural hazards.**
5. Poses a significant threat to human life and safety or to property? **Red Rocks receives an extremely high level of visitation because of it's proximity to the largest population center in Nevada; when combined with the terrain, the result is a very high potential accidental injury or death.**

RECOMMENDATION

The area meets the relevance and importance criteria and special management attention is needed to protect and preserve the scenic, biological, cultural, and geologic values of the area. This area has been designated as a National Conservation Area, providing sufficient protection and management attention to the area. Designation as an ACEC is no longer appropriate.

551

ACEC NOMINATION EVALUATION

NAME: Blue Diamond Hill LOCATION: RRCRL

SIZE: Various unspecified sizes NOMINATED BY: Nature Conservancy, Howard Booth, Sierra Club

RATIONALE: Habitat for category 1 plant species, geology (cave), vandalism of cave fossils and scenic values compatible with Red Rocks.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; Blue Diamond Hill screens the Red Rocks area from Las Vegas**
2. Fish and wildlife resource? **None unique to the area**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **None known.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Habitat for many-jointed whipple cholla, *Opuntia whipplei var. multigeniculata*, a candidate species; limestone cave; many fossils; Blue Diamond Hill is part of the viewshed of Red Rocks.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **Yes, high visitor use.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria due to its location as a visual screen between the largest population center in Nevada and one of BLM's most visible and highly used recreation areas. This area has been designated as a National Conservation Area, providing sufficient protection and management attention to the area. Designation as an ACEC is no longer appropriate.

552

ACEC NOMINATION EVALUATION

NAME: Rocky Gap-Red Rock Summit LOCATION: RRCRL

SIZE: Unspecified NOMINATED BY: Howard Booth

RATIONALE: Historic values, riparian habitat, remnant stands of ponderosa pine, abuse by OHV enthusiasts, lack of ranger patrol and wildlife habitat.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; historic, cultural and scenic values**
2. Fish and wildlife resource? **None unique to the area**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Rocky Gap-Red Rock Summit is located within the Red Rock Canyon Recreation Area. Approximately 1/2 million people visit Red Rocks annually. Red Rocks is an internationally recognized rock climbing area. The escarpment is potentially suitable nesting habitat for the peregrine falcon, an endangered species. Expansion of Las Vegas is putting increasing demands on the area.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Scenic values; geology; riparian habitat, and wildlife habitat.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **Yes, high visitor use.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria and special management attention is needed to protect and preserve the scenic, biological, cultural, and geologic values of the area. This area has been designated as a National Conservation Area, providing sufficient protection and management attention to the area. Designation as an ACEC is no longer appropriate.

553

ACEC NOMINATION EVALUATION

NAME: Rainbow and Bootleg Springs LOCATION: RRCRL

SIZE: Unspecified NOMINATED BY: Howard Booth and Sierra Club

RATIONALE: Perennial springs with riparian habitat, wildlife habitat, cultural sites and damage to springs and riparian habitat via OHV and camping.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; cultural and scenic values**
2. Fish and wildlife resource? **None unique to the area**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **None known.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Riparian habitat; cultural values; perennial spring provides water for many wildlife species.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The values of the area meet the relevance and importance criteria to a limited extent, but in and of themselves do not warrant special management attention. Taken in the greater context of the Red Rock Canyon National Conservation Area, however, the area does warrant special management attention. This area has been designated as a National Conservation Area, providing sufficient protection and management attention to the area. Designation as an ACEC is no longer appropriate.

554

ACEC NOMINATION EVALUATION

NAME: Oak Creek Canyon LOCATION: RRCRL

SIZE: Unspecified NOMINATED BY: Howard Booth and Sierra Club

RATIONALE: Scenic values, riparian habitat, wildlife habitat, Mojave Desert flora, potential interpretive area, riparian habitat and extensive impacts from current heavy use by visitors.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; scenic values**
2. Fish and wildlife resource? **None unique to the area**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **Yes; cliffs up to 3,000 feet of vertical relief**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Oak Creek is located within the Red Rock Canyon Recreation Area. Approximately 1/2 million people visit Red Rocks annually. Red Rocks is an internationally recognized rock climbing area. The escarpment is potentially suitable nesting habitat for the peregrine falcon, an endangered species. Expansion of Las Vegas is putting increasing demands on the area.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Riparian habitat, wildlife habitat and heavy use by visitors.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **Yes, heavily used day use and camping area.**
5. Poses a significant threat to human life and safety or to property? **Red Rocks receives an extremely high level of visitation because of it's proximity to the largest population center in Nevada; when combined with the terrain, the result is a very high potential accidental injury or death.**

RECOMMENDATION

The area meets the relevance and importance criteria and special management attention is needed to protect and preserve the scenic, biological, cultural, and geologic values of the area. This area has been designated as a National Conservation Area, providing sufficient protection and management attention to the area. Designation as an ACEC is no longer appropriate.

555

ACEC NOMINATION EVALUATION

NAME: Desert Tortoise Management Areas LOCATION: Various

SIZE: Various NOMINATED BY: USFWS-Reno, Sierra Club, NORA

RATIONALE: Habitat for a federally listed, threatened species.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **None unique to the area; critical desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Many of these areas are designated as critical tortoise habitat and included in the Tortoise Recovery Plan as areas essential for the recovery of the desert tortoise.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Habitat for desert tortoise, a federally listed, threatened species.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA and the Endangered Species Act of 1973, as amended.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The areas meet the relevance and importance criteria, and although the Endangered Species Act provides an adequate level of protection for the biological values of the area, special management attention is needed to ensure the "recovery" of the desert tortoise.

556

ACEC NOMINATION EVALUATION

NAME: Tortoise Management Areas (TMA) LOCATION: Various

SIZE: Six TMAs of 60,000-187,000 acres NOMINATED BY: BLM
Total approximately 757,000 acres

RATIONALE: Habitat for a federally listed, threatened species

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RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; some areas include cultural and/or historic values**
2. Fish and wildlife resource? **None unique to the area; critical desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Many of these areas are designated as critical tortoise habitat and included in the Tortoise Recovery Plan as areas essential for the recovery of the desert tortoise.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Habitat for desert tortoise, a federally listed, threatened species.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA and the Endangered Species Act of 1973, as amended.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The areas meet the relevance and importance criteria, and although the Endangered Species Act provides an adequate level of protection for the biological values of the area, special management attention is needed to ensure the "recovery" of the desert tortoise.

557

ACEC NOMINATION EVALUATION

NAME: Las Vegas-Goodsprings-Ivanpah TMA LOCATION: SW Las Vegas Valley south through Goodsprings and Ivanpah valleys to the CA border

SIZE: Approximately 170,000 acres NOMINATED BY: BLM

RATIONALE: Habitat for desert tortoise, a federally listed, threatened species.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **None unique to the area; desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Habitat for desert tortoise, a federally listed, threatened species.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Habitat for desert tortoise; Upper Respiratory Tract Disease has been documented in the population; rapid rate of habitat loss due to the expansion of Las Vegas, Jean and Stateline.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA and the Endangered Species Act of 1973, as amended.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria. However, the Endangered Species Act provides an adequate level of protection for the biological values of the area. This area was not designated as critical desert tortoise habitat. Ongoing and future development of the area make long-term management for desert tortoise recovery unfeasible in this area.

558

ACEC NOMINATION EVALUATION

NAME: Mormon Mesa TMA LOCATION: NE Clark County, north of I-15.

SIZE: Approximately 93,000 acres NOMINATED BY: BLM

RATIONALE: Habitat for a federally listed, threatened species.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **None unique to the area; critical desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Habitat for desert tortoise, a threatened species. This area is part of the Northeastern Mojave Recovery unit and was identified in the tortoise recovery plan as being important for the recovery of the desert tortoise.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Critical habitat for desert tortoise.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA and the Endangered Species Act of 1973, as amended.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria, and although the Endangered Species Act provides an adequate level of protection for the biological values of the area, special management attention is needed to ensure the "recovery" of the desert tortoise.

559

ACEC NOMINATION EVALUATION

NAME: Piute Valley TMA LOCATION: S. Eldorado Valley and Piute Valley to the CA border, Clark Co., NV

SIZE: Approximately 187,000 acres NOMINATED BY: BLM

RATIONALE: Habitat for a federally listed, threatened species.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **None unique to the area; critical desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Critical desert tortoise habitat. This is the only TMA in Nevada within the Eastern Mojave Recovery Unit. This unit is characterized by rapid rates of population declines. Upper Respiratory Tract Disease has been documented in California tortoise populations and has resulted in high mortality. Habitat in Piute Valley is adjacent to tortoise habitat in California. This area was identified in the Tortoise Recovery Plan as being important for the recovery of the desert tortoise.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Critical habitat for desert tortoise, a threatened species; An apparent die-off occurred in this population between 1979 and 1983.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA and the Endangered species Act of 1973, as amended.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria, and although the Endangered Species Act provides an adequate level of protection for the biological values of the area, special management attention is needed to ensure the "recovery" of the desert tortoise.

560

ACEC NOMINATION EVALUATION

NAME: Arrow Canyon TMA

LOCATION: Between the Arrow Canyon Range and the Desert National Game Range

SIZE: Approximately 60,000 acres

NOMINATED BY: BLM

RATIONALE: Habitat for a federally listed, threatened species.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; cultural values**
2. Fish and wildlife resource? **None unique to the area; critical desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **This area in Nevada supports a high density tortoise population which appears to be healthy with the limited data which is available. The area is designated as critical tortoise habitat and is within the Northeastern Mojave Recovery Unit. This area was identified in the Tortoise Recovery Plan as being important to the recovery of the desert tortoise.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Critical habitat for desert tortoise, threatened species; cultural sites; migration route for bighorn sheep; high scenic values.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA and the Endangered species Act of 1973, as amended.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria, and although the Endangered Species Act provides an adequate level of protection for the biological values of the area, special management attention is needed to ensure the "recovery" of the desert tortoise.

561

ACEC NOMINATION EVALUATION

NAME: Pahrump Valley TMA LOCATION: Pahrump Valley, Nye Co., NV

SIZE: Approximately 102,000 acres NOMINATED BY: BLM

RATIONALE: Habitat for a threatened species.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; cultural and historic values**
2. Fish and wildlife resource? **None unique to the area; desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Habitat for desert tortoise, a threatened species; Old Spanish Trail/Mormon Trail is eligible for National Register of Historic Places.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Habitat for desert tortoise; cultural and historic sites.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA and the Endangered species Act of 1973, as amended.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria. However, the Endangered Species Act and Historic Preservation act provide an adequate level of protection for the values of the area. This area is not designated as critical desert tortoise habitat and is not identified in the Tortoise Recovery Plan as a potential recovery area.

562

ACEC NOMINATION EVALUATION

NAME: Gold Butte TMA LOCATION: N. of Lake Mead and E. of Virgin River, Clark Co., NV.

SIZE: Approximately 145,000 acres NOMINATED BY: BLM

RATIONALE: Habitat for a threatened species.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; cultural and scenic values**
2. Fish and wildlife resource? **None unique to the area; critical desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Critical habitat for desert tortoise, a federally listed, threatened species; Part of the Northeastern Mojave Recovery Unit for desert tortoise, this area was identified in the Tortoise Recovery Plan as being important for the recovery of the species.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Critical habitat for desert tortoise; The limited data available indicates low recruitment in this tortoise population; it is adjacent to critical tortoise habitat in Arizona; Moderately high density tortoise population; many cultural sites.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA and the Endangered Species Act of 1973 as amended.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria, and although the Endangered Species Act provides an adequate level of protection for the biological values of the area, special management attention is needed to ensure the "recovery" of the desert tortoise.

563

ACEC NOMINATION EVALUATION

NAME: Critical gila monster habitat LOCATION: unspecified

SIZE: Unspecified NOMINATED BY: NORA

RATIONALE: Special status plants and state listed rare reptiles.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Unable to assess**
2. Fish and wildlife resource? **None unique to the area; potentially gila monster habitat**
3. Natural process or system? **Unable to assess**
4. Natural hazard? **Unable to assess**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Habitat for the only poisonous lizard in the United States and one of only two species world wide.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **The gila monster is considered rare in Nevada and is unique in that it is the only poisonous lizard in the United States.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA. However, the gila monster is not a listed species. Critical habitat is not designated for unlisted species. Data on the distribution of gila monsters within the district is lacking. Sufficient gila monster habitat should be included in other ACEC nominations to cover the intent of this nomination. If future inventories identify areas which are crucial to the survival of the species in Nevada, additional ACECs could be nominated at that time.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **Unable to assess.**
5. Poses a significant threat to human life and safety or to property? **Unable to assess.**

RECOMMENDATION

The area does not conclusively meet the relevance and importance criteria, nor is the nomination sufficiently defined to allow a definitive analysis of an area. Furthermore, the federal status of the gila monster is such that no foreseeable danger to the continued existence of gila monster exists. As stated above, vast areas of potential gila monster habitat will be protected under the umbrella of other ACECs, and therefore, further special management attention is not warranted.

564

ACEC NOMINATION EVALUATION

NAME: Mesquite Valley LOCATION: Mesquite Valley, near Sandy, Nye Co., NV

SIZE: Unspecified NOMINATED BY: Nature Conservancy

RATIONALE: Special status plant species.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known on public lands in the area**
2. Fish and wildlife resource? **None unique to public lands in the area**
3. Natural process or system? **None unique to public lands in the area**
4. Natural hazard? **None known on public lands in the area**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **None known on public lands in the area.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Habitat for two special status plant species, *Arctomecon merriami* and *Eriogonum bifurcatum*.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **No. The area indicated on the map included with the ACEC nomination was private land and does not fall under the mandates of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known on public lands in the area.**
5. Poses a significant threat to human life and safety or to property? **Not known for public lands in the area.**

RECOMMENDATION

The nominated area is located on private lands, and is therefore not eligible for ACEC consideration.

565

ACEC NOMINATION EVALUATION

NAME: Park Service Buffer

LOCATION: All public lands adjacent to National Park Service Lands.

SIZE: Unspecified

NOMINATED BY: National Park Service-Western Region

RATIONALE: Protect National park boundaries.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Unable to assess**
2. Fish and wildlife resource? **Unable to assess**
3. Natural process or system? **Unable to assess**
4. Natural hazard? **Unable to assess**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Unable to assess.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Unable to assess.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Unable to assess.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **Unable to assess.**
5. Poses a significant threat to human life and safety or to property? **Unable to assess.**

RECOMMENDATION

The area nominated was not specific enough to allow for an analysis of the values, if any, of the "buffer lands".

566

ACEC NOMINATION EVALUATION

NAME: Yucca Mountain LOCATION: E. of Beatty, Nye Co., NV

SIZE: 4,255 acres NOMINATED BY: State of Nevada, Agency for Nuclear Projects, Nuclear Waste Project Office

RATIONALE: Habitat for a federally listed, threatened species, volcanic origin, potential impacts to ground water

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RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **None unique to the area; desert tortoise habitat**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **The area has been designated by Congress as the only site to be studied for the nation's first long-term high-level nuclear waste repository.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Habitat for the desert tortoise, a threatened species, and part of the groundwater basin for the Ash Meadows area and Amargosa River.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLMPA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **Not known.**

RECOMMENDATION

The area meets the relevance and importance criteria to a limited extent, but existing laws and regulations, including the Endangered Species Act, provide an adequate level of protection for the biological and cultural values of the area, and special management attention is not warranted to protect the area for further study for a nuclear waste repository.

567

ACEC NOMINATION EVALUATION

NAME: Yellow Plug LOCATION: Near Mt. Potosi, South Spring Range, Clark Co., NV

SIZE: Unspecified NOMINATED BY: Howard Booth, Sierra Club

RATIONALE: Cultural and historic values.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known on public lands in the area**
2. Fish and wildlife resource? **None unique to the public lands in the area**
3. Natural process or system? **None unique to the public lands in the area**
4. Natural hazard? **None known on public lands in the area**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **None known on public lands in the area.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **None known on public lands in the area.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **No. The Yellow Plug site and most of the archeological district is located on National Forest Service lands. Any protective actions for these lands would be under the jurisdiction of the Forest Service.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known on public lands in the area.**
5. Poses a significant threat to human life and safety or to property? **Not known for public lands in the area.**

RECOMMENDATION

The nominated area is located on US Forest Service lands, and is therefore not eligible for ACEC consideration.

568

ACEC NOMINATION EVALUATION

NAME: Colorado River Frontage LOCATION: Between Laughlin and the Fort Mohave Indian Reservation.

SIZE: 3-4 miles NOMINATED BY: Sierra Club

RATIONALE: Riparian and wildlife habitat, rapid growth of Laughlin

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RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **None known**
2. Fish and wildlife resource? **None unique to the area**
3. Natural process or system? **None unique to the area**
4. Natural hazard? **Yes; flood prone area**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **None known.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Riparian habitat and fisheries; heavy visitor use demands on the Colorado River.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **No. This area is withdrawn by the Bureau of Reclamation (Secretarial order 10-16-1931, PL 31-522-1953).**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **The area is subject to periodic flooding.**
5. Poses a significant threat to human life and safety or to property? **Potentially during flooding.**

RECOMMENDATION

The area is located on public lands withdrawn by the Bureau of Reclamation and are therefore not eligible for ACEC consideration.

569

ACEC NOMINATION EVALUATION

NAME: Fort Piute LOCATION: California Desert District

SIZE: Undetermined NOMINATED BY: Howard Booth

RATIONALE: Historic area, riparian habitat, threatened by OHV and pumping of water from the aquifer.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Not applicable**
2. Fish and wildlife resource? **Not applicable**
3. Natural process or system? **Not applicable**
4. Natural hazard? **Not applicable**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Not applicable.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Not applicable.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Not applicable.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **Not applicable.**
5. Poses a significant threat to human life and safety or to property? **Not applicable.**

RECOMMENDATION

The area is located outside of the planning area and is therefore not eligible for ACEC consideration in this RMP.

570

ACEC NOMINATION EVALUATION

NAME: Areas of Critical Mineral Potential LOCATION: Various

SIZE: Various NOMINATED BY: American Borate; Miners and Prospectors Assn. of Southern Nevada

RATIONALE: Strategic, industrial and precious metals with high economic importance.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Unable to asses**
2. Fish and wildlife resource? **Unable to assess**
3. Natural process or system? **Geologic/mineralization (including sand and gravel, and gypsum).**
4. Natural hazard? **Unable to assess**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Possibly in the case of strategic minerals. More specific information is needed to make a determination.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Unable to assess.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Unable to assess.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **Unable to assess.**
5. Poses a significant threat to human life and safety or to property? **Unable to assess.**

RECOMMENDATION

The area nominated was not specific enough to allow for an analysis. BLM is legally required to identify and manage ACECS, the concept of which is to ensure the continued integrity of significant biological, cultural, scenic, recreational, and geologic values in a specified area; this protection is usually achieved by restricting, or eliminating, mineral exploration and development and other surface disturbing activities in the ACEC. It would appear that the intention of nominating and designating an "Area of Critical Mineral Potential" would be to ensure that the area is available for mineral exploration and development, however, the public lands are available for mineral exploration and development unless specifically withdrawn or closed. The two concepts appear to be in direct conflict.

571

ACEC NOMINATION EVALUATION

NAME: Riparian Areas LOCATION: Various

SIZE: Various NOMINATED BY: BLM

RATIONALE: Uncommon, often disjunct, vegetation type associated with water and extremely critical to a wide variety of wildlife species; important to water quantity and quality

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RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Yes; cultural and historic**
2. Fish and wildlife resource? **Yes; threatened and endangered species endemic to some areas**
3. Natural process or system? **Riparian ecosystems**
4. Natural hazard? **None known**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Riparian areas and associated aquatic habitat along the Virgin River, Muddy River, and Ash Meadows either support, or potentially could support, populations of special status plant and animal species.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **This habitat type is extremely restricted in desert environments and its importance to native wildlife populations is way out of proportion to the small acreage involved. Any disturbance in these areas carries with it the potential to irrevocably alter the riparian and aquatic habitat.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes, under Section 102(a)(8) of FLPMA and the Endangered Species Act of 1973 as amended.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **None known.**
5. Poses a significant threat to human life and safety or to property? **None known.**

RECOMMENDATION

Riparian areas and associated aquatic habitat meet the relevance and importance criteria, and special management attention is warranted to ensure their continued existence. Many riparian areas were included within larger ACECs. The Muddy River is located mostly on private land and is not eligible for ACEC designation.

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ACEC NOMINATION EVALUATION

NAME: Milo Hurst Property

LOCATION: A portion of T.22 N., R.59 E., Section 7, NW¼SE¼ (in the vicinity of Blue Diamond)

SIZE: Unknown

NOMINATED BY: Dr. Larry Butler, and Penelope and Neil Ingraham

RATIONALE: Proximity to Red Rock Canyon; "buffer zone; water conservation: local history, and natural hazard area (rock slides)

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Not applicable**
2. Fish and wildlife resource? **Not applicable**
3. Natural process or system? **Not applicable**
4. Natural hazard? **Not applicable**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Not applicable.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Not applicable.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Not applicable.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **Not applicable.**
5. Poses a significant threat to human life and safety or to property? **None known.**

RECOMMENDATION

The nominated area is currently private property and therefore the BLM has no jurisdiction regarding current or future land uses of the nominated area.

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ACEC NOMINATION EVALUATION

NAME: Amargosa Mesquite

LOCATION: T17S, R51E, Nye County, NV

SIZE: 6,080 acres

NOMINATED BY: BLM

RATIONALE: Mesquite bosque habitat is very limited in Nevada, it is rapidly being lost and degraded due to urban development, illegal firewood harvest and fires. Mesquite is important habitat for migrant and resident song birds.

RELEVANCE (must contain one or more of the following):

1. Significant historic, cultural, or scenic value? **Significant cultural resources**
2. Fish and wildlife resource? **Important habitat for song birds**
3. Natural process or system? **Mesquite bosque, a rare vegetative community in southern Nevada**
4. Natural hazard? **Not applicable**

IMPORTANCE (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource? **Mesquite habitats provide important food sources and cover for migrating and resident song birds.**
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change? **Mesquite habitats are rare in Nevada and are being lost and degraded due to urban development and illegal firewood harvest.**
3. Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA? **Yes under Section 102(a)(8) of FLPMA.**
4. Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare? **Not applicable.**
5. Poses a significant threat to human life and safety or to property? **None known.**

RECOMMENDATION

The nominated area meets the relevance and importance criteria and special management attention is warranted to protect the biological and cultural values of the area.

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APPENDIX L

BUREAU OF LAND MANAGEMENT
STANDARDS AND GUIDELINES FOR NEVADA

INTRODUCTION

The purpose of these Standards and Guidelines is to ensure that the Bureau of Land Management's (BLM) administration of grazing helps preserve currently healthy rangelands and restore healthy conditions to those areas that are not functioning properly. Standards and Guidelines provide specific measures of rangeland health and will identify acceptable or best management practices. The authority for these Standards and Guidelines is found in 43 CFR 4180.

STANDARD AND GUIDELINES IMPLEMENTATION PROCESS

Upon approval of the Standards and Guidelines by the Secretary of the Interior, permits and leases shall contain terms and conditions that insure conformance with the approved Standards and Guidelines.

The implementation process for Standards and Guidelines will occur under two separate processes as described below:

1. During the supervision and/or monitoring of an allotment, if it is determined that the existing terms and conditions of a grazing permit are not in conformance with the approved Standards and Guidelines and that livestock grazing was determined to be a significant factor in the non-attainment of a standard, then as soon as possible, or no later than the start of the next grazing year, the terms and conditions of the permit/lease will be modified to ensure that the grazing management practices or the levels of the grazing use will be in conformance with the Standards and/or Guidelines.

The modification of the terms and conditions of the permit/lease will be implemented by agreement and/or by decision.

2. The allotment evaluation process will continue to be the process used to determine if existing multiple uses for allotments are meeting or making progress towards meeting land use plan objectives, allotment specific objectives, Rangeland Program Summary objectives and land use plan decisions, in addition to the Standards and Guidelines for grazing administration.

Additionally, allotment specific objectives may have to be developed or amended, objectives in the land use plans further quantified at the allotment specific level, and terms and conditions of permits changed or revised to reflect the Standards and Guidelines. Allotment evaluations will continue to be completed based on district priorities.

a. The allotment evaluation consists of or involves:

1.) The evaluation of current grazing use by all users (livestock, wild horses, wildlife) based on monitoring data analysis and interpretation;

2.) Recommendations to change or adjust grazing systems;

3.) Recommendations to change or adjust stocking levels; and

4.) Establishment of stocking levels for wild horses.

b. The allotment evaluation also serves as the basis for either issuing multiple use decisions, agreements, or a no change determination. Multiple use decisions are prepared subsequent to completion of land use plans and are based on the attainment or non-attainment of objectives established in the land use plans and allotment evaluations.

During the evaluation process, the existing terms and conditions of a permit will be evaluated to determine if they are in conformance with the approved Standards and Guidelines. If it is determined that the existing terms and conditions are not in conformance and that livestock grazing was a significant factor in the non-attainment, then as soon as possible or no later than the start of the next grazing year, the terms and conditions of the permit/lease will be modified to ensure that the grazing management practices or the levels of grazing use will be in conformance.

At the conclusion of the evaluation process, the multiple use decision process will continue to be used to establish:

1.) The terms and conditions of the grazing permits;

2.) The appropriate management level for wild horses and burros that occur within the allotment; and

3.) Any recommendations for wildlife populations or habitat management actions required if it is determined that these actions are necessary.

The preamble to the final regulations contains additional information regarding what action BLM would take upon becoming aware that a standard is not being met. The following preamble language is found on page 9956 of the Federal Register notice:

"... The Department intends that failing to comply with a standard in an isolated area would not necessarily result in corrective action.

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"The Department recognizes that it will sometimes be a long-term process to restore rangelands to proper functioning condition. The Department intends that Standards and Guidelines will result in a balance of sustainable development and multiple use along with progress towards attaining healthy, properly functioning rangelands. For that reason, wording has been adopted in the final rule that will require the authorized officer to take appropriate action upon determining that existing grazing management practices are failing to ensure appropriate progress toward the fulfillment of standards..."

"In some areas, it may take many years to achieve healthy rangelands, as evidenced by the fundamentals, established standards, and guidelines. The Department recognizes, that in some cases, trends may be hard to even document in the first year. The Department will use a variety of data, including monitoring records, assessments, and knowledge of the locale to assist in making the "significant progress" determination."

The acceptance of progress toward reaching the desired end state is also addressed in the regulatory text in 43 CFR 4180.1 Fundamentals of Rangeland Health which includes the "making significant progress toward" language in each of the four fundamentals.

The concept of "making progress toward" is a specific consideration when determining a course of action during implementation. Determining whether a standard is being met is a distinctly different concept from determining whether progress is being made toward or away from the standard. Determining a course of action is then dependent on a variety of factors, one of which is whether progress is being made toward the standard.

With regard to actions, it is the BLM's policy and intent to work in a collaborative manner to achieve or maintain the Standards necessary for healthy, productive rangelands. It is not the policy or intent of the BLM to arbitrarily and immediately remove all livestock from an entire allotment based solely on finding a range site that is not meeting a standard. As a practical matter the BLM has neither policy, intent, desire nor capability to arbitrarily remove all livestock where acceptable progress is being made toward meeting the Standards.

GEOGRAPHICAL AREA COVERED BY THE STANDARDS AND GUIDELINES

As shown below the three Resourc Advisory Council (RAC) areas in Nevada are based on combinations of major land resource areas as developed by the Natural Resource Conservation Service for Nevada. This land classification system is recognized by the Bureau of Land Management, the Forest Service and other agencies as a basis for ecosystem data collection and analysis. The soil, vegetal and geophysical characteristics of each of the three areas are different and the text offered by the three RACs incorporates their understanding of the differing physical and biological needs of the rangeland ecosystems.

Recognition of these differences is critical to the successful protection of rangelands in Nevada. As a result of basing the RAC boundaries according to an ecosystem approach as opposed to strictly an administrative or jurisdictional approach, the RAC's advice and recommendations are more relevant to the on-the-ground management of natural resources. The area covered by the Standards and Guidelines is as follows. Adjustments will be made for grazing allotments that overlap the boundaries between the RAC areas.

1. Mojave-Southern Great Basin Resource Advisory Council recommends actions to the Nevada BLM State Director for all or portions of Clark, Nye, Esmeralda, and Lincoln Counties. This includes portions of the Ely, Las Vegas and Battle Mountain Districts. The Standards and Guidelines would apply to lands within the Southern Nevada Basin and Range and Sonoran Basin and Range major land resource areas as defined by the Natural Resource Conservation Service.

2. Sierra Front-Northwestern Great Basin Resource Advisory Council recommends actions to the Nevada BLM State Director for all or portions of Humbolt, Pershing, Washoe, Carson City, Douglas, Lyon, Mineral, Storey and Churchill Counties in Nevada and Lassen, Plumas, Sierra and Alpine Counties in California. This includes the Winnemucca and Carson City Districts. The Standards and Guidelines would apply to lands within the Sierra Nevada, Malhuer High Plateau, Humbolt Fallon-Lovelock and Carson Basin major land resource areas as defined by the Natural Resource Conservation Service.

3. The Northeastern Great Basin Resource Advisory Council recommends actions to the Nevada BLM State Director for all or portions of Elko, White Pine, Eureka, and Lander Counties. This includes all of the Elko District and portions of the Ely and Battle Mountain Districts. The Standards and Guidelines would apply to lands within the Owyhee High Plateau and Central Nevada Basin and Range major land resource areas as defined by the Natural Resource Conservation Service.

STANDARDS AND GUIDELINES

1. See Appendix A for the Mojave-Southern Great Basin recommended Standards and Guidelines.

2. See Appendix B for the Sierra Front-Northwestern Great Basin recommended Standards and Guidelines.

3. See Appendix C for the Northeastern Great Basin recommended Standards and Guidelines.

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APPENDIX A

MOJAVE-SOUTHERN GREAT BASIN AREA

PREAMBLE

The Standards and Guidelines for grazing administration on BLM lands in southern Nevada apply to livestock grazing. The Mojave-Southern Great Basin Resource Advisory Council (RAC) intends that the Standards and Guidelines will result in a balance of sustainable development and multiple use along with progress, over time, toward attaining desired rangeland conditions. Standards are expressions of physical and biological conditions required for sustaining rangelands for multiple uses. Guidelines point to management actions related to livestock grazing for achieving the Standards. Guidelines are options that move rangeland conditions toward the multiple use Standards. Guidelines are based on science, best rangeland management practices, and public input. Thus Guidelines indicate the types of grazing methods and practices for achieving the Standards for multiple use, are developed for functional watersheds and implemented at the allotment level.

The Mojave-Southern Great Basin Resource Advisory Council recognizes that it will sometimes be a long-term process to restore rangelands to proper functioning condition. In some areas, it may take many years to achieve healthy rangelands.

The Resource Advisory Council may be requested by any party to assist reaching agreement in resolving disputes.

STANDARDS AND GUIDELINES

STANDARD 1. SOILS:

Watershed soils and stream banks should have adequate stability to resist accelerated erosion, maintain soil productivity, and sustain the hydrologic cycle.

Soil indicators:

- Ground cover (vegetation, litter, rock, bare ground);
- Surfaces (e.g., biological crusts, pavement); and
- Compaction/infiltration.

Riparian soil indicators:

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- Stream bank stability.

All of the above indicators are appropriate to the potential of the ecological site.

GUIDELINES:

1.1 Upland management practices should maintain or promote adequate vegetative ground cover to achieve the standard.

1.2 Riparian-wetland management practices should maintain or promote sufficient residual vegetation to maintain, improve, or restore functions such as stream flow energy dissipation, sediment capture, groundwater recharge, and streambank stability.

1.3 When proper grazing practices alone are not likely to restore areas, land management practices may be designed and implemented where appropriate.

1.4 Rangeland management practices should address improvement beyond this standard, significant progress toward achieving standards, time necessary for recovery, and time necessary for predicting trends.

STANDARD 2. ECOSYSTEM COMPONENTS:

Watersheds should possess the necessary ecological components to achieve state water quality criteria, maintain ecological processes, and sustain appropriate uses.

Riparian and wetlands vegetation should have structural and species diversity characteristic of the stage of stream channel succession in order to provide forage and cover, capture sediment, and capture, retain, and safely release water (watershed function).

Upland indicators:

- Canopy and ground cover, including litter, live vegetation, biological crust, and rock appropriate to the potential of the ecological site.

- Ecological processes are adequate for the vegetative communities.

Riparian indicators:

- Stream side riparian areas are functioning properly when adequate vegetation, large woody debris, or rock is present to dissipate stream energy associated with high water flows.

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- Elements indicating proper functioning condition such as avoiding accelerating erosion, capturing sediment, and providing for groundwater recharge and release are determined by the following measurements as appropriate to the site characteristics:

  Width/Depth ratio;
  Channel roughness;
  Sinuosity of stream channel;
  Bank stability;
  Vegetative cover (amount, spacing, life form); and
  Other cover (large woody debris, rock).

- Natural springs, seeps, and marsh areas are functioning properly when adequate vegetation is present to facilitate water retention, filtering, and release as indicated by plant species and cover appropriate to the site characteristics.

Water quality indicators:

- Chemical, physical and biological constituents do not exceed the state water quality standards.

The above indicators shall be applied to the potential of the ecological site.

GUIDELINES:

2.1 Management practices should maintain or promote appropriate stream channel morphology and structure consistent with the watershed.

2.2 Watershed management practices should maintain, restore or enhance water quality and flow rate to support desired ecological conditions.

2.3 Management practices should maintain or promote the physical and biological conditions necessary for achieving surface characteristics and desired natural plant community.

2.4 Grazing management practices will consider both the economic and physical environment, and will address all multiple uses including, but not limited to, (i) recreation, (ii) minerals, (iii) cultural resources and values, and (iv) designated wilderness and wilderness study areas.

2.5 New livestock facilities will be located away from riparian and wetland areas if they conflict with achieving or maintaining riparian and wetland functions. Existing facilities will be used in a way that does not conflict with achieving or maintaining riparian and wetland functions, or they will be relocated or modified when necessary to mitigate adverse impacts on riparian and wetland functions. The location,

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relocation, design and use of livestock facilities will consider economic feasibility and benefits to be gained for management of lands outside the riparian area along with the effects on riparian functions.

2.6 Subject to all valid existing rights, the design of spring and seep developments shall include provisions to protect ecological functions and processes.

2.7 When proper grazing practices alone are not likely to restore areas of low infiltration or permeability, land management practices may be designed and implemented where appropriate. Grazing on designated ephemeral rangeland watersheds should be allowed only if (i) reliable estimates of production have been made, (ii) an identified level of annual growth or residue to remain on site at the end of the grazing season has been established, and (iii) adverse effects on perennial species and ecosystem processes are avoided.

2.8 Rangeland management practices should address improvement beyond these standards, significant progress toward achieving standards, time necessary for recovery, and time necessary for predicting trends.

STANDARD 3. HABITAT AND BIOTA:

Habitats and watersheds should sustain a level of biodiversity appropriate for the area and conducive to appropriate uses. Habitats of special status species should be able to sustain viable populations of those species.

Habitat indicators:

- Vegetation composition (relative abundance of species);
- Vegetation structure (life forms, cover, height, and age classes);
- Vegetation distribution (patchiness, corridors);
- Vegetation productivity; and
- Vegetation nutritional value.

Wildlife indicators:

- Escape terrain;
- Relative abundance;
- Composition;

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- Distribution;

- Nutritional value; and

- Edge-patch snags.

The above indicators shall be applied to the potential of the ecological site.

GUIDELINES:

3.1 Mosaics of plant and animal communities that foster diverse and productive ecosystems should be maintained or achieved.

3.2 Management practices should emphasize native species except when others would serve better, for attaining desired communities.

3.3 Intensity, frequency, season of use and distribution of grazing use should provide for growth, reproduction, and, when environmental conditions permit, seedling establishment of those plant species needed to reach long-term land use plan objectives. Measurements of ecological condition, trend, and utilization will be in accordance with techniques identified in the Nevada Rangeland Handbook.

3.4 Grazing management practices should be planned and implemented to provide for integrated use by domestic livestock and wildlife, as well as wild horses and burros inside Herd Management Areas.

3.5 Management practices will promote the conservation, restoration and maintenance of habitat for special status species.

3.6 Livestock grazing practices will be designed to protect fragile ecosystems of limited distribution and size that support unique sensitive/endemic species or communities. Where these practices are not successful, grazing will be excluded from these areas.

3.7 Where grazing practices alone are not likely to achieve habitat objectives, land management practices may be designed and implemented as appropriate.

3.8 Vegetation manipulation treatments may be implemented to improve native plant communities, consistent with appropriate land use plans, in areas where identified Standards cannot be achieved through proper grazing management practices alone. Fire is the preferred vegetation manipulation practice on areas historically adapted to fire; treatment of native vegetation with herbicides or through mechanical means will be used only when other management techniques are not effective.

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3.9 Rangeland management practices should address improvement beyond this standard, significant progress toward achieving standards, time necessary for recovery, and time necessary for predicting trends.

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GLOSSARY

Definitions are taken from "A Glossary of Terms Used in Range Management" developed through the Society for Range Management or Bureau of Land Management Technical Reference or from the Dictionary of Ecology, Evolution and Systematics except where noted. Other definitions are from Grazing Administration Regulations Code of Federal Regulations, Chapter 43 Sec. 4100.0-5 . Definitions also include meanings that were developed by the Mojave Southern Resource Advisory Council to understand their intent in the Standards and Guidelines.

-A-

Annual Growth. The amount of production of new above ground plant biomass for a given site during a given year.

-B-

Biodiversity. The diversity of organisms in a region; made up of species diversity in individual community-types and the turnover of species across different community-types.

Biological (Cryptogamic) Crust. Community of non-vascular primary producers that occur as a "crust" on the surface of soils; made up of a mixture of algae, lichens, mosses, and cyanobacteria (bluegreen algae).

Biotic. Refers to living components of an ecosystem, e.g., plants and animals and microorganisms.

-C-

Canopy. (1) The vertical projection downward of the aerial portion of vegetation, usually expressed as a percent of the ground so occupied. (2) The aerial portion of the overstory vegetation.

Canopy Cover. The percentage of ground covered by a vertical projection of the outermost perimeter of the natural spread of foliage of plants. Small openings within the canopy are included. (BLM Technical Reference 4400-7)

Climate. The average or prevailing weather conditions of a place over a period of years. (BLM Technical Reference 4400-7)

Conservation. The planned management of natural resources; the retention of natural balance, diversity and evolutionary change in the environment.

The use and management of natural resources according to principles that assure their sustained economic and/or social benefits without impairment of environmental quality.

Cover. A. (1) The plants or plant parts, living or dead, on the surface of the ground. Vegetative cover or herbage cover is composed of living plants and litter cover of dead parts of plants. (2) The area of ground cover by plants or one or more species.

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B. (1) the combined aerial parts of plants and mulch, and (2) shelter and protection for animals and birds. (BLM Manual 4400)

C. (1) plant material, living (vegetative Cover) and dead (litter cover) on the soil surface; (2) the area of ground covered by the canopy projections of a particular plant species, expressed as a scale or as a percentage of total ground surface area.

Cultural Resources. A broad, general term meaning any cultural property and any traditional lifeway value. (BLM Manual 8100)

Cultural property. A definite location of past human activity, occupation, or use identifiable through field inventory (survey), historical documentation, or oral evidence. (Manual 8100)

-D-

Desert Pavement. A cemented, hydrophobic layer of rocks or small pebbles that occurs over time on desert soil surfaces; prevents water infiltration into soils and wind/water erosion of the soil; often covered with a chemical varnish layer.

Desired Natural Plant Community. The type of plant community which is desired for a particular ecological site. This could include native and non-native species depending on the desired land use, but as a natural plant community it must have native species adapted to the climate and soil type as dominants or co-dominants in the community.

Desired Plant Community. Of the several plant communities that may occupy a site, the one that has been identified through a management plan to best meet the plan's objectives for the site. It must protect the site as a minimum.

Diversity. (1) the absolute number of species in a community; species richness; (2) A measure of the number of species and their relative abundance in a community; low diversity refers to few species or unequal abundances, high diversity to many species or equal abundances.

-E-

Ecological Processes. Natural functions including the hydrologic cycle, the nutrient cycle, and energy flow. (see also 43 CFR 4180.1(b))

Ecological Site. The kind of land with a specific potential natural community and specific physical site characteristics, differing from other kinds of land in its ability to produce vegetation and to respond to management. (BLM Manual 4400)

Edaphic. Refers to the soil.

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Endemic Species. Native to, and restricted to, a particular geographical region, community type, or specific habitat.

Ephemeral Rangelands. Rangelands characterized by low, highly seasonal and often episodic rainfall, resulting in annual plants comprising a significant proportion of annual primary production.

Erosion. (v.) Detachment and movement of soil or rock fragments by the action of water, wind, ice or gravity. (n.) The land surface worn away by running water, wind, ice, or other geologic agents, including such processes as gravitational creep.

Exotic. An organism or species which is not native to the region in which it is found. Synonym *non-native*: Not native; alien; a species that has been introduced into an area.

-F-

Forage. The plant material actually consumed by (or available to) grazing animals.

Fragile Ecosystems. Uncommon ecosystems of limited distribution and size that support unique sensitive/endemic species or communities; ecosystems that have low resilience to environmental stress or to disturbance.

Frequency. The ratio between the number of sample units that contain a species and the total number of sample units.

A quantitative expression of the presence of absence of individuals of a species in a population. It is defined as the percentage of occurrence of a species in a series of samples of uniform size. (BLM Technical Reference 4400-4)

-G-

Grazing Distribution. Dispersion of livestock grazing within a management unit or area.

Ground Cover. The percentage of material, other than bare ground, covering the land surface. It may include live and standing dead vegetation, litter, cobble, gravel, stones and bedrock. Ground cover plus bare ground would total 100 percent. (BLM Technical Reference 4400-4)

Ground Water. Subsurface water that is in the zone of saturation. The top surface of the ground water is the "water table." Source of water for wells, seepage, springs.

-H-

Habitat. The natural abode of a plant or animal, including all biotic, climatic, and edaphic factors affecting life.

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Hydrologic Balance. The balance between hydrological inputs (infiltration of incident precipitation, run-on) and hydrological outputs (run-off, deep drainage) for an ecological site.

-I-

Infiltration. The flow of a fluid into a substance through pores or small openings. It connotes flow into a substance in contradistinction to the word *percolation.*

The process by which water seeps into a soil, as influenced by soil texture, aspect and vegetation cover.

Infiltration Rate. Maximum rate at which soil under specified conditions can absorb rain or shallow impounded water, expressed in quantity of water absorbed by the soil per unit of time, e.g., inches/hour.

Integrated Use. To merge the use of each type of public land use through a series of land management practices.

-L-

Land Use Plan. Land use plan means a resource management plan, developed under the provisions of 43 CFR part 1600, or management framework plan. These plans are developed through public participation in accordance with the provisions of the Federal Land Policy and Management Act of 1976 and establish management direction for resource uses of public lands. (43 CFR 4100)

Litter. The uppermost layer of organic debris on the soil surface; essentially the freshly fallen or slightly decomposed vegetal material. (BLM Technical Reference 4400-4)

-M-

Management Objective. The objectives for which rangeland and rangeland resources are managed which includes specified users accompanied by a description of the desired vegetation and the expected products and/or values.

Management Plan. A program of action designed to reach a given set of objectives.

Marsh. Flat, wet, treeless areas usually covered by standing water and supporting a native growth of grasses and grasslike plants.

Monitoring. The orderly collection, analysis, and interpretation of resource data to evaluate progress toward meeting management objectives. (BLM Technical Reference 4400-7)

Monitoring. Monitoring means the periodic observation and orderly collection of data to evaluate: (1) Effects of management actions; and (2) Effectiveness of actions in meeting management objectives. (43 CFR 4100.0.5)

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Morphology. The form and structure of an organism, with special emphasis on external features.

Multiple Use. The management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of some land for less than uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return of the greatest unit output. (Federal Land Policy and Management Act)

-N-

Native Species. A species which is a part of the original fauna or flora of the area in question. Indigenous; living naturally within a given area and was part of the areas flora or fauna prior to human settlement of the region.

Naturalized Species. An exotic or introduced species that has become established and exhibits successful reproduction in an ecosystem.

-P-

Percolation. The flow of a liquid through a porous substance.

Productivity. The potential rate of incorporation or generation of energy or organic matter (biomass) by an organism, population or trophic unit per unit time per unit area; plant productivity is termed primary production, and animal productivity is termed secondary production.

Proper Functioning Condition. Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; filer sediment, capture bedload, and aid floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilized streambank against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. (BLM Technical Reference 1737-9)

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-R-

Range Improvement. Range improvement means an authorized physical modification or treatment which is designed to improve production of forage; change vegetation composition; control patterns of use; provide water; stabilize soil and water conditions; restore, protect and improve the condition of rangeland ecosystems to benefit livestock, wild horses and burros, and fish and wildlife. The term includes but is not limited to, structures, treatment projects, and use of mechanical devices or modifications achieved through mechanical means.

Residual Vegetation. Amount, cover, and species composition of the vegetation on a site after it has been grazed for a period of time.

Resource. Any component of the environment that can be utilized by an organism.

Riparian. Pertaining to, living or situated on, the banks of rivers and streams. 'Xeroriparian' refers to being situated on dry washes (ephemeral streams).

-S-

Seep. Wet areas, normally not flowing, arising from an underground water source.

Soil. (1) The unconsolidated mineral and organic material on the immediate surface of the earth that serves as a natural medium for the growth of land plants. (2) The unconsolidated mineral matter on the surface of the earth that has been subjected to and influenced by genetic and environmental factors of parent material, climate (including moisture and temperature effects), macro- and micro-organisms, and topography, all acting over a period of time and producing a product -soil- that differs from the material it was derived in many physical, chemical, biological, and morphological properties and characteristics.

Soil Productivity. The organic fertility or capacity of a given area or habitat.

Species. A taxon of the rank species; which is the basic unit, and lowest principal category, of biological classification; in the hierarchy of biological classification, the category below genus; a group of organisms formally recognized as distinct from other groups..

Species Composition. The proportions of various plant species in relation to the total on a given area. It may be expressed in terms of cover, density, weight, etc. Synonym *Vegetative composition.*

Surface Characteristics. The amount of bare ground, litter, rock and basal cover of live vegetation, which may include cryptograms. (Nevada Rangeland Monitoring Handbook)

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Sustained yield. The achievement and maintenance in perpetuity of a high level annual or regular periodic output of the various renewable resources of the public lands consistent with multiple use. (FLPMA)

-T-

Traditional lifeway values. The quality of being useful in or important to the maintenance of a specified social and/or cultural group's traditional systems of (a) religious belief, (b) cultural practice or (c) social interaction, not closely identified with definite locations. Another group's shared values are abstract, nonmaterial, ascribed ideas that one cannot know about without being told. (BLM Manual 8100)

Trend. The direction of change in ecological status or resource value rating observed over time. Trend in ecological status should be described as *toward*, or *away from* the potential natural community, or as not apparent. (BLM Technical Reference 4400-4)

-U-

Upland. Terrestrial ecosystems located away from riparian zones, wetlands, springs, seeps and dry washes; ecosystems made up of vegetation not in contact with groundwater or other permanent water sources.

-V-

Vegetative Life Form. The characteristic structural features and method of perennation of a plant species, e.g., annuals, perennial forbs, shrubs, trees and succulents.

-W-

Watershed. (1) A total area of land above a given point on a waterway that contributes runoff water to the flow at that point. (2) A major subdivision of a drainage basin.

Wetlands. Areas characterized by soils that are usually saturated or ponded, i.e., hydric soils, that support mostly water-loving plants (hydrophytic plants).

In areas of arid low lying land that is submerged or inundated periodically by water, and is characterized by hydric soils that support mostly water-loving (hydrophytic) plants.

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APPENDIX M

STANDARD OPERATING PROCEDURES

The following standard operating procedures will be applied to this plan.

Environmental Review and Management

In compliance with the National Environmental Policy Act and Council of Environmental Quality regulations, BLM will prepare site-specific environmental reviews for all actions proposed in this Resource Management Plan and Environmental Impact Statement excluding official designations which are in affect upon approval of the Plan. For example designation of Areas of Critical Environmental Concern. Site-specific environmental reviews assess the impacts from implementing these actions. As appropriate, these reviews are documented in Categorical Exclusion Reviews, Administrative Determinations, Environmental Assessments/Finding of No Significant Impact and Decision Records, or Environmental Impact Statements and Records of Decision. In addition, the environmental review identifies mitigating measures necessary to reduce adverse impacts of implementing a project or proposed action.

Future authorizations will be in conformance with the Resource Management Plan.

Air Resources

Air quality is protected by the establishment of mitigation measures designed to prevent deterioration of air quality prior to authorizing actions. This ensures meeting State goals for air quality and limits allowable emissions from existing and new point or nonpoint sources. Common mitigation measures include watering roads and disturbed areas, the use of scrubbers/sprays, covered storage areas, and other measures to reduce emissions and pollutant concentrations to meet or exceed the standards of the Nevada Division of Environmental Protection.

When applicable, activities with potential to affect air quality the BLM would determine and document "conformity" with local, state, tribal and Federal air quality laws, regulations, and standards (per 40 CFR 93.100 et seq). Conformity determinations would be included in site-specific activity plans and/or National Environmental Policy Act documentation.

Soil and Water Resources

Prior to authorizing land-use actions, and also during the allotment monitoring and evaluation process, oil and water resources will be protected by the establishment of mitigation measures designed to maintain or improve soil productivity, and to prevent or minimize soil erosion and floodplain sediment damage. To meet administrative needs the BLM will acquire appropriative water rights by applying for available water rights according to Nevada water law, or by assertion of a public water reserve.

Best Management Practices and appropriate mitigation will be identified during project-level environmental review and applied during project implementation for any ground-disturbing activity that may reduce soil productivity or cause surface erosion.

Riparian Management

After Proper Functioning Condition is achieved, riparian areas would be managed to achieve a Desired Plant Community that is appropriate based on management objectives. Unless management objectives dictate otherwise, the Desired Plant Community will be the Potential Natural Community.

Vegetation

Where possible and practical manage to maintain or improve the vegetative communities at potential natural community or the desired plant community.

Visual Resource Management

Visual Resource Management classes are delineated in the Resource Management Plan based on an inventory conducted in accordance with BLM visual management procedures (Manual 8400). The individual Visual Resource Management classes provide management objectives to be implemented as a part of all activities authorized in the *Las Vegas District Resource Management Plan*. The overall goal is to protect or enhance the visual and natural aspect and attributes of the public lands while minimizing the impacts of authorized activities.

Visual resources will continue to be evaluated, using the Contrast Rating process, as a part of activity and project planning. These evaluations will consider the significance of the proposed project and the visual sensitivity of the affected area. Stipulations will be developed and attached to project authorizations to maintain designated Visual Resource Management classes. Stipulations may include requirements to locate activity sites behind topographic features to hide them from view, modify access routes, color buildings and equipment to blend in with their surroundings, develop projects in phases, etc. If Visual Resource Management class objectives cannot be met, the impacts to visual resources will be detailed in the project-level environmental analysis and used by the Authorized Officer as a factor in the decision to authorize or deny a proposed action.

To comply with BLM policy for Wilderness Study Areas (WSAs), as stated in BLM Manual H-8550-1, *Interim Management Policy for Public Lands Under Wilderness Review* (1995), Wilderness Study Areas will be managed as interim Visual Resource Management Class II areas until Congress makes final wilderness decisions for Nevada BLM Wilderness Study Areas. This will comply with the policy to manage Wilderness Study Areas to avoid impairment of existing wilderness values. As of March 30, 1989, limitations were placed on the authorization of activities which cause surface disturbance that require reclamation to restore an area to a preproject condition. Following Congress' final wilderness decision, designated wilderness areas will be managed as Visual Resource Management Class I areas. Lands not designated as wilderness will be managed according to the Visual Resource Management classes designated in the Resource Management Plan/ROD decisions.

Areas of Critical Environmental Concern

A plan of operations will be required for any proposed mechanized disturbance within an Area of Critical Environmental Concern during search for, or the exploitation of locatable minerals.

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Fish and Wildlife and Special Status Species

Monitor and inventory key wildlife habitats on public land, including nongame bird species and their habitats, key nesting areas, migration routes, important prey base areas, and concentration areas for birds of prey, and desert tortoise habitat condition in Areas of Critical Environmental Concern.

Fish and wildlife habitat will continue to be evaluated on a case by case basis during project level planning. Such evaluation will consider the significance of the proposed project and the sensitivity of fish and wildlife habitat in the affected area. Stipulations will be attached as appropriate to assure compatibility of projects with management objectives for fish and wildlife habitat and the mitigation of impacts.

Habitat improvement projects will be implemented where necessary to stabilize or improve unsatisfactory or declining wildlife habitat condition or population trends.

Manage wildlife habitat to the potential natural community unless an interdisciplinary team determines that a particular desired plant community is more appropriate to meet the needs of a particular wildlife species.

Prevent adverse impacts to of bighorn sheep habitat due to mineral-related exploration and development. Where possible allow no new road construction or siting of ancillary facilities in lambing habitat. Require operators to mitigate impacts to bighorn sheep and their habitat. This may include revegetation of sites and closure of access roads.

In accordance with BLM guidelines for domestic sheep management in bighorn sheep habitat, no domestic sheep grazing will be authorized in bighorn sheep habitat.

Develop habitat management plans on an as needed basis. Incorporate non-game bird and raptor management objectives and actions in all activity plans which include significant or key habitats for these species.

Develop partnerships with other Federal, State, and local research and educational institutions to encourage research and to implement environmental education programs.

Restore habitats to a condition consistent with wildlife habitat objectives, emphasizing maintenance and enhancement of natural biodiversity.

Survey abandoned mines for the presence of bats before authorization of mine closures in accordance with IM 93-304. If use of the mine by bats is documented, consider installing bat gates to ensure that the habitat continues to be suitable for bats, while promoting public safety. Total closure of abandoned mines known to support bats should be considered only as a last resort, with full consideration of other wildlife values.

To the extent possible under BLM policy and Federal laws, implement recovery actions for federally listed species, including but not limited to actions recommended in the *Peregrine Falcon Recovery Plan, West Coast Region* (USDI, USFWS 1982); *Moapa Dace Recovery Plan* (USDI, USFWS 1983); *Recovery Plan for the Endangered and Threatened Species of Ash Meadows, Nevada* (USDI, USFWS 1990), *Recovery Plan for Woundfin, (Plagopterus argentissimus) and Virgin River Chub (Gila robusta seminumda)* (USDI, USFWS 1993); *Desert Tortoise (Mojave Population) Recovery Plan* (USDI, USFWS 1993); and other plans as they are developed.

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The Endangered Species Act of 1973 as amended, declares it the policy of Congress that all Federal Agencies will conserve endangered and threatened species and utilize their authorities in the furtherance of the purposes of the Act. In accordance with Section 7 of the Act, consultation with the U.S. Fish and Wildlife Service will be conducted on all federal actions which may affect a threatened or endangered species.

It is BLM policy to manage special status species, consistent with multiple use, for conservation of special status species and their habitats and to ensure that actions authorized or funded do not contribute to the need to list those species as threatened or endangered. BLM may enter into Conservation agreements or species management plans with the U.S. Fish and Wildlife Service and the State of Nevada to protect habitats of special status species.

Cooperate and collaborate with Clark County in the development and implementation of a county-wide multiple species conservation plan.

Require reclamation of activities which result in loss or degradation of special status species habitat. Reclamation may include salvage and transplant of cactus and yucca, recontouring the area, scarification of compacted soil, soil amendments, seeding, and transplant of seedling shrubs. Monitoring will be conducted to determine the success of the reclamation. If necessary a second seeding or transplanting effort may be required, should monitoring indicate that the original effort was not successful.

An off-site mitigation fee will be collected on surface disturbing activities in desert tortoise habitat. Off-site mitigation fees in critical habitat shall be based upon the report entitled Compensation for the Desert Tortoise, approved by the Desert Tortoise Management Oversight Group (November 1991). Base land values in critical habitat and proposed Desert Wildlife Management Areas shall be $550 per acre and adjusted annually for inflation. The base land value shall be multiplied by the compensation rate for the project.

Inventory and monitor mesquite habitat at Amargosa Valley Area, Stump Springs, Pahrump Valley, Hiko Wash, Piute Wash, Meadow Valley Wash and other areas determined to be potentially important resting and/or nesting habitat for resident and neo-tropical avian species.

Inventory special status species and take appropriate management actions to protect the habitat of these species. Management actions may include (but will not be limited to) fencing, segregation of habitat from land and mineral laws, closure to off-road vehicle use and reduction of wild horse and burro numbers in a given area.

Survey abandoned mines for the presence of bats before authorization of mine closures. If use of the mine by bats is documented, consider installing bat gates to ensure that the habitat continues to be suitable for bats, while promoting public safety. Total closure of abandoned mines known to support bats should be considered only as a last resort.

Forestry and Vegetative Products

Pinyon nut gathering will be authorized on an individual basis, including within Wilderness Study Areas released by Congress for multiple-use purposes. Personal consumption of up to 25 pounds per year is allowed without permit.

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Provide for collection of other vegetative resources, as stated in BLM Manual 5500 *Nonsale Disposal under Recreation Use*. Vegetative resources include such things as seeds and flowers.

A Woodlands Management Plan would be completed for any wood cutting area within the district.

Livestock Grazing Management

Resource improvement planning will be in accordance with the procedures outlined in BLM Handbook H-1741-1, *Renewable Resource Improvement and Treatment Guidelines and Procedures*, or other appropriate BLM guidelines.

The grazing management program assigns priorities to management efforts using a selective management approach. Under this approach grazing allotments are categorized into "I," "M," and "C" management categories. The objectives for these categories are to: 1) *maintain* (M) the current satisfactory conditions; 2) *improve* (I) the current unsatisfactory conditions; or 3) manage *custodial* (C) while protecting existing resource values. Management priority will be given first to "I" allotments, second to "M" allotments, and third to "C" allotments.

Monitoring studies designed to measure the results of livestock management are essential to measure the progress toward meeting management objectives and making necessary changes over time. They are also essential to assure compliance with the Mojave-Great Basin Standards and Guidelines. The studies that will be used will monitor directly or indirectly the soils, ecosystem components and habitat and biota standards and associated indicators identified in the Standards and Guidelines. The minimum methods and procedures for monitoring studies will be those identified in the Nevada Rangeland Monitoring Handbook (Nevada Range Studies Task Group 1984).

Use pattern mapping will be used to assess livestock distribution, identify any utilization problems, and determine the future long term stocking rate. Utilization studies will be conducted at each key area. Actual use will be submitted by the permittee and compared to utilization levels.

Key area studies with frequency and canopy cover will be used to determine vegetative trends in ecological sites, determine soil stability, and assess the vegetative trend objectives. Ecological condition data will be collected again on key areas when frequency and cover data indicate a change in trend has occurred.

Climatic data, seasonal and annual precipitation and temperature, will be analyzed and correlated to the trend, condition, utilization and actual use data to evaluate the overall management and attainment of objectives.

Range improvement projects will be addressed in environmental documents and will be constructed in accordance with BLM Manual 9113 or other appropriate BLM guidance. Existing access or temporary roads will be used as much as possible. Temporary roads will be rehabilitated after use is completed.

Developed spring sources may be fenced and water provided for livestock and/or wild horses/burros away from the source. Water will be left at the spring source for wildlife use as required by Nevada Revised Statute 533.367, which states in part that "Before a person may

obtain a right to the use of water from a spring or water which has seeped to the surface of the ground, he must ensure that wildlife which customarily uses the water will have access to it".

Application of herbicides on proposed treatment areas to reduce tamarisk and other plant species will be in accordance with procedures established in BLM Manual 9222 or other appropriate BLM guidelines, to prevent impairment of nontarget species.

Vegetative manipulation that will alter the potential natural plant composition will not be allowed in riparian areas. This includes the introduction of nonnative species.

Maintenance of livestock management structures will be accomplished by the livestock operator through cooperative agreements and range improvement permits as specified in the BLM's 1982 *Rangeland Improvement Policy* (USDI, BLM, Oct. 1982).

The clearing of vegetation from project sites will be restricted to the minimum amount necessary to properly and safely complete the project.

Disturbed areas will be rehabilitated, where such action is necessary and practical, based on the ecological sites potential to respond to rehabilitation, and the objective is to replace ground cover and prevent erosion. Fences used to control cattle movement in areas inhabited by resident and migratory populations of deer, horses and burros will be 42 inches in height. Fences in these areas will consist of three barbed wires and a smooth bottom wire. The spacing of the wires starting from the ground will be 16 inches, 22 inches, 30 inches and 42 inches. Line posts shall be spaced at a distance of 16.5 feet between each post. Fences in bighorn sheep habitat will be a three-strand fence with spacing 20, 35, and 39 inches from the ground with a smooth bottom wire. Special design standards will be in accordance with the *BLM Handbook H-1741-1*, or other appropriate BLM guidelines. All fences will be designed to assure a minimum of impacts to wildlife, wild horses/burros, recreation, and visual resources.

The Rangeland Program Summary will be revised based on the objectives and management direction identified in the plan. It will discuss the monitoring and range improvement projects needed to meet specific allotment objectives. Updates of the Rangeland Program Summary will explain and update monitoring efforts and results. The Rangeland Program Summary will be issued subsequent to the Record of Decision.

All Field going employees will be given a course in noxious/invasive plant identification. Environmental Assessments will address noxious/invasive plants.

Lands acquired via land exchange will include a noxious/invasive plant inventory completed with a plan for control if needed before acquisition.

Due to the limited number of allotments open to grazing, completion of Allotment Management Plans would be on an as needed basis.

Wild Horse And Burro Management

It is the intent of the BLM to manage wild horses and/or burros and their habitat within areas occupied in 1971. Management is to be accomplished in a manner designed to achieve a thriving natural ecological balance and multiple-use relationship with other resource users. The suitability of some areas to support wild horses and/or burros will be reassessed as appropriate in light of new information from monitoring and emergency gathers.

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Management of the wild horses and/or burros will also be guided by Herd Management Area Plans or their functional equivalent, when appropriate. The plans will be developed through consultation and coordination with interested parties and will be coordinated with livestock, wildlife, and other resource plans. The management plans may include, but not be limited to, discussions of seral stages, range trends, habitat requirements, dietary needs, water requirements, and wild horse and/or burro reproductive capabilities.

Animal number adjustments will be made when the demand or use on the most restrictive environmental resource factor exceeds the supply and/or the Herd Management Areas management objectives are not being met. This may be based on exceeding the allowable utilization levels on key forage species, the water availability, riparian damage, resource impacts to the herds primary use area within the Herd Management Area, or other factors as identified in the specific Herd Management Plan. Reductions in numbers will be proportioned between livestock, wild horses, and burros where all three share common use areas. In areas where no livestock grazing is authorized, the Appropriate Management Levels of wild horses and burros will be adjusted.

The Appropriate Management Level will be expressed as an upper and lower number of animals. The herd will be reduced to the lower number and allowed to increase over a three year period to the upper number. At the end of this 3 year cycle a gather would be imitated to reduce the herd to the lower appropriate management level.

Prepare Herd Area Management Plans as identified in the approved Resource Management Plan, Implementation Plan.

Cultural Resources

The National Historic Preservation Act of 1966, as amended; the Archaeological Resources Protection Act of 1979; the American Indian Religious Freedom Act of 1978; the Native American Graves Protection and Repatriation Act of 1990; FLPMA; and Executive Order 11593 provide for the protection and management of cultural resources. These laws are implemented through the following Federal Regulations: 36 CFR 60, 36 CFR 800, 43 CFR 7, and 43 CFR 8365.1-5, (a)(1), and presidential memorandum dated 4/29/1994 and Executive Order 13007, "Indian Sacred Sites," dated May 24, 1996..

The BLM is required to identify, evaluate, and protect cultural resources on public lands under its administration and to ensure consideration of cultural resources prior to initiation of proposed BLM- authorized activities. If an area will be in any way affected by those activities, a cultural resources inventory will be conducted. In accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, eligibility determinations for nomination to the National Register of Historic Places are made in consultation with the Nevada State Historic Preservation Office. A determination of effects to eligible properties is also made in consultation with the Nevada State Historic Preservation Office.

Avoidance of cultural properties is the preferred mitigation. However, avoidance is inappropriate if 1) the project will create ongoing activity in the area, or 2) the project will greatly increase access to the area. Either of these conditions could lead to increased vandalism and/or accidental damage. Significant cultural properties to be protected through avoidance will be marked in the field and monitored on a periodic basis.

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If eligible properties cannot be avoided, appropriate mitigating measures will be developed in consultation with the Nevada State Historic Preservation Office and the President's Advisory Council on Historic Preservation. No action will be authorized until these agencies are consulted and a mutually agreeable treatment plan is prepared.

Federal agencies are required to consider the views of Native Americans when a proposed undertaking may be in conflict with traditional lifeways or religious values. The American Indian Religious Freedom Act requires consultation with Native American religious and secular leaders to identify geographic areas which may be associated with traditional lifeways, traditional cultural properties and religious practices.

Lands

Except for color-of-title and mineral entry patents, land tenure adjustments are discretionary and would be evaluated on a case-by-case basis. Site-specific decisions would be made as to whether the land is still suitable and there is a continued need for federal ownership, or whether disposal of the land would better serve public objectives.

All disposal actions would require site-specific environmental analyses in which the following criteria are evaluated as well as coordination with other federal, state, city and county agencies including the Public Lands Commission:

1. Consistency with the management direction contained in the Las Vegas District Resource Management Plan

2. Consistency with the plans and policies of other agency/governmental entities involved

3. Existing land uses or encumbrances

4. Existing hazardous substances or situations

5. Public resource values (i.e., T&E species, wilderness, wildlife, recreation, riparian, cultural/historical sites, visual resources, mineral potential, and other designations authorized by law)

6. Feasibility of continued management by the federal government

7. Accessibility of the land for public use

8. Suitability for development by private interests or nonfederal governmental entities

9. Social and economic impacts created by the disposal action

Federal land within the Las Vegas District is available for right-of-way purposes except within designated right-of-way exclusion areas.

Right-of-way actions would require a site-specific analysis of the same criteria listed above for disposal actions, with the exception of No. 6, 8, and 9.

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Designated right-of-way corridors within the Las Vegas District vary from 1400 feet to 3000 feet. All facilities placed within corridors must be authorized under a right-of-way grant. Designation of corridors does not restrict all future rights-of-way to corridors, nor does it commit the BLM to approve all corridor right-of-way applications. However, right-of-way corridors will be used to the extent possible.

Federal land patents and right-of-way grants would be authorized subject to valid prior existing rights.

Acquisition

The BLM would work toward acquiring lands necessary to protect sensitive resources throughout the district. Each parcel would be evaluated to determine if acquisition is appropriate and fits within existing federal land tenure. This would include working cooperatively with County, State, Local and other government agencies to restore riparian areas or in developing wetland parks where public and private lands are managed together.

Recreation

A broad range of outdoor recreation opportunities will continue to be provided on all segments of the public land, subject to the demand for such opportunities and the need to protect other resources. Special Recreation Management Areas, areas of concentrated use, and existing facilities will receive first priority for operation and maintenance funds. Investment of public funds for new recreation developments will be permitted only on land identified to remain in public ownership.

Recreation resources will continue to be evaluated on an individual basis as part of activity and project-level planning. Such evaluations will consider the sensitivity of, and the impacts on, recreation resources in the affected area. Stipulations will be attached as appropriate to assure the compatibility of projects with recreation management objectives.

Permittees and rights-of-way holders will be notified of proposed recreation events in advance. If conflicting uses occur BLM staff, the permittee(s)/ROW holder(s) and the event applicant will meet to resolve differences.

Decisions regarding the designation of areas open, limited (restricted), and closed to motorized vehicle access have been made in the Resource Management Plan. An exception to designations in the Resource Management Plan is emergency actions which may be necessary due to:

1. The need to minimize damage to soil, watershed, vegetation or other resource values.

2. The need to minimize harassment of wildlife or the degradation of wildlife habitat, especially habitat for threatened, endangered, or Nevada BLM sensitive species.

3. The need to promote user safety and protect the visiting public from hazardous situations.

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Public land within areas closed to motorized vehicle use will be closed year-long to all forms of motorized vehicle use except for emergency or authorized vehicles.

Vehicle use in Wilderness Study Areas is currently managed as limited to existing (1980 inventory) roads, trails and ways. This is a temporary designation which overrides the decisions in the Resource Management Plan, pending final decisions by Congress with regard to Wilderness Study Areas. Following final Congressional action, those areas designated as wilderness will be closed to motorized vehicle use, subject to valid existing rights and authorized nonconforming uses. Motorized vehicle use on lands which are not designated as wilderness will be managed according to the decisions in this Resource Management Plan and Record of Decision.

The BLM, Nevada State Office has published a camping stay limit (effective November 5, 1993) for the public lands it manages: "A person or persons may not occupy undeveloped public lands or designated sites or areas for more than fourteen days within a twenty-eight consecutive day interval. Following the fourteen days, the persons and personal property must relocate to a site outside of at least a twenty-five mile radius from the occupied site or non-BLM administered land for a period of fourteen days". A supplemental camping closure has been published for the immediate Las Vegas Valley area (3/98) and is continued in the Resource Management Plan.

In order to protect resources, or for administrative purposes, an Authorized Officer may, by posting notification, close a given site to occupancy, even if the same person or persons have not occupied the site for fourteen consecutive days."

Under BLM regulations, primitive camping is allowed in Areas of Critical Environmental Concern unless otherwise posted. Campers are limited to a two week stay and motorized access is limited to designated roads and trails.

All BLM lands that are not limited in the Resource Management Plan are open to all individual, commercial, and competitive outdoor recreation uses. Opportunities for exploring the back-country by vehicle, hunting, camping, sightseeing, and hiking are encouraged. There are no nationally significant river segments, as defined in the National Wild and Scenic Rivers Act of 1964, in the Las Vegas District.

The BLM in coordination with the U.S. Fish and Wildlife Service and with input from the Off-Highway Vehicle and Environmental Groups, will develop a monitoring plan to be used to evaluate the impacts, if any, of organized, non-speed events within desert tortoise Areas of Critical Environmental Concern. This data will be used to determine what changes may be made in regards to the permitting of organized, non-speed events within desert tortoise Areas of Critical Environmental Concern. Modifications to the permitting of organized, non-speed events will be presented to the Clark County Habitat Conservation Plan Implementation and Monitoring Committee for review and input prior to implementation by BLM.

Prepare Recreation Area Management Plans for each Special Recreation Management Area as identified in the Implementation Plan for the approved Resource Management Plan.

Authorization of Off-Highway Vehicle events will be consistent with surrounding Districts Land Use Plans, where events cross jurisdictional boundaries.

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Wilderness

BLM policy requires that all Wilderness Study Areas be managed in accordance with the provisions of Section 603 (c) of the Federal Land Policy and Management Act and the BLM *Interim Management Policy for Lands Under Wilderness Review* (IMP) so as not to impair their suitability for preservation as wilderness. The Interim Management Policy provides management policies for Wilderness Study Areas between the time of Wilderness Study Area designation (11/15/80) and final decisions by Congress regarding these areas. The Interim Management Policy contains specific management direction for activities in Wilderness Study Areas which may occur or be authorized.

The specific management determinations identified in the Resource Management Plan are those that may take place if the Wilderness Study Areas are released from wilderness consideration by Congress. Some of the determinations are compatible with the Interim Management Policy and can be implemented at any time. whereas others must await Congress' final determinations. Also some Resource Management Plan determinations may not comply with the Interim Management Policy's nonimpairment requirements. These decisions may not be implemented until after Congress' final decision releasing the nonwilderness lands from the requirements and restrictions included in the Interim Management Policy.

Should Congress designate wilderness areas, the Resource Management Plan will be maintained to include these new designations, and to modify determinations which conflict with wilderness management objectives. Management of areas designated as wilderness will be guided by the requirements of the Wilderness Act of 1964, specific enabling legislation, and the BLM's wilderness management procedures. While site-specific management objectives for wilderness areas will be included in future wilderness management plans, certain actions are nondiscretionary, including closure to motorized vehicle use (except for valid existing rights and approved nonconforming uses by permit) and segregation from mineral entry and fluid-mineral leasing.

Fluid Minerals

Oil and gas leases and geothermal leases grant the right to the operator to explore for, and to produce oil and gas, and geothermal energy. Leases are subject to certain terms and conditions which provide for protection of fragile resources, compliance with applicable laws, ordinances, and regulations pertaining to fire, sanitation, conservation, water pollution. fish and wildlife, safety, protection of property, and reclamation.

In addition to the terms and conditions of the leases, no surface occupancy stipulations may be applied to site-specific applications to provide for stringent environmental protection of conflicting resources. Additional project specific stipulations would be developed by a multidisciplinary team as part of the environmental analysis process.

Geophysical exploration for oil and gas, and for geothermal resources may take place before or after the leasing of the lands. These actions will be reviewed by a multidisciplinary team in the Las Vegas District to identify and mitigate resource-related conflicts.

BLM encourages and facilitates the private development of public land mineral resources in a manner that satisfies national and local needs, does not conflict with urban development or with sensitive natural resources, and provides for economically and environmentally sound exploration, extraction, and reclamation practices.

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Consultation with the U.S. Fish and Wildlife Service is required per section 7 of the Endangered Species Act prior to approval of an Application for Permit to Drill (APD) or other lease operations, if a proposed listed or listed threatened or endangered species, or its critical habitat. is likely to be affected by project activities. If there is deemed to be any adverse impact the proposal would be modified or the request denied.

Actions which would adversely impact a Nevada BLM sensitive plant or animal species will be modified in order to prevent possible future listing of these species as threatened or endangered.

Locatable Minerals

BLM provides for mineral entry, exploration, location, and operations pursuant to the mining laws in a manner that 1) will not unduly hinder the mineral activities, and 2) assures that these activities are conducted in a manner which will prevent undue or unnecessary degradation of the public land.

Notification to the Authorized Officer is required on all operations in project areas in which surface disturbance will be five acres or less.

A Plan of Operations and a Reclamation Plan are required in situations in which there will be more than five acres of cumulative unreclaimed surface disturbance in a project area. These two plans are also required for any mining activity on special category lands, such as Areas of Critical Environmental Concern and areas closed to off-highway vehicles. Appropriate off-site mitigation may be negotiated during a plan of operations review for locatable mineral actions when an irretrievable loss of important habitat is unavoidable, or a significant long-term adverse impact will occur. The preferred alternatives to off-site mitigation are avoidance of critical and crucial habitat and reclamation of disturbed habitat to approximate pre-disturbance productivity.

The Authorized Officer may require modifications of Plans of Operations to meet the requirements of the regulations and to prevent undue or unnecessary degradation of public land.

Plans of Operations cannot be approved until Section 106 of the National Historic Preservation Act, and Section 7 of the Endangered Species Act, and the National Environmental Policy Act have been complied with.

Reclamation of disturbed areas to meet BLM standards is required for all levels of activity: Casual Use, Notice, or Plan of Operations.

Additional regulatory requirements will be enforced in Wilderness Study Areas through regulations (43 CFR 3802) and through the Interim Management Policy for Wilderness Study Areas.

All operations shall comply with Federal and State laws, including those relating to air quality, water quality, solid wastes, fisheries, wildlife and plant habitat, and archaeological and paleontological resources.

The BLM will conduct validity examinations, reviewing the validity of mining claims to determine if a discovery has been made, under the following conditions:

1) Where a mineral patent application has been filed and a field examination is required to verify the validity of the claim(s).

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2) Where there is a conflict with a disposal application, and it is deemed in the public interest to conduct a validity examination; or where the statute authorizing the disposal requires the removal of mining claims that are not valid. If the validity examination made in the latter case were to show that the mining claim was valid, the disposal action could not be completed.

3) Where the land is needed for a Federal program.

4) When a mining claim is occupied under the guise of the mining law and flagrant or questionable misuse of the land is observed, the BLM will undertake a review of the occupancy based on current regulations. If it is found, in fact, that such use is not necessary for, and reasonably incident to, mineral development, BLM will act to terminate the use and seek compensation for damages.

Withdrawals from mineral entry will be undertaken in cases in which there are significant resource values that cannot be adequately protected under the regulations concerning surface management. Such withdrawn acreage would iclude areas designated by Congress as wilderness, sensitive species or threatened species habitat, riparian areas, areas possessing important historical and cultural resources, and areas set aside for recreational development.

Bonding will be required for all plans of operations and financial guarantees will be required for operations conducted under a notice to ensure that satisfactory reclamation takes place. All operations using cyanide will follow the requirements in BLM's Nevada Cyanide Management Plan.

The BLM will coordinate each mine plan and mine closure in conjunction and consultation with the Bureau of Reclamation and Regulation of the Nevada Division of Environmental Protection. This coordination ensures that the State of Nevada reclamation laws are implemented on Federal and private lands, and that all necessary State permits will be issued and followed.

Saleabe Minerals (Mineral Materials)

All mineral material disposals are discretionary. Appropriate terms and conditions are applied to ensure that the permittee will comply with all applicable laws and environmental safeguards.

Disposal to State, county, and municipal governments will generally be processed through the issuance of free-use permits (FUPs), or Material Site Rights-of-way, where appropriate.

Disposal of such common-variety mineral materials as sand and gravel may not be made from mining claims, unless the date of the mineral materials contract or permit precedes the date of the location of the claim. This policy applies to all types of mining claims including placer, lode, millsite, and tunnel site claims. Mining claimants may not sell mineral materials which are on their unpatented mining claims.

The following are standard constraints for mineral material disposal.

1. All activities will be subject to the constraints listed below as well as any other special stipulations which the Authorized Officer deems appropriate.

2. "Authorized Officer" means the Las Vegas District Manager or his duly appointed representative.

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3. "Holder" means any person, corporation, partnership, association, agency (Federal, State, County, and/or Local), municipality, or other entity which holds a mineral materials contract, free use permit, material site right-of-way, or letter of authorization to sample and test mineral materials within the Las Vegas District. All applicants may obtain Authorizations under any name they choose, however, related business ventures will be viewed as the same Holder for the purpose of enforcing all terms and conditions.

4. "Operator" means the holder, its contractors, subcontractors, and/or the employees of any of them.

5. "Material Site" means the site of any Authorization for a mineral material disposal located on Federal mineral estate within the Las Vegas District, whether or not the surface estate is Federally owned, as well as all authorized routes of ingress to the site and egress from it.

6. "Authorization" means any mineral materials contract, free use permit, material site right-of-way, or letter of authorization to sample and test mineral materials issued within the Stateline Resource Area for the purpose of exploring or removing portions of the Federal mineral estate, whether of not the surface estate is Federally owned, as well as all authorized routes of ingress and egress to and from the Material Site.

7. All applicants for saleable mineral (mineral materials) authorizations, or new material site rights-of-way authorizations, must prepare and submit an exploration/mining plan, and reclamation plan for all proposed activities, to the Authorized Officer for approval prior to environmental review or issuance of any authorization.

8. Prior to the issuance of any material contract, free use permit, material site right-of-way, or letter of authorization to conduct sampling and testing, all applicants must pay a fee as determined by the Authorized Officer for the cost of reclamation unless they have written authorization from the Authorized Officer to perform interim and/or final reclamation in lieu of paying reclamation charges.

9. All applicants who perform interim and/or final reclamation in lieu of paying reclamation charges must post a bond for the purpose of insuring reclamation. The bond amount will be determined by the Authorized Officer. No bond is required of those applicants who pay a fee for the cost of reclamation.

10. All activities must comply with the Endangered Species Act and the National Historic Preservation Act.

11. Prior to the issuance of any material contract, free use permit, material site right-of-way, or letter of authorization to conduct sampling and testing in Desert Tortoise habitat areas, all applicants must pay a fee for the on-site mitigation of both desert tortoise habitat and cultural resources. The fee amount will be determined by the Authorized Officer.

12. Mineral appraisal of the fair market value of the mineral material to be offered for sale or free use must be prepared by a qualified mineral materials appraiser and then be approved by a technical reviewer and acknowledged by management.

13. The Operator of a Material Site must conform to all Federal, State, County, and Local laws, ordinances, and regulations. Copies of all permits, variances, easements, etc. issued to the Operator must be submitted to the Authorized Officer within ten (10) days of their issuance.

14. The Operator shall notify the Authorized Officer within one (1) working day of the start of the following activities:
    a. Movement of equipment into the Material Site;
    b. Commencement of operations;
    c. Termination of operations;
    d. Removal of equipment from the Material Site.

15. If the Operator violates any term or condition of a material sales contract/authorization, the Authorized Officer may, through written notice, suspend any further operations of the Holder pursuant to any Authorization, except such operations as may be necessary to remedy any violations. If the Holder fails to remedy all violations within fifteen (15) days after receipt of the suspension notice, the Authorized Officer may, by written notice, cancel the Authorization and take appropriate action to recover all damages suffered by the United States by reason of such violations, including application of any advance payments and any performance and/or reclamation bonds toward payment of such damages.

16. If the Operator extracts or removes any mineral materials during any period of suspension of its Authorization, or if it extracts or removes any such materials after the expiration of its Authorization, or after the cancellation of its Authorization, or in excess of the amount of its Authorization, such extraction or removal shall be deemed both a willful trespass and a criminal trespass. The willful trespass will render the Holder liable for the actual value of the materials at the time of conversion (sale or final use by the Operator). The criminal trespass will render the Holder liable to criminal sanctions under the laws of the United States to include fines and/or imprisonment.

17. If the Operator violates any term or condition of a material sales contract/authorization, the Authorized Officer may, through written notice as previously described, refuse to issue any additional Authorization to the Holder after the final resolution of the subject violation.

18. The Holder of a material sales contract/authorization shall be liable for any damages suffered, costs, and/or expenses incurred by the United States arising out of any operations under any Authorization whenever such damages, costs, and/or expenses result from any breach of contract or wrongful or negligent act of the Operator. The Holder shall pay the United States for such damages, costs, and/or expenses within thirty (30) days after a written demand therefor by the Authorized Officer. Failure to make payment within this period will result in the denial of any application for an additional Authorization to the Holder until payment is received.

19. If not in default, the Operator shall have the right, within thirty (30) after expiration of the Authorization, to remove its equipment, improvements, and/or other personal property from the Material Site. However, any improvements such as road surfacing, culverts, and bridges which have become a permanent part of a public road shall not be removed. Any equipment, improvements, and/or other personal property remaining in the Material Site or on adjacent public lands at the end of the thirty (30) day removal period shall become the property of the United States unless additional time for their removal has been granted in writing by the Authorized Officer.

20. Contracts and free use permits may not be assigned without the approval of the Authorized Officer. Material site rights-of-way may not be assigned as only the Nevada Department of Transportation is authorized to hold them, and then only for use on federally aided highway projects.

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21. The Operator shall have the right to extract and remove mineral materials until the termination of the Authorization, notwithstanding any subsequent appropriation or disposition of all or part of the lands under the general land laws, including the mining and leasing laws.

22. Upon termination of the Authorization, the Operator must remove and dispose of all waste in an authorized disposal site. The term "waste", as used herein, includes, but is not limited to, garbage, trash, solid waste, human waste, petroleum products, back haul debris, and equipment. No waste or any other material will be buried in the Material Site.

23. The hauling or backhauling of any kind of waste, materials, and/or debris into the Material Site or onto adjacent public lands is prohibited. The Operator is required to keep the Material Site clear of all waste, materials, and debris and to dispose of it in a properly authorized disposal site. The hauling/backhauling of any waste, materials, or debris into the Material Site or onto adjacent public lands by the Operator will be cause for the Authorized Officer to immediately order the suspension and/or cancellation of the Authorization to the Holder and issue a notice of trespass. The Holder will be liable for all costs to remove any waste, materials, and/or debris.

24. Except for stockpiles of crushed or screened materials, the Operator must keep the Material Site reasonably level and uniform during the term of the Authorization. Stockpiles must be removed on or before the termination of the Authorization. Upon termination of the Authorization, all stockpiles and all other unsevered and/or unremoved mineral materials become the property of the United States unless additional time for their removal has been granted in writing by the Authorized Officer.

25. Except within designated community pits and common use areas, overburden which was removed and reject material which resulted from materials processing operations will not be left in piles upon the termination of the Authorization. Upon cessation of operations, these materials must be returned to the Material Site and utilized in its reclamation.

26. Night watchmen, mobile homes, recreational vehicles, house trailers, non-operational vehicles, storage areas, repair areas, salvage areas, asphalt hot plants, concrete batch plants, materials recycling plants, wash plants, and water wells are not allowed within any Material Site unless approval is granted in writing by the Authorized Officer. Persons, animals, materials, manufactories, or equipment not directly related to either the reclamation of the Material Site or the exploration, development, extraction, processing, or transportation of mineral materials are not allowed within any Material Site unless approval is granted in writing by the Authorized Officer.

27. The Operator will not supply water from a Material Site to livestock unless a Section 4 permit under the Taylor Grazing Act is approved by the Authorized Officer.

28. The Operator will avoid the disturbance or removal of section corners, bench marks, monuments, or other types of survey markers. Where excavation or road building may require removal or relocation, the Operator will contact the Authorized Officer for written instructions prior to such removal or relocation.

29. The Operator will grade all vertical cuts of three (3) feet or greater to a slope ratio (horizontal to vertical) of three to one (3 to 1) upon termination of the Authorization or upon cessation of operations for more than five (5) days.

30. Not later than the 10th of each month, or the first business day thereafter if the 10th falls on a weekend or holiday, the Holder will submit to the Authorized Officer an itemized report for the

previous month of all mineral materials removed pursuant to the Authorization. Unless modified in writing by the Authorized Officer, the report will include the following:

a. Names, addresses, and telephone numbers of the Holder, its contractors, and subcontractors;
b. Volumes and/or weights of all types of mineral materials removed from the Material Site by the Operator to include detailed volumes and/or weights for the Holder and each of its contractors and subcontractors;
c. Volumes and/or weights of all types of mineral materials sold by the Operator to include detailed volumes and/or weights for the Holder and each of its contractors and subcontractors;
d. Names, addresses, telephone numbers, dates of purchases, types of materials purchased, and volumes and/or weights purchased for all mineral materials purchased from the Operator;
e. Volumes and/or weights of all types of mineral materials not sold by the Operator;
f. Final disposition of all types of mineral materials not sold by the Operator to include the following:
    1) Transfer or utilization of mineral materials:
        a) If the material was transferred, list each party to whom a transfer was made including their name, address, and telephone number.
        b) If the material was utilized, list the legal description of each parcel of land where the material was utilized. This description must include township, range, meridian, section, and legal subdivision.
    2) Description of each type of material transferred and/or utilized;
    3) Volume and/or weight of each type of material transferred and/or utilized;
    4) Description of how each material was transferred and/or utilized;
    5) Explanation as to why each material was transferred and/or utilized;
    6) Citation of the legal authority under which each transfer and/or utilization was made;
    7) Name of the party who made each transfer and/or utilization;
    8) Date upon which each transfer and/or utilization occurred.

31. When antiquities or other cultural objects of historic or scientific interest, including, but not limited to, historic or prehistoric ruins, artifacts, and vertebrate or invertebrate fossils are discovered, the Operator will immediately cease all operations. The cultural items will be left intact and the Operator will immediately notify the Authorized Officer in order that the cultural resources can be inspected, documented, and/or salvaged.

32. Prior to starting operations each day on any Material Site which has not been totally enclosed by tortoise proof fencing and cattle guards, the Operator will make an inspection to determine if any desert tortoises are present. The inspection will be conducted as follows:

a. Around and under all equipment;
b. In and around all disturbed areas to include stockpiles and reject materials areas;
c. In and around all routes of ingress and egress;
d. In and around all other areas where the operation might expand to during that day.

If a tortoise is discovered during this inspection or later in the day, the Operator must immediately cease all operations and must immediately notify the Authorized Officer. The tortoise must be left unharmed and must not be touched. Operations must remain stopped until approval to proceed is granted by the Authorized Officer.

33. Prior to the environmental review of any application which is not a BLM motion, all applicants must submit both an exploration/mining plan and a reclamation plan to the Authorized Officer.

A cultural resources inventory must be submitted for all portions of the Material Site that have not been previously inventoried. A biological assessment must be submitted if the Material Site is within any known or suspected desert tortoise habitat. The exploration/mining plan and reclamation plan may be combined into one document. Prior to the issuance of any Authorization, both the exploration/mining plan and the reclamation plan must be approved by the Authorized Officer, the cultural resources inventory must be approved by the Nevada State Historic Preservation Office, and the biological assessment must be approved by the U. S. Fish and Wildlife Service. The exploration/mining and reclamation plans shall include, but not be limited to, the following:

a. Appropriate maps, or aerial photographs, and cross sections, with a scale no smaller than 1:24,000 (1 inch = 2,000 feet), showing the following:
   1) Area encompassed by the Material Site application;
   2) Area to be physically disturbed;
   3) Existing or proposed roads, trails, and ways;
   4) Locations of existing bodies of surface water;
   5) Locations of existing topographic, cultural, and drainage features;
   6) Locations of existing and abandoned mines;
   7) Locations of shafts, tunnels, pits, waste dumps, and surface facilities;
   8) Locations of proposed exploration trenches and drill holes;
   9) Typical structural cross sections;
   10) Typical mining sequence with appropriate time frames.

b. Descriptions of the following:
   1) Location of the Material Site and volume of material proposed to be removed from it;
   2) All public lands (surface and/or mineral estates) which are expected to be affected by the Material Site;
   3) Existing land uses within and adjacent to the Material Site;
   4) Geology, physiography, hydrology, vegetation, and other relevant physical factors;
   5) Distribution, abundance, and habitat of fish and wildlife, especially threatened or endangered species;
   6) Proposed methods of exploration and types of equipment which are expected to be used;
   7) Quantity of water which is expected to be used;
   8) Quantity and types of hazardous and/or toxic materials (e.g. explosives, chemicals, petroleum, etc.) which are expected to be used;
   9) Quantity and types of pollutants which are expected to enter into any receiving waters;
   10) All expected uses of water, hazardous materials, and toxic materials.
   11) All drainages into and/or away from the Material Site;
   12) All proposed measures for the isolation, removal, and/or control of toxic materials;
   13) All proposed measures for the prevention and/or control of the following:
      a) Fire;
      b) Air pollution;
      c) Soil erosion;
      d) Subsidence;
      e) Landslides;
      f) Flooding;
      g) Water runoff;
      h) Pollution of surface and/or ground water;
      i) Damage to fish, wildlife, and/or their habitat;

j) On-site and off-site damage to other natural resources and/or public lands (surface and/or mineral estates);

k) Hazards to public health and/or safety, including specific actions necessary to meet all applicable laws and regulations.

14) All proposed measures for the preservation and protection of other resources, including the following:

a) Cultural features;

b) Ecological values;

c) Natural features;

d) Recreational values;

e) Scenic values.

c. Statement of proposed operating methods, including the following:

1) Description of all proposed roads and vehicular trails;

2) Description of equipment, mining methods, mining sequence, production rate, estimated recovery factors, and stripping ratios;

3) Locations and acreages of all lands to be affected;

4) Sizes and locations of all structures and other facilities which are expected to be constructed;

5) Design for the necessary impoundment, treatment, and/or control of all runoff water and/or drainage from all workings, in order to prevent the pollution of receiving waters;

6) Proposed method of abandonment in order to protect any unmined recoverable reserves;

7) Proposed method to fill in, fence, protect, or close all surface openings, excavations, workings, and wells which the Authorized Officer deems to be a potential hazard to humans or animals;

8) Estimated timetable for each phase of the work and for final completion of all activities.

d. Statement of the proposed manner and the schedule for completion of the reclamation of the areas which are planned to be disturbed by the Material Site, including the following:

1) Appropriate maps or aerial photographs, with a scale no smaller than 1:24.000 (1 inch = 2,000 feet), showing the topography of the Material Site upon completion of all mining or related activities;

2) Unless modified in writing by the Authorized Officer, the narrative will contain the estimated time schedule and proposed reclamation methods for the grading, backfilling, soil replacement, and revegetation of areas to be affected by the Material Site, including the following:

a) Measures for backfilling exploration trenches and plugging drill holes;

b) Measures for soil preparation, fertilizer application, mulching, and managing topsoil;

c) Measures for controlling sediment and overland water flow;

d) Measures for shaping, grading, backfilling, soil stabilization, compacting, and contouring the surface;

e) Measures for selecting vegetative species and mixtures of shrubs, trees, tree seedlings, grasses, forbs, and/or legumes to be planted;

f) Measures for seeding and/or planting grasses, forbs, legumes, trees, and/or shrubs;

g) Measures for watering all newly planted grasses, forbs, legumes, trees, and/or shrubs.

h) Vegetative species and methods for planting, including the following:

(1) Amounts and species of grasses, forbs, and/or legumes per acre;

(2) Numbers, species, and spacing of trees, tree seedlings, and/or shrubs;

(3) Desirable combinations of grasses, forbs, legumes, trees, and/or shrubs.

34. Holder shall prepare maps which show mineral production from the lands under Authorization as follows:

a. All maps shall be appropriately marked with reference to Government land marks or lines and elevations with reference to sea level. Vertical projections and cross sections shall accompany plane views. Maps shall be based on accurate surveys and certified by a professional engineer, professional land surveyor, or other professionally qualified person. All excavations in each separate bed or deposit shall be shown in such a manner that the production of minerals for any reporting period can be accurately ascertained.

b. Maps showing the existing operation and all production, drawn to a scale acceptable to the Authorized Officer, shall be submitted by the Holder prior to the receipt of any Authorization, at the end of each reporting period during any Authorization, upon the termination of any Authorization, and at all other times as required by the Authorized Officer. Production maps shall show surface boundaries, Authorization boundaries, and topography.

c. In the event of the failure by the Holder to furnish any required maps, the Authorized Officer shall cause the Material Site to be surveyed and maps to be prepared. The costs of making the survey and preparing the maps shall be charged to and promptly paid by the Holder.

d. If the Authorized Officer believes any map submitted by a Holder to be incorrect, he/she will cause a survey to be made. If the survey shows the map submitted by the Holder to be substantially incorrect, in whole or in part, the cost of making the survey and preparing the map shall be charged to and promptly paid by the Holder.

Community Pit and Common Use Area Disposals

1. Authorized Officer will designate an area to be a community pit or a common use area.

2. No contract within a community pit or common use area will be issued for less than a purchase price (value of the mineral materials) of $50. All fees to mitigate the destruction of tortoise habitat and, unless waived, fees for the cost of reclamation are expenses in addition to the purchase price. These fees plus the purchase price comprise the total purchase price.

Noncompetitive Mineral Material Contracts

1. Authorized Officer must receive a written request for a mineral materials sale.

2. No sale outside of a community pit or common use area will be made for less than a purchase price (value of the mineral materials) of $2,000. All fees to mitigate the destruction of tortoise habitat are expenses in addition to the purchase price. These fees plus the purchase price comprise the total purchase price.

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3. At the time of sale, the Authorized Officer must receive a deposit from the applicant of not less than ten (10) percent of the total purchase price. The deposit will serve as the first installment, equal to ten (10) percent of the total purchase price of the contract. This installment will be retained by the Authorized Officer as additional security. It shall be applied to the payment of the last installment required, in order to make the total payment by the applicant equal to the total purchase price of the contract.

4. Authorized Officer must receive a performance bond valued at not less than $500 or twenty (20) percent of the total purchase price, whichever is greater, for the purpose of insuring performance of the contract.

5. Authorized Officer must receive the second installment, equal to ten (10) percent of the total purchase price of the contract, prior to commencement of any removal operations thereunder. If this payment is not received within sixty (60) days after the date the contract was issued, the contract will be terminated and the purchaser will forfeit the ten (10) percent bid deposit as liquidated damages.

6. Authorized Officer must receive each subsequent installment, equal to ten (10) percent of the total purchase price of the contract, prior to the removal of the mineral material.

7. Authorized Officer must receive the total purchase price not later than 60 days before the expiration of the contract.

Competitive Mineral Material Contracts

1. Authorized Officer must receive a written request for a mineral material sale.

2. Competitive sale must be advertised in a local newspaper on the same day each week for not less than two consecutive weeks.

3. No sale outside of a community pit or common use area will be made for less than a purchase price (value of the mineral materials) of $2.000. All fees to mitigate the destruction of tortoise habitat are expenses in addition to the purchase price. These fees plus the purchase price comprise the total purchase price.

4. Prior to the sale, the Authorized Officer must receive sealed bids which must include deposits of not less than ten (10) percent of the total purchase price. The deposit of the successful bidder will serve as the first installment, equal to ten (10) percent of the total purchase price of the contract. This installment will be retained by the Authorized Officer as additional security. It shall be applied to the payment of the last installment required, in order to make the total payment by the successful bidder equal to the total purchase price of the contract.

5. No sooner than one week after the last newspaper advertisement inviting bids for the mineral material, the Authorized Officer will conduct a sale by written sealed bids.

6. Authorized Officer must receive a performance bond valued at not less than $500 or twenty (20) percent of the total purchase price, whichever is greater, for the purpose of insuring performance of the contract.

7. Authorized Officer must receive the second installment, equal to ten (10) percent of the total purchase price of the contract, prior to commencement of any removal operations thereunder. If

this payment is not received within ninety (90) days after the date the applicant was declared the successful bidder, the contract will be terminated and the purchaser will forfeit the ten (10) percent bid deposit as liquidated damages.

8. Authorized Officer must receive each subsequent installment, equal to ten (10) percent of the total purchase price of the contract, prior to the removal of the mineral material.

9. Authorized Officer must receive the total purchase price not later than 60 days before the expiration of the contract.

Free Use Permits

1. Authorized Officer must receive a written request for a free use permit.

2. Authorized Officer may waive the bond requirement for governmental entities. However, no bond waiver will be issued to any governmental entity found to be in default regarding the reclamation of any previously permitted free use permit area.

Material Site Rights-of-Way

1. Authorized Officer must receive a written notice of a proposed appropriation of a Material Site as filed by the Department of Transportation under 23 U.S.C. 317. Refer to 43 CFR 23.5(f).

2. Authorized Officer shall cause a technical examination to be made assessing the prospective effects of the proposed exploration and/or surface mining operations upon the environment. Refer to 43 CFR 23.5(a)(1).

3. Reclamation bonds will not be required of Federal, State, or other governmental agencies. Where the exploration or mining is actually performed for those agencies by a contractor who would have to post a bond if he were the applicant, those agencies shall require the contractor to furnish a bond payable to the United States. The bond amount will be determined by the Authorized Officer. Refer to 43 CFR 23.9(d).

Material Sampling and Testing

1. Authorized Officer must receive a written request for a letter of Authorization.

2. A letter of Authorization to sample and test mineral material does not give a Holder any preference right to a sales contract or a free use permit.

3. Letters of Authorization will expire not later than one (1) year after their date of issuance.

4. Not later than sixty (60) days after the expiration of its letter of Authorization, the operator must furnish the Authorized Officer with a signed copy of its records for all drill holes and trenches made within the material site. The records shall be in a form which will allow the positions, directions, and depths of the holes and trenches to be located on a map. The records shall include copies of the analyses of all samples and a log of all strata penetrated and conditions encountered.

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Solid Leasable Minerals

An environmental analysis will be conducted on the exploration phase of each prospecting permit and on any production activities associated with a lease. The environmental analyses are prepared by a multidisciplinary team and are used to determine any special stipulations necessary for the protection of surface resources.

The following are standard constraints for mineral material disposal.

1. All applicants for leasable mineral actions must submit plans for all proposed activities, to include site rehabilitation, to the Authorized Officer for approval prior to environmental reivew and issuance of any authorization.

2. All applicants must post a bond for the purposes of insuring rents and royalty and compliance with environmental terms and conditions, including reclamation. The bond amount will be determined by the Authorized Officer.

3. All activities must comply with the Endangered Species Act and the National Historic Preservation Act.

Fire Management

The fire management program is guided by the approved Las Vegas District Fire Management Activity Plan and this Resource Management Plan.

Every wildfire within the Las Vegas District will have an appropriate action taken. The action will be planned and executed in such a way as to minimize the loss of resources and the costs of suppression. Such actions must also be consistent with resource management objectives.

There will be no use of fire retardant in riparian areas, Wilderness Study Areas, sensitive visual resource management areas, and structure archaeology sites, unless such use is authorized by the Authorized Officer.

All wildfires, after they are declared out, will be evaluated by a rehabilitation team to determine the actual needs related to the rehabilitation. Corrective measures will be taken to prevent erosion and future resource degradation when it is feasible to rehabilitate areas damaged by actual suppression action. The rehabilitation team will also determine if any fire rehabilitation, including protection from grazing, is needed to revegetate the burned area, and to protect the site from erosion and invasion by undesirable plant species. Emergency fire rehabilitation will follow procedures outlined in *BLM Handbook H-1742-1* and the Las Vegas District approved Normal Fire Rehabilitation Plan.

When identified as the least costly and/or most effective method, prescribed fire techniques will be used as a resource tool to meet vegetative objectives as stated in this Resource Management Plan. Prescribed fire can be used to improve wildlife habitat, watershed improvement and other types of vegetative manipulation to meet vegetative objectives. In addition it can be used solely, or in combination with other fuel/vegetative manipulation techniques. When fire is used as a management tool, an approved prescribed burn plan and wildfire prescription must be prepared in advance of planned or unplanned ignition in accordance with *BLM Manual 9214*.

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Integrated Pest Management

It is the policy of the BLM that all alternatives available through integrated pest management will be explored before any pest-control program decision is implemented. This includes all pest-control programs done under BLM proposals, cooperative projects, or on lands under permit or lease. Integrated pest-control methods include, but are not limited to, biological, cultural, and chemical methods. In choosing methods, due consideration will be given to economics, efficacy, and the environment. All integrated pest-management activities will follow policies established in (a) BLM Manual 9011, Chemical Pest Control Sections .06B through .12D; (b) BLM Manual 9015, Integrated Weed Management Sections .2 through .4, .8 through .83, and Appendix 1; (c) BLM Handbook H-9011-1, Chemical Pest Control Sections I-B 1-3; and (d) other sources as appropriate.

Hazardous Materials

The BLM will not authorize the disposal of hazardous materials on public lands. When hazardous materials are located on public lands, the following sequence of actions will occur: reporting, necessary site security, coordination of procedural cleanup, and monitoring results of cleanup. Actions taken by the BLM can also include prosecution of those responsible for illegal dumping.

The BLM ensures that the initiators of actions which use hazardous materials on public land have the necessary permits from the applicable local, State or Federal Authority, which are designed to protect the environment. These permits become conditions of approval by the BLM for proposed actions on Federal lands.

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APPENDIX N

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GUIDELINES FOR DETERMINING DESIRED PLANT COMMUNITIES IN DESERT TORTOISE HABITAT

Objectives for Managing Desert Tortoise Habitat in Areas of Critical Environmental Concern:

1. Manage the native ephemerals and perennials to ensure that plant species reach their full growth potential between spring and early fall, based on phenological stage. Provide the tortoise with those plant portions that provide the best source of nutrition and provide optimum plant reproduction.

2. Manage for a perennial native grass composition (by dry weight) of at least 15 percent, with no individual species exceeding 40 percent of the total perennial grass component, and including 5 percent total dry weight of bush muhly, or as limited by potential natural community of the range site.

3. Manage for at least 5 percent ground cover of perennial native grass species with warm season grass species no greater than 60 percent of total, or as limited by potential natural community.

4. Maintain a canopy cover of at least 20 percent or as limited by potential natural community.

5. Reserve a minimum of 150 pounds of air dry spring ephemeral forage per acre, to ensure maximum availability of desirable native ephemeral forage.

Objectives for Managing Desert Tortoise Habitat outside Areas of Critical Environmental Concern:

1. Manage for a perennial native grass composition by dry weight of at least 3 to 5 percent or as limited by potential natural community (manage for at least 5 percent ground cover of perennial native grass species).

2. Maintain a canopy cover of at least 15 percent, or as limited by potential natural community.

3. Manage habitat to ensure tortoise recruitment is sufficient to maintain a stable population.

Key Species

Key species include: galleta grass (*Hilaria jamesii*) and (*H. rigida*), bush muhly (*Muhlenbergia porteri)*, sand dropseed (*Sporobolus cryptandrus*), Indian ricegrass (*Oryzopsis hymenoides*), black grama (*Bouteloua eriopoda*), desert needlegrass (*Stipa speciosa*), range ratany (*Krameria parvifolia*), ephedra (*Ephedra spp.*), white burrobrush (*Hymenoclea salsola,* and winterfat (*Eurotia lanata*).

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APPENDIX O

Public Comments and Agency Responses

Air Resource Management

Why does The Draft Plan, without substantiation, claim that Off-Road Vehicle recreation affects air quality via airborne particulates in a "...temporary but significant..." manner when events are held upwind of Las Vegas (Page S-42)? This assertion is contradicted by Table 3-3, which shows total suspended particulate materials from off-road vehicle use to be less than a tenth of that occurring from activity on paved roads. It is assumed Table 3-1, Emissions By Source Categories, not Table 3-3, Known Springs Within Las Vegas BLM District, in The Draft Plan was referenced. Table 3-1 presents figures for casual use within the Las Vegas Valley and not competitive events. The Draft Plan states, "...temporary but significant...,' referring to competitive off-road vehicle events and not casual use. Given proper meteorological conditions, it is reasonable to expect some generated dust to appear within Las Vegas Valley from those events. The Las Vegas Valley is in non-attainment for particulates (PM10) and any increase must be in conformance with the State Implementation Plan.

Why was dust produced by sand and gravel operations extrapolated to the entire mineral industry? This is unwarranted. The concern over the perceived extrapolation of sand and gravel operations estimates of dust production is justified. The estimates presented are for sand and gravel operations. The intent was not to extrapolate the numbers to all mineral activities but to state that some dust production can be reasonably expected to occur from all mineral exploration and development. Dust production is of particular concern in the Las Vegas Valley Non-attainment Area where any production of particulates (PM10) must be in conformance the State Implementation Plan.

The Air Resources Management from Mineral Management section in Chapter 4 of The Draft Plan was changed in The Plan to emphasize that the estimate of dust production, based on information gathered from sand and gravel operations in the Las Vegas Valley, is for sand and gravel operations only and that some production, although not specifically known, can be expected from other mineral activities.

Under Air Resource Management, add the following objective: Reduce particulate matter originating from BLM-administered lands in conformance with the air quality implementation plans for non-attainment areas. The Draft Plan was revised for The Supplement to reflect this, and carried forward into The Plan. The objective is to ensure that Federal, State, and local air quality standards are not violated by actions occurring on BLM-administered lands. Management also ensures BLM actions are consistent with Federal, state, and local air quality standards and regulations by requiring all appropriate air quality permits are acquired before approval.

The following Management Direction should be included under Air Resource Management in The Plan. Within the Las Vegas Valley, limit casual off-road vehicle use to designated roads and trails. Provide paved aprons from paved roads to designated off-road vehicle roads and trails for ingress and egress. Encourage organized off-road vehicle events to be located in areas outside the Las Vegas Valley. BLM should provide for air quality monitoring of competitive off-road vehicle events in the Ivanpah Valley, Eldorado Valley and Dry Lake Valley to determine ambient transport into the Las Vegas Valley non-attainment area. Casual off-road vehicle use in the Las Vegas Valley is limited to existing roads and trails. To attempt enforcement for uses on designated roads would be unrealistic and beyond the capabilities of existing limited staff.

The Management Direction was revised from The Draft Plan to The Plan, under Recreation Management, to eliminate competitive off-road vehicle events within the Non-Attainment Area except for Nellis Dunes, which is downwind. Because the dates of proposed off-road vehicle events are known, application of the Clark County Health District's existing air quality monitoring network within Las Vegas Valley should be adequate to detect event-associated increases in particulates.

The Draft Plan should identify the root causes for air pollution in the Las Vegas Valley and between types of operations. Table 3-1 of The Draft Plan shows emissions by source categories. This table reflects information available from the Clark County

Health District. The Plan is updated and reflects PM10.

Page 4-3 of The Draft Plan, under "From Lands Management,' the analysis should clearly establish that carbon monoxide pollution is a function of the large number of automobiles in the Las Vegas Area, the majority being domestic. Increased development activity because of the disposal of lands will have a very small marginal effect. The referenced statement was general in nature and intended to convey the fact that as vehicle numbers increase, regardless of the type, carbon monoxide levels can be expected to increase. Construction-related and domestic vehicles are expected to increase in numbers.

How could minerals exploration "...produce long-term significant impacts on the air resource.." (see page 4-3 of The Draft Plan)? Explain and quantify. The statement that "Mineral exploration and development could produce long-term significant impacts on the air resource..." was revised for The Plan to reflect that mineral exploration could produce short-term impacts, and mineral development without proper mitigation measures and reclamation could produce long-term impacts on the air resource.

BLM program guidance for resource management planning calls for assessment of impacts of existing and proposed public land uses and/or management practices on air quality. The guidance also calls for analysis of the impact of potential changes in air quality on other resource values and land use. The Draft Plan provides no such analysis, either general or specific, which would be necessary to meet the standards for an Environmental Impact Statement. It is assumed the referenced guidance is BLM Manual 1621- Supplemental Program Guidance for Environmental Resources, Section .12 C and D (Factors of Analysis). Impacts to the air resource from various land uses and actions are addressed in Chapter 4 of The Draft Plan and carried forward into The Plan. Also, impacts expected within the Las Vegas Valley Non-attainment Area as a result of approval of land disposals is analyzed in the Cumulative Impacts section. Analysis of each potential impact to the air resource is beyond the scope of the plan. Only those activities considered as potential significant impacts are included.

Table 3-1 is outdated. Levels of pollutants are no doubt greater than in 1980, hence the non-attainment area may also have increased. What is the potential for increased air-borne heavy metals and increases in various aldehydes? The data for The Draft Plan was the best available. The table is revised to reflect the latest data in The Plan. The boundary of the Las Vegas Valley Non-attainment Area has not changed from The Draft Plan. According to the Clark County Health District, a monitoring effort was recently initiated to determine heavy metal and aldehyde levels in the Las Vegas Valley. A recent Clark County Health District report shows clearly that the air quality has improved significantly since the 1980s.

How will management of successive prescribed burns fit into short-term air quality compliance with Federal, state and Clark County Health District laws? Federal, state and local laws and regulations must be followed to conduct prescribed burns. Page 4-4 of The Supplement states that smoke from prescribed burns as a vegetative manipulation tool could result in increased airborne particulate matter. Although these emissions could be significant, they would be short-term and also mitigation could be achieved through compliance with the Clark County Health District permitting process. This was carried forward into The Plan .

The Environmental Impact Statement should address the impacts of degraded air quality as a result of urbanization and the effects not only to humans occupying southern Nevada, but also to the plant and wildlife resources in the habitats BLM manages. Chapter 4 of The Supplement, was carried forward into The Plan , including a complete analysis of impacts on the air resource from land disposal and development, with projections of expected pollutant level increases. Chapter 3 was expanded in The Plan to include a discussion on air quality effects to humans, plants and wildlife.

The Supplement states that "disposal would add incrementally to the air pollution level in the Las Vegas Valley Non-attainment Area, but not to a significant level." Given that Las Vegas Valley area air is currently not considered clean enough, any additional increase must be viewed as significant. The statement on page 4-44 of The Supplement, that "Disposal would add incrementally to the air pollution level..., but not to a significant level," was in error. Page 4-3 states that

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"...increases in pollutant levels could be projected to be significant within the Las Vegas Valley Non-attainment Area, already in violation of Air Quality Standards for particulates and carbon monoxide." Any increase in pollutant levels within the Non-Attainment Area must be in conformance with the State Implementation Plan. The text was revised in The Plan.

How can BLM reconcile the significant action of land disposal with the objective on page 2-1, which states that the BLM "Ensure that Federal, state and local air quality standards are not violated by actions occurring on BLM administered lands."? This applies only to lands administered by BLM, not those conveyed into private ownership. One of the Management Directions on page 2-1 of The Supplement states that to meet this objective the agency would be "...requiring that all appropriate air quality permits are acquired before BLM approval of an action." BLM is only making the lands available for disposal. The lands may or may not be purchased or developed. The action to dispose of land does not result in an impact to the air or any other resource, rather land development does. Land development is subject to all local regulations, ordinances and zoning requirements.

The Supplement mentions short-term, construction-related impacts to air quality resulting from particulates (PM10) emissions in the proposed disposal areas within the Las Vegas BLM District. However, the Environmental Impact Statement does not address the long-term PM10 emissions that would result from development of and population growth within the proposed disposal areas. The Final Environmental Impact Statement should discuss these impacts, particularly within the Las Vegas Valley PM10 non-attainment area. While The Draft Plan addressed long-term and short-term air quality impacts, including total suspended particulates (TSP), in Chapter 4, it did not analyze PM10. Calculation of estimated increases in pollutants is based on all sources, not just construction activities. The Plan includes an expanded discussion that better separates the short-term and long-term PM10 emissions resulting from land disposals within the Las Vegas Valley Non-Attainment Area.

The Resource Management Plan should address the potential impacts on visibility to downwind receptors. A discussion of the situation concerning visibility impairing air pollution and its impact on downwind receptors was added to Chapters 3 and 4 in The Plan.

Soils Resource Management

Does Map 3-3 of The Draft Plan (Erosion Susceptibility) take into account the eroding water diversion at Stump Springs? Erosion susceptibility was determined using data obtained from a soil survey conducted by the Natural Resource Conservation Service. The erosion condition rating used information obtained from a BLM Watershed Inventory, a part of the Watershed Conservation and Development Program. Both the erosion susceptibility and erosion condition ratings identified are representative of the general conditions of the area and are subject to localized deviations. Site-specific erosional problems are not addressed in this plan, but would be addressed on a case-by-case basis.

The following Management Direction statements should be included under Soil Management in The Plan. "Coordinate with local flood control agencies when considering land disposal or other actions that might affect floodplain management. Soils would be managed to maintain or improve rangeland productivity, as well as minimize present and potential wind and water erosion. Maintain areas with slopes of 15 percent or greater in public ownership wherever feasible and restrict uses or activities as necessary to protect soils, natural drainage and native vegetation." There are numerous requirements for review of actions that occur on public lands. Coordination with local agencies when considering such actions is one requirement. The discussion under Soil Management in The Draft Plan, although with slightly different wording, proposes that soils would be managed to maintain or improve rangeland productivity as well as minimizing present and potential wind and water erosion. This objective was carried forward into The Plan .

How was the amount of soil loss from the various land uses determined, particularly that attributable to livestock grazing? What level of grazing was used in the calculations? What formula was used? What other variables were considered? Will The Plan fully document the source and calculation of soil loss values? The soil loss estimates were derived using the Revised Universal Soil Loss Equation (RUBLE), which evaluates grazing under

differing range conditions (as well as other soil-disturbing activities such as minerals, off-road vehicle uses, and wild horses and burros). It considers grazing practice and the amount of surface cover, and takes into consideration the number of cattle based on total number of Animal Unit Months (amount of forage a cow and calf consume in one month) within each allotment. The figures are intended to provide a comparison between alternatives and that actual soil losses and acreage disturbed will vary. During recalculation of soil loss, it was discovered that one of the values used in the RUBLE was in error. The new figures are documented in The Plan, along with the methodology used to derive estimates of natural soil loss and that resulting from soil-disturbing activities.

In its technical sense, there is no soil present in the majority of the Las Vegas BLM District. There is primarily desert pavement covering various types of dirt. The glossary definition of soil in The Draft Plan states that soil is "(a) The unconsolidated mineral material on the immediate surface of the earth that serves as a natural medium for the growth of land plants. (b) The unconsolidated mineral matter of the surface of the earth that is influenced by genetic and environmental factors including parent material, climate, chemical, biological, and morphological properties and characteristics." The definition of desert pavement added to the Glossary in The Plan, states, "A natural, residual concentration of wind-polished, closely packed pebbles, boulders, and other rock fragments, mantling a desert surface where wind action and sheetwash have removed all smaller particles. It usually protects the underlying, finer-grained material from further deflation. The coarse fragments commonly are cemented by mineral matter." Information obtained during soil survey activities indicates that desert pavement comprises a very low percentage of the planning area.

Increased soil erosion from runoff is not a direct impact associated with the disposal of public lands; loss of the "soil" as a resource is the direct impact. Soil erosion is indeed an impact associated with an increase in runoff due to the creation of a larger area impermeable to precipitation infiltration. It is this erosion of the soil resource that results in its movement and loss.

Why does The Supplement fail to address impacts to the soil and water resources on Page 4-27 of the Cumulative Impacts section? Page 4-27 is part of the cumulative impacts section that discusses past, present, and reasonably foreseeable future actions. There is a discussion of the impacts to the water resource under the Cumulative Impacts Section on page 4-43 of The Draft Plan. A discussion of the cumulative impacts to the soil resource and impacts to the water resource is in The Plan .

Water Resource Management

The plan fails to address flash flooding as an erosion problem. A discussion of flooding was added to Chapters 3 and 4 of The Plan .

Why is there a lack of recognition of the importance of watershed protection? BLM has the responsibility for considering the entire watershed, not simply the watershed on lands under its control. The Plan has a discussion of this issue. A watershed consists of several components including soil, water, and vegetation, all analyzed in the plan. Each resource has management objectives and direction intended to ensure a healthy resource and resultant healthy watershed as a whole.

Why does the plan suggest that efforts will be made to control erosion if the BLM recommendations for wilderness areas are approved by Congress? To be effective, erosion must be controlled on a drainage system basis, not whether or not the land is in a wilderness area. It is assumed that the reference is to the Wilderness Study Area discussion on page 4-6 of The Draft Plan, Water Resource Management from Wilderness Management. The discussion does not state that measures to control erosion would only be made in the Wilderness Study Areas, but notes that if the Wilderness Study Areas become Wilderness Areas, soil and the watershed would benefit through continued restriction of impacting uses in these areas.

The Resource Management Plan should be amended to mention the Lower Virgin River as a future water supply. Chapter 3 of The Plan discusses the fact that the Virgin River and other sources are under study as possible water supplies for the Las Vegas Valley.

The hydrographic basin in which the Eldorado Mining District and the town of Nelson is located, and where land disposal is planned, is already overdrawn and is now a "Designated Basin".

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Because of insufficient potable water and flooding potential, the area is unsuited for residential development. It is assumed the reference is to the potential development of the area available for land disposal. Map 2-3 of The Plan identifies acreage in the Eldorado Mining District and around the town of Nelson, T.26S., R.64E., Sections 11 and 12 as land disposal area.

This area is within Hydrographic Basin 213, a Designated Basin by Order #790, July 8, 1982. Nevada Revised Statute 534.120 states, "Within an area that has been designated by the state engineer... where, in his judgement, the ground water basin is being depleted, the state engineer... is... empowered to make such rules, regulations and orders as are deemed essential for the welfare of the area involved. In the interest of public welfare, the state engineer is authorized and directed to designate preferred uses of the water within the respective areas so designated by him...." Order #790 closed the basin to the appropriation of water for irrigation purposes.

The Nelson area and most of southern Nevada is prone to isolated high-intensity storm events and resultant isolated flooding. Areas presenting a significant unavoidable hazard would undoubtedly not be developed in a manner that would threaten life or property. While the additional land around Nelson is available for disposal, this does not mean it will be acquired from the BLM. These lands were placed in a disposal area for infrastructure purposes if the population in this area increases in size.

How does BLM justify the water policy by the City of Las Vegas, "Well, we might as well use it or lose it?" A water policy of a city or other government entity is not the responsibility of this agency.

Why does the Draft Plan make an unsubstantiated assertion on page 4-7 that Off-Road Vehicle use "...could affect surface water...?" The statement, "...Off-road vehicle use could also affect surface water," refers to impacts from increased soil erosion. The impact, primarily from sedimentation, will vary depending on the water source location in relation to the disturbed area.

Does BLM have authority to require that all water developments be made available to wild horses and burros? Does this include private water developments or water developments using private water rights? None of the alternatives propose a requirement that all water developments be made available to wild horses and burros. The statement is made that the agency would develop and maintain dependable water sources for the wild horses and burros, where needed, on BLM lands. Under state law, this agency cannot infringe on one's legal water rights, and it is also required, like all citizens, to obtain water rights from the state on waters not Federally reserved before developing a water source.

The Plan should identify the designated beneficial uses and water quality standards for the streams in the planning area. It should also discuss the potential impacts of land disposals on water quality and beneficial uses, particularly in the Muddy and Virgin Rivers and Meadow Valley Wash. The discussion should address what effects such water quality impacts would, in turn, have on sensitive fish species in these streams. A discussion of designated beneficial uses and water quality standards for the streams in the planning area was added to Chapter 3 in The Plan. Valuative data was added to the discussion in The Draft Plan concerning impacts resulting from land disposals in the Las Vegas Valley, and a discussion on expected impacts to the Muddy and Virgin Rivers and Meadow Valley Wash was added in Chapter 4 of The Plan .

BLM should require more effective mitigation measures in mining Plans of Operation in order to reduce water quality impacts to insignificant levels. A discussion of the use of proper mitigation to reduce impacts resulting from mineral development was added to Chapter 4 of The Plan under impacts on Water Resource Management from Minerals Management.

Salinity contributions resulting from mineral development and grazing of livestock appears to be significant in all alternatives and, therefore, further measures should be taken to reduce the impact. What percent of the Colorado River's salinity problem will occur regardless of whether there is mineral development or grazing of livestock? Without this data, how does BLM decide whether it is significant? A recent U.S.Geologic Service document (Water-Resources Investigations Report 94-4210) titled, *Dissolved-Solids Contribution to the Colorado River from Public Lands in Southeastern Nevada, Through September 1993*, estimates a total contribution of 38,000 tons per year of dissolved-

solids to the Colorado River from almost 6 million acres of public lands in Nevada. This is not considered significant considering that the Colorado River carries approximately 6.6 million tons of dissolved-solids annually. This report also states, "Land management practices probably would not substantially reduce this contribution." Text was revised to reflect this data in The Plan.

Why doesn't The Draft Plan provide the basic information called for by the agency's guidance for management planning? How can The Draft Plan determine the impacts of the proposed land disposal when it does not consider the availability of water for the urban and/or agricultural use of those lands? Information on the presence and availability of water was addressed in Chapters 3 and 4 of The Draft Plan and carried forward to The Plan.

Why are the data for Tables 3-4 and 3-5 taken from sources published in 1971, well over 20 years ago? Tables 3-4 and 3-5 of The Draft Plan identified data used by the Nevada State Engineer and reflected the best information at the time of the study. Investigations to update the hydrological data were subsequently initiated, and is reflected in The Plan.

Objectives and management direction should be provided for deep carbonate aquifers. Chapter 3 of The Plan presents a discussion of the deep carbonate aquifers. There are studies in process by Federal agencies and the Las Vegas Valley Water District, but the data is not yet available. Objectives and management directives already identified for the water resource apply to the carbonate aquifer as well. The objectives and directives identified under the various resources dependent on groundwater (such as Riparian, Vegetation, and Fish and Wildlife Habitat Management) require consideration of impacts to the water source that could result in adverse impacts to the dependent resource.

Where did the ground water storage figure for the Pahrump area come from? It appears to be incorrect and should be 60,000,000 gallons in storage and not 23,000. It is assumed the reference was made to the storage figure in Table 3-5 of The Draft Plan. The storage figures in this table were obtained from the Nevada Division of Water Resources and reflected the best information at the time. Investigations to update the hydrological data were subsequently initiated. The referenced 23,000 figure is acre-feet of storage per foot thickness of the saturated zone. One acre-foot is equivalent to 325,829 gallons and 23,000 acre-feet is equal to 7,494,067,000 gallons of water in storage per foot of thickness of the saturated zone.

Because of the low contribution of salinity from the Las Vegas Wash, your emphasis on salinity is misplaced. A greater problem is assuring that the quality of treated wastewater and stormwater entering Lake Mead meets State and The Environmental Protection Agency standards. Erosional damage leads to loss of wetlands which clean water, slow down flood waters, and minimize sedimentation transport. The statement is correct that there is a low salinity contribution from the Las Vegas Wash. In fact a recent U.S.Geologic Service publication titled, *Dissolved-Solids Contribution to the Colorado River from Public Lands in Southern Nevada, Through September 1993*, reports that only 38,000 tons of dissolved solids are contributed annually from almost 6 million acres of public land.

The quality of treated wastewater entering Las Vegas Wash is not the responsibility of this agency. It is correct that erosional damage can lead to loss of wetlands that act to clean water, slow floodwaters, and minimize sedimentation transport. The flood control facilities constructed by Clark County Regional Flood Control District are intended to moderate peak flows by metering runoff water exiting their facilities, thereby helping to minimize erosion in Las Vegas Wash resulting from storm events. The management objectives and direction in The Plan are intended to ensure a healthy resource and resultant healthy watershed, and minimize erosion.

The Supplement only addresses potential cumulative impacts to water resources in the Las Vegas Valley but not in the planning area as a whole. In addition, cumulative impacts to soil resources, flood control, and sediment and salt loading to streams in the planning area are not addressed in The Draft Plan. Text was included in The Plan to address cumulative impacts to water and soil resources, as well as flood control and sediment and salt loading to streams throughout the planning area.

The Plan should identify possible mitigation measures that BLM could require as terms or conditions of any land disposal contract to eliminate adverse impacts to water resources from development or reduce them to a level of

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insignificance. The Final Environmental Impact Statement should also include any criteria that would need to be met prior to BLM consideration of land disposal or exchange actions. Specific mitigation associated with land disposals would be identified on a case-by-case basis during preparation of National Environmental Policy Act documents. Identification of the actions is beyond the scope of the plan.

The increase of population growth due to the disposal of acreage does not adversely impact the water as a resource because water is a recyclable resource with use for domestic purposes being insignificant when compared to agricultural use. When ground water withdrawals exceed recharge, as is the case in Las Vegas Valley, there is indeed an adverse impact on the water resource. Domestic uses, primarily landscape watering, is by far the largest water consumer in Las Vegas Valley. According to the Southern Nevada Water Authority, 64 percent of the water supplied by water purveyors is used for residential purposes (such as domestic, landscape watering), and only 8 percent for irrigation.

Why are you discussing water quantity, which is strictly a state concern since water is a resource "owned" and controlled by the state, not the Federal government? It is correct that the State of Nevada has control of the allocation of water within its boundaries, but Federal agencies are required under the National Environmental Policy Act to ascertain impacts to all resources, including those associated with water, resulting from actions on public lands.

In order to ensure that the flood control needs of the community are actively considered in all management decisions made over the lifetime of the Resource Management Plan, all of the alternatives should include management guidance similar to that provided under the No Action Alternative. The need for flood control improvements and floodplain management, particularly within the rapidly growing Las Vegas Valley is recognized through the implementation of the National Environmental Policy Act analysis. This includes coordination with local agencies. Flood control was recognized through the inclusion of objectives and direction carried froward to The Plan from the No Action Alternative.

Why aren't subsidence, recharge, and the additional threat of loss of life from flooding addressed in this document? If we do not improve drainage control in the Valley and do not stop exporting our flood waters, which replenish groundwater basins, we will suffer increased subsidence in the western part of the Valley and rising groundwater in the east. The result of the historical overdrafting of the Las Vegas Valley groundwater system is significant subsidence in certain areas of the Valley. A discussion of subsidence is in Chapters 3 and 4 of The Plan. Information on the ground water recharge in the Las Vegas Valley (Hydrographic Basin #212) was listed in Table 3-5 and discussed in Chapter 4 of The Draft Plan, including the Cumulative Impacts section, and carried forward into The Plan. The discussion in The Draft Plan of increased runoff, the potential for flooding and its consequences was expanded for The Plan.

Impacts resulting from the proposed Las Vegas Valley Water District/Southern Nevada Water Authority water right applications and water importation project should be addressed. The Las Vegas Valley Water District's water rights applications and the Yucca Mountain Project were identified as concerns by members of the public. Both of these topics are beyond the scope of the planning analysis for the Las Vegas BLM District Resource Management Plan and Environmental Impact Statement.

The Resource Management Plan is intended to outline resource condition objectives and provide general guidance on processing individual actions such as the Las Vegas Valley Water District project. After a proposal is submitted by the Las Vegas Valley Water District, a site-specific environmental analysis will be completed to comply with the National Environmental Policy Act . The Yucca Mountain project is located outside the planning area. This separate action, managed by DOE, is currently being studied under an Environmental Impact Statement and by Congress.

Is wildlife watering a beneficial use under Nevada Law? Yes, Nevada Law (NRS 533.030, Annotations) states that "Watering of wildlife is encompassed in definition of recreation as beneficial use of water."

The BLM should examine whether the closure of Meadow Valley Wash and Virgin River to livestock grazing will effect a taking of private water rights.

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It is the position of BLM that the closure of Meadow Valley Wash and Virgin River to livestock grazing does not constitute a taking of private water rights.

Any multiple-use activity allowed by BLM under the selected management plan shall be subject to Nevada Revised Statutes, Chapters 533, 534, and 535 for water resource appropriation and/or dam construction. The BLM would "File for appropriative water rights on public and acquired lands in accordance with the State of Nevada water laws..." stated on page 2-40 of The Draft Plan for all alternatives. This was carried forward into The Plan.

Under the Management Direction for Fish and Wildlife Habitat Management, on page 2-43, it states, "Limit competition between bighorn, livestock, wild horses and burros around spring sources by providing separate water sources for wildlife." This is a misstatement of the intended action. Wildlife could be relegated to second-class status with any misdirection. The wildlife of Nevada should have a primary use to any spring or water that has seeped to the surface of the ground (NRS 533.367). The referenced Management Direction was intended to ensure adequate water is available at spring sources that were previously developed for other uses prior to the date of passage of Nevada Revised Statute 533.367. The Plan was revised to reflect this intent.

Does BLM have any Nevada-legal water rights on any of the springs to be monitored? Yes, BLM has water rights, both Federally reserved and appropriated from the State of Nevada, on many water sources located on public lands.

It makes no sense that the BLM would not allow a desert land entry because of a lack of water; close the allotments and make them available as land disposals; then turn around and attempt to acquire all of the water rights appurtenant to these lands. There are no intentions to acquire all water rights associated with the referenced allotments. One objective of the Water Resource Management program states on page 2-2 of The Draft Plan that BLM would "Ensure the availability of adequate water to meet multiple use objectives..." There is no intention to apply for water rights on a spring source if the action would not meet objectives. Applications would be submitted only for those springs necessary to meet multiple use objectives.

The referenced Management Direction was deleted for The Plan because it is included under the second Management Direction under Water Resource Management.

BLM must justify why it must acquire water rights and should evaluate the effects of water right acquisitions on other water right holders. BLM should outline the legal authority to obtain water rights under Nevada law. The discussion on page 2-40 of The Draft Plan, carried forward into The Plan, states that BLM would determine water needs to meet management objectives and file for appropriative water rights on public and acquired lands for water sources not Federally reserved. This agency would apply for only the amount needed to meet management objectives. Nevada Law (NRS 533.010, Annotation) states, "Applications by United States to appropriate water for application to beneficial uses must be treated on equal basis with applications by private landowners." There is no intention to interfere with other water right holders through appropriation of Federal rights. BLM would continue to adhere to Nevada Law.

There is no adequate analysis of the impacts to the water and air resources resulting from land disposals in southern Nevada. The impact of land disposal on the water and air resources was analyzed in The Draft Plan, Chapter 4, including the Cumulative Impacts section. Impacts to the air resource within the Las Vegas Valley Non-attainment Area were analyzed including projections of pollutant level increases that can be expected. Pollutant levels in the remainder of the planning area are less or equal to established standards on a continuous basis.

Reasonably foreseeable future actions, and past and present actions, are not expected to result in unacceptable air quality in any areas outside the Non-attainment Area. The impact of land disposal and increased demand on the water resources within the Las Vegas Valley was emphasized through its inclusion as a significant impact. A discussion of the current overdraft situation and estimated figures on current water usage and future water demand was presented in The Draft Plan and carried forward, with updates, to The Plan. A discussion of increased water demand on the quality of ground water was added.

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Prior to land disposal, professional determinations should be made that development will not negatively impact the soil, water and air resources, drainage systems, or locally formulated land use plans. A moratorium on land disposal should be implemented until erosion of the Las Vegas Wash is stabilized and the future of the wetlands is assured. Prior to approval of every land disposal action under the National Environmental Policy Act , impacts to the various resources would be evaluated. BLM only makes the lands available for disposal, and much of the acreage may not be purchased or developed. The action of disposal does not result in impacts to resources; rather, it is how the land is used after acquisition that causes impacts. Land development is subject to local regulations, ordinances, and zoning requirements.

Riparian Resource Management

The following Management Direction should be included under Riparian Management in The Plan. Retain riparian areas in public ownership unless disposal would be in the public interest. Give special attention to monitoring and evaluating management activities in riparian areas and revise management practices where site-specific objectives are not being met. Cooperate with and encourage the involvement of interested Federal, State and local governments and private parties to share information, implement management, coordinate activities and provide education on the value, productivity and management of riparian areas. Avoid surface occupancy on riparian zones. Livestock grazing on all ephemeral allotments will only be allowed if on-the-ground evaluations determine that forage is available and that it can be grazed without detriment to riparian vegetation. Retain all riparian habitat adjacent to the Virgin River in public ownership. Except for the last one, all these management directives were added to Riparian Management in Chapter 2 of The Plan. The Virgin River is not within a disposal area, and the directives stating, "Retain riparian areas in public ownership unless disposal would be in the public interest," was included to allow greater flexibility in managing riparian areas.

Under the Preferred Alternative, grazing would result in significant degradation of riparian areas associated with 80 springs. We strongly object to continued or further degradation of springs and associated riparian areas and urge BLM to take measures to improve water quality in all springs. The Final Environmental Impact Statement should indicate the number of springs that have good recovery potential. The Plan reflects this concern with continued spring and associated riparian area degradation. The Plan proposes closure of most of the grazing allotments, leaving 19 springs within four of the 11 allotments open to cattle grazing. This represents a considerable decrease from the numbers proposed in the other alternatives of The Draft Plan.

Appropriate measures would be taken to protect the springs and their associated riparian areas. An inventory was initiated in 1995 to determine proper functioning condition. The study should provide a basis to identify the recovery potential of each spring-associated riparian area. There is no intent to ignore those spring-associated riparian areas lacking good recovery potential, rather it is an attempt to effectively prioritize and direct efforts and funding toward the greatest environmental needs. Additional Management Direction in The Plan should provide better prioritization efforts and establish a work schedule following inventory.

BLM should consider tamarisk eradication on the Virgin River and other riparian areas throughout the Las Vegas BLM District. The problems associated with tamarisk invasion should be addressed. The Plan addresses the concern with tamarisk invasion of riparian areas in Chapter 3, and discusses direction in Chapter 2 under Riparian Management and Fish and Wildlife Management. Tamarisk control would be considered to ensure proper functioning of riparian areas. The Virgin River Tamarisk Work Group was recently formed to pool resources towards control and eradication of tamarisk. The BLM is actively pursuing eradication efforts on springs and small riparian areas as funds become available.

We oppose disposals in riparian areas in the public interest. The Management Direction under the No Action Alternative of The Draft Plan states, "Retain riparian areas in public ownership unless disposal would be in the public interest." Because it is necessary to ensure flexibility in managing riparian areas, this direction was carried forward into The Plan.

The Draft Plan violates national riparian management mandates. It is unclear what mandates being violated were referred to in this

letter. We do not feel that we are in violation of national riparian management mandates and believe that the Objectives and Management Direction to maintain and/or improve riparian areas are appropriate.

Are any springs currently fenced and protected? How many spring-associated riparian projects are being done annually now? Yes, several spring-associated riparian areas were fenced for protection over the past five years. Spring fencing protection actions are initiated, depending on available funding. A discussion of efforts to maintain and enhance riparian areas was added to Riparian Management in Chapter 3 of The Plan.

Include in The Plan what methods of riparian monitoring and the monitoring schedule for each allotment in which BLM permits livestock grazing. Monitoring methods and schedules for each open allotment would be identified in individual Activity Plans, that would be available for review, upon completion, at the BLM Las Vegas Field Office.

The BLM should have, in The Draft Plan, defined "poor" riparian condition, showed that livestock grazing is the cause of the "poor" condition, examined alternatives such as rotational grazing systems, and showed that exclusion of grazing is the only management technique that will improve the condition of the riparian areas surrounding the Meadow Valley Wash and Virgin River. The definitions of the condition categories of riparian areas were included under Riparian Resources in Chapter 3 of The Plan.

The Draft Plan did not state that effects from livestock grazing is the sole cause of the poor condition of many of the riparian areas, but rather indicates that grazing, along with wild horses and burros, invasion of exotic species, alteration of hydrologic processes, and other uses are contributing factors. The establishment of Areas of Critical Environmental Concern to enhance the recovery of the threatened desert tortoise has resulted in the closure of the Bunkerville, Glendale, and Rox Allotments to livestock grazing. Meadow Valley Wash and the Virgin River are within these allotments.

Page 2-41 of The Draft Plan, under Management Direction for Riparian Management, states, "Use protective fencing, as needed, and provide alternative water sources...in the recovery of spring associated riparian areas." There may be situations where protective fencing may not be the best or only solution to protect such riparian areas. It is suggested that the directive be rewritten to allow consideration of other protective measures when appropriate. The Management Direction for Riparian Management, on Page 2-41 of The Draft Plan, that identifies the use of protective fencing was modified for The Plan to reflect the use of measures appropriate to protect the spring-associated riparian area.

The first objective under Riparian Management states: "Ensure that 75 percent of riparian areas are in proper functioning condition by 1997...". We recommend that riparian areas be prioritized and a schedule be developed and incorporated into the final plan to facilitate implementing this objective. It is the Bureau's intention to prioritize and develop a schedule for riparian areas after the functioning condition inventory is completed. The inventory was initiated in 1995. Management direction is included in The Plan to prioritize and establish a schedule to complete the inventory.

The third objective under Riparian Management states that the condition of riparian zones of those springs that exhibit good recovery potential will be improved. This implies that those springs in fair and poor condition that do not exhibit good recovery potential will be permitted to remain in fair or poor condition. The overall objective should be to improve the condition of all springs in poor or fair condition. It is not the intention of the BLM to ignore those spring associated or other riparian areas lacking good recovery potential. The objective was modified in The Plan to reflect the need to prioritize and direct efforts and funding toward those areas with the greater chance of recovery.

Because a variety of definitions are used by other Federal agencies, what is the definition of the word "riparian" as interpreted by BLM? Under Riparian Management, are the impacts not adequately described because the document does not consider the Mojave Desert Wash Scrub plant community? The following definition was added to Chapter 3 of The Plan. A riparian area is "...an area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lakeshores and streambanks are typical riparian areas. Excluded are such sites as ephemeral streams or

washes that do not exhibit the presence of vegetation dependent upon free water in the soil." Desert washes do not meet the definition of a riparian area.

Are the mitigation as applied to vegetative management/riparian management on page S-45 discussed in this or any other document? With all the springs to be significantly degraded, how could it be stated on page S-45 that vegetative management from livestock grazing management will only be slightly adversely impacted? The statement that impacts from livestock grazing would be slight refers to vegetation other than riparian. Page S-47 of The Draft Plan states that impacts from livestock grazing would be significant. The Plan reduced the number of springs within grazing allotments to 19, and directs appropriate measures be taken to protect these springs and their associated riparian areas. Specific mitigation measures to be taken would be identified for separate actions in the National Environmental Policy Act evaluation process.

Is the statement that 75 percent of riparian areas will be in proper functioning condition by 1997 meaningful, considering that you have identified only five spring associated riparian projects a year? What specific actions will be taken to achieve this level in three years? The objective of achieving proper functioning condition on 75 percent of riparian areas in the planning area by 1997 is undoubtedly an unrealistic target. This date was a goal of the "Riparian-Wetland Initiative for the 90's" and is dependent on funding limitations. The objective was modified in The Plan to reflect accomplishment within the life of this plan. Efforts would be made to closely follow the "Initiative." The objective of five spring-associated riparian projects completed per year is an estimated minimum based on reasonable projections of available funding, support and cooperation. A proper functioning condition riparian inventory was initiated in 1995. The condition of each of the riparian areas, including the number in need of improvement would be identified. Riparian enhancement should be expedited through the closure of many allotments to livestock grazing. Also, other measures such as fencing would be used to prevent further degradation and aid in the recovery of riparian areas.

Concerning the water utilization at springs discussed on page 2-4, how does BLM propose to monitor (and then manage) uses of water by wildlife, livestock, and wild horses and burros? Water should be provided for livestock and wild horses and burros away from natural springs and riparian areas to maintain the health of the ecosystem. Water uses for wildlife, wild horses and burros and livestock are controlled through management that prescribes fencing, shutting off wells and pipelines, and other appropriate measures. The criteria for water utilization of springs and associated riparian areas is only intended as a tool to help determine Appropriate Management Levels for livestock and wild horses and burros at a level that minimizes the impact to the riparian area and wildlife. The Management Direction was modified in The Plan to better define the purpose for the criteria. The use of alternate water sources away from springs for the protection of associated riparian areas was identified in The Draft Plan and was carried forward to The Plan.

The plan acknowledges the benefits of improved riparian management but fails to recognize that Las Vegas Wash is a critical riparian area. Las Vegas Wash was identified as a significant riparian/wetland within the Las Vegas Valley. Page 3-24 of The Draft Plan states, "Only four perennial streams (greater than 1/2 mile in length) are found within the planning area. These include the Muddy and Virgin Rivers, Meadow Valley Wash and the Las Vegas Wash. Of these four streams, only the Virgin River has a significant riparian zone located on public lands." There is no BLM-managed land acreage associated with the perennial riparian area of Las Vegas Wash. There is a discussion of the potential increase of erosion within the Las Vegas Wash resulting from land disposals in The Supplement, Chapter 4, page 4-4. A discussion is also presented in The Plan.

The statement on page 4-12 of The Draft Plan that springs and associated riparian habitats would be preserved for wildlife use appears to be in conflict with statements elsewhere in the document regarding the use of natural springs and riparian areas for livestock, wild horses and burros. The statement on page 4-12 of The Draft Plan is not considered contradictory with other statements regarding use of riparian areas. It indicates that wildlife use would be ensured at spring-associated riparian areas through their preservation.

The criteria developed for water utilization of springs appears inadequate to fulfill the objective of

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achieving 75 percent of riparian areas in proper functioning condition by 1997. A broadly applied utilization criteria is unsuited to address unique qualities and subtle differences among springs. There is no contention that the water utilization criteria is the primary means to arrive at the objective of 75 percent of springs in proper functioning condition. The methods used to achieve proper functioning condition would vary among riparian areas and would be addressed in site-specific National Environmental Policy Act evaluation documents.

Why is there no analysis of the impacts to the riparian resource from the disposal of public lands and designation of right-of-way corridors? Is the fact that these areas might or might not include riparian areas the reason for failing to analyze the impacts? Page 4-1 of Chapter 4 of The Supplement states, "If a resource or resource use is not addressed, it was determined that impacts would not occur or would be insignificant." Only a small section of the Muddy River is within a disposal area. The No Action Alternative in The Draft Plan and The Plan states that BLM will "Retain riparian areas in public ownership unless disposal would be in the public interest." There are 10 spring-associated riparian areas located within the identified right-of-way corridors. Through the use of proper mitigation efforts, these riparian areas would be protected from actions within the corridors.

Why are wild horses and burros not prevented from using Meadow Valley Wash and the Virgin River as livestock are? Wild horses and burros are not present in the Meadow Valley Wash and Virgin River areas within the Las Vegas BLM District, therefore, impacts from these animals are not expected.

Why does BLM permit the "significant" degradation of riparian areas of 38 springs from livestock grazing, according to page S-47, Alternative C, of The Draft Plan? When will the condition and improvement potential of all the springs be determined? Will grazing be permitted in the meantime? The statement referenced under Alternative C is a projection when no measures are taken to mitigate impacts attributable to livestock grazing. Page 2-41 of The Draft Plan states that one objective is to "Improve the condition of the riparian zones of those springs which exhibit good recovery potential from the current poor and fair ratings to a good or better rating," and "Use protective fencing, as needed, and provide alternate water sources and/or locations to prevent further degradation of and aid in the recovery of spring-associated riparian areas." This direction was carried to The Plan with a modification noting that appropriate measures, not just fencing, would be used to protect the riparian areas. The concern with continued degradation of springs and their associated riparian areas is addressed in The Plan.

Livestock grazing would continue on open allotments during efforts to identify the condition and improvement potential as well as the protection and improvement of spring-associated riparian areas located within these allotments. If existing proper forage utilization levels are exceeded, livestock would be removed.

Vegetation Resource Management

The statement - "Maintain or restore plant productivity on disturbed areas of the public lands, implies disturbed conditions may be maintained in some areas." Shouldn't BLM manage for optimum native species diversity? The third objective was written to address conditions in all types of disturbed areas. Some areas disturbed by past grazing have gone beyond their "threshold to improve." These areas are considered to lack the potential to improve naturally and the expense could not be justified to reseed thousands of acres. Reseeding in the desert rarely is successful. Those areas crossed by rights-of-way, such as pipelines, may be reseeded, but the ideal conditions for seed germination and seedling establishment are rare. Native species should be considered first for most rehabilitation projects, but options should be evaluated on a case-by-case basis. In some situations, introduced species would best be suited to prevent erosion. Rehabilitation projects are addressed in the Environmental Assessment process.

Does BLM know where sensitive plant species occur, such as California bear poppy, and how can these plants be protected? Avoidance would be preferred. Sensitive species inventories are in progress, including research near Moapa and the completion of a Habitat Management Plan for the Bear Poppy. The maps for both sensitive plant and animal species are updated in the Affected Environment section of The Plan. Management direction would be revised based on public

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comment to reflect avoidance of sensitive species where possible. Specific mitigation measures would be developed during the Environmental Assessment and Environmental Impact Statement process. Avoidance of Threatened and Endangered species would be a primary objective, where possible. The U.S. Fish and Wildlife Service would issue biological opinions with various "take provisions," as appropriate.

Why are "state of the art" revegetation techniques ignored? Reclamation of desert sites are very successful - cases-in-point, Castle Mountain Venture and Bullfrog Mine. These mine project locations are at relatively higher altitudes and receive above eight inches of precipitation, with a greater likelihood of a successful reclamation effort. In contrast, agency documentation on most reclamation attempts in this district have failed. Ideal climatic conditions for successful reclamation generally occur two or three times in a ten-year period. Revegetation of hot desert types is rarely successful. The expense incurred for so little a return makes it difficult to justify. For example, one revegetation project cost one-half million dollars. The survival rate of 1 percent can not justify the expense of such an undertaking.

Why doesn't the Resource Management Plan analyze the effect on vegetation and desert tortoise by wild horses and burros? The impacts of Wild Horses and Burros Management are analyzed on pages 4-9 for Riparian Management and 4-12 for Wildlife Management of The Draft.

What is undesirable vegetation, and what are the specific means of control? Undesirable vegetation is a relative term that is determined during an activity plan analysis for a desired plant community. The specific means of control would be evaluated and determined in a site-specific Environmental Assessment, on a case-by-case basis.

Visual Resource Management

There appears to be no justification how Visual Resource Management Classes were determined. The classification system for Visual Resource Management is described in BLM Manual 8400. Designations originate through an overlay technique using maps of Scenic Quality, Sensitivity Levels and Distance Zones. There are five Management Classes, with special areas designated Class 1.

How can Visual Resource Management classifications be changed? The Visual Resource Management classifications in The Plan would be considered interim designations until a complete inventory and analysis is conducted. In order to change the Visual Resource Management classifications, a new inventory must be completed. The results of this inventory would form the basis for amending the Visual Resource Management component of the plan.

Areas of Critical Environmental Concern

Is the Devil's Throat Area of Critical Environmental Concern located within the Gold Butte Area of Critical Environmental Concern or Virgin Mountains Area of Critical Environmental Concern? Devil's Throat Area of Critical Environmental Concern is located within the boundaries of the Gold Butte Part A Area of Critical Environmental Concern. Boundaries of all Areas of Critical Environmental Concern are delineated on Map 2-7 of The Plan.

What Area of Critical Environmental Concern and Lands Disposal Area boundaries were changed? The boundaries of most of the disposal areas varied between alternatives and from the Draft to the Supplement. In The Plan, the boundaries of the Amargosa Mesquite, Crescent Mining Townsite, Arden Historic Sites and River Mountains Areas of Critical Environmental Concern were modified based upon public and internal comments.

How will fragile values be protected in Areas of Critical Environmental Concern? The lands and all "fragile values" they contain would be preserved and protected through actions described in Tables 2-2 through 2-6 of The Plan.

What is the history of the Sunrise Mountain Natural Area, and how will the Rainbow Gardens Area of Critical Environmental Concern that contains it be protected? The Natural Area designation was made prior to Federal Land Policy Management Act. The Sunrise Mountain Natural Area became an Instant Study Area and, therefore, a Wilderness Study Area, when Congress passed Federal Land Policy Management Act. The Rainbow Gardens Area of Critical Environmental Concern will be recommended to be withdrawn from operation of the general mining laws subject to valid existing

rights on the date of the withdrawal. It is be closed to solid leasables and salable minerals. Public lands within the Area of Critical Environmental Concern will be retained in public ownership. A powerline corridor is be designated through the area. Off-road vehicle use will be confined to designated roads and trails.

When considering Areas of Critical Environmental Concern, does the No Action Alternative apply if there currently are no Areas of Critical Environmental Concern? Yes, the No Action Alternative does apply because Federal Land Policy Management Act requires only that all areas be considered for suitability as Areas of Critical Environmental Concern. Federal Land Policy Management Act does not require that any areas must actually be designated as Areas of Critical Environmental Concern. The designation of Areas of Critical Environmental Concern is a discretionary action that BLM may or may not exercise.

What authorizes the designation of Areas of Critical Environmental Concern? The designation of Areas of Critical Environmental Concern is authorized by Federal Land Policy Management Act.

What values are contained within the Rainbow Gardens Area of Critical Environmental Concern and why must road access to this area be limited? The Rainbow Gardens Area of Critical Environmental Concern contains cultural, geological, scenic, zoological, botanical, and recreational values. In order to preserve these fragile values, access within this Area of Critical Environmental Concern must be limited to designated trails.

The Areas of Critical Environmental Concern are so large, how could they possibly meet the criteria for Area of Critical Environmental Concern designation? There is no size limit set on Areas of Critical Environmental Concern as long as they meet the relevance and importance criteria [43 CFR 1601.0 and 1610.7-2(a)].

Previous to BLM accepting and acting on Area of Critical Environmental Concern nominations, they should be described by legal subdivisions. It is impossible to comment on vague and undefined areas. BLM policy 1613.41 does not require that Area of Critical Environmental Concern nominations be submitted in a legal subdivision format. The Areas of Critical Environmental Concern that meet the relevance and importance criteria are shown on maps in The Draft Plan, The Supplement and The Plan. In addition, the areas were described and legal descriptions of each are found in Appendix D.

It seems that anyone with a cause submitted a proposed Area of Critical Environmental Concern. Why did BLM accept all nominations? Federal Land Policy Management Act provides for Area of Critical Environmental Concern designations and establishes national policy for the protection of public land areas of critical environmental concern. Section 202(c)(3) of Federal Land Policy Management Act mandates that the agency give priority to the designation and protection of Areas of Critical Environmental Concern in the development and revision of land use plans. Anyone may submit a proposal for an Area of Critical Environmental Concern, however, BLM manual 1613.11 and 43 CFR 1610.7-2 identify the relevance and importance criteria that a potential Area of Critical Environmental Concern must meet for consideration. Many of the nominations received did not meet the criteria and were not considered in The Draft Plan.

Why was there no reference in The Draft Plan concerning the report to congress on future Areas of Critical Environmental Concern in Nevada as required by the Apex Legislation, PL 101-67? Section 6(b)(3) of Public Law 101-67 requires that BLM invite public proposals for designation of Areas of Critical Environmental Concern, evaluate all proposals received and take such action as the Secretary considers appropriate. It does not require that BLM submit a report to Congress on Areas of Critical Environmental Concern.

What if the reason for the Area of Critical Environmental Concern designation is no longer significant? Will the Area of Critical Environmental Concern be discontinued? After designation, values that originally qualified the area for an Area of Critical Environmental Concern would be protected. A plan amendment would be required to drop a designated area.

What was the difference in acreage between the nominations and that actually proposed for designation? It is not possible to determine the difference in acreage of areas nominated and areas designated because many nominations did not include maps with specific boundaries. Also, many

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nomination boundaries overlapped, and the same areas were nominated by different groups. In some cases, small, adjacent Areas of Critical Environmental Concern were combined into one large area.

How will Areas of Critical Environmental Concern be managed? Management prescriptions for these areas need to be developed. Management prescriptions are listed in The Plan in Tables 2-2 through 2-6. If needed, a management plan would be prepared to set more specific management prescriptions.

Nominated Areas of Critical Environmental Concern need additional critical review to reject those that are questionable. Many Areas of Critical Environmental Concern are so broad, it is difficult to understand their significance and benefit versus adverse impacts. Areas of Critical Environmental Concern in The Draft Plan were evaluated to ensure that they met the relevance and importance criteria. Benefits and adverse impacts of Area of Critical Environmental Concern designation are analyzed in Chapter 4 of The Plan.

It is not proper for the National Park Service to attempt to extend their management authority onto public lands at Bitter Ridge. The National Park Service buffer Area of Critical Environmental Concern is another attempt to extend their power and should not be allowed. Bitter Ridge is included in The Plan as part of a larger Area of Critical Environmental Concern. The area would continue to be managed by BLM. There is no evidence to suggest National Park Service is attempting to take over BLM-managed lands. While National Park Service submitted nominations for Area of Critical Environmental Concerns, not all met relevance criteria. Some of the areas nominated by National Park Service for The Draft Plan were subsequently incorporated into desert tortoise Areas of Critical Environmental Concern.

How can BLM prohibit permanent roads in Areas of Critical Environmental Concern? This would deny access to private property. The Plan shows the revision to clarify that access to private land, including issuance of right-of-way grants, would be provided in Areas of Critical Environmental Concern.

Why withdraw Areas of Critical Environmental Concern from public land laws? Designation of Areas of Critical Environmental Concern should be adequate protection. Withdrawal from public land laws was considered in The Draft Plan as necessary to protect resources from potential impacts as a result of Recreation and Public Purpose or Section 302 leases and mineral entries in the Areas of Critical Environmental Concern. The staff evaluation of internal and public comments resulted in a revision to The Plan. In The Plan, Areas of Critical Environmental Concern listed in Tables 2-2 to 2-6 are only withdrawn from certain provisions of the mining laws.

There is no relevance criteria listed under the River Mountain Area of Critical Environmental Concern. Why did BLM kept it in as an Area of Critical Environmental Concern? Page E-26 of The Draft Plan should have stated that the River Mountains support desert bighorn sheep under the relevance criteria. Under BLM Manual 1613.11.A. An area meets the relevance criteria if it contains one or more of the following: 1) A significant historic, cultural or scenic value, 2) a fish or wildlife resource, 3) a natural process or system or 4) a natural hazard. Under this definition, the River Mountains clearly support a wildlife resource and meets the relevance criteria.

Special Recreation Management Areas should not overlap with Areas of Critical Environmental Concern or crucial wildlife habitat as the management goals of the two designations differ significantly. Special Recreation Management Area boundaries were adjusted in The Plan to reduce the amount of overlap with Areas of Critical Environmental Concern and wildlife habitat. Muddy Mountains, Gold Butte, Christmas Tree Pass, Arrow Canyon, and Eldorado Special Recreation Management Areas were not carried forward into The Plan. Special Recreation Management Areas may be appropriate designations for areas with conflicts between recreational and other uses or natural resources. In these cases, an area would be designated as a Special Recreation Management Area to focus management attention to resolve the conflicts, not necessarily to increase recreational use. Rainbow Gardens Area of Critical Environmental Concern overlaps with Sunrise Mountain Special Recreation Management Area. Due to the close proximity of the area to Las Vegas and the intensive recreational uses occurring in the area, it is appropriate to designate the area as a special recreation management area.

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Why isn't Area of Critical Environmental Concern status given to all riparian habitat? Because the riparian areas in the planning unit are spatially scattered, it would be impractical to designate them as Areas of Critical Environmental Concern. Many small riparian areas surrounding springs are included in larger Areas of Critical Environmental Concern designated for other purposes.

The creation of an Area of Critical Environmental Concern at Ash Meadows is unnecessary as the area is already protected as a wildlife refuge. Ash Meadows was nominated as an Area of Critical Environmental Concern in five separate nominations. The area meets both the relevance and importance criteria for an Area of Critical Environmental Concern (BLM Manual 1613.11). A large number of special status species are found in the area, including some outside the refuge boundary on BLM land. The Area of Critical Environmental Concern designation may help prevent future Federal listing of these species as threatened or endangered, or may assist in the downlisting of species that are already listed.

Why was the Red Rocks Area of Critical Environmental Concern not proposed for withdrawal from the general mining law, fluid mineral leasing and non-energy leasables in the preferred alternative? The Red Rock Canyon National Conservation Area was withdrawn from the mining laws when it was designated in 1990. Planning for Red Rock Canyon National Conservation Area will be developed in a separate General Management Plan.

The Draft Plan proposed acquiring private lands within Ash Meadows Area of Critical Environmental Concern. Acquisition of private land by the Federal government will negatively impact the tax base in Nye County. The U.S. Fish and Wildlife Service is currently acquiring private land within the refuge on a willing-seller basis. There are possibilities for direct sales and also exchanges with BLM lands in Pahrump or Amargosa for private lands in the Area of Critical Environmental Concern.

Why aren't the boundaries of the Virgin River Area of Critical Environmental Concern the same as critical habitat for the fishes of the Virgin River? The Virgin River Area of Critical Environmental Concern was designated to protect both aquatic and riparian habitat, and cultural resources. Therefore, it is larger than the proposed critical habitat designation for the Virgin River fishes. The proposed critical habitat designation includes the floodplain of the Virgin River (*Federal Register Notice*, Vol. 60, No. 65, Wednesday, April 5, 1995).

Would the Amargosa Mesquite area remain open for wood cutting if the area is designated as an Area of Critical Environmental Concern? The area is currently closed to wood cutting and would remain closed in The Plan, regardless of Area of Critical Environmental Concern designation.

Trails should be rerouted around or through Areas of Critical Environmental Concern to reduce conflicts while maintaining access. The designation does not prohibit use of existing or designated trails, nor construction of hiking trails, within Areas of Critical Environmental Concern.

Designation of Big Dune as limited to designated roads and trails is not feasible. The Plan designates part of Big Dune as "open" and part "closed" because it is not feasible to designate roads and trails in sand dunes.

Why doesn't BLM leave Big Dune open for public use? In The Plan, Big Dune would remain open for public use. Approximately 85 percent of the sand dunes would be open to off-highway-vehicle use. About 200 acres of the dunes would be closed to motorized vehicles, but open to non-motorized uses.

Why doesn't BLM close Big Dune to all off-highway-vehicle use as it is being damaged by uncontrolled off-highway vehicle use and needs additional protection? Big Dune would be retained in Federal ownership and is designated an Area of Critical Environmental Concern in The Plan. It would be closed to all types of mineral entry, and partially closed to off-highway vehicle use. Information on special status species indicates that the vegetated areas of the dunes are most important (Rust 1994; pers. Comm., Dr. Rust, University of Nevada, Reno). Off-highway vehicle use occurs mostly in the unvegetated parts of the dune. Habitat in Big Dune would be monitored through the use of aerial photographs.

The off-highway vehicle closed area at Big Dune should be designated specifically in the Resource Management Plan. The off-highway vehicle closed area at Big Dune is shown on Map 2-10. The area would be mapped in GIS at a 7.5 minute scale before posting the area as closed.

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There is no conclusive evidence that the Big Dune beetle even occurs in the area or that off-highway-vehicle use is harmful to the habitat. The off-highway-vehicle community was under the impression that the closed area was to be opened because the fence was removed. The BLM shouldn't just assume there is "tons of habitat for the beetle" at Big Dune. Why does BLM insist on closing part of Big Dune to off-highway-vehicles? The fence surrounding the closed area at Big Dune was removed due to safety concerns. This agency has never indicated the closed area would revert to an open status. Closure was established in the Esmeralda-Southern Nye Resource Management Plan. Elimination of the closed area and change of the off-highway vehicle designations would require a land use plan amendment. Track On, an off-highway-vehicle volunteer group, posted carsonite signs around the Beetle Habitat Area.

There is conclusive evidence that Giuliani's dune scarab beetle, Big Dune aphodius scarab beetle, large aegialian scarab beetle and Rulien's miloderes weevil occur at Big Dune. They are all special status species. Giuliani's dune scarab beetle was originally collected from Big Dune, Nevada by D. Giuliani in 1972. The type specimen, or discovery of the species, was found at Big Dune. Giuliani's dune scarab beetle has since been collected from or observed at Big Dune on numerous occasions, including the following: 1973 by A.J. and M.E. Gilbert and R. McPeak; 1974 by A. Hardy; 1979, 1980, 1981, 1982, 1983, 1993 and 1994 by Dr. R. Rust; and 1994 by J. Cole. In 1985, Dr. Rust prepared a status report for U.S. Fish and Wildlife Service in response to a proposal to list the species as endangered and to designate Big Dune as critical habitat. The report recommended the species not be listed as threatened or endangered. With the exception of nearby Lava Dune, Giuliani's dune scarab beetle has not been collected or observed at any other sand dunes. Three other Amargosa Desert dunes Skeleton Hills, Dumont Dunes and Ibex Dunes, were surveyed, but the species was not found.

The large aegialian dune scarab beetle found at Big Dune was described in 1977 by R. Gordon and O. Cartwright. The type specimen of the species was collected from Big Dune in 1974. The species has been collected on Big Dune on several occasions by F.G. Andrews, A.R. Hardy, D. Giuliani and N. Rulien. Museum specimens were collected in 1972, 1973, 1974 and 1975. In addition, Dr. Rust collected or observed the species in 1982, 1983, 1993 and 1994.

Rulien's miloderes weevil was collected from Big Dune in 1982 by R.L. Bechtel and J. Knight. D. Giuliani reported the species as endemic to Big Dune in 1976. It was also collected by Dr. Rust in 1995. Big Dune aphodius scarab beetle was collected or observed on both Lava Dune and Big Dune in 1993 and 1994 by Dr. Rust.

Although no studies on the effects of off-highway-vehicle activity have been conducted at Big Dune, research has been completed at other sand dunes. R. Luchenbach and R.B. Bury conducted a study on off-highway-vehicle effects to the biota of the Algodones Dunes in California (1983). Their study demonstrated that the biota of the dunes was significantly reduced in areas used by off-highway-vehicles compared to acreage not used by off-highway-vehicles. There were marked declines in herbaceous and perennial plants, arthropods, lizards, and mammals in off-highway-vehicle use areas compared to unused areas. There was a negative effect even in areas only lightly used by off-highway-vehicles. Areas with heavy off-highway-vehicle use showed a distinct absence of native plants and animals.

The off-highway-vehicle closed area at Big Dune was originally recommended to be at least 50 acres in size. Despite a lack of biological data to support the change, it was later reduced to five acres. The original 50-acre exclosure only considered habitat for Giuliani's dune scarab beetle. There are three additional species to consider. Many of the invertebrates at Big Dune feed on plant material. Larvae of Giuliani's dune scarab beetle have only been collected from plant roots. The adult Giuliani's beetles appear to use creosote bushes for mating sites. Both adults and larvae of the aegialian dune scarab beetle live in the sand beneath dune plants and feed on detritus (organic material) that gathers on the dunes. The material is buried in the sand, and over time, is packed in layers in the dune. Excessive or inappropriate off-highway-vehicle use can destroy native vegetation and compact the sand, crushing the detritus layers needed by the beetles.

There is insufficient biological evidence to indicate whether the beetles need specific plant species for survival. For example, in heavily used camping areas near Big Dune, much of the native vegetation

has been replaced by tumbleweeds. It is not known if tumbleweeds provide necessary components for beetle life cycles as compared to sandpaper plant or creosote bush. Also, beetles walking on the surface of the sand may be crushed by off-highway vehicles.

If a reasonable portion of the beetles' habitat is not protected, one or more of the species may be listed as threatened or endangered under the Endangered Species Act. It is likely that the entire dune would then be closed to off-highway-vehicle use.

There is no assumption there are "tons of habitat for the beetle," instead that beetle habitat is very limited, (i.e., less than 2,000 acres at Big Dune and Lava Dune in the entire world). It is especially important to protect the habitat due to its limited size.

Why wasn't all of Big Dune designated as an Area of Critical Environmental Concern? The Plan designates 1,920 acres of Area of Critical Environmental Concern at Big Dune. This includes most of the sand dunes and surrounding vegetation. Boundaries for the Area of Critical Environmental Concern were established using 7.5 minute U.S. Geologic Service topographic maps. This township is unsurveyed so it is possible that some portion of the dune area is outside the Area of Critical Environmental Concern.

Designation of Amargosa Mesquite Area of Critical Environmental Concern would jeopardize IMV Floridin's clay mining operation, resulting in the loss of jobs and income to the local area. In the Proposed Resource Management Plan/ Final Environmental Impact Statement, the boundaries of the Amargosa Mesquite Area of Critical Environmental Concern were reconfigured from The Draft Plan to better correspond to the actual location of the Mesquite woodland. Most, if not all, patented mining claims were excluded from the Area of Critical Environmental Concern. The Resource Management Plan does not preclude IMV from either using or reconstructing the existing haul road.

The boundary of the River Mountains Area of Critical Environmental Concern in The Supplement conflicts with Bureau of Reclamation withdrawn land. Would a habitat management plan be developed for the Area of Critical Environmental Concern? If so, would it be a cooperative effort among agencies? The boundaries of the River Mountains Area of Critical Environmental Concern were modified in The Plan, in consultation with the Bureau of Reclamation. If a habitat management plan is needed for the River Mountains, it would be written in cooperation with other affected agencies.

Rights-of-way should be allowed across Areas of Critical Environmental Concern. Area of Critical Environmental Concern management direction does not prohibit rights-of-ways, but recommends avoidance in Areas of Critical Environmental Concern where feasible alternatives exist.

The section on areas of critical environmental concerns should be changed to require a restoration plan for all temporary roads. Reviews of individual Federal actions under the National Environmental Policy Act process could result in requirement of a restoration plan for temporary roads.

The designation of the Virgin River Area of Critical Environmental Concern should be delayed until Las Vegas Valley Water District completes plans for the Virgin River Supply Project. Designation of the Virgin River Area of Critical Environmental Concern would not necessarily prohibit Las Vegas Valley Water District from implementing the Virgin River Water supply project.

The Ivanpah Area of Critical Environmental Concern should include portions of Blue Diamond Hill. In The Plan, the Ivanpah Valley Area of Critical Environmental Concern was dropped from consideration. The majority of Blue Diamond Cholla habitat is within Red Rock Canyon National Conservation Area. An exchange proposal is under evaluation in which the vast majority of Blue Diamond Cholla habitat would be obtained for management within Red Rock Canyon National Conservation Area.

Why was the area northwest of Logandale designated an Area of Critical Environmental Concern? The desert tortoise Area of Critical Environmental Concern located northwest of Logandale is one of the few areas in Nevada where there is sufficient quality and quantity of desert tortoise habitat to meet the criteria of the Recovery Plan for desert tortoise.

Why was the Red Rock Spring Area of Critical Environmental Concern only considered for Area of

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Critical Environmental Concern status in Alternative B and not in the other alternatives? Will it be included in the final Resource Management Plan? Red Rock Spring was considered for Area of Critical Environmental Concern designation in all alternatives of The Draft Plan. In certain alternatives, it is within a larger Area of Critical Environmental Concern and not listed separately. In The Plan, Red Rock Spring Area of Critical Environmental Concern is within the Gold Butte Part A Area of Critical Environmental Concern, and would receive the same management treatment as if listed separately.

Why was Gold Butte Area of Critical Environmental Concern not considered for designation in The Draft Plan as it has many values that would meet the relevance and importance criteria? The entire Gold Butte Area of Critical Environmental Concern was considered in The Supplement but not The Draft Plan. The area was divided into three parts, (A, B, and C) because of the different reasons for designation of each part. One plan for the entire area will be completed, which will identify specific management for each valuable resource. It was carried forward into The Plan.

Will the Joshua tree forest along the Nipton Highway be included in an Area of Critical Environmental Concern? Yes, most of this area is within the Piute/Eldorado Area of Critical Environmental Concern.

What makes the Virgin Mountain area so special? If it is pinyon-juniper woodland and mixed conifer, these vegetation types are common throughout the west and should not qualify the area for Area of Critical Environmental Concern status. The Virgin Mountains contain a relict stand of ponderosa pine and white fir. This represents the northern most stand of Douglas fir and the only known occurrence of Arizona cypress in Nevada. These resources are unique in Nevada and deserve additional protection.

Fish and Wildlife Management

Desert Tortoise

Listing of the Desert Tortoise

When and why was the desert tortoise listed as an endangered species and how does this affect the management decisions in the Resource Management Plan? The U.S. Fish and Wildlife Service was petitioned to list the desert tortoise in Arizona, California and Nevada as endangered on September 14, 1984 (the desert tortoise had previously been listed as threatened in Utah). The Fish and Wildlife Service determined in September 1985 that the proposed listing of the desert tortoise within the three petitioned states was warranted but precluded by other listing actions of higher priority.

Annual findings of warranted but precluded were made each year. On May 31, 1989 the same three groups that petitioned the U.S. Fish and Wildlife Service in 1984 provided substantial new information and petitioned to list the desert tortoise as an endangered species throughout its range in the United States under the expedited emergency provisions of the Endangered Species Act. As a result of this and other information, the U.S. Fish and Wildlife Service determined the Mojave Population of the desert tortoise (tortoises living north and west of the Colorado River) as an endangered species under an emergency rule issued August 4, 1989.

On April 2, 1990, when the emergency rule expired, the Mojave population of the desert tortoise was listed as threatened pursuant to the Endangered Species Act. Reasons cited for the listing of the desert tortoise included vandalism, collection of tortoises for pets, raven predation, disease, loss of habitat to urban, energy, mineral and agricultural development, vehicle oriented recreation, livestock grazing, and military uses (*Federal Register*, Vol. 55, No. 63, Monday, April 2, 1990).

Under the Endangered Species Act, Federal agencies are required to use their authority to further the purposes of the law. Until the tortoise is removed from the list, or the Endangered Species Act is changed, the BLM must address management of desert tortoise on public lands.

The Resource Management Plan should give a better definition of threatened and endangered. How does management differ between threatened and endangered species? The glossary in The Plan was expanded to include the definition of threatened and endangered from the *Endangered Species Act*.

Desert Tortoise: Life History

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It seems that the acreage proposed for desert tortoise habitat is excessive. How much space does a tortoise need? The size of the home range for a desert tortoise varies spatially and annually. Males generally have larger home ranges than females. Studies in Utah, Arizona, Nevada, and California have shown that tortoise home ranges vary from 10 to 198 acres. Based on these figures and assuming no overlap of home ranges between individuals, a population of 100,000 tortoises would need between 1,000,000 to 19,800,000 acres of habitat. Because tortoise home ranges do overlap the figure would be somewhat lower. The *Tortoise Recovery Plan* recommends that a minimum of 1,000 square miles (640,000 acres) be managed for tortoise recovery in each recovery unit. There are three recovery units in Nevada.

Because the tortoise feeds only on tender shoots that grow out of grazed plants, shouldn't livestock grazing be beneficial to the tortoise? Feeding observation data shows that tortoises also consume dry forage under certain conditions. Also, a large part of their diet consists of annual forbs. Production of annuals is dependent on precipitation. Annuals sprout in response to precipitation, quickly flower, set seed, and die. Grazing of annuals by livestock does not stimulate additional production of green shoots as it may in perennial plants. While production of new growth on perennial plants may be stimulated by grazing, it is also dependant on precipitation. Most desert plants become semi-dormant during dry periods and do not grow.

What food chain is the desert tortoise on? The desert tortoise is on the same food net as all other living plants and animals in the Mojave Desert. The tortoise eats plants that generate energy by photosynthesis. Other animals such as coyotes, kit foxes, raptors, and ravens eat desert tortoises, in particular the hatchlings and juvenile tortoises.

Page 3-34 of The Draft Plan states that 26 percent of the tortoise death rate is caused by mining, off road vehicles and livestock grazing. What does this mean? Page 3-34 of The Draft Plan states that the crude mortality rate of adult desert tortoise in Piute Valley was estimated to be 26 percent in 1983. In other words, 26 percent of the adult tortoises in the population died. The normal crude mortality rate for adult tortoises is two to four percent. This indicates a cause of excessive mortality, specifically rates of 6.5 to 13 times higher than expected. The Resource Management Plan does not attribute the higher mortality rate to off road vehicle use, mining, or livestock grazing, but notes these activities occur in Piute Valley and could be contributing factors to the excessive mortality.

Desert Tortoise: Habitat Categories

Why weren't all classes of tortoise habitat categories, including Category IIIB, described better in The Draft Plan? How were the categories developed? The definition of the Category IIIB habitat could have been better. Tortoise habitat was categorized in 1988 under *Desert Tortoise Habitat Management on the Public Lands; a Rangewide Plan.* Although this plan was an attempt to prevent listing the desert tortoise as threatened or endangered, the tortoise was listed in 1989. Since then, critical habitat was designated and the *Tortoise Recovery Plan* was developed. The plan identifies Recovery Units and proposes desert wildlife management areas within the Recovery Units. These and the critical habitat designations superseded BLM's habitat categorization. Tortoise habitat categories were not brought forward into The Plan.

Desert Tortoise: Areas of Critical Environmental Concern Boundaries

Why were certain areas of Category III tortoise habitat left out of the Areas of Critical Environmental Concern? These areas are not included in Areas of Critical Environmental Concern for various reasons. The areas may not have been designated as critical habitat or included in the *Tortoise Recovery Plan* as potential recovery areas. Some are legislative disposal areas or traditional off road vehicle use areas. Some are simply poor quality tortoise habitat due to elevation, vegetation, or soils.

Why do the tortoise Areas of Critical Environmental Concern need to be so large? The large number of acres proposed as Areas of Critical Environmental Concern for desert tortoise is to ensure that an adequate amount of habitat is preserved to ensure the continuation of the species for the next five hundred years. Based on population modeling, the *Tortoise Recovery Plan* estimates that 1,000 square miles of habitat are needed in each Recovery Unit for a 50 percent probability that the species will survive for the next 500 years. 640

Why not just manage for desert tortoise on Lake Mead National Recreation Area as this area is already protected? This would eliminate the need for more restrictions on BLM land. In general, tortoise habitat on Lake Mead National Recreation Area supports a lower number of desert tortoises than BLM land. Soils and vegetation on the Recreation Area are generally not as well suited to desert tortoise as are areas on BLM land. Before the tortoise can be downlisted from a threatened species so that it is no longer protected under the Endangered Species Act, certain criteria must be met. These criteria could not be met by managing for desert tortoise only on Recreation Area lands.

Areas identified as critical tortoise habitat and Areas of Critical Environmental Concern are based on inadequate data and may not be sufficient to protect desert tortoise. BLM should collect more data and revise boundaries as needed to ensure the recovery of the desert tortoise. Given this scenario, how were the boundaries of critical habitat and Areas of Critical Environmental Concern developed? The U.S. Fish and Wildlife Service is responsible for the designation of critical habitat, and comments in regard to this designation should be addressed to the U.S. Fish and Wildlife Service, Nevada State Office, Reno, Nevada.

The areas identified as Desert Tortoise Areas of Critical Environmental Concern in The Plan represent the best habitat areas for desert tortoise in Nevada, based on evaluation of the best available data. Areas of Critical Environmental Concern for desert tortoise were selected based on the designation of critical habitat, recommendations in the *Tortoise Recovery Plan*, tortoise population densities, manageability and existing conflicts of each area, the *Clark County Short-term Habitat Conservation Plan*, principals of reserve design, the *Rangewide Plan* for the management of desert tortoise, and consultation with the U.S. Fish and Wildlife Service.

Areas of Critical Environmental Concern include lands designated as critical habitat by the Fish and Wildlife Service and areas identified by the Tortoise Recovery Team as proposed Desert Wildlife Management Areas. If future data indicates that the Areas of Critical Environmental Concern as designated are insufficient in either size, location or management prescription, the Resource Management Plan can be amended to address the problem. Monitoring of tortoise habitat and populations is ongoing.

Why are all the areas identified as tortoise management areas in Clark County's Short-Term Habitat Conservation Plan not included in the Resource Management Plan as Areas of Critical Environmental Concern? Clark County's Short-term Habitat Conservation Plan included potential tortoise management areas. The final decision on where the tortoise management areas (or Areas of Critical Environmental Concern) would be located is determined by the land management agency.

When *Short-term Habitat Conservation Plan* was developed, it was not known what areas would be designated as critical habitat or which areas would be included in the *Tortoise Recovery Plan* as recovery units. Therefore, the *Short-term Habitat Conservation Plan* identified all possible options. Since development of The Draft Plan, critical habitat for desert tortoise was designated and a recovery plan for desert tortoise was developed. The Desert Tortoise Areas of Critical Environmental Concern in The Plan are consistent with recovery areas identified in the *Tortoise Recovery Plan.*

Page 4-133 of The Draft Plan states "Under this alternative, up to 400,000 acres would become tortoise management areas... Livestock grazing would be eliminated in these management areas." Isn't this statement inconsistent with the prescriptions outlined in the preferred alternative, which proposes to dispose of tortoise habitat in the Piute/Eldorado Tortoise Management Area and to keep the area open to livestock grazing? No. The statement on page 4-133 is the cumulative impact analysis for the No Action Alternative. This alternative actually leaves the referenced allotments open to livestock grazing under Prescription 1, the same as the preferred alternative (The Draft Plan: Chapter 2).

However, during development of The Draft Plan, Clark County was actively working to purchase grazing privileges on a willing seller basis. One assumption for analysis under the No Action Alternative was that allotments in Piute Valley would be purchased and managed under voluntary non-use for conservation purposes as required by the Section 10(a)(b) Permit issued to Clark County. This is consistent with the Implementation Agreement for the *Short-term Habitat Conservation Plan* that allows for purchase and non-use of grazing privileges and in fact, the allotments in

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Piute Valley were purchased and put into conservation use between 1992 and 1994.

The preferred alternative in The Draft Plan leaves the Piute/Eldorado Area of Critical Environmental Concern open to grazing. It does not allow for disposal in the Area of Critical Environmental Concern. It does allow for disposal within some of the potential tortoise management areas identified in the *Short-term Habitat Conservation Plan.* However, at the time The Draft Plan was published, there was actually no established tortoise management area in Piute Valley because the required land use controls were not implemented by BLM until December 1992, several months later.

In The Plan, those allotments that overlap with Areas of Critical Environmental Concern are proposed for closure to livestock grazing and excluded from disposal areas because they are within critical tortoise habitat and tortoise recovery areas identified in the *Tortoise Recovery Plan.*

Desert Tortoise: General Questions

All mitigation fees collected through Section 7 consultation should be spent to enhance the tortoise management area established through the Clark County Short-term Habitat Conservation Plan. Off-site mitigation fees collected in Clark County would be used to improve tortoise habitat in the Areas of Critical Environmental Concern and for other recovery actions. However, the expenditure of such funds must be approved by the U.S. Fish and Wildlife Service.

Annual population census of the tortoise must be done in all areas where population studies were used originally to determine the threatened status of the desert tortoise. Nevada Division of Wildlife assumes responsibility for population census monitoring.

Why is there such a wide range in the estimated tortoise population figures in The Draft Plan? How is this tied to carrying capacity of the habitat? How can tortoise population trends be determined when baseline data has such large confidence intervals? It is difficult to estimate population levels with most wildlife species. It is even more difficult with the desert tortoise due to their long life span, late age of sexual maturity, the fact that tortoises spend a large percentage of their life underground and the difficulty of finding hatchling and juvenile tortoises. However, more important than actual numbers is the population trend.

New methods are under study to monitor tortoise population trends. Two new methods, tested in 1994 by Nevada Division of Wildlife and U.S. Geological Survey, Biological Resources Division have potential to yield a more accurate population trend development. Estimating tortoise densities is relative. Wide ranges in estimates reflect the margin of error in calculating population density. Carrying capacity has not been determined for tortoise habitat at this time. Depending on the area, low tortoise numbers may be attributed either to poor quality habitat or to human actions.

The BLM should cooperate with other agencies and municipalities to answer questions, improve habitat, and implement the BLM's multiple use mandate. This agency takes efforts to cooperate with Nevada Division of Wildlife, U.S. Fish and Wildlife Service, National Park Service and Clark County offices to properly manage tortoise habitat. A cooperative effort has been ongoing in Nevada for the past six years through Clark County's habitat conservation planning effort. In addition, BLM has worked closely with other BLM and U.S. Fish and Wildlife Service offices in Nevada, Arizona and Utah to determine the appropriate boundaries and management prescriptions for Desert Tortoise Areas of Critical Environmental Concern in the Northeastern Mojave Recovery Unit.

Protective measures for the desert tortoise are being driven by development in the Las Vegas Valley. However, it seems that it is the ranchers and miners who are paying the price by having their activities restricted. Why doesn't BLM restrict development in the Las Vegas Valley and leave the ranchers and miners alone? Urban expansion was not the sole reason cited by the U.S. Fish and Wildlife Service for listing the desert tortoise as a threatened species. Contributing factors cited for the decline of the desert tortoise include vandalism, collection of tortoises for pets, raven predation, disease, loss of habitat to urban, energy, mineral and agricultural development, vehicle oriented recreation, livestock grazing, and military uses (*Federal Register*, Vol. 55, No. 63, Monday, April 2, 1990). BLM does not restrict growth in the Las Vegas Valley. This is the prerogative of the city and county governments.

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There are restrictions to protect the desert tortoise on other activities besides ranching and mining. For example, off road racing is no longer allowed in several areas that are managed for desert tortoise protection. Additional restrictions were placed on casual off road vehicle use as well. Wild horse and burro numbers would be limited to zero in the desert tortoise Areas of Critical Environmental Concern. Development on private land is also restricted due to tortoise protection. Private property owners whose property supports the desert tortoise cannot develop their land without obtaining a Section 10(a)(b) Permit from the Fish and Wildlife Service. The only way to obtain such a permit is to develop a habitat conservation plan, an expensive and time consuming proposition. Clark County developed *The Desert Conservation Plan* to cover private lands in Clark County. Under this plan, land owners must pay off-site mitigation fees that equal $550 per acre. Projects on public land such as rights-of-way for roads and utilities must comply with similar restrictions, including survey and removal of tortoises from project sites.

In June 1994, the *Tortoise Recovery Plan* was finalized. The plan outlines criteria that must be met before the desert tortoise can be delisted or downgraded from "threatened" to non-listed status. In order to meet these criteria, it is necessary that land management actions be taken to protect desert tortoise and their habitat. Recommended actions include the elimination of livestock grazing and restrictions on off road vehicle use. Therefore, restrictions on livestock grazing and off road vehicle use would be implemented, regardless of development in Las Vegas Valley.

There are two concurrent planning efforts in regard to desert tortoise protection. Clark County is developing one plan and BLM is developing another. Clark County is going along on the tortoise issue only because BLM is forcing them to by limiting growth in the Las Vegas Valley. There should only be one plan developed. Clark County developed the *Short-Term Habitat Conservation Plan* to obtain a Section 10 (a)(b) permit from the U.S. Fish and Wildlife Service. This permit allows for incidental take of desert tortoise on *private land*. The BLM did not require the County to develop the *Short-term Habitat Conservation Plan*. Rather, the development of habitat conservation plans and Section 10(a)(b) permits is the responsibility of the U.S. Fish and Wildlife Service.

Additionally, the BLM is not restricting growth in the Las Vegas Valley by requiring tortoise protective measures on urban development. Tortoise protective measures result from the listing of the desert tortoise as a threatened species by the Fish and Wildlife Service. The Plan was developed to meet BLM's regulatory requirements and to address tortoise management on public land. Therefore, it is necessary to have two separate plans. Coordination between Clark County and BLM on planning efforts is ongoing.

The Long-Term Habitat Conservation Plan should be incorporated as part of the final Resource Management Plan. Most of the proposed actions in the *Clark County Desert Conservation Plan* are independent of land use decisions by BLM. Those actions proposed in the Clark County Desert Conservation Plan that require actions on public land are incorporated into The Plan.

A goal of The Draft Plan was protection and recovery of the desert tortoise in accordance with the Clark County Habitat Conservation Plan, which was being developed at the time. If a guiding management document is still under preparation, how can The Draft Plan set management prescriptions in accordance with such a program? The *Clark County Short-term Habitat Conservation Plan* was implemented on July 1, 1991 before The Draft Plan was released for public comment. It would have been more accurate to state, ... *in coordination with the Clark County Habitat Conservation Plan....* The *Habitat Conservation Plan* was not a guiding plan, but a concurrent planning effort involving coordination with the Resource Management Plan, because several mitigation measures in the *Habitat Conservation Plan* applied to public land.

Why doesn't the Resource Management Plan provide protection for the desert tortoise from wild horses and burros and tortoise predators such as ravens? There are proposals in the Resource Management Plan to protect tortoise habitat from wild horses and burros. For example, all four alternatives of The Draft Plan proposed managing the Gold Butte Herd Management Area for an Appropriate Management Level of zero burros in that part of the herd management area that overlaps with the desert tortoise Area of Critical Environmental Concern.

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The Supplement proposed removing all wild horses and burros from two Herd Management Areas that overlap with desert tortoise Areas of Critical Environmental Concern. The Plan removes all wild horses and burros from Desert Tortoise Areas of Critical Environmental Concern. Implementation of raven control measures, although not specifically noted in The Draft Plan, are not precluded. Annual plans for predator control are developed through a Memorandum of Understanding between BLM and the Animal and Plant Health Inspection Service, U.S. Department of Agriculture. The Plan addresses future predator control efforts.

Tortoise management requires more than guess work. Why does the BLM make management decisions without enough data to make good decisions? Decisions are based upon the best data available at the time. Data has been collected on the desert tortoise for over 18 years. Approximately 2,000 standard tortoise transects have been conducted in southern Nevada since 1979. Currently, ten permanent study plots are used to monitor desert tortoise populations in the Las Vegas and Ely Districts. Numerous such studies are also on-going in California, Arizona, and Utah. The tortoise is listed as a threatened species and the Endangered Species Act requires that Federal agencies use their authority to assist in the recovery of listed species. Until the tortoise is delisted or the Endangered Species Act is changed, BLM must address tortoise management on public land.

How can BLM allow a utility corridor through Rainbow Gardens when it is critical habitat for desert tortoise? Critical habitat is a specific designation by the U.S. Fish and Wildlife Service as defined by the Endangered Species Act. Critical habitat was designated for the desert tortoise population on February 8, 1994 (*Federal Register*, Vol., 59, No. 26). Rainbow Gardens was not designated as critical habitat.

Designations of Areas of Critical Environmental Concern for desert tortoise is all good and well, but don't expect it to solve all the tortoise problems. Also, tortoises outside of Areas of Critical Environmental Concern need to be protected as well. Does BLM propose to do so? Designations of Areas of Critical Environmental Concern are part of the solution. Management prescriptions within the Areas of Critical Environmental Concern implement the goals and objectives of the tortoise recovery plan and would aid in the goal to eventually delist the desert tortoise. Although management efforts would be concentrated in the Areas of Critical Environmental Concern, tortoises outside of these areas would continue to be protected under the Endangered Species Act. This agency would continue to consult with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act on all actions that may affect a threatened or endangered species, both in and out of Areas of Critical Environmental Concern. Impacts to threatened and endangered species and their habitat would be mitigated to the extent possible.

There are more tortoises in the Las Vegas area than in the Moapa area. Why is Moapa being surrounded by critical tortoise habitat? Critical habitat is located north of Moapa on Mormon Mesa due to its potential for long-term management of tortoise populations. Although the Las Vegas Valley once supported a healthy tortoise population, urban development in the valley has fragmented tortoise habitat to the point that it is no longer feasible to manage that area for preservation of a viable tortoise population.

The Resource Management Plan should be delayed until the tortoise recovery plan is completed, and this plan should be incorporated into the final Resource Management Plan. The *Tortoise Recovery Plan*, finalized in June 1994, is incorporated into The Plan.

Why is BLM's objective in the preferred alternative to maintain tortoise populations at current trend levels when current trend levels may not meet the recovery criteria for desert tortoise? This objective was not selected for The Plan. The objectives in The Plan are consistent with the *Tortoise Recovery Plan*.

Desert Tortoise: Areas of Critical Environmental Concern

Utility corridors should not be allowed to cross tortoise Areas of Critical Environmental Concern/Desert Wildlife Management Areas. Based on the location of Hoover Dam and existing utility lines, and demand from urban areas for additional electricity, it is not feasible to restrict all utility corridors from crossing tortoise habitat. Federal actions such as authorizing a power line right-of-way would be subject to Section 7 consultation

under Endangered Species Act.

In the Implementation Agreement for Clark County's Short-Term Habitat Conservation Plan, BLM agreed to prohibit (opportunities for) commercial and organized off road vehicle events in the Piute/Eldorado Area of Critical Environmental Concern/Desert Wildlife Management Area. Why wasn't this objective selected in The Draft Plan? The text in The Plan is consistent with the Implementation Agreement for the *Clark County Desert Conservation Plan*, which superseded the Implementation Agreement for the *Clark County Short-term Habitat Conservation Plan.* The implementation agreement states that "commercial and competitive events shall be prohibited in Piute/Eldorado Area of Critical Environmental Concern unless the BLM and the U.S. Fish and Wildlife Service agree there would be no adverse impacts to the desert tortoise from the event."

During the interim between the *Short-Term Habitat Conservation Plan* and the *Clark County Desert Conservation Plan*, no permits were issued for commercial or competitive off-road vehicle events within the Piute/Eldorado Tortoise Management Area. There was one exception in Potential Tortoise Management Area 12 where the Implementation Agreement for the *Clark County Short-term Habitat Conservation Plan* specifically allows for competitive off road vehicle events.

Currently, the BLM and the U.S. Fish and Wildlife Service are meeting with interested off road vehicle groups from Clark County to determine what types and levels of off-road vehicle activities are appropriate in the desert tortoise Areas of Critical Environmental Concern. This is consistent with the Implementation Agreement for the *Clark County Desert Conservation Plan.*

Given that the tortoise is threatened, how can the BLM not make alternative C the preferred alternative? Alternative C was developed before designation of critical habitat and development of the recovery plan for the desert tortoise. Alternative E was developed after release of the *Tortoise Recovery Plan* and the designation of critical habitat. The Plan combines parts of several alternatives to provide for recovery of the desert tortoise consistent with the *Tortoise Recovery Plan.*

The BLM should evaluate all existing facilities (such as landfills) that encourage tortoise predators and manage these facilities to deter tortoise predators. Existing facilities within Areas of Critical Environmental Concern presumed to attract predators to the determent of desert tortoise would be evaluated, management actions proposed to reduce predator attractions, and the action would be implemented. The studies and implementation of actions would be limited by funding constraints and are not dependant upon land use plan decisions.

If available, desert tortoise population figures for Nevada should be updated and an estimate made for the planning unit. Accurate population estimates for desert tortoises in Nevada and the planning unit are not available.

Why aren't the following management constraints being implemented in Areas of Critical Environmental Concern: prohibit camping, prohibit recreation concession leases, require fencing of highways, prohibit off road vehicle competitive events, prohibit mining, do not designate any experimental management areas, and prohibit livestock grazing? The Plan outlines management constraints in desert tortoise Areas of Critical Environmental Concern. While there are no designated campgrounds in these areas, camping is not prohibited. Dispersed camping use of the Areas of Critical Environmental Concern is not expected to conflict with the recovery of the desert tortoise. Recreation concession leases may be allowed on a case-by-case basis, consistent with the recovery of the desert tortoise. The *Tortoise Recovery Plan* states that surface disturbance that improves opportunities for non-motorized recreation, including the construction of visitors centers, is compatible with tortoise recovery and may be allowed in Areas of Critical Environmental Concern.

The *Tortoise Recovery Plan* also recommends establishment of associated visitors centers, interpretive sites, or amenities such as campgrounds. These would attract tourists and revenue to local communities, generating more local support for the desert tortoise Areas of Critical Environmental Concern. Non-speed, off-road vehicle events may be allowed in desert tortoise Areas of Critical Environmental Concern, after Section 7 consultation and development of appropriate mitigation measures, contingent on the BLM and the U.S. Fish and Wildlife Service agreeing that there would be no adverse impacts to the desert tortoise from th event.

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Although the BLM takes efforts to cooperate with the county and Nevada Division of Transportation on highway fencing projects, BLM does not have primary responsibility. The construction of highway fences and culverts are reviewed within the environmental process to ensure that impacts to wildlife are evaluated and subjected to mitigation, if necessary. While this agency cannot add special stipulations to existing, approved right-of-way grants, appropriate actions can be required for right-of-way amendments or new right-of-way grants. The Plan proposes fencing of highways and major roads within Desert Tortoise Areas of Critical Environmental Concern.

Areas of Critical Environmental Concern are withdrawn from the operation of the mining laws and closed to most salable and solid leasable mineral entry. Fluid mineral development is limited by no surface occupancy stipulations. On valid existing rights, any proposed mining operation will require a Plan of Operation. A Section 7 consultation with the U.S. Fish and Wildlife Service will be completed on any proposed mineral development or exploration. If consultation does not result in a jeopardy opinion the mine could begin operation. Desert tortoise Areas of Critical Environmental Concern are open to material site rights-of-way within 0.50 mile of highways and free use permits within 0.50 mile of highways and some county roads. However, these authorizations are limited to governmental agencies and are not expected to be extensive.

Experimental livestock grazing management zones, as defined in the *Tortoise Recovery Plan* are not designated in The Plan, but BLM may authorize livestock grazing research in what is determined to be the most appropriate location. Livestock grazing is not authorized in Desert Tortoise Areas of Critical Environmental Concern.

Maintaining the Nelson Hills ORV area in the midst of an Area of Critical Environmental Concern is not consistent with reserve design. Why doesn't BLM close Nelson Hills to ORV use? Nelson Hills is not within the Area of Critical Environmental Concern. The Area of Critical Environmental Concern boundary is located adjacent to the south side of Nelson Hills. Off road vehicle use was addressed through the Clark County Habitat Conservation Planning effort and a decision was made to continue to allow competitive off road vehicle events in the Nelson Hills.

Because of the direct and indirect impacts that result from continued disposal of public land and increasing human population density, the least mitigation called for in the plan is the establishment of many large Areas of Critical Environmental Concern. These should include not only critical tortoise habitat, but also other wildlife and cultural resources that require protection. Several large areas are proposed for designation as Areas of Critical Environmental Concern in The Plan. These areas incorporate habitat for many species of wildlife and many cultural sites. Management prescriptions include protection measures for wildlife and cultural resources values.

How can Alternative E of The Supplement propose fewer acres of desert tortoise Area of Critical Environmental Concern than the other alternatives and still purport to emphasize the recovery of the desert tortoise? Alternative E was developed in conjunction with critical habitat for the desert tortoise and development of the *Tortoise Recovery Plan.* There was more information available during development of The Supplement than during development of the other alternatives. The Draft Plan, written before the draft recovery plan was released, provided alternatives to address a variety of scenarios that could develop in the *Tortoise Recovery Plan.*

Exactly where is the Pahrump Tortoise Area of Critical Environmental Concern located? The location of the Pahrump Valley Area of Critical Environmental Concern is shown on Map 2-20 of The Draft Plan. In general, the Area of Critical Environmental Concern is located east of Pahrump, Nevada. However, this Area of Critical Environmental Concern was not carried forward into The Plan.

Why wasn't a summary of the Draft Tortoise Recovery Plan included in The Supplement? A summary of the draft recovery plan was not included in The Supplement to conserve paper. The *Tortoise Recovery Plan* is a public document, available from U.S. Fish and Wildlife Service, Nevada State Office, Reno, Nevada.

What are the tortoise population densities for California Wash, Indian Springs, Pahrump Valley, and Ivanpah Valley Areas of Critical Environmental Concern? If these population densities are not tabulated, how was it determined that these areas are not critical habitat for desert tortoise? Why

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were they not carried forward into the Proposed Resource Management Plan as Areas of Critical Environmental Concern? The U.S. Fish and Wildlife Service is responsible for designation of critical habitat. Questions concerning critical habitat designations should be directed to them.

Information on relative tortoise density in Indian Springs, Pahrump Valley, Ivanpah Valley, and California Wash is available, and several, including Ivanpah Valley and California Wash, were considered in the recovery plan. Available information on relative tortoise densities was considered by the Tortoise Recovery Team during the development of the recovery plan, and is discussed in the *Proposed Desert Wildlife Management Areas for Recovery of the Mojave Population of the Desert Tortoise* (U.S. Fish and Wildlife Service 1993).

Ivanpah, Pahrump, Indian Springs, Lower Mormon Mesa, and California Wash were dropped from consideration as Areas of Critical Environmental Concern because they were not designated as critical habitat by the Fish and Wildlife Service. Pahrump, Indian Springs and California Wash were also not included as recovery areas in the *Tortoise Recovery Plan.* In addition, the potential for long term management of some areas was questionable.

Will the Eldorado Sale area be managed until such time as the State of Nevada exercises its option to purchase? Part of the Eldorado Sale area (east of US 95 and south of the McCullough Substation) was managed as a tortoise management area under the *Clark County Short-Term Habitat Conservation Plan* until the sale was completed on July 9, 1995. At that time, Clark County purchased a conservation easement on 85,000 acres of the property. The conservation easement ensures that this area will continue to be managed for desert tortoise habitat.

Does the tortoise recovery plan specify critical and non-critical habitat? No. The *Tortoise Recovery Plan* does not specify critical versus non-critical habitat. It recommends the designation and management of at least one Desert Wildlife Management Area (BLM term is Area of Critical Environmental Concern) in each recovery unit. The *Tortoise Recovery Plan* identifies six recovery units based on evolutionary significant units. The units are defined as a population or group of populations that represent significant adaptive variations within a species. Nevada contains three recovery units: the Eastern Mojave Recovery Unit, the Northeastern Mojave Recovery Unit, and the Northern Colorado Recovery Unit.

The Plan proposes one Area of Critical Environmental Concern in the Eastern Mojave Recovery Unit in Piute Valley. The remainder of this Recovery Unit is in California. The Proposed Resource Management Plan proposes three Areas of Critical Environmental Concern in the Northeastern Mojave Recovery Unit: Gold Butte, Mormon Mesa, and Coyote Springs. Due to the very limited acreage of public land in the Northern Colorado Recovery Unit in Nevada, no desert tortoise Areas of Critical Environmental Concern are proposed.

What is BLM's responsibility concerning the central portion of Aerojet? Will the Aerojet leased lands be included in the Coyote Springs Area of Critical Environmental Concern? The central portion of the Aerojet lands is under a 99-year lease to Aerojet. The legislation specifies the lands should be managed by the Secretary of the Interior acting through the Director of U.S. Fish and Wildlife Service. The leased lands are not included in the Area of Critical Environmental Concern because they are under lease. The Plan proposes that if these lands return to BLM, they would be incorporated into the Coyote Springs Area of Critical Environmental Concern.

What was the rationale for dropping most BLM Category 2 tortoise habitat from Area of Critical Environmental Concern status? The Area of Critical Environmental Concern boundaries in The Plan were derived from recommendations in the *Tortoise Recovery Plan*, critical habitat, reserve design, quality of tortoise habitat, management conflicts, and informal consultation with U.S. Fish and Wildlife Service.

Why were the following areas dropped from Area of Critical Environmental Concern status in The Supplement?

<u>*Area 1, the Eldorado Sale Area*</u>: Critical habitat in the Eldorado Land Sale area is not included in the Piute/Eldorado Area of Critical Environmental Concern because it was legislatively designated as a disposal area. The City of Boulder City, through the State of Nevada, exercised an option on July 9, 1995 to purchase 107,412 acres in the Eldorado Sale Area.

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Area 2, the Newberry Mountains, T.30 S.-T. 34 S., R. 65 E.: Most of this area is included in the Piute/Eldorado Area of Critical Environmental Concern. The area not included is identical to that excluded from critical tortoise habitat. Its exclusion is based on poor quality tortoise habitat due to slope, soils, and elevation.

Area 3, T. 27 S., R. 62 E., Ireteba Peaks WSA: This area is included in the Piute/Eldorado Area of Critical Environmental Concern.

Area 4, T. 27 S., R. 62 E., Piute Valley: Most of this area is included in the Piute/Eldorado Area of Critical Environmental Concern.

Area 5, T. 25 S., R. 61 E., McCullough Pass: This area was excluded from the Piute/Eldorado Area of Critical Environmental Concern because it is considered low density tortoise habitat due to steep slope, rough topography, and unsuitable soils, and because it is within a designated utility corridor.

Area 6 (T.26S., R.63E.) Keyhole Canyon and Area 7 (T. 25 S., R 64 E.) Eldorado WSA: These areas were excluded in the Piute/Eldorado Area of Critical Environmental Concern based on low density tortoise populations and marginal habitat due to unsuitable soils and steep slopes. They also are proposed for off road vehicle uses. The *Tortoise Recovery Plan* recommends that competitive off road vehicle use be prohibited in Areas of Critical Environmental Concern.

Area 8 (T.13 S., R. 63 E.) Aerojet Lease: This area is leased to Aerojet for 99 years and, therefore, not included in the Area of Critical Environmental Concern.

Area 9 (T. 14 S.-T. 15 S., R. 63 E.-R. 64 E.) Arrow Canyon: This area is included in the Mormon Mesa Area of Critical Environmental Concern.

Area 10 (T. 13 S.-T. 14 S., R. 65 E.-R. 67 E.) Moapa Valley: This area was not included in the Mormon Mesa Area of Critical Environmental Concern based on generally low density tortoise habitat. The Moapa, Overton, and Logandale town boards also requested this area be excluded to allow for future community expansion and casual recreational opportunities surrounding the towns. The critical habitat boundary, shown on Map 2-10 of The Supplement, is the proposed critical habitat boundary. In the final rule on critical habitat (*Federal Register*, Vol. 59, No. 26, February 8, 1994), the boundary was moved farther from Moapa and Glendale. Only about 7,680 acres of critical habitat are excluded from the Area of Critical Environmental Concern.

Mining and new utility rights-of-way should not be allowed in desert tortoise Areas of Critical Environmental Concern. The Desert Tortoise Areas of Critical Environmental Concern are proposed for withdrawal from the general mining law and closed to solid leasable minerals. Fluid mineral leasing is allowed subject to no surface occupancy stipulations. Salable mineral development under material site rights-of-way and free use permits to governmental entities is allowed but only within 0.50 mile of highways and county roads. Mining is allowed on valid, existing claims and impacts to tortoise would be addressed through Section 7 consultation. It is not be feasible to avoid all future utilities and rights-of-ways in these areas. Technical constraints on powerline construction, such as rugged terrain and urban development, limit locations for utility construction. In most cases, there are no feasible alternative routes that avoid tortoise habitat and other sensitive resources.

The Apex lands were designated as Category I tortoise habitat and are identified in the document as being the most valuable tortoise habitat in Southern Nevada. Why aren't these lands included in an Area of Critical Environmental Concern? This is incorrect. The writer of the question appears confused between Aerojet and Apex lands. The Apex lands were categorized as Category III habitat. The Aerojet lands, referred to in The Plan as high quality tortoise habitat, were not categorized because that land is not under public ownership. The Plan proposes that if the Aerojet lands return to BLM, they would be incorporated into the Coyote Springs Area of Critical Environmental Concern.

How can BLM propose protection for only two areas, separated by 150 miles, for desert tortoise recovery? Four Areas of Critical Environmental Concern are proposed in The Plan for desert tortoise (Piute/Eldorado, Mormon Mesa, Coyote Springs, and Gold Butte). The Piute/Eldorado Area of Critical Environmental Concern is within the Eastern Mojave Recovery Unit. The other three areas are in the Northeastern Mojave Recovery Unit. The Areas of Critical Environmental Concern are consistent with the intent of the *Tortoise Recovery Plan* for preservation of genetic

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variability. Population viability analysis demonstrated that Las Vegas Valley no longer supports a viable desert tortoise population due to existing urban impacts. The 150 miles between Piute/Eldorado and northern areas of critical environmental concern includes Lake Mead, several mountain ranges, state and interstate highways, and a metropolitan area of more than one million people, and therefore is not considered an effective corridor for tortoise movement.

Tortoises in the Pahrump Valley, the Nevada Test Site, Desert National Wildlife Refuge, and Nellis Air Force are a distinct genetic strain, and the areas should be determined as Areas of Critical Environmental Concern for protection. Tortoises in the Pahrump Valley are genetically similar to those found in Northern Clark County where there are three proposed Areas of Critical Environmental Concern. The *Tortoise Recovery Plan* addressed genetic variability in tortoise populations when establishing recovery units and potential Areas of Critical Environmental Concern. The BLM does not manage the Desert National Wildlife Refuge, Nevada Test Site, or Nellis Air Force Range and, therefore, cannot address those areas in this plan.

Why isn't BLM coordinating the Resource Management Plan with other agencies, particularly in northern Clark County (for example, with the Desert National Wildlife Refuge)? Although the Desert National Wildlife Refuge is not included in The Plan, interagency coordination is ongoing. Management on the Desert Range is consistent with tortoise recovery objectives and proposed management on the adjacent Coyote Springs Area of Critical Environmental Concern.

How can you ensure protection for the Beaver Dam Slope tortoise population? The Beaver Dam Slope tortoise population occurs in Arizona, Nevada, and Utah. The acreage in Nevada is within the Ely District and is not addressed under this plan. BLM coordinates Area of Critical Environmental Concern boundaries and management prescriptions with other BLM offices in Arizona, Utah, and Nevada. The three States completed informal consultation with the U.S. Fish and Wildlife Service on proposed Areas of Critical Environmental Concern in 1996 (File no. 1-5-96-I-195). The purpose of the informal consultation was to provide the Fish and Wildlife Service with an overall picture of proposed management of desert tortoise habitat in the Northeastern Mojave Recovery Unit. The Fish and Wildlife Service concurred that the proposed Areas of Critical Environmental Concern met the objectives of the *Tortoise Recovery Plan.*

The Interim Desert Tortoise Habitat Distribution Map should be updated with more current information. The map was updated in 1996/1997 and input into Geographic Information Systems. While the map should be reviewed and revised as necessary, that task is not within the scope of this plan.

How can you ensure protection of the Coyote Springs/Arrow Canyon area? Protective measures for the Coyote Springs Area of Critical Environmental Concern are in The Plan. These measures include retiring the allotments from livestock grazing, limiting off-highway-vehicle use to designated routes, prohibiting speed, off-highway-vehicle events, withdrawing the area from locatable mineral entry and closing it to most salable and leasable mineral development.

Why doesn't BLM implement parts of the Tortoise Recovery Plan that will help tortoise and drop those parts that are politically motivated? This agency is obligated to manage for conservation. The Endangered Species Act, Section 2© Policy (1), states, "It is further declared to be the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act." The purposes of the Endangered Species Act are to provide a means for conservation of ecosystems on which endangered and threatened species depend, and to provide a program for the conservation of such species. BLM policy in Manual 6840.06 and 6840.24 requires management for recovery of listed species. Also, when a plan is prepared, and a previously approved recovery plan is involved, the objectives in the BLM plan should be consistent with those in the approved recovery plan.

The Tortoise Recovery Plan states that at least one Desert Wildlife Management Area (BLM term Area of Critical Environmental Concern) must be established as a strategy for recovery and delisting of the desert tortoise. It seems that BLM went far beyond the recommendations in the Tortoise Recovery Plan by proposing 23 Desert Wildlife Management Areas. This is incorrect. The Supplement proposed four Areas of Critical Environmental Concern for desert tortoise;

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Piute/Eldorado, Gold Butte, Mormon Mesa, and Coyote Springs. The *Tortoise Recovery Plan* recommends at least one Desert Wildlife Management Area of 1,000 square miles per recovery unit. The Plan designates one Area of Critical Environmental Concern of 517 square miles in the Eastern Mojave Recovery Unit and 628 square miles in three in the Northeastern Mojave Recovery Unit. Rather than exceeding the *Tortoise Recovery Plan*, The Plan does not meet its minimal requirements. It is only by including tortoise habitat on lands managed by the BLM Ely District, the U.S. Fish and Wildlife Service and National Park Service, that the 1,000 square miles recommended in the *Tortoise Recovery Plan* can be achieved. The remaining Areas of Critical Environmental Concern proposed in the plan are for cultural resources, geologic resources, special status plants or other wildlife habitats such as wet meadows, sand dunes and bighorn sheep habitat.

Desert Tortoise and Livestock Grazing

What impacts does livestock grazing have on desert tortoise since the two species have coexisted for over 100 years? It is true that desert tortoise and livestock grazing have coexisted for more than a century. However, 100 years is only four to five tortoise generations. In a long-lived species with a low reproductive rate, it may take many generations before negative impacts are apparent. Livestock grazing has unquestionably altered the desert landscape. Introduced annuals such as red brome, filaree, Mediterranean grass and Russian thistle, have become naturalized.

It is unknown what native plant species may have become less abundant or extinct due to the introduction of these exotic species and grazing by livestock. Some native perennial grasses and shrubs have been reduced in abundance, others that are generally less palatable have increased. Ongoing nutritional research being conducted by the Smithsonian Institute indicates that perennial grasses such as bush muhly and Indian rice grass may be very important forage sources for desert tortoise. These species are extremely palatable to livestock and have generally decreased in abundance.

It is not known what effects these changes in the plant community have incurred on desert tortoise reproduction and survival rates. Exotic annual grasses have also altered the fire regime in desert tortoise habitat. An increased incidence of wildfire has further altered the vegetative community in some areas.

Why does BLM desire to replace livestock with wildlife? Livestock are being removed from Desert Tortoise Areas of Critical Environmental Concern due to meet the objectives of the *Tortoise Recovery Plan.*

Why doesn't the Resource Management Plan limit use of tortoise habitat by other wildlife such as bighorn sheep and mule deer? It seems that these animals would have as much impact on tortoise habitat as livestock. Habitat overlap between desert bighorn, mule deer, and desert tortoise is low. Generally mule deer use higher elevations than desert tortoise. Bighorn sheep concentrate in mountainous areas with adequate escape cover, whereas desert tortoise and livestock occur at the highest densities in the flats and valleys. In addition, these are native species that evolved in the Mojave Desert ecosystem along with the desert tortoise. Livestock are exotic, domestic species that evolved in the old world and were imported to North America by man. Cattle also consume much higher quantities of forage than either mule deer or bighorn sheep. One animal unit month (cow and calf) is considered to be equivalent to 4 bighorn sheep or 5 mule deer in the amount of forage consumed.

Why is livestock being singled out? Why are other uses not being limited also? The Plan would restrict a variety of uses that adversely affect desert tortoise. For example, in Areas of Critical Environmental Concern speed, off road vehicle events would be prohibited, casual off-highway-vehicle use would be limited to designated roads and trails, wild horses and burros would be removed and most mineral development would be prohibited. Lands within the Areas of Critical Environmental Concern would not be available for disposal through sale or exchange. Collection of off-site mitigation fees of $550 per acre would continue for uses of public lands that are determined to adversely affect the desert tortoise, such as rights-of-way, sales, and mineral development and exploration. Extensive habitat restoration would be required on surface disturbing actions within Areas of Critical Environmental Concern.

Why doesn't BLM refrain from implementing the Resource Management Plan until it reevaluates the

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causes of the tortoise decline? The desert tortoise was listed by U.S. Fish and Wildlife Service as a threatened species. This agency's goal is the eventual delisting of the desert tortoise on BLM land. Waiting for decades for definitive data to show that livestock grazing or other uses are detrimental to the species would not aid in the delisting goal. Proactive management to protect desert tortoise habitat requires immediate implementation. If subsequent data indicates that livestock grazing or other uses are beneficial to desert tortoise, the land use plan could be amended to allow such uses.

Why doesn't the Resource Management Plan discuss the beneficial impacts of grazing on the desert, such as reduction of fire hazard? The primary risk of fire in creosote habitats, which is also tortoise habitat, is due to proliferation of annual grasses such as red brome, particularly in good precipitation years when there are large amounts of annual plant production. It is not possible to stock livestock at a high enough level to appreciably reduce the amount of annual grass in a good precipitation year and still ensure other forage species are not over-utilized. Grazing for the purpose of reducing fire hazard in creosote habitats is not considered a significant benefit.

Desert Tortoise and Areas of Critical Environmental Concern

Why didn't BLM designate all desert tortoise habitat as an area of critical environmental concern? The number of acres of tortoise habitat recommended for Area of Critical Environmental Concern protection is based on the *Tortoise Recovery Plan* and critical habitat designation.

BLM proposes to establish Areas of Critical Environmental Concern for desert tortoise. As a result, many traditional uses in the area such as livestock grazing will be eliminated. Doesn't this violate the multiple use mandate under Federal Land Policy Management Act? Why doesn't BLM manage for tortoise recovery on areas that are already withdrawn from multiple use? No, Federal Land Policy Management Act requires BLM consider the designation of Areas of Critical Environmental Concern, but does not require that all multiple uses occur on all public lands. Areas withdrawn and managed by other agencies such Department of Energy and Department of Defense were designated for specific uses that could preclude management for tortoise recovery. Also, tortoise habitat and populations with the best potential for long-term management are those areas proposed in The Draft Plan, and carried forward into The Plan, as Areas of Critical Environmental Concern, not those areas withdrawn by other agencies.

Are there differences in the tortoise Areas of Critical Environmental Concern between Alternatives A and B of The Draft Plan? They seem to be the same. Although the Areas of Critical Environmental Concern in Alternatives A and B cover the same general areas, there are differences in specific boundaries and acreage (The Draft Plan: Maps 2-21 and 2-26). Alternative B also proposed somewhat different management prescriptions than Alternative A.

Why was Ivanpah Valley proposed as an Area of Critical Environmental Concern in The Draft Plan? Why was it then dropped from consideration? Ivanpah Valley was proposed as an Area of Critical Environmental Concern because it was Category II tortoise habitat and identified as a potential tortoise management area in the *Clark County Short-term Habitat Conservation Plan.* The Ivanpah Valley Area of Critical Environmental Concern was dropped from consideration because it was not designated as critical tortoise habitat. Long-term management of the area to support a viable tortoise population is not justified due to the presence of existing conflicts in the area, such as use of Interstate Highway 15, powerline corridors to California, and existing and future development in Jean and Primm, Nevada.

Is BLM satisfied that enough areas were considered for desert tortoise Area of Critical Environmental Concern in the various alternatives of The Draft Plan? If so, how does BLM explain the fact that Alternative C has fewer acres of Area of Critical Environmental Concern than Alternative B, which is pro-development? Yes. When The Draft Plan was written the provisions of the *Tortoise Recovery Plan* were unknown.

One purpose of the draft was to provide a range of alternatives to address a variety of proposals in the *Tortoise Recovery Plan.* Alternative B had different boundaries than C, thus its acreage was greater, but the general areas designated in both alternatives are the same. Boundaries in Alternative B were

extended to roads or administrative borders in an attempt to facilitate their physical locations. The boundaries were adjusted in The Plan based on review of the *Tortoise Recovery Plan* and consultation with U.S. Fish and Wildlife Service.

Why was some Category I tortoise habitat in Piute Valley excluded from the a desert tortoise Area of Critical Environmental Concern in most alternatives of The Draft Plan? The Desert Tortoise Habitat Category boundary on Map 3-13 of the Draft Resource Management Plan is incorrect. The boundary of Category I habitat is that shown on Map 2-20 of the Draft. Therefore, the excluded area is not actually Category I habitat. The original habitat category map is available at the BLM's Las Vegas Field Office.

Why doesn't the Resource Management Plan preserve a corridor through the west side of Las Vegas Valley to provide for genetic exchange between tortoise populations? The recommendations in the *Tortoise Recovery Plan* were based on population modeling that predicts the response of a population to environmental factors over time. The model indicates that Las Vegas Valley is no longer a viable corridor for tortoise movements due to urban growth. Genetic variability in tortoise populations was also considered in the development of the *Tortoise Recovery Plan.*

Why does the Resource Management Plan not require that new roads only be allowed in Areas of Critical Environmental Concern as a last resort and then require that they be restored completely after use? New roads in Areas of Critical Environmental Concern would be permitted on a case-by-case basis subject to Section 7 consultation under Endangered Species Act and National Environmental Policy Act compliance. Permanent roads would be authorized, if needed, for access to private property.

Developed recreational facilities should not be allowed in Areas of Critical Environmental Concern if they create conflicts with threatened and endangered species. The *Tortoise Recovery Plan* allows the development of recreational facilities in Areas of Environmental Concern. A project that may affect a threatened or endangered species would be subject to Section 7 consultation under Endangered Species Act, and if potential adverse effects could not be mitigated, it would not be authorized.

Other Wildlife Species

If monitoring shows adverse effects from wild horses and burros or livestock grazing on wildlife species other than desert tortoise or bighorn sheep, what action will be taken? If monitoring shows that livestock or wild horses and burros are having unacceptable adverse impacts on other resource values including wildlife identified for a given area, then livestock and/or wild horse and burro numbers would be adjusted appropriately.

The objective to improve mule deer habitat to mid-late seral stage may conflict with objectives for other wildlife species. This objective was dropped from further consideration in The Plan.

Guidelines for Domestic Sheep Management (Instruction Memorandum 92-264) should be included in The Plan. The memorandum discussing the guidelines for domestic sheep management (Instruction Memorandum 92-264) is not included in The Plan, because no allotments are open to domestic sheep grazing.

Livestock waters should not be allowed in bighorn sheep habitat. BLM policy states that efforts should be taken to avoid creating new conflicts between livestock, wildlife and wild horses and burros through water development. Because only eleven allotments would be open to grazing in The Plan, little demand for new livestock waters in bighorn sheep habitat is anticipated. Water developments for livestock and wild horses and burros would be considered on a case-by-case basis, and impacts to bighorn sheep would be mitigated.

The words "domestic sheep" should be deleted from page 3-28 of The Draft Plan. The statement on page 3-28 of The Draft Plan is a summary of the existing environment and management situation. Under the no action alternative, domestic sheep can be licensed in one allotment adjacent to bighorn sheep habitat.

Fish and Wildlife 1, 2, and 3 Wilderness Study Areas should be withdrawn from mineral entry. Under The Plan, bighorn sheep habitat in the Elbow Range (west of U.S. Highway 95) and portions of the Arrow Canyon Range (east of U.S. Highway 95) are located within a tortoise Area of Critical Environmental Concern, and will be withdrawn from mineral entry under the 1872 *Mining Law.*

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Why doesn't BLM leave game management to private organizations such as Ducks Unlimited or the Rocky Mountain Elk Foundation? The BLM has a responsibility, established through policy and regulation, to actively manage habitat for wildlife. Game management has been enhanced through the cooperative efforts of private organizations and individuals, and Federal and state agencies. Approval of The Plan would not affect this cooperative intent.

Why can't I go goose hunting on the Virgin River? Hunting on the Virgin River is regulated by Nevada Division of Wildlife. The Draft Plan did not state that hunting would be prohibited on the Virgin River, nor does The Plan.

Additional acres should be allowed for access for hunting in tortoise Areas of Critical Environmental Concern that overlap with bighorn sheep habitat, including allowing off-highway-vehicle use in washes. There is adequate access on designated roads and trails for bighorn sheep hunting in the Arrow Canyon, Meadow Valley, McCullough Range, and Eldorado Range without opening all washes to travel. Certain washes that are traditional travel routes are designated routes. Most acreage in these mountain ranges are Wilderness Study Areas, designations that further limit off-highway-vehicle activities.

Construction of guzzlers in WSAs should be prohibited. The Interim Management Policy for Lands Under Wilderness Review (July 1995) allows the construction of wildlife water developments in wilderness study areas if they meet the non-impairment criteria. Proposals for wildlife water developments in wilderness study areas will be considered on a site-specific basis.

Will roads to wildlife guzzlers be closed? Road closures will be determined through a public forum. In general, most roads to wildlife guzzlers would remain open. However, in locations where more than one road accesses the same guzzler, one or more roads might be closed.

How will quail habitat be improved? Quail habitat will be improved by limiting the percent of utilized forage to a level that will allow for a static-to-upward trend in the vegetative community. Forage utilization levels on open allotments will be controlled by manipulating livestock numbers or distribution on the allotment. Fences could be erected to create cover plots around springs. All but 11 of the allotments in the planning area are closed to grazing, facilitating improvement of quail habitat in additional areas.

The Resource Management Plan uses the term reasonable numbers. Nevada Division of Wildlife does not subscribe to the concept of reasonable numbers due to the advent of the monitoring process to determine capacity and causal agent in the case of overuse of the vegetative resource. Table 2-4 of The Draft Plan lists potential population estimates for bighorn sheep. These estimates are not the best information available and should be adjusted if numbers are to be used. However, once again Nevada Division of Wildlife questions the need to use numbers. The Plan does not use the term "reasonable numbers" except in the no action alternative, a summary of the current land use plan. Rather, it proposes establishing wildlife populations within the habitat's carrying capacity. Potential population levels are shown for bighorn sheep, but they are not meant to be limiting and would be adjusted based on monitoring data. The objective states "...allow desert bighorn sheep populations to reach levels consistent with the carrying capacity of their habitat..." Potential population estimates identified in Table 2-4 of The Draft Plan would be adjusted based on monitoring data. Table 2-4, Potential Population Estimates, was revised using survey information and approved habitat management plans.

Why wasn't habitat included when addressing mitigation impacts to bighorn sheep from mineral development? Impacts to bighorn sheep and their habitat are addressed in The Plan. Impacts to lambing habitat would be addressed for individual projects, when proposed. Because BLM is required to coordinate with Nevada Division of Wildlife, both direct impacts to bighorn and indirect impacts to their habitat would be considered.

The issue of wildlife reintroduction and augmentation releases was not addressed in The Draft Plan. Wildlife reintroduction and augmentation releases are addressed in The Plan. An objective to return native fauna to historic ranges and introduce bighorn sheep into suitable habitat was carried forward as valid existing management from the no action alternative.

BLM should prohibit the collection of herptofauna except in areas to be cleared for development.

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Nevada Division of Wildlife has the authority to issue permits for the collection of herptofauna. The BLM has the authority to prohibit commercial collection of herptofauna on public land. The Proposed Resource Management Plan closes the Desert Tortoise Areas of Critical Environmental Concern to commercial collection of flora and only allows collection of fauna upon completion of a scientifically credible study that demonstrates commercial collection does not adversely impact affected species or their habitat..

Why is BLM designating a corridor through the River Mountains when it would have negative impacts to bighorn sheep? Corridor A-B, which crosses the edge of the River Mountains, was selected for The Plan. Corridor D, drafted to bisect the River Mountains, is not in the selected alternative.

Where will the funds for development of water sources originate? The cost to develop water sources would be funded by the benefitting program or discipline, such as range, wildlife, wild horse and burro, and riparian management, or a combination. Matching funding from private sources may be available.

Why doesn't the Resource Management Plan include statements that BLM will cooperate with Nevada Division of Wildlife in managing wildlife habitat and increasing hunting opportunities? Coordination with Nevada Division of Wildlife is standard operating procedure. It is the responsibility of Nevada Division of Wildlife to manage wildlife for the people of Nevada. BLM's habitat management efforts are coordinated with Nevada Division of Wildlife under a Master Memorandum of Understanding.

The River Mountain Area of Critical Environmental Concern should be closed to hunting, and bighorn sheep that encroach on City and private property should be removed. Nevada Division of Wildlife has responsibility for setting hunting seasons and hunt management areas, and managing wildlife populations. It is their responsibility to determine when it is necessary to remove bighorn sheep from a population. Encroachment of bighorn sheep on private and city property is an issue to be resolved by Nevada Division of Wildlife, city and county governments, and the private landowner.

Several areas of land disposal proposed in Alternative D appear to interfere with movement of bighorn sheep between mountain ranges. What are the impacts of land disposal on bighorn sheep? The land disposal areas in The Plan were largely minimized from Alternative D. Potential impacts to bighorn sheep habitat and migration routes would be reduced. Residual impacts to bighorn sheep from land disposal are expected to be insignificant. Currently, areas within disposal boundaries are compromised as bighorn movement corridors due to existing development such as interstate highways. Areas available for land disposal have generally been located outside bighorn sheep habitat as most bighorn sheep habitat is too steep to allow for construction. Movement of bighorn sheep between the River Mountains and McCullough Mountains will likely be eliminated over the long term due to development of both public and private land in this area.

The Resource Management Plan should include specific guidance that trails, campsites and other human activities avoid wildlife waters by one mile. The current policy is to avoid wildlife guzzlers and springs by 1/4 mile during off-highway-vehicle events. Nevada law (Nevada Revised Statues 503.660) prohibits camping within 100 yards of water. In most cases, one mile is excessive, particularly in bighorn sheep habitat where there is topographic relief that allows visual screening.

Access should be permitted to all existing and future water developments via existing roads, trails, and washes. It is not always desirable to allow motorized access to wildlife water developments as it increases the probability of vandalism and poaching. Bighorn sheep projects are often intentionally located in areas inaccessible by motorized vehicle. Vehicle access will likely be maintained to all upland game guzzlers.
Areas within two miles of wildlife waters should be right-of-way avoidance areas. Given the location of Hoover Dam, existing utility lines, locations of mountain ranges, and urban areas in need of additional electricity, it is not feasible to avoid all utility corridors in wildlife habitat. Future Federal actions, such as authorizing a power line right-of-way, would be subject to National Environmental Policy Act compliance, and mitigation for impacts to wildlife would then be addressed.

Does the provision to manage quail habitat within one-half miles of water to reach late seral stage

include only natural water sources? This decision was not carried forewarn into The Plan. Since numerous other decision call for managing the vegetative resource to reach potential natural community or desired plant community, this decision appeared to be redundant.

The BLM should consult with the National Park Service before implementing any predator control actions on predators that may also use Park Service land. Animal Damage Control is responsible for predator control, and the issue is addressed under a memorandum of understanding between BLM and Animal and Plant Health Inspection Service, U.S. Department of Agriculture. The Memorandum of Understanding requires that BLM coordinate with other Federal agencies.

The *BLM should identify mesquite areas in Southern Nevada for preservation as habitat for wildlife, particularly birds.* Several mesquite areas are identified as potential non-game habitat for inventory, monitoring and special management emphasis. BLM policy seeks to prevent the future Federal listing of species as threatened or endangered.

The second objective under wildlife should be reworded to emphasize natural diversity of native species. Wildlife habitat objectives were revised to emphasize natural diversity of native species.

Upland game guzzlers should not be authorized if there would be adverse impacts on special status species, native ecosystems, and wildlife species. Impacts of projects, such as upland game guzzlers would be considered in the site-specific environmental assessments. If the project may effect a listed species, Section 7 consultation under Endangered Species Act would be initiated.

Raptor-proofing of power lines creates perches for ravens. Why is BLM requiring a mitigation measure that has negative impacts on desert tortoise? This is incorrect; ravens can perch on power lines and poles even if they are not raptor-proof. The method of raptor-proofing is an attempt to discourage raptors from perching and nesting on power lines. The reader is perhaps confusing this action with raptor protection standards designed to prevent accidental electrocution of raptors, not to facilitate nesting and perching.

Why doesn't the Resource Management Plan address the concept of increased raven populations due to increased perch sites? Page 4-13 of The Supplement addressed increased raven perch sites. Availability of perch sites, as a sole source, would probably not increase raven populations, but could increase tortoise predation by resident ravens. Most proposed corridors have existing power lines that provide roosting, perching and nesting sites for ravens. The addition of a parallel line would increase the number of perch sites but not significantly increase the proportion of tortoise habitat affected by those perch sites. In most areas, perch sites are probably not the limiting factor on raven populations. Raven populations have increased greatly over historic levels from expanding human habitation. Landfills offer edible waste, and highway use creates "road kills," providing excellent food sources.

Other Special Status Species

What protection will the final Resource Management Plan offer Cyprinodon Nevadensis? Cyprinodon Nevadensis mionectes and *Cyprinodon Nevadensis pectoralis* both occur in Ash Meadows National Wildlife Refuge. The area identified as essential habitat in the Ash Meadows Recovery Plan is designated as an Area of Critical Environmental Concern. BLM inholdings in Ash Meadows will be withdrawn for inclusion in the refuge. After this withdrawal is accomplished, the U.S. Fish and Wildlife Service will manage all of the habitat for these two species

Management direction to inventory habitat for key 'non-game' species and to establish sustained management programs should be incorporated into the Resource Management Plan. Management direction regarding inventory for special status species and key non-game species is included in The Plan.

Why do you use the term "sensitive" plant and animals species so often in the document? This term should be left to the U.S. Fish and Wildlife Service. Under a Memorandum of Understanding between the Nevada Division of Wildlife and BLM, "sensitive" species were identified. The Plan refers to special status species, including plants and animals, that are Federally listed as threatened, endangered, or as candidate species by the U.S. Fish and Wildlife Service, those listed by the State of

Nevada, and those jointly identified by BLM and the State, including those referred to above. When other Federal and state agencies with management authority over wildlife and plants identify species of concern, and the habitats supporting those species occur on BLM-managed land, this agency must address those species in its decision-making process.

How many candidate invertebrates, mammals, and birds occur at Ash Meadows and how does the BLM plan to manage them? According to the *Recovery Plan for the Endangered and Threatened Species of Ash Meadows, Nevada*, the area supports 15 invertebrates, one mammal, four plants, and one bird that were classified as candidate species. In addition, seven species of threatened or endangered plants, four species of endangered fish, and one threatened invertebrate also occur in the area. Appendix B of The Draft Plan lists special status species at the time the document was published. An updated list is included in The Plan (Appendix B). BLM land in the Ash Meadows Area of Critical Environmental Concern would be managed as discussed under Areas of Critical Environmental Concern, of The Plan. Lands in the Ash Meadows National Wildlife Refuge would continue to be managed by U.S. Fish and Wildlife Service. Management by BLM and the Fish and Wildlife Service is ongoing under a cooperative agreement. Because many species depend on springs, spring outflows or riparian habitats to survive, protection and restoration of springs and associated riparian habitat is a priority management action in the area.

Mesquite and mistletoe stands along the Virgin River, Muddy River, and Meadow Valley Wash support a diversity of wildlife species, including passerine birds. These areas should be protected from grazing impacts. Most of the allotments supporting significant stands of mesquite would be closed to grazing. The Muddy River allotment would be open to grazing. Mesquite areas would be managed according to the direction in The Plan. The Virgin River would be designated as an Area of Critical Environmental Concern. Efforts to control *Tamarix* would be initiated.

The Virgin and Muddy Rivers provide potential habitat for Arizona southwestern toad, relict leopard frog, and northern leopard frog. These resources are not dealt with or evaluated in the Resource Management Plan. Although not specifically mentioned in the text, *Rana onca, Rana pipiens*, and *Bufo microscaphus* would benefit from the proposed Virgin River Area of Critical Environmental Concern, the closure of the Virgin River Bottom Allotment to livestock grazing and efforts to control *Tamarix*.

The list of sensitive species as identified by BLM/Nevada Division of Wildlife should be included in The Plan. The BLM and the Nevada Department of Conservation and Natural Resources list of sensitive animals is included in Appendix B of The Plan. This list will be reviewed annually and updated as appropriate. The sensitive plant lists are in Tables 3-18 and 3-19.

How will special status plant species be treated in disposal areas? Impacts to sensitive plants would be evaluated for each land disposal action under the environmental analysis process. Special status species surveys would be conducted if the habitat is considered suitable. Retention of lands within the disposal area would be a management option.

The Draft Plan does not adequately address management of or impacts to neotropical birds, bats, and herptofauna. This is addressed in Chapters 2 and 4 (Fish, Wildlife and Special Status Species Management), in The Plan.

Why doesn't the Resource Management Plan propose protective measures for the Amargosa toad, which occurs at Ash Meadows National Wildlife Refuge? The species does not have habitat in the Las Vegas BLM District. The Amargosa toad occurs in the Battle Mountain District near Beatty, Nevada, not in Ash Meadows National Wildlife Refuge.

In Recreation Management of the plan, cave management is discussed. The second objective identifies primary unique resource opportunities in caves. Shouldn't bats be included as a unique resource opportunity? Biological values were added as one of the primary unique resource opportunities for cave management in Chapter 2 in The Plan.

Wildlife and Livestock Grazing

No credible study has been done linking sheep and cattle ranching with negative impacts to desert tortoise. How can the BLM propose to close the desert tortoise Areas of Critical Environmental Concern to livestock grazing? The desert tortoise

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was listed as a threatened species under the Endangered Species Act. Until the tortoise is downlisted and removed from the list, or the Endangered Species Act is amended, BLM must address management of desert tortoise on public lands. The *Tortoise Recovery Plan* recommends livestock grazing be eliminated from Areas of Critical Environmental Concern. BLM policy requires implementation of recovery plan recommendations.

It appears that many of the proposed grazing restrictions are in areas where no tortoises currently live. Shouldn't BLM limit restrictions for desert tortoise protection to areas where tortoise occur? Proposed grazing Prescriptions 1 and 2 apply to areas that desert tortoise inhabit. Some areas covered by grazing Prescription 1 or 2 may include small areas that are not tortoise habitat, such as dry lake beds. These areas are too small and isolated to be reasonably managed differently than the surrounding areas. Those allotments/areas outside of tortoise Areas of Critical Environmental Concern, which are open to grazing, would be managed to allow yearlong grazing consistent with ephemeral grazing regulations.

Shouldn't the plan present a study proposal on impacts on the desert tortoise from livestock? Also, the Resource Management Plan should contain provisions to reopen allotments if a grazing study shows that livestock grazing is compatible with tortoise recovery. Proposals and individual studies are beyond the scope of this plan. However, the plan does not prohibit a livestock grazing study. The Biological Resources Division of U.S. Geological Survey, collected baseline data for a livestock grazing study (Phase 1) in desert tortoise habitat between 1992 and 1994. This data is currently being analyzed. The Management Oversight Group has recommended that Phase 2 of the grazing study not be implemented due to its high cost and the likelihood that such a study would not provide a definitive answer regarding the effects of grazing on desert tortoise. If a decision is made to reopen a closed grazing allotment, an amendment to The Plan would be necessary.

Will grazing Prescriptions 1 and 2 be implemented on all allotments in desert tortoise habitat or just in Category 1 and 2 tortoise habitats? Grazing would not be authorized in Desert Tortoise Areas of Critical Environmental Concern or allotments closed to grazing for other reasons. Grazing in open allotments would be consistent with Prescription 2.

The Resource Management Plan should authorize livestock grazing in Tortoise Areas of Critical Environmental Concern in accordance with the existing non-jeopardy biological opinion. Why is BLM exceeding the requirements of the non-jeopardy opinion? Federal agencies are required to take efforts to further the purposes of the Endangered Species Act, and manage for recovery of listed species. BLM policy also requires management for recovery of listed species in accordance with approved recovery plans. The *Tortoise Recovery Plan* recommends elimination of livestock grazing in Desert Tortoise Areas of Critical Environmental Concern. The Plan would prohibit livestock use in these areas.

The non-jeopardy biological opinion on livestock grazing was issued before the designation of critical habitat. Following the designation, BLM re-initiated Section 7 consultation with the U.S. Fish and Wildlife Service. A new biological opinion was issued on April 20, 1994 (U.S. Fish and Wildlife Service #1-5-94-F-107). Although the new opinion was also non-jeopardy, it covered an interim period of 2.5 years, during which time the planning process was initiated to implement tasks associated with the desert tortoise recovery plan. At the end of the 2.5 years, BLM re-initiated formal consultation to update and extend the biological opinion until the Las Vegas Resource Management Plan was completed. A third, non-jeopardy biological opinion was issued on March 25, 1997 (USFWS#1-5-96-F-296R), extending the time frame until June of 1998. After The Plan's completion, BLM is required to re-initiate consultation on livestock grazing. Based on designation of critical habitat and the *Tortoise Recovery Plan*, continuing to allow livestock grazing in Desert Tortoise Areas of Critical Environmental Concern would likely result in a jeopardy opinion.

Will tortoise population monitoring plots be installed as required by the biological opinion on livestock grazing? Monitoring required by the biological opinion could change based on critical habitat and the completion of the recovery plan for desert tortoise. Due to the high cost and labor intensive process involved in 60-day study plots, a more cost effective and accurate methodology to monitor tortoise population trends is under study by

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Nevada Division of Wildlife and the Biological Resources Division of U.S. Geological Survey.

Will there be provisions in the final Resource Management Plan to allow for effective livestock management and the development of management alternatives, including development of water sources for livestock? In The Plan, livestock grazing would not be authorized in tortoise Areas of Critical Environmental Concern, therefore, there would be no need for associated water developments. In open allotments, the plan allows for effective livestock management.

Is livestock grazing a discretionary activity within bighorn sheep habitat, as referenced on page 2-227 of the Draft Resource Management Plan? It states that permitted actions, other than off-highway-vehicle events, will be allowed in bighorn sheep habitat. Yes, livestock grazing is a discretionary action. However, the management actions on page 2-227 references activities permitted under a special recreation use permit. Constraints on livestock grazing are listed under Livestock Grazing Management. Grazing is not specifically prohibited in bighorn sheep habitat in The Plan. Certain allotments are closed to livestock grazing because of desert tortoise and other reasons. Some of these closed allotments include bighorn sheep habitat. Some of the allotments that are remaining open also include bighorn sheep habitat.

Why does the Resource Management Plan allow for expanding wildlife populations, specifically bighorn sheep, while cutting back on livestock numbers? It seems that BLM is elevating wildlife as more important than livestock. Current utilization data in bighorn sheep habitat that is not grazed by livestock and wild horses and burros consistently shows slight-to-light forage use. Because BLM policy allows for moderate use, there is adequate forage for expansion of bighorn sheep populations in many areas. Should monitoring data indicate that excessive wildlife numbers are resulting in degradation of the habitat or are exceeding proper use factors, Nevada Division of Wildlife would be requested to reduce numbers through trapping and removal or increased hunting tags. In general, lack of water rather than lack of forage is the limiting factor on bighorn sheep populations.

Since a tortoise management area was established under the no action alternative, why doesn't BLM reinitiate Section 7 consultation on livestock grazing and relax restrictions on grazing outside of tortoise management areas? Section 7 consultation under Endangered Species Act would be initiated on proposals in The Plan that would change grazing restrictions outside Areas of Critical Environmental Concern. The tortoise management area established under the No Action Alternative is not sufficient to meet the objectives of the *Tortoise Recovery Plan.*

Why does the text on page 2-6 of The Supplement state that grazing will not be authorized in bighorn sheep habitat? This is incorrect. Page 2-7 states that domestic sheep grazing would not be authorized in bighorn sheep habitat. This would effect only one grazing allotment previously authorized for domestic sheep. The rationale to prohibit domestic sheep allotments in bighorn sheep habitat is based on evidence that shows bighorn sheep are extremely susceptible to disease organisms commonly carried by domestic sheep. However, in The Plan, domestic sheep grazing will not be permitted in any of the open allotments.

Wildlife and Minerals Management

Impact analysis disregards the beneficial impacts to wildlife from mining. Positive impacts to wildlife from mining are the result of mitigation due to the presence of the mine. Such mitigation lessens the negative impact of the mining activity, but does not generally translate into an overall benefit for wildlife. It would be more beneficial to wildlife if the mine were not there.

Mining may create new habitat features that favor certain species, such as bats. Abandoned mines have become an important source of habitat for bats. Throughout North America, human disturbance of caves, cave commercialization, deforestation, and urban and agricultural development have forced many bats from their traditional roosts. Displaced bats have gradually moved into abandoned mines. Of more than 6,000 mines surveyed in Arizona, California, Colorado, and New Mexico, up to 70 percent had evidence of bat use (Tuttle, M.D. and D.A.R. Taylor, *Bats and Mines*, Bat Conservation International, 1994).

As technology for mineral extraction improves, many old mines are being reworked, resulting in the destruction of old shafts, adits, and tunnels. Even during exploratory drilling, mine openings can be

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covered as drill roads are bulldozed, or drills can penetrate and collapse underground workings. Blasting associated with mine construction and operation can disturb roosting bats. Bats may also be disturbed by personnel entering the mine to collect ore samples. A single disturbance to hibernating bats may result in such a loss of fat reserves that the bats cannot survive the remainder of the winter. A proposal to rework an old mine could result in a determination of negative impacts to bats. If the mine provides habitat for maternity colonies, the impacts could be significant.

Impact analysis in The Draft Plan purports impacts to wildlife from mining but does not quantify impacts. What data shows that there are impacts to wildlife from mining? There is data showing mortality to wildlife from mineral operations. Sources of data include Henny *et al.* 1993 "Cyanide and Migratory Birds at Gold Mines in Nevada" *Ecotoxicology*, and BLM Instruction Memorandum NV-93-384, Recent Mining Related Wildlife Mortality Data, August 26, 1993. This latter memo documents mining related mortality in Nevada to waterfowl, shorebirds, passerine birds, upland game species, amphibians, reptiles, large mammals, small mammals, rodents, rabbits, and raptors. These general groups include more than 91 species of birds, 28 mammal species, and six species of reptiles and amphibians.

In southern Nevada, at least two tortoises have been trapped in cyanide pits. Besides mortality due to cyanide or other hazardous materials, animals are crushed by heavy equipment or displaced from their home ranges. For example, more than 80 tortoises were removed from the BLM's community sand and gravel pits. Had these animals not been located and removed from the pit, they would have eventually been crushed by heavy equipment. Many other animals undoubtedly were crushed, including lizards, snakes, rodents, young of ground nesting birds, and rabbits. Removal of minerals through the open pit method destroys habitat, such as food and shelter. Not all wildlife species are mobile enough to move and avoid impacts by machines. For example, a nocturnal rodent such as the kangaroo rat would merely hide in its burrow, and would be very susceptible to being crushed. Animals capable of moving out of the way must relocate onto adjacent habitat that is generally occupied by other animals of the same species. There may be insufficient food and cover for both the resident and displaced animals.

Is there a factual basis for listing stipulations to prevent undue and unnecessary degradation to bighorn sheep habitat from mining? If so, what types of mitigation may be required to mitigate impacts to bighorn sheep? Yes, a large, open pit mine located in bighorn sheep habitat would destroy habitat features, such as forage, escape cover and thermal cover. Bighorn sheep would be denied use of part of their home range for the life of the mine and until reclamation is complete. Even then, reclamation would not result in complete restoration of all habitat features. Mitigation for impacts to bighorn sheep may include revegetation of mined areas, closure of access roads after the life of the mine, limiting access on roads during operations, providing a water source, fencing, and ensuring that open pits or quarries do not become traps for bighorn or other animals. Several bighorn sheep were recently trapped and died in an old quarry in the Bare Mountains. These issues need to be addressed during review of a proposed mining plan.

How much acreage is seasonally closed to mineral exploration from March 1 to September 30 (bighorn sheep and tortoise habitat)? There are no seasonal closures in The Plan.

Negative impacts to wildlife from mining is insignificant using current mitigation measures. Why isn't this reflected in Chapter 4? While it is true that mortality to avian wildlife has been greatly reduced due to proper management of cyanide leach ponds, there is still a potential for impacts to wildlife species from mining. These issues are addressed in review of a proposed mining plan.

Wildlife and Recreation Management

Why doesn't BLM leave existing roads open for casual use? Most existing roads would remain open for casual use. A minimal number would be closed and reclaimed. Approximately 30 percent of the resource area would be limited to designated roads and trails. The remainder would be limited to existing roads, trails, and dry washes.

The Resource Management Plan will result in Moapa Valley being surrounded by desert tortoise areas with no areas left for casual recreational use by local residents. Designation of Areas of Critical Environmental Concern does not result in the prohibition of picnicking, hiking, camping,

horseback riding, and other types of non-motorized casual use in these areas. There will be some limits on motorized use in Desert Tortoise Areas of Critical Environmental Concern. Vehicles will be limited to "designated roads and trails," and off road travel would be prohibited. There would be less restriction on off-highway-vehicle use outside Areas of Critical Environmental Concern. A substantial amount of public land surrounding Moapa is not included in the Area of Critical Environmental Concern.

The Resource Management Plan states "such off-highway-vehicle activities also often occur in areas that are believed to be essential to the existence of the desert tortoise in Nevada." This statement indicates that there is no hard evidence that adverse impacts to tortoise exist. This statement acknowledges that off-highway-vehicle racing occurs in areas that have been demonstrated by available data as essential to the recovery of the desert tortoise. It does not state there are no impacts to desert tortoise from off-highway-vehicle activity. Off-highway vehicle events have been recently authorized in areas identified in the *Tortoise Recovery Plan* as essential for recovery of the species and in areas designated as critical tortoise habitat by U.S. Fish and Wildlife Service.

The plan ignores the fact that mitigation for impacts of racing, as required by the U.S. Fish and Wildlife Service biological opinion, is implemented on each race. Mitigation through Section 7 consultation under Endangered Species Act does not eliminate impacts. Residual impacts to desert tortoise remain even after mitigation activities. For example, several tortoises were killed when run over by race cars on approved race courses.

The document cites impacts to desert tortoise from off-highway-vehicle racing without substantiation of such impacts. Off-highway vehicle racing does result in impacts to tortoise and their habitat. Mortality of tortoises has been documented on areas used for off-highway-vehicle events in Las Vegas BLM District. These impacts are derived from off-road travel by spectators and pit crews, short-coursing by drivers, and course widening on the Nevada 500, Nevada 400, and Gold Coast 250 courses, and due to tortoises run over when wandering on the courses. Impacts were also observed from casual off-highway-vehicle uses on existing roads and trails.

How can the Resource Management Plan close so many areas to off-highway-vehicle racing and not to casual use? Off-highway vehicle racing is highly regulated and has less impact than casual use. The Resource Management Plan should restrict casual use more than organized use. Casual and organized off-highway-vehicle use are both greatly restricted in The Plan. Less than one percent of the planning area would be designated as "open," where, off-highway-vehicle uses could occur anywhere, even off roads and trails. This represents a substantial change from the existing situation where large areas are designated as "open". On 99 percent of the lands covered by the plan, casual use would be restricted to existing and designated roads. Cross country travel would no longer be allowed.

Wildlife and Vegetation Management

Was The Draft Plan revised to accommodate the Special Status Plant Strategy Plan for the Las Vegas BLM District Office? The Plan provides management direction to accommodate the *Special Status Plants Strategy Plan* for the Las Vegas BLM District. Additional Areas of Critical Environmental Concern for special status plant species as a result of inventory and mapping activities could be added through the amendment process.

Wildlife and Wilderness

The Draft Plan discusses impacts to wildlife from non-designation of Wilderness Study Areas as wilderness. It is inappropriate to discuss management of wilderness areas before Congress takes action on wilderness. The discussion is appropriate because it informs the public of the proposed management and possible impacts to wildlife if, as proposed in the BLM's Wilderness Recommendations (1991), some of the Wilderness Study Areas are released from consideration as wilderness. The discussion in Chapter 4 does not make management decisions, but analyzes the impacts from proposed future management in Wilderness Study Areas.

Wildlife and Lands

What are the impacts on wildlife from land disposal? Most lands proposed for disposal in the Resource Management Plan have already been

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compromised as wildlife habitat due to direct (i.e., crushing of animals and burrows by machinery) and indirect impacts from adjacent urban development (such as dumping, casual off-highway vehicle use, and pet dogs and cats). The kinds of species that remain in these areas are generally common and widespread, and viable populations would continue on lands that are retained, consequently impacts are not expected to be significant.

Why is so much desert tortoise habitat included in the land disposal area? Because at least 80 percent of the acreage in this planning area is within desert tortoise habit, most lands identified for disposal are also in tortoise habitat. Those remaining portions not in tortoise habitat are generally in the mountains and do not meet the criteria for disposal. With the exception of the Eldorado Lands and Apex disposal areas (both legislatively mandated), there is little overlap between critical tortoise habitat and disposal areas.

Why doesn't the plan indicate if special status species occur on lands within the disposal area? Special status plant and animal distribution data is not well documented for most species. Known locations of special status plant habitat are shown on Map 3-10, Threatened and Endangered Plants, of The Plan. Impacts to special status species from disposal actions would be addressed for individual Federal actions.

How large would culverts underneath the highway need to be to allow for movement of desert tortoise? The diameter of the culvert should be at least 18 inches, or large enough for an adult tortoise to pass within without getting stuck. Most culverts for flood control would be larger than necessary. An ongoing California study has shown that where a section of highway is fenced, tortoise mortality is significantly lower than on nearby unfenced portions. Tortoises in fenced areas are frequently observed pacing the fence line, and could easily be directed to a culvert. Tortoises burrow and do not fear entering small, dark passages.

BLM should allow U.S. Fish and Wildlife Service to withdraw critical tortoise habitat for a wildlife refuge. This is beyond the scope of the plan.

Designations of desert tortoise Areas of Critical Environmental Concern as right-of-way avoidance areas do not mitigate for direct impacts of utility construction. While these designations do not mitigate for impacts from utility construction, these actions reduce the potential that additional utilities would be installed in Areas of Critical Environmental Concern, particularly where there are viable alternative routes. The construction of fewer lines results in fewer direct impacts. Mitigation for utility construction projects includes both on and off-site mitigation on a site-specific basis. Mitigation for direct impacts often includes monitoring by a biologist during construction to remove animals from direct impact.

Wildlife and General Issues

PL 101-67, the Apex Legislation, specified that an order 3 soil survey be completed. This data should be incorporated into the management decisions of the Resource Management Plan. The soil survey was not completed due to a lack of funding. The soil survey data for those parts of Clark County that have been inventoried is available and will be used when making specific management decisions.

Why aren't standard mitigation measures for raptors and special status plants referenced in the Resource Management Plan? Standard mitigating measures are standard operating procedure and not specifically addressed in the plan.

Shouldn't the Desert National Wildlife Refuge be included in the Resource Management Plan? No. The Desert National Wildlife Refuge is managed by the U.S. Fish and Wildlife Service and is not part of the plan. However, the BLM and the Fish and Wildlife Service coordinate as needed.

Wildlife, Multiple Use and Federal Land Policy Management Act Actions

BLM is mandated to manage for multiple use under Federal Land Policy Management Act and therefore is violating Federal Land Policy Management Act by designating Areas of Critical Environmental Concern for desert tortoise and eliminating other uses such as livestock grazing. Federal Land Policy Management Act mandates multiple use for the land as a whole, not for every square foot. For example, Federal Land Policy Management Act states that public lands be managed in a manner to protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values, and where appropriate,

will preserve and protect certain public lands in their natural condition. Fish and wildlife resources are defined as principal uses under Federal Land Policy Management Act. The act also directs agencies to give priority to the designation and protection of areas of critical environmental concern.

Forestry Management

What would be the benefits from protecting mesquite trees through dwarf mistletoe control? Shouldn't an inventory be conducted of all woodlands recommended for harvest? A mesquite wood cutting area of 800 acres for the Mesquite area was established in The Plan in response to public requests. This represents a reduction in size from The Draft Plan, including an elimination of harvesting from the Crystal area. Harvesting would be allowed in limited quantities to allow preservation of mistletoe. Presently, mesquite trees are cut illegally, and the result is accumulation of branches, a natural fuel potential. Several fires were attributed to this kind of uncontrolled harvest action. The first management direction in the forestry section identifies the that a woodland management plan be completed prior to permitting harvesting.

The Environmental Assessment process would require an inventory, as well as agency and public review (including the Nevada Division of Wildlife). A literature search was completed to determine the feasibility of harvest of mesquite trees that were dying from mistletoe invasion. The study indicated that after the harvest the remaining tree would sprout and continue to provide for stand integrity. The area proposed for harvest possesses a limited number of mesquite trees infested with mistletoe.

Wouldn't removal of dead and downed wood negatively effect soil formation? No. All dead and downed wood would not be removed. The only reference to removal of dead and downed wood is for the 800 acres of Mesquite. This planning area lacks a pinyon/juniper woodland area. Impacts would be fully discussed in the site-specific burn Environmental Assessments.

Isn't the Management Direction regarding firewood harvest in Alternative C inconsistent with preservation and conservation of native ecosystems? No, for the following reasons: 1) Harvest of mesquite would only occur to ensure stand survival; and 2) Enough mistletoe would remain for *Phainopepla*. These actions are consistent with overall preservation of mesquite stands.

Where is the acreage of Pinyon/Juniper and conifer woodlands in the document? Table 3-7 on page 3-19 of The Draft Plan lists the vegetation communities in the Las Vegas BLM District. The estimated acres of Pinyon-juniper and conifer are 138,400. Page 2-49 lists an approximate acreage.

Why didn't you analyze the need of snags for cavity nesting birds? This level of analysis is beyond the scope of this planning effort. Snag management would be considered in site-specific analysis. Also, the Las Vegas BLM District supports very little pinyon/juniper and conifer vegetation communities. Proposed management would retain these lands at all-aged stands.

Livestock Grazing Management

Range Reclassification

Because BLM is unable to manage for sustained yield, resulting in uncontrolled utilization, why is allotment reclassification proposed? As a result of livestock permittees dismissing an appeal to a grazing decision, the BLM agreed to consider reclassification as an alternative in the Resource Management Plan. Range Reclassification was not included in the Proposed Resource Management Plan.

Discuss the basis to determine that 65 pounds per acre of forage was adequate for perennial range designation. Where are the criteria located in the document? The acres per Animal Unit Month is approximately 25 based on 800 pounds of forage per cow-calf pair at 50 percent utilization. If an area is producing 65 pounds per acre of forage and the allotment is 10,000 acres, then 650,000 pounds of forage is produced. Allowing for 50 percent utilization then 325,000 pounds of forage is available for all grazing animals in the area. The available forage would be allocated based on management direction for the area. This 325,000 pounds of forage could support 100 cattle for four months. The needs of wildlife and other grazing animals would also be considered, using studies on forage availability.

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Why wasn't allotment reclassification addressed in the plan? The administrative process of reclassifying rangeland would not represent a significant impact, therefore, the action was not analyzed. Management of reclassified areas would result in intensified analysis, providing additional control over domestic grazing animals. Range Reclassification was not included in the Proposed Resource Management Plan.

Because the Mojave Desert at best can only support ephemeral grazing, why was grazing for this area proposed? Based on analysis of the vegetation data, there is adequate perennial forage to reclassify some allotments in this area. A perennial forage base is present in many areas. Also, the number of allotments proposed for reclassification presented in The Plan are fewer than those proposed in Alternative E of The Supplement. Range Reclassification was not included in The Plan.

National Park Service concurrence is required to reclassify any lands in Lake Mead NRA; are any acres proposed for such an action? No acreage involving National Park Service administered lands is proposed for reclassification. Range Reclassification was not included in the Proposed Resource Management Plan.

Range Management

Overgrazing seems to be the "status quo" on BLM land. Hasn't average grazing utilization for the past 10 years brought the range to poor conditions? Why is grazing allowed in Areas of Critical Environmental Concern or elsewhere until there is sufficient evidence to indicate the desert tortoise would not be in jeopardy and other species not impacted? Based on testimony at a 1994 hearing on livestock grazing in desert tortoise habitat, the range is generally considered in good ecological condition. In contrast, "heavy grazing" is considered to have occurred 50 to 100 years ago. Those areas that appear to be in poor condition are under continued analysis. Eleven allotments were considered to have potential for grazing authorizations under alternative E. Based on range management analysis, 11 allotments are considered viable for grazing. Nine of the 11 were utilized for livestock grazing over the past five years, and five are currently active. All are located outside the proposed desert tortoise Areas of Critical Environmental Concern. Stocking levels are very low, with about 900 cows for 3.6 million acres.

Forage condition and utilization inspections are completed before livestock are released on the rangeland. Allotments that remain open are consistently reviewed under policy, regulations and laws to ensure that grazing occurs at appropriate levels without adversely affecting other species. The BLM in 1989 issued grazing decisions that closed portions of allotments considered poor due to drought and high utilization. Litigation proceedings in this case by the permittees prevented decision enforcement.

Doesn't the plan reduce domestic livestock opportunities more than other users? No. Implementation of use allocations follows BLM policy, and is adjusted up or down as equitably as possible with current regulations.

Why is grazing allowed in the Flat Top Mesa allotment, an area that is overgrazed and in critical desert tortoise habitat? Flat Top Mesa is approximately five miles from the Arizona-Nevada border and was not designated as critical desert tortoise habitat. Only 6-8 horses utilize the vegetation for a 4-6 month period. Based on range management utilization guidelines, this area is not considered "overgrazed."

Who will conduct vegetation monitoring? Vegetation monitoring would be completed by using an interdisciplinary team.

Doesn't Prescription 2 leave only 40 percent of the vegetation for tortoise? Prescription 2 requires that 60 percent of the forage species by dry weight remain during the period that tortoise are active. However, grazing outside desert tortoise Areas of Critical Environmental Concern would be allowed consistent with the recovery plan.

Is grazing allowed in bighorn sheep habitat? The bighorn sheep objective does not recommend elimination of livestock grazing, only limiting competition between the animals in the area designated as Bighorn Habitat.

Because National Park Service has closed to grazing its lands adjacent to White Basin allotment, why has BLM not also closed its portion. Based on range management analysis, White Basin allotment is considered viable for grazing, and would remain open to livestock grazing in The Plan.

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Are portions of the Lower Mormon Mesa and Overton Arm allotment located in Lake Mead National Recreation Area as shown on the draft plan map? Based on rangeline agreements signed in early 1954, the Overton Arm and Lower Mormon Mesa allotment boundaries include National Park Service/Lake Mead National Recreation Area lands. The allotment map in The Plan reflects the 1954 rangeline agreements.

Why shouldn't BLM require permittees to fence BLM and US Forest Service boundary lines? This agency authorizes grazing on BLM lands only. It is not considered reasonable or appropriate to require a permittee to fence a US Forest Service BLM boundary in order to run livestock.

Why didn't Table 3-1 in the draft plan include the Mt. Stirling allotment? Table 3-1 did not include Mt. Stirling because it is already a perennial allotment. That table only represented those allotments proposed for reclassification. This table was dropped, since range reclassification was not included in the Proposed Resource Management Plan.

What kinds of changes would implementation of the plan impose on Amargosa residents as a result of expanded restrictions on the Ash Meadows allotment and closing of other allotments? The Ash Meadows allotment was closed to grazing by Record of Decision, dated October 10, 1986, for the Esmeralda - Southern Nye Planning Area B, Resource Management Plan. Other allotments in the Amargosa Valley would be closed due to lack of use over the past 15 to 20 years. Analysis indicates these areas produce marginal forage for grazing animals.

In order to prevent confusion, why not drop the name of the Lake Mead National Recreation Area allotment. We do not feel the name is confusing or would lead to any confusion. Names of allotment usually are chosen based on landform or area names. Since this area is unalloted and is closed to grazing in The Plan, we see no reason to change the name.

Is it possible to designate lands in the Newberry Mountains allotment as unalloted? Unless the permittee is willing to relinquish the grazing privilege, it is not possible. The Newberry Mountain allotment is within Grazing District #5, designated by the Secretary of the Interior on November 3, 1936. A grazing preference was established that allowed livestock grazing. The Lake Mead National Recreation Area closed part of the allotment to grazing. The Newberry Mountain allotment would be closed to livestock grazing in The Plan.

Would there be opportunities to move livestock to areas closed to grazing under the Preferred Alternative? No, eleven allotments would be available for livestock grazing under The Plan. One allotment, Jean Lake, has potential for a viable livestock operation. Most allotments that have not been grazed for decades due to lack of infrastructure and would be closed to grazing.

While Nye County opposes closure of unalloted areas within the county, why is it BLM's objective to remove livestock grazing from all Nevada? Unalloted areas do not have adequate infrastructures or forage available for viable livestock operations. The BLM does not intend to remove all grazing from Nevada. In fact, 11 allotments are proposed for grazing utilization under The Plan. Areas where livestock grazing is determined appropriate would remain open.

Why does the Resource Management Plan propose essentially the "status quo" for livestock grazing management? Livestock use in Animal Unit Months decreased from about 30,000 in the 1980s to 11,800 in 1992. The total number of livestock that graze public lands in the planning area under current conditions rarely exceeds 1,000 head. The Plan would close all but 11 allotments. This use is not "status quo."

The amount of monitoring that is completed, shown on Table 3-22 of The Draft Plan, is outrageously poor. Additional studies should be set up to show condition, trend and utilization. The data is considered adequate for analysis under policy guidelines. The listing of the desert tortoise as a threatened species, though, has severely affected and altered the process. This agency would follow the guidance provided in the *Nevada Rangeland Monitoring Handbook* and the *Tortoise Recovery Plan* to implement new studies.

Why shouldn't BLM prioritize the active allotments and eliminate or close all inactive allotments? The Plan will identify those allotments open to livestock grazing. After approval of The Plan, intensive

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management will occur on these allotments and managers will prioritize the workload. Most inactive allotments are closed in The Plan; those inactive allotments remaining open have potential for grazing livestock in the future.

We totally oppose the wish list of so-called range improvements. The Plan has fewer range improvements to reflect the reduction in allotments open to grazing.

Why aren't the Glendale, Kyle Canyon, Pittman Well, Stump Springs, Newberry Mountain, Younts Spring, and Table Mountain allotments open to livestock grazing? These allotments are managed under Prescription 1 restrictions identified in the *Grazing Biological Opinion*, which preclude the permitting of spring grazing. Although substitute resources and environments were considered, the *Grazing Biological Opinion* states that utilization on most allotments should be restricted to ensure the desert tortoise is not adversely impacted. The allotments referenced above are proposed for closure in The Plan.

What kinds of benefits occur to rangelands from livestock grazing? Analysis of "proper" livestock grazing activities indicates that the benefits of livestock grazing to the range are not significant.

What are the differences between forage condition and ecological condition? These are two very different indices. Forage condition relates only to the relative abundance of preferred forage species (The Draft Plan: page 3-22). Because there are few preferred forage species in the desert, this results in a poor forage condition index rating. Although there are a number of desired forage species in the desert ecosystem, they cannot be included in the forage condition rating.

A Potential Natural Community is a description of a conceptual biotic community that would emerge if all successional sequences were completed, under present environmental conditions, without interference by humans. Late seral rangelands that are shrub dominant may exhibit a limited quantity of forage species and would not be considered desirable for livestock grazing. Based on the National Resource Conservation Service Ecological Site Criteria, such an area may be considered at or near its potential. Late seral ranges may or may not have preferred forage species. An ecological rating is based on species-specific air dry weights expressed as a percentage of the total current years growth. This is compared to a percent species composition allowed based on the ecological site developed by the National Resource Conservation Service.

Study Proposals

Shouldn't the Resource Management Plan contain a study proposal on impacts on the desert tortoise from livestock. The Resource Management Plan provides a foundation or general outline of opportunities to study tortoise and livestock utilization. The proposals and individual studies are beyond the scope of this planning level.

Wild Horse and Burro Management

Habitat Management Areas: Wild Horse and Burro Expansion

The summary table in The Draft Plan indicates that there would be adverse impacts on wild horses and burros from the expansion of wildlife into Herd Management Areas. What kinds of wildlife would expand into the Herd Management Area's that do not naturally exist in that habitat? The development of artificial water developments for wildlife could result in wildlife populations expanding into areas currently utilized by wild horses and burros. This expansion would perpetuate competition among the animals for forage, water, and space. The introduction of desert bighorn sheep into new areas or the re-introduction of bighorn into unoccupied habitat could also increase the level of interspecific competition. Elk and wild turkeys were introduced into the Spring Mountains. If these animals expand onto BLM land, conflicts with wild horses and burros could result.

Relocation or natural movement of wild horses and burros from one Herd Management Area to another was analyzed, and should have the Nevada Division of Wildlife approval. Grazing impacts of wild horses and burros within Herd Management Areas and their movement within and between Herd Management Areas was analyzed in The Draft Plan, and is carried forward to The Plan. This action

would not require additional National Environmental Policy Act documentation or Nevada Division of Wildlife concurrence.

Habitat Management Areas: Appropriate Management Levels

The Supplement proposes to establish an Appropriate Management Level of zero for four Herd Management Areas. Isn't this in violation of the law? No, according to management policy and regulations, an Appropriate Management Level of zero animals may be established. Herd Management Areas were established with zero Appropriate Management Levels due to evaluated conflicts with a threatened species, a lack of forage needed to sustain a viable herd, and intrusion into private lands.

The Draft Plan states that realignment of the Spring Mountain Herd Management Area into smaller Herd Management Areas will benefit the management of wild horses and burros. Is this appropriate? Will this realignment expand the Herd Management Area? Herd Management Area boundaries would be realigned to reflect a more workable situation in respect to BLM and US Forest Service capabilities. The boundaries reflect the original 1971 locations. The Spring Mountains Herd Management Area was split into the Wheeler Pass, Johnnie, and Red Rock Herd Management Areas. While there is some interaction between the Herd Management Areas, it is minimal. Delineation of Herd Management Areas by each agency is necessary due to different planning schedules and efforts. A Memorandum of Understanding would be developed with the US Forest Service to coordinate management of all the wild horses. The goal would allow the wild horses the ability to move within a Herd Management Area.

Define the management direction that states that numbers of animals in the Herd Management Areas will be adjusted. Wouldn't there need to be an adjustment of burro numbers in Herd Management Areas where animals use both BLM and National Park Service lands? After studies are done to establish Appropriate Management Levels, the numbers of animals would be adjusted either up or down to meet the recommended level, including both BLM and National Park Service lands jointly used by burros.

The word "only" should be deleted from the statement in The Supplement, "Wild horses and burros will be removed from the Red Rock Herd Management Area "only" when grazing exceeds allowable use." The word "only" was deleted for The Plan, however, all agencies are bound by existing court decisions on the implementation of Wild Horse and Burro removals.

The number of wild horses and burros is out of control. Although this statement was true back in 1992, it is not true now. Numerous gathers were completed to reduce numbers significantly to manageable levels. Following the establishment of Appropriate Management Levels, adjustments would be implemented to ensure appropriate long-term levels are maintained.

The Muddy Mountain Herd Management Area will not support an Appropriate Management Level of 50 animals. Herd Management Area evaluation and monitoring studies would establish and verify Appropriate Management Level and the Herd Management Areas viability. The utilization percentages in The Plan are consistent with academic and BLM standards.

Shouldn't the Eldorado Herd Management Area be added to the list of Herd Management Areas to be monitored intensively as reported in Alternative A of The Draft Plan, page 2-58. The Plan proposes Eldorado Herd Management Area as a zero Appropriate Management Level. This would preclude monitoring.

What are the potential benefits to the desert tortoise from decreasing the number of wild horses and burros? Utilization limits were established to ensure resource protection and to benefit the tortoise. Adherence to those limits would apply to the total use of all species of public land users. Establishment of Appropriate Management Levels within Herd Management Areas will reflect threatened and endangered species issues.

It appears that livestock Animal Unit Months are being decreased and wild horse and burro numbers maintained in violation of multiple use principles. For example, wild horses and burros are allowed to consume 10,500 Animal Unit Months that would be available to livestock. Can't you reduce wild horses and burros numbers before livestock numbers are reduced? It seems that livestock are being removed from the entire desert. Wild horses

and burros are protected by the Wild Horse and Burro Act. This agency is required to manage viable herds, and either livestock or wild horses and burros numbers could be reduced based on adoption of activity plan objectives. To state that wild horse and burro numbers should be eliminated, or reduced before livestock, is inappropriate, contrary to multiple use principles, and contrary to the law.

Wild horse and burro numbers can be reduced under an emergency situation even if Appropriate Management Level has not been established. This policy meets the intent of the Wild Horse and Burro Act to achieve a viable natural ecological balance.

There is no direction to remove all livestock or wild horses and burros from the entire desert. Management of lands proposed within a desert tortoise Area of Critical Environmental Concern would prohibit livestock or wild horses and burros grazing. Those lands south of the Gold Butte Critical Habitat Unit in the Gold Butte allotment are not within Gold Butte Part A Area of Critical Environmental Concern, therefore, burro use is allowed. The established Appropriate Management Level of a maximum of 98 animals would be maintained by approved gathers.

Herd Management Areas should be managed conservatively so that forage use isn't excessive during periods of drought. Appropriate Management Levels will be established using existing conservative BLM standards. Appropriate Management Level is defined as the appropriate amount, not a minimum or maximum. Forage utilization would not exceed the level set in the Biological Opinion for livestock grazing.

Why do wild horses and burros have a utilization limit of 55 percent, but livestock is 50 percent? The wild horse and burros and livestock utilization would be adjusted to the limits listed in the biological opinion in desert tortoise habitat.

The Nevada Division of Wildlife opposes the statement that wild horses and burros outside their Herd Management Areas will only be removed after all reasonable efforts have failed to keep them within their Herd Management Area. This statement was changed for The Plan to state that wild horses and burros outside their Herd Management Areas would be removed as soon as logistically possible, but within BLM funding and scheduling constraints.

Desert tortoise Areas of Critical Environmental Concern should be managed for zero Appropriate Management Level. Desert tortoise Areas of Critical Environmental Concern occur in two locations in the planning area. The Eldorado Herd Management Area is proposed in The Plan as a zero Appropriate Management Level. Another Area of Critical Environmental Concern includes a small portion of the Gold Butte Herd Management Area, and The Plan would not allow management actions to be implemented to encourage use in this portion of the Herd Management Area.

What steps would be taken to preserve wild horses habitat in Amargosa Valley even though it is managed for zero animals? A Resource Management Plan provides only broad guidelines. Site-specific actions require activity plans, in this case, a Herd Management Area Plan. The activity plan would describe the steps proposed to enhance or preserve habitat. After a Herd Management Area is designated, it is managed at an Appropriate Management Level. The habitat in the Amargosa Herd Management Area is considered marginal and not sufficient to support a viable herd. Although a Herd Management Area cannot be eliminated, it may be managed for zero animals. Other proposed actions would be reviewed by the Wild Horse and Burro Specialist to ensure that habitat for horses is not completely destroyed.

Herd Management Area Boundary Changes

Are the Herd Management Area boundaries expanded in the plan? The Herd Management Area boundaries were initially established after the Act was passed in 1971. The boundaries were erroneously drafted in subsequent planning documents. The corrected boundaries are shown in The Plan.

Didn't The Draft Plan erroneously change the number of Herd Management Areas by moving the boundaries between agencies? The logical management boundary between BLM and the US Forest Service is the Nye County line. Management of animals along ownership boundaries is not practical or viable. Implementation is addressed in a Memorandum of Understanding.

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Wild Horse and Burro Removal Program

The alternatives in the Resource Management Plan addressed removal of wild horses and burros, but did not discuss their disposition or removal techniques. The standing operating procedure is that animals removed from public lands enter the BLM adoption program to be offered to the public for maintenance. Removal techniques for wild horses and burros are standing operating procedures, subjected to public review during proposals for site-specific projects. Removal techniques include drive trapping and water trapping.

Does BLM have sale authority for wild horses and burros to maintain carrying capacity? This agency has an adoption program where wild horses and burros are sold to the public. This program is part of a plan to actively identify and reduce wild horses and burros herd sizes and meet Appropriate Management Levels to ensure a thriving natural ecological balance in the ecosystem.

Could the number of wild horses and burros be reduced by one third? The numbers of wild horses and burros would be managed at FY 83 levels, with adjustments based on the established Appropriate Management Level and monitoring data. Based on recent gathers the numbers were reduced by more than one third.

Water and Vegetation

Shouldn't monitoring studies be initiated within a quarter mile of all waters? Monitoring procedures and locations of studies would adhere to BLM standards.

How does the wild horse and burro plan address the need to protect riparian and spring areas from overgrazing? While springs can be fenced in Herd Management Areas to protect the riparian vegetation, laws require that water be provided off-site for all wildlife species, including wild horses and burros. Lack of maintenance on a protection facility would not be used as a reason to remove wild horses and burros. Ten springs were fenced in the Gold Butte Area, and others are proposed for similar protection methods, throughout the district.

The Nevada Division of Wildlife opposes leaving Yount and Stump Springs' allotments open to wild horse and burro uses. Yount and Stump Springs' allotments are within a Herd Management Area, but not within critical desert tortoise habitat or Areas of Critical Environmental Concern. Use of these allotments by wild horses and burros is appropriate.

Shouldn't water developments within Herd Management Areas be limited if they would conflict with uses by other herbivores, potentially expand horse use areas, or if wild horses and burros are over Appropriate Management Level? Water can be developed anywhere within a Herd Management Area for the management of "wild horses." Management facilities for wild horses and burros would be planned and developed by BLM, consistent with BLM policy. The Nevada Division of Wildlife would be invited to comment, however, BLM would make final management decisions and advise the Nevada Division of Wildlife of the actions.

We recommend a wording change in the Constraint on Wild Horses and Burros subsection to "but will reduce risks of death/injury to the animals and to humans as well as reducing the likelihood of property damage." The recommended text is in The Plan.

BLM should participate in a coordinated burro management plan with the Lake Mead National Recreation Area. The BLM did coordinate with the National Park Service on a recently completed burro management.

How will key species be determined? How many years does utilization need to be exceeded before animals are removed? Key species are chosen based on the assessed importance in the animals' diets. If utilization for grass species exceeds 50 percent in one year, the objective would not be met, and appropriate actions would be taken to meet the goal. Utilization levels are less for shrubs and forbs.

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General Wild Horse and Burro Questions

Highway underpasses are not needed north of Pahrump. Wild horses and burros are managed within their existing boundaries. Management actions within those boundaries are the responsibility of the BLM. The construction of underpasses is recommended based on a policy to facilitate proper utilization of Herd Management Areas.

Define the term "genetically viable." What is a healthy viable herd? The concept of genetic viability is ambiguous; however, academia defines it as a minimum of 50 adult animal capable of interaction on a long-term basis. Populations may be managed below this level if augmentation of genetically similar animals is implemented. A healthy viable herd is considered to be a minimum of 50 "adult animals" with the capability of making contact within a Herd Management Area. This number of animals is necessary to maintain genetic viability.

Would BLM deny requests to "fence out" burros and horses along a public highway? No, fencing rights-of-way for public safety is appropriate. The agency responsible for fencing highway rights-of-way is the Nevada Department of Transportation, which works in cooperation with BLM. If the protected "Free Roaming" status of wild horses and burros is impaired, underpasses would be needed. A recent project is the 1994 and 1995 SR 160 fence from Pahrump north to SR 95.

Why is there no analysis of the effects of grazing by wild horses and burros and wildlife? Grazing effects are analyzed as total or cumulative impacts, and utilization limits apply to the total use by all species.

Wild horse and burro utilization studies should be conducted every three months on ephemeral ranges as prescribed for livestock. The frequency of monitoring would be determined by management based on evaluation according to BLM standards.

Cultural Resources Management

Identification Efforts for Archaeological and Cultural Values

How are archaeological sites found and evaluated? Section 106 of the National Historic Preservation Act requires agencies take into account the effects projects would have on cultural resources. Prior to approval of a Federal action, such as a right-of-way application, appropriate efforts must be taken to identify and evaluate significant cultural resources. The concept of significance is a cultural and scientific rating developed on a dynamic basis by regional state, Federal and university archaeologists, state museum historians, and interested members of the public such as avocationalist archaeologists belonging to Archaeo-Nevada Society and the Southern Nevada Rock Art Enthusiasts. The evaluation method is applied under the guidance of the State Historic Preservation Office, a state agency created by the National Historic Preservation Act.

What are the provisions for mitigation following a discovery of cultural resources? If notable properties are discovered, prior to or after approval of the Federal action, Section 106 allows attempts to mitigate adverse effects. Such mitigation may include data recovery through excavation, research from primary documents, photography, and mapping. The cultural resources management philosophy emphasizes that, although attempts to mitigate adverse effects are favored over a lack of efforts, it is generally not possible to fully mitigate adverse effects from a loss of cultural and religious values. Discovery of archaeological and cultural resources generally do not halt projects, but rather approval of the action is slowed while efforts are taken to achieve acceptable attempts for mitigation.

Wouldn't protection of significant archaeological sites and cultural resources have cumulative effects on numerous and various proposed lands actions? Based on the kinds of actions and numbers and locations of significant sites, protection of cultural sites does not have a cumulative effect. Discovery of archaeological and cultural resources generally do not halt projects, but rather approval of the action is slowed while efforts are taken to achieve acceptable attempts for mitigation. A review of cultural resources input on land actions in the past decade indicates a minimal number of projects were slowed or restricted based on protection or mitigation needs. The three largest examples are funding by Mr. Lewis for an excavation of

prehistoric food processing features in Meadow Valley Wash for a Desert Land Entry, fencing an historic Civilian Conservation Corps camp by Nevada Power, and construction by Kern River Pipeline of a subsurface tunnel under the Old Spanish Trail/Mormon Road.

What kinds of economic impacts would protection of significant cultural resource and archaeological sites have on the region? While there could be economic effects by restricting activities, such as mining, in certain locations, protection of the relatively small number of known and projected significant sites within the vast lands in the Las Vegas BLM District should not have a substantial monetary impact on users.

Why, if operators require cultural resource inventories prior to initiating mining activities, and mitigation work resolves conflicts, does The Draft Plan state that cultural resources are significantly affected from minerals management? It is rare that operators ensure the performance of archaeological inventories. In fact, mining case records indicate only 10 percent of the actions and 25 percent of the areas impacted were subjected to cultural resource inventories.

For example, Notices of Intent to Mine Five Acres or Less are not Federal actions. The archaeologist reviews each Notice, and based on a sensitivity evaluation, only affords inspection on those where there is a known level of high sensitivity, or about 10 percent of the actions. Also, due to the absence of requirements for reporting casual mining activities, surveys are never conducted.

A 1992 unauthorized sandstone procurement mining operation along the Bird Spring Range impacted a significant rock art site by removing several boulders with petroglyphs. Although Plans of Operations are Federal actions and require inventory, about 60 percent of the operators demand that BLM conduct the inventories. Considering that the Las Vegas BLM District is assigned only one archaeologist for review of all actions, these assignments tax limited resources of the cultural resource program. A small percentage of operators opt to expedite review of their plans by contracting permitted archaeologists to conduct intensive inventory and evaluation activities. Examples are Viceroy Mining, Chemical Lime Company for the Apex area, Nevada Pacific Mining Company for the Nelson area, and Bullfrog Mining for Bare Mountain. Where inventories reveal conflicts with important archaeological and cultural sites, mitigation efforts are undertaken, but in only a small percentage of the cases do the mining operators fund the activities.

The Draft Plan emphasized impacts to cultural resources from grazing activities. Why couldn't mitigation projects neutralize those effects. The cultural resources management philosophy in The Plan emphasizes that, although attempts to mitigate adverse affects are favored over a lack of efforts, it is generally not possible to fully mitigate adverse effects from a loss of cultural and religious values. Discoveries of archaeological and cultural resources generally do not halt projects, but rather approval of the action is slowed while attempts are taken to achieve acceptable attempts at mitigation.

Is there information concerning the previous effects to cultural resources from grazing activities in the past? While there is an absence of scientific studies or information prior to 1968, observations by BLM and academic archaeologists indicate that at least 20 significant prehistoric shelter and camp sites at major springs in this region were impacted by water development projects associated with grazing. Examples of the kinds of projects and impacts to sites are found in the Gold Butte/Cedar Basin area and at Bird Spring. The analysis of impacts in The Plan from most actions is an attempt to provide a realistic assessment of the wide range of effects that occur from approval of Federal actions.

Traditional Lifeway Areas

What is a Traditional Lifeway Area, and what management implications does this imply? The 1980 amendments to the National Historic Preservation Act directed the Secretary of the Interior to preserve and conserve *...intangible elements of our cultural heritage...and encourage the continuation of the diverse traditional prehistoric, historic, ethnic, and folk cultural traditions that underlie and are a living expression of our American heritage...* (NHPA Section 502; 16 U.S.C. 470a note). The principal method to fulfill this direction is to invite cultural groups to provide information concerning sensitivity of cultural values on Federal lands.

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A Traditional Lifeway Area refers to a landscape that featured predominantly in the active physical and spiritual activities of a particular cultural group. A Traditional Cultural Property refers to a more specific location where a community has traditionally conducted exclusive or special activities, or has a unique significance in its spiritual or religious world. A Traditional Cultural Property may be encompassed by a Traditional Lifeway Area. The Traditional Cultural Property and Traditional Lifeway Area concepts were developed by the Advisory Council on Historic Preservation, an agency created by the National Historic Preservation Act, as a method to evaluate intangible cultural properties such as ceremonial areas. Native Americans are historically recognized as the original traditional users of the public lands.

The present designations are based on the identification of certain areas by Native American groups and individuals as important for the operation of their respective religions and lifeways. A Traditional Lifeway Area may include the possession of archaeological features and materials and specific plants and animals. The evaluation of a Traditional Lifeway Area or Traditional Cultural Property also addresses provisions of the American Indian Religious Freedom Act. The designation of an area as sensitive requires identification and evaluation of affects to cultural resources as the result of Federal actions under Section 106 of the National Historic Preservation Act. A Traditional Cultural Property may be determined as eligible for nomination to the *National Register of Historic Places* under 36 CFR Part 60.4(a). Regional Native American tribes and individuals have provided information to this agency concerning sensitive lands. While Native Americans generally consider all their traditional lands as culturally sensitive, they have participated in a process of evaluation that first selects the most sensitive acreage for a Traditional Lifeway Area designation.

Federal actions within a Traditional Lifeway Area or Traditional Cultural Property are reviewed in terms of effects to properties eligible for nomination to the National Register of Historic Places. For example, the location of specific plants that are necessary for the celebration of Native American spiritual values would be evaluated in terms of potential impacts to the flora and then in respect to religious rights protected under the American Indian Religious Freedom Act. Alternatives, such as project redesign, could be presented to avoid resources, or a plan developed to minimize or attempt to mitigate adverse effects.

The Bird Mountain/Quail Springs Traditional Lifeway Area is along an historic railroad right-of-way. Its values were presumably previously impacted. Is the designation consistent with others in the area? The designation was reviewed after publication of The Supplement, and not considered consistent with other Traditional Lifeway Areas. Therefore, the Bird Mountain Traditional Lifeway Area was not carried into The Plan. The area continues to be considered sensitive for cultural resource values, and Native Americans will be invited to provide input for all Federal actions in this locality.

Why isn't Spirit Mountain and the surrounding area proposed for a protective designation in the plan? Based on an analysis of the cultural significance of Spirit Mountain to the Native American tribes of the Lower Colorado River region, this landscape was designated as the Spirit Mountain Traditional Lifeway Area in The Supplement and was carried forward to The Plan.

Wouldn't the intent of the Christmas Tree Pass Special Recreation Area, with management direction that encourages casual uses, be in conflict with the intent to manage the area under the Spirit Mountain Traditional Lifeway Area? Based on an evaluation of the indirect and direct impacts from increased visitation associated with the establishment of camping and picnic facilities, the Special Recreation Management Area designation was considered in conflict with Traditional Lifeway Area management. While the Traditional Lifeway Area designation is a result of evaluation required by the National Historic Preservation Act and the American Indian Religious Freedom Act, designation of a Special Recreation Management Area is management discretion. The Special Recreation Management Area was not carried forward to The Plan.

Customs and Cultures

Are there provisions to protect the customs and cultures for those people who have been conducting a common livelihood for more than one generation, such as ranching or mining, on public lands? Provisions of the National Historic Preservation Act require agencies to evaluate *...traditional prehistoric, historic, ethnic, and folk cultural*

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traditions that underlie and are a living expression of our American heritage... (NHPA Section 502). The concepts of a Traditional Lifeway Area and Traditional Cultural Property provide an outline to evaluate intangible cultural properties such as ceremonial area. Descendants of the pioneers of areas such as Moapa Valley pose arguments they have certain preemptive rights.

In contrast, Native Americans are historically recognized as the original traditional users of the public lands. While they generally consider most public lands as one traditional cultural property, the use of designations of separate Traditional Lifeway Areas to meet provisions of Federal laws, including the American Indian Religious Freedom Act, necessitated a priority scheme that first emphasizes conservation in the most sensitive areas.

Efforts were taken to conserve a diversity of cultural properties that represent the physical locations of economic and cultural practices of a traditional non-Native group. For example, the YKL Ranch in Piute Valley was designated a cultural property eligible for nomination to the National Register of Historic Places due to its cultural uniqueness, physical integrity, and associations with national figures. Efforts will continue, within a priority scheme similar to that used for Native American cultural property designations, to evaluate specific locations that meet criteria for nomination to the National Register of Historic Places under 36 CFR 60.4. Such efforts will also take into account the nature of divergent cultural properties whose boundaries overlap, and evaluate these in a priority concept that recognizes Native Americans as original users of the lands. Additional designations for locations of non-Native American traditional cultural landscapes relies on selecting areas that meet regional importance criteria in a fashion similar to the evaluation of the YKL Ranch.

Protection of Cultural Resources and Area of Critical Environmental Concern Restrictions

Is it necessary to have a one-half mile restrictive corridor along the Old Spanish Trail/Mormon Road? Based on staff evaluations and public comments on The Draft Plan and The Supplement, the restrictions were not considered justified. The restrictions were not carried forward to The Plan. If proposed Federal actions would impact portions of the trail eligible for nomination to the National Register of Historic Places, efforts to mitigate the adverse effects would be completed.

Based on the perception of erosional impacts to Stump Spring, why isn't the designation of an Area of Critical Environmental Concern over the location premature in the absence of a water diversion system? An Area of Critical Environmental Concern designation provides an increased measure of reduction of impacts to cultural resources from certain kinds of discretionary actions, such as mining plans of operations. Consequently, the designation is considered positive in terms of conservation of archaeological values.

The remains of Crescent and Gold Butte townsites are minimal. The designation of an Area of Critical Environmental Concern over such a property precludes the active mining for the mineral values that originally attracted the people who founded those short-lived towns. Why should we preserve and protect such sites under Area of Critical Environmental Concern designations? The remnants of the historic townsites of Gold Butte and Crescent are designated for Area of Critical Environmental Concern protection in The Plan. Some comments questioned the need for conservation. The period from the 1860s to 1910 in southern Nevada is represented in mining history by stories, photographs, buildings, and unobtrusive remains of daily life of the humans. These remains consist of trash including cans and broken glass, dugout features, earthen tent platforms, and functional and entertainment items discarded by the workers. Popular history has a tendency to highlight remnants of the luxury classes.

This nature of dependence has meant that few buildings from this period remain intact in southern Nevada. As a result of a 1960's movement by historians, archaeologists and avocationalist history buffs, the National Historic Preservation Act was passed in 1966. This law provided for a listing of significant archaeological sites in a National Register of Historic Places. The criteria for significance includes scientific importance. Crescent and Gold Butte townsites, associated with mining exploration, do not exhibit *aesthetic* or *popular* historical remains such as buildings. The archaeological sites do possess artifacts and features that through scientific recordation and study could yield information about the lifestyles of the working

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class mine laborers. While these sites were impacted from object collectors, the remaining artifacts could yield information concerning the lifeways of the common workers. From an academic position, these townsites are the best remaining locations for study of early 20th century miners.

Those numerous history buffs who value exploration of subtle marks on the landscape, and who have studied the available information concerning the working miners, requested conservation of a sample of episodic mining occupation sites. Considering there were several towns in southern Nevada that erupted and expired during this period, the need for preservation of only two under Area of Critical Environmental Concern designations do not appear to archaeologists, historians, or history buffs as excessive.

Are you taking sufficient efforts to conserve resources in the Sunrise Mountain/Rainbow Gardens area? Gypsum Cave is a significant cultural resource. This shelter cave site was subjected to excavations in the 1930s, and the descriptive summary published by Southwest Museum. The original values of the cave included the remains of extinct megafauna, evidence of 3,000 years of prehistoric use, and memories of traditional Native American cultural values. The site would be afforded protection within the Rainbow Gardens Area of Critical Environmental Concern.

Archaeological Rock Art Sites

The projected number of prehistoric rock art archaeological sites in the planning area seems excessively high. There are likely fewer in number, and they are highly significant. Is the projected number too high? The site number estimate was based on a review of cultural resource management data, with an emphasis on information provided by professional and avocational archaeologists. There are limitations to using such an estimate; for example, some archaeologists recorded separate panels as sites; others documented all related features within a large area, such as Sloan Petroglyph canyon, as one property. Certain individuals argue there could be decreased preservation emphasis on rock art based on the perception these kinds of sites are numerous and, thus, common. Regardless of the number of rock art locations, all are considered associated with traditional cultural values of Native Americans and eligible for nomination to the National Register of Historic Places under 36 CFR 60.4. This designation affords the properties protection under Federal laws.

Alternative D of The Draft Plan is favored due to the highest potential for the protection of rock art sites. How would the other alternatives treat these significant sites? Alternative D would provide protective advantages from the restriction of certain discretionary actions that could impact archaeological sites. A similar management emphasis was placed on cultural resources conservation in all alternatives, including that brought forward to The Plan.

Why is the discussion of paleontological resources in the cultural resources management section? While there may be perception problems due to distinctions between the programs, such as major differences in professional training, BLM regulations place management of paleontological materials and issues in the cultural resources program.

Lands Management

Disposal Areas

Why are public lands historically used for mining purposes identified for disposal? Who will pay for the mining claims if BLM disposes of the lands? Public land around traditional mining areas is identified for disposal strictly to establish locations for infrastructure purposes if there is eventual growth in those areas. Patented mining claims can be used as the patentee sees fit. There are no restrictions and some private land owners may want to develop their private land. The land in the disposal area could support the resulting population with public facilities such as schools, churches, and fire stations. Although BLM identified disposal areas in The Draft that may be encumbered by mining claims, disposal of the encumbered lands would only occur if the claims are relinquished or vacated, and there is a demonstrated need for disposal.

Why are unusually large amounts of public land identified for disposal, and by what authority? Without some guidelines in the Resource Management Plan, how will staff decide what is a

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good disposal and what is not? What kind of documentation will be prepared for future disposal actions, and will the public have opportunities to comment on these actions? Section 202 of the Federal Land Policy and Management Act directs the Secretary to identify land disposal areas in planning documents. In accordance with the law, the Secretary must consider present and potential uses of the public land. Because The Plan is a 20-year plan, land was designated around existing communities to provide for possible future needs including public facilities. The intent of BLM management is not to sell or transfer land into private ownership, but to provide acreage to meet these future needs if and when growth occurs.

Before disposing of public land one or more of the following criteria must be met under Section 203 of the Federal Land Policy and Management Act: (1) such tract because of its location or other characteristics is difficult and uneconomic to manage as part of the public lands, and is not suitable for management by another Federal department or agency; or (2) such tract was acquired for a specific purpose and the tract is no longer required for that or any other Federal purpose; or (3) disposal of such tract will serve important public objectives.

The disposal areas in The Plan are based on public comments on The Draft, The Supplement and staff coordination. The intent is to eliminate the need by Congress to establish prospective legislative disposal actions, such as the Eldorado Valley, Apex, Mesquite, and Aerojet legislation areas that provided for nondiscretionary transfer of over 150,000 acres of public land in the planning unit. Identification of larger disposal areas would allow the disposal of public lands to become a discretionary action, with public and local government input through a more thorough National Environmental Policy Act process. The Plan addresses the fact that site-specific National Environmental Policy Act documents would be prepared for future disposal actions.

How does the National Environmental Policy Act process work for identification of problems, mitigations and alternatives for rights-of-way, including corridors, disposals, and other lands actions? Are the mitigation measures proposed in the plan the maximum allowed? Prior to any public lands action, BLM must address impacts to all natural resource values (including Threatened and Endangered species) resulting from the action. When applicable, human health and safety concerns must also be addressed prior to authorization of site-specific rights-of-way within designated corridors. Designation of corridors does not satisfy nor preclude the National Environmental Policy Act process.

Consultation and coordination with local, state, and Federal agencies is completed prior to disposal of public lands. These agencies are requested to participate in easement identification for future roads, utilities and flood control facilities for inclusion in the patent. City, county, and state regulations and planning documents determine the kind of development that may occur following disposal, as well as the amount of allocated water in the disposal areas. Prospective buyers are encouraged to look at the properties and review this data prior to bidding, or submitting a sale or exchange proposal for public land. Areas identified for protection of the desert tortoise would not be disposed. Identification of Threatened and Endangered or candidate Threatened and Endangered species could preclude disposal.

Mitigative measures included in The Plan address concerns of most who commented. However, they do not preclude more restrictive measures (i.e., avoidance) identified through the site-specific National Environmental Policy Act documents that include local government and public input.

Can lands outside disposal areas be obtained under the Recreation and Public Purpose Act? Recreation and Public Purpose leases previously identified for sale and currently outside the proposed disposal areas would remain available for sale.

Shouldn't this plan emphasize exchanges? The Plan identifies disposal areas. Generally, public land exchanged for private land would be within these disposal areas. The public land in "checkerboard" areas, where BLM and private parcels are located in a random distribution pattern, is difficult for BLM to monitor and was included in the disposal areas. Unfortunately, some "checkerboard" land is not large enough nor does it meet criteria established by the exchange proponent. Therefore, public land located outside established disposal areas may be considered for exchange on a case-by-case basis provided that it meets the ten criteria identified in Chapter 2 of the proposed plan.

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Is BLM going to retain all lands with tortoise habitat not transferred into private ownership in Eldorado Valley and Apex sale areas? Won't a Section 7 consultation be completed before the Eldorado Valley lands can be transferred? Will BLM retain the lands within the Eldorado Valley Sale Area that are encumbered by the proposed corridors? Approximately 19,000 acres in the Eldorado Transfer Area were not purchased by the Colorado River Commission and are retained in Federal ownership. The Colorado River Commission transferred title of the land to the City of Boulder City. Section 7 consultation under the Endangered Species Act was completed on the land prior to transfer.

Boulder City entered into an Agreement with Clark County and the U.S. Fish and Wildlife Service for a wildlife easement covering 85,000 acres of the 107,000 acres purchased, precluding development of the land. The land in the Apex area is within tortoise habitat, but was not determined critical habitat by the U.S. Fish and Wildlife Service or the *Tortoise Recovery Plan*. A Section 7 consultation under the Endangered Species Act was also completed for the Apex Sale Area.

The Eldorado Valley Act sale was nondiscretionary. The corridor locations identified in The Plan were reserved in provisions of the contract of sale between BLM and the Colorado River Commission, and were included in the subsequent title change to the City of Boulder City.

Why is BLM considering disposal of public lands within Wilderness Study Areas, Areas of Critical Environmental Concern, and the proposed Red Rock Expansion Area? No land is identified for disposal in Areas of Critical Environmental Concern, Red Rock, or Wilderness Study Areas in The Plan.

The U.S. Forest Service is concerned that decisions to dispose of public land contiguous to the National Forest System land has potential to create significant resource management problems on that land. Will the U.S. Forest Service have the opportunity to coordinate disposal areas with the BLM? There are no disposal areas contiguous to U.S. Forest Service land in The Plan. There was considerable reduction in size of disposal areas following comments and evaluation from The Draft. Also, the boundaries of the expanded Conservation Area should function as a buffer to the eastern portion of the forest from urban growth.

The Nevada Division of State Parks has existing Recreation and Public Purpose applications on file with BLM for land north of Valley of Fire State Park. The preferred alternative indicates the area involved in the application is in an area open to mining claim location. Does this alter the status of the existing applications? No, the lands classified for Valley of Fire State Park under the Recreation and Public Purposes Act is segregated from entry under the public land laws and mining laws. The land would remain segregated until a lease is authorized or until the segregation is revoked.

Why have the corridors been reduced in width and wattage restricted? This could hinder future transmission line development and upratings. The concern by power transmission companies with regard to terrain, technology, and construction expense is recognized, and efforts were taken to provide opportunities for existing and future power needs. As a result of public comment to The Draft and subsequent environmental impacts evaluations, the utility corridors were changed considerably. The one-to-three-mile wide corridors were reduced in size within the district. The corridors identified in The Plan are considered the best selection to adequately accommodate future use, prevent the criss-crossing effect of the past, and most efficiently mitigate effects to resources. Where possible, the corridors follow existing transmission rights-of-way. Voltage restrictions were not proposed for any corridors.

It appears there are Bureau of Reclamation lands within the Las Vegas Valley Disposal Area. Will BLM dispose of these lands? The Bureau of Reclamation submitted a map to BLM requesting land in T.21S., R.63E., Sections 26, 27, and 34 be excluded from the Valley disposal area. Prior to disposal of any Bureau of Reclamation-withdrawn acreage, that agency must relinquish its jurisdiction to BLM. Subsequent to the relinquishment, a site-specific environmental analysis would be completed to determine the highest and best uses of the land.

Why not modify and expand the existing Santini-Burton sale area rather than identify an entirely new Las Vegas Valley disposal boundary? A few of the remaining Burton-Santini Act lands are identified for exchange and Recreation and Public Purpose proposals. Most of the remaining lands,

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approximately 5,000 acres, are managed under the Clark County Department of Aviation Cooperative Management Agreement with use restrictions. The Las Vegas Valley disposal boundary in the Clark County Management Framework Plan follows that requested by Clark County. The locations of the disposal area in The Plan is the result of coordination with local, county, state, and Federal agencies.

What is the reason for elimination of future Desert Land Entries? The availability of the necessary amount of water to "prove up" Desert Land Entry authorizations is questionable. Approximately 1,280 acre feet of unappropriated water is generally necessary to successfully irrigate crops in this region (1,600 acre feet if water is below baseline). Other factors that are reviewed prior to making a decision include the condition of soils, suitability of climatic conditions, and economic feasibility to raise salable crops.

Will BLM exclude land containing wetlands or riparian plant communities along the Virgin River from disposal areas? Public Law 99-548, Mesquite, Nevada Lands Transfer Plan, not only allowed sale of selected land in the Mesquite area, but also provided a protective withdrawal of certain riparian land along the Virgin River. Other riparian land along the Virgin River was subsequently acquired by BLM in an exchange. The Virgin River Area of Critical Environmental Concern precludes disposal of remaining riparian land.

Two alternatives in The Draft identified land in T. 32 S., R. 66 E., sec. 29, within the Laughlin disposal area. Is this land included in a disposal area in The Plan? The land remains in a land disposal category in The Plan, but is under a Bureau of Reclamation withdrawal and would require relinquishment to BLM prior to disposal.

Will you clarify what the phrase "withdrawn from all public land laws" means on page S-51 of The Draft? "Withdrawn from all public land laws" means the land is segregated from entry through lease or disposal, but open to mineral entry and rights-of-way.

Would BLM consider adding a disposal area in Stewart Valley, Nevada, and would the adjacent land owners be given a preference right to acquire the lands? Nye County has not indicated additional land is needed for impending growth in Stewart Valley, consequently, The Plan does not include this acreage in a disposal area. A plan amendment could be completed if the need arises for public land to accommodate changing infrastructure or public purpose facilities.

Land Use Authorizations

Doesn't resolution of unauthorized agricultural use or occupancy through a land use authorization encourage future trespass actions? How will BLM provide for rehabilitation of impacts to resources through the proposed leasing system? This planning document does not preclude resolution of unauthorized trespass. It allows use of options that follow appropriate laws and regulations to resolve unauthorized uses. The Plan proposes resolution through the method most beneficial to the general public and the government. For example, charging back rental at fair market value prior to lease or sale could be a benefit to all parties.

Resolution of unauthorized agricultural or other occupancy uses of public lands would be addressed on a case-by-case basis through the National Environmental Policy Act environmental process. Impacts to natural resources, public benefits served, and costs incurred during the unauthorized use, would be evaluated before a decision to authorize use is made. Site-specific stipulations would be included in the lease document. Consideration would include the plan proposal that land within the special management areas would be retained in Federal ownership.

Withdrawals and Airport Leases

Peak Power Corporation has applications for two Federal Energy Regulatory Commission projects in Clark County. Will these be included and analyzed in The Plan? Individual Federal proposals, such as the Sheep Mountain and Eldorado pumped storage hydro-electric projects for the Federal Energy Regulatory Commission, are considered outside the scope of this planning document.

Will the final plan identify areas or locations for public airport leases? Site-specific locations for airport leases are beyond the scope and not identified in The Plan. The plan proposes that actions such as airport leases be evaluated under the

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National Environmental Policy Act environmental review on a case-by-case basis.

Is the public airport facility referenced on page 3-53 the same as the public airport application listed in Appendix I, page I-80? No, the application described in Appendix I, page I-80 is on public land. Page 3-53 referred to airport facilities or landing strips on private lands. This is Appendix D in The Plan.

Rights-of-Way Management

Will the land that the Nevada Army National Guard identified for their needs for training exercises in Southern Nevada be addressed in The Plan? No, the Nevada Army Natiional Guard training needs in southern Nevada are sitespecific and beyond the scope of The Plan. Actions proposed by Nevada Army National Guard would be evaluated under the National Environmental Policy Act environmental process, with public and agency participation.

Access Needs

Has a right-of-way been authorized for the road that crosses the proposed Ash Meadows Area of Critical Environmental Concern from Pahrump to Amargosa Valley? If not, will one be authorized if this area is considered a right-of-way avoidance area? There are no intentions to close the existing paved road running through Ash Meadows Area of Critical Environmental Concern from Pahrump to Amargosa Valley. However, Nye County could claim responsibility for this road under RS2477.

Why is access in the Ivanpah Valley Area of Critical Environmental Concern being limited to designated roads rather than to existing roads and trails? If this takes place, could the private property owners in the area file for a right-of-way so that permanent access is guaranteed? The Ivanpah Valley Area of Critical Environmental Concern was dropped from further consideration. Access will continue to be available on existing roads and trails. Private property owners could request a right-of-way to their property, however, the cost would be at fair market rental and they would be responsible to coordinate construction with the county.

Flood Control Facilities

The Clark County Regional Flood Control District is concerned that the omission of explicit guidance regarding flood control facilities from the plan will preclude the possibility of implementing necessary flood control programs. Will the language for flood control facilities in the No Action Alternative be carried forward in The Plan? The text in the No Action Alternative in The Draft regarding flood control structures and facilities was not carried forward to The Plan. The standard operating procedures for all rights-of-way are included in Appendix of this document and should address your concerns.

After spending millions of dollars on flood control, why do flooding problems still exist? The Clark County Regional Flood Control District (Flood Control District) has put in effect a 20-year flood control plan that, when completed, should resolve most flooding problems. However, addressing flood control is an ongoing process, with yet more expenditures and short-term and long-term benefits. The BLM's role is to issue rights-of-way on public land for flood control facilities to the Flood Control District. It is the responsibility of the local agencies to properly maintain the facilities. Prior to disposal of land, BLM coordinates with local and state agencies, including the Flood Control District, to identify land that should be retained in Federal ownership due to their flood potential.

Communication Site Facilities

What do you consider an existing communication site? Isn't it impractical to limit communications to only existing sites? An existing communication site is an area with existing communications facilities and space available for the location of additional facilities. There are 36 existing communication sites on public lands in the planning area. With the exception of AM transmission sites, a majority are on mountaintops with between 1 and 15 buildings and related facilities. Because the sites lack exact locational boundaries, most mountaintops have room for expansion. The sites would be managed more efficiently for both users and the agency if site management plans were developed. There are no intentions to restrict the growth of communications in southern Nevada, rather, to organize as much as possible. For example, co-location uses are promoted in order to utilize the existing sites to the greatest extent and reduce costs to the secondary user. New technology, especially

in cellular communications, may result in requests for other sites. Proponents have the responsibility to propose locations and uses, and the individual actions would be addressed under the National Environmental Policy Act environmental review.

Utility Corridors

Shouldn't there be a moratorium on all corridor designations within the Las Vegas BLM District, as well as the other 13 western states, until an Environmental Impact Statement determination is made concerning requirements for a modern, secure, safe electrical transmission network? Wouldn't it be more feasible for BLM to identify avoidance areas and exclusion areas instead of corridors? Supplemental Program Guidance For Land Resources in BLM Manual 1623.5 directs BLM to identify corridors for utility transportation, and address the locations, width and specifications for management of the corridors. Identification of avoidance and exclusion areas instead of corridors would not meet this obligation.

The locations of corridors for the Las Vegas BLM District lands identified in The Plan are the results of efforts to minimize acreage, provide for the needs of future users, and respond to concerns of the private and local agency landowners adjacent to or near existing powerlines. The intent of the identification process is to restrict the random distribution and proliferation of transmission lines in an unorganized pattern.

Human health, safety, and environmental concerns must be addressed during the National Environmental Policy Act process before authorization of any site-specific rights-of-way within designated corridors. Avoidance and mitigation measures for sensitive species are part of this process and not within the scope of this level of planning document. The designation of corridors does not satisfy or preclude the National Environmental Policy Act process.

Clark County requests the following text for the final Resource Management Plan, "Utility/transportation rights-of-way may be designated within the Las Vegas Valley on BLM-administered lands on a case-by-case basis with prior County approval." Specific language is not needed in an objective or management direction to ensure Clark County's involvement. The BLM and Clark County entered into a Memorandum of Agreement to ensure complete cooperation and coordination on major projects or other specific types of projects as identified by the County.

Identification of utility corridors only provides specific areas for future powerlines rights-of-way. County, city, and state permits must be obtained by the proponent prior to construction. Coordination among the proponent and Federal and local agencies would continue prior to issuance of a right-of-way for a large transportation facility.

The preferred alternative in The Draft left a 6-mile gap in the corridor between the Aerojet and Apex sale areas. There is an existing right-of-way authorized through that area running north-south along U.S. Highway 93. Would BLM consider designating this area part of the corridor system? This alternative was based on information given to us during the draft stage of the plan. The Plan would designate a continuous corridor along U.S. Highway 93 between the Aerojet and Apex areas.

Won't the large power transmission lines with high voltage in the corridors have damaging effects on human beings and the listed and endangered species, in particular, Rainbow Gardens? The concern about the environmental sensitivity of the area was addressed in the evaluation process after publication of The Draft. The width of the corridor was reduced in The Plan to 1,400 feet for use by existing and known potential users. Efforts would be taken to ensure impacts are kept to a minimum.

The "B-AB" corridor is the only corridor in this area carried forward in The Plan. Mitigation measures for protection of the California bear poppy could include standard mitigation procedures for special status plant habitat, ensuring a qualified botanist conducts pre-construction surveys, and spacing of towers in low density areas.

In The Plan, corridors are reduced from The Draft from 1 to 3 miles to 1,400 to 3,000 feet in width. An effort was made to avoid populated and private land, where possible. Establishing corridors provides control over the random placement of large power transmission lines. When identified in the National Environmental Policy Act process, mitigation measures would be established to lessen the effects of electromagnetic fields to humans. It would be the responsibility of the power transmission companies to use the best technology

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available for specific projects.

In 1995, BLM officials accompanied Nevada Power Company in the field to conduct readings on electromagnetic fields. The readings showed electromagnetic fields emitted from large aerial power transmission lines to be less than that from the power distribution lines buried in front of homes. The aerial lines were 430 feet from existing residences. Any future lines would be placed further away.

Why are the corridors in this plan so wide? Won't this action circumvent National Environmental Policy Act compliance when a utility wants to come through this area? The sizes of utility corridors in The Draft were reduced considerably in The Plan. Most corridors follow existing transmission lines and range from 1,400 to 3,000 feet in width. The new designations are more responsive to the concerns of the general public and local governmental agencies, should cause less degradation to all natural resources, and are more compatible with reasonable construction practices. Corridor criteria, included in The Plan, refers to acceptable engineering and technical practices used in the construction of individual power transmission lines. Not all practices are applicable in all areas. For example, use of helicopters for construction in environmentally sensitive areas may not always be feasible or safe. Mitigation procedures for habitat would be decided on a case-by-case basis during the scoping and the Section 7 consultation process under the Endangered Species Act.

Evaluation of a proposal would be conducted in the National Environmental Policy Act process prior to authorizing any rights-of-way on public land, whether inside or outside the corridors (see Chapter 3, Affected Environment, Rights-of-Way). The proponent must obtain necessary permits from city, county, state, and Federal agencies. Designation of corridors in The Plan does not satisfy or preclude the National Environmental Policy Act process, it only identifies a preferred access route, but does not provide a blanket authorization.

Although utility corridors were identified in the plan, is there a possibility for deviation from these corridors? Utility lines could be placed outside the designated corridors; however, the corridors are the preferred routes. Deviations would be reviewed under the National Environmental Policy Act compliance, including justification on technical reasons. The proposed project would require review by public and governmental agencies.

How can a corridor be designated through an Instant Study Area? Were other alternatives analyzed? The "B-AB" corridor that crosses the Sunrise Mountain Instant Study Area would only be available if Congress drops the Instant Study Area from further wilderness consideration. Efforts were taken to reduce impacts in this corridor. Its width was reduced in The Draft to 1,400 feet in The Plan for use by existing and potential users. The IPP-McCullough powerlines would be the east boundary of the corridor to the Lake Mead cross-over. From that point, the IPP-McCullough power-lines would be the west boundary to ensure maximum use and project future lines away from impending development. Lines crossing the Lava Butte area would be placed east of the existing powerlines.

In The Plan, the designated corridor along the Muddy Mountains Wilderness Study Area was reduced in width and lies outside the Wilderness Study Area. There was substantial opposition to other corridor choices by private land owners, local government, and other Federal agencies.

Corridor "D" in The Draft (in the Henderson, Rainbow Gardens, and Sunrise area) was not designated in The Plan because portions are on Bureau of Reclamation withdrawn lands reserved for the Southern Nevada Water Authority's Treatment and Transportation Facilities.

The City of North Las Vegas is opposed to a corridor running through the northern most portion of the Valley. Will this corridor be designated in the final planning document? Would BLM include language in the final document requiring local government sign-off or approval on right-of-way applications from private or quasi-public utility providers? Alternatives to this route were evaluated, and the corridor in the northern most portion of the Valley was not carried forward to The Plan. Although coordination among BLM and local governments, private utilities, and developers in issuing rights-of-way for roadways, utilities, and sewer facilities to meet community development and expansion is standard, it is not reasonable for this level of discussion to occur for relatively small rights-of-way applications. It is the responsibility of local governments to ensure these projects mee their planning criteria prior to issuing construction permits.

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Won't the utility corridors cause visual impacts that will decrease private and public land values? The presence of corridors could devalue private and public lands to some extent; therefore, efforts were taken to identify corridors along existing power transmission lines and minimize impacts. Because this planning area is in a pathway for major transmission lines, the proposed corridors in The Plan represent attempts to reduce the proliferation of scattered transmission lines by routing future lines through areas already disturbed by similar actions, for example, Sunrise Mountain Instant Study Area and Henderson areas.

There would be only one continuous corridor or route designated through these areas (corridor "B-AB" in The Supplement), at a maximum width of 1,400 feet. No construction would occur in the Sunrise Mountain Instant Study Area unless Congress drops it from further wilderness review. Sunrise Mountain Instant Study Area is a sensitive area, and efforts would be taken to ensure impacts are kept to a minimum.

Why doesn't this plan address underground utilities other than power transmission lines? Is the Kern River pipeline going to be designated a corridor? Has BLM been contacted by the North American Water and Power Alliance regarding a water pipeline right-of-way? The Plan corridor Map Number 2-5 identified designated corridors. During the scoping process the Kern River Pipeline right-of-way was not identified as a preferred route. Individual rights-of-way outside corridors, such as the Kern River Pipeline, are not shown in The Plan. No proposal has been submitted to BLM by the North American Water and Power Alliance for any future water pipeline project.

The original intent for the plan was to provide corridors for all large utility transportation lines; however, public comments indicated major power lines are of greater concern. The corridors were designed to follow existing transmission lines, but it is impossible to cross a large block of land without encountering private parcels. Not all linear transportation projects are compatible with electrical transmission lines, and locations outside the designated corridors may be necessary. Such actions would be addressed by the 43 CFR 2800 regulations, which allow for granting of all rights-of-way including large water transportation pipelines. Issuance of rights-of-way as standard operating procedures are not discussed in the planning document.

Are Southern California Edison's Eldorado-Pisgah 230-kV transmission lines within the area proposed for the South McCullough Range Wilderness Study Area? If the area is designated for wilderness, could BLM do the following: 1) preserve access and rights to operate and maintain the existing facilities, 2) modify the boundaries of the proposed wilderness area to exclude all existing proposed facilities from the wilderness area, and 3) exempt existing facilities and our operations from the effects of wilderness designation, thereby, permitting continued normal operation?

The boundaries of the existing Wilderness Study Area were not increased. Edison's Eldorado-Pisgah proposed 230-kV transmission lines would be addressed as an individual action, not in The Plan. The Interim Management Policy for lands under wilderness review preclude issuance of rights-of-way through Wilderness Study Areas unless they are non-impairing in nature. The location of the right-of-way would be assessed in terms of conflicts of the wilderness law during review under the National Environmental Policy Act.

Shouldn't the plan provide the general range of widths of existing right-of-way corridors for comparison with what is proposed? Identification of the range of widths of all single power transmission line rights-of-way in the area of designated corridors is beyond the scope of this planning document.

Right-of-Way Exclusion Areas

What is the meaning of the statement "All Areas of Critical Environmental Concern are designated as areal right-of-way exclusion areas, including material site rights-of-way?" Also, will BLM exclude peregrine management areas from powerline corridors? Areal rights-of-way are not linear; rather they are site-type rights-of-way, like communication sites and power substations, projects that have potential to cause relatively large surface disturbance in concentrated areas. Material site rights-of-way were specifically addressed in this statement. However, in The Plan the Las Vegas Valley, Valley West, Gold Butte, Coyote Springs, Mormon Mesa and Piute/Eldorado Areas of Critical

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Environmental Concern are open to material site rights-of-way, with some restrictions.

Peregrine falcon management areas are not addressed in The Plan. There is no convincing evidence of peregrine habitat in the planning area, and peregrine falcon management areas were not identified.

Couldn't right-of-way exclusion areas significantly reduce the ability for future mineral resource and industrial expansion, requiring infrastructure? The Draft and The Supplement excluded material site rights-of-way from all Areas of Critical Environmental Concern. There are currently 181 material site rights-of-way issued on BLM lands in the planning area. These sites are activated on an as-need basis, and along with other private and BLM-designated gravel pits, should provide for future infrastructure needs for the next 20 years in both Clark and Nye counties.

Acquisitions Management

Shouldn't BLM try to acquire sensitive private lands through exchange procedures only, to insure against increased Federal ownership? Red Rock Canyon National Conservation Area is within a proposed Area of Critical Environmental Concern, and undeveloped, available private lands would be reviewed for exchange proposals. There are presently two private exchanges that include offered lands within the Red Rock Canyon National Recreation Area. Areas with natural resources that are assessed as realistic for management were identified for acquisition in The Supplement. These include lands within Areas of Critical Environmental Concern, undeveloped acreage in the Aerojet legislative disposal area, and private lands along the Virgin River. Lands under BLM-management in other planning areas was not addressed. The text concerning acquisitions was carried forward in The Plan.

Although lands were identified for acquisition, it is not a goal to purchase private lands only to add to Federal ownership in this state. There is also no limitation to a specific form of acquisition, and budget constraints could preclude purchase of nonFederal lands. Exchange is preferred over sale or purchase. Land acquisition is proposed for Areas of Critical Environmental Concern, but no disposal.

Recreation Management

Casual Uses

Will horse riding, camping and hiking be allowed on public lands where my family and I traditionally ride and camp? Are these opportunities identified in the plan? Yes, The Draft Plan, The Supplement and The Plan does not restrict casual uses such as hiking, horseback riding, picnicking, and camping throughout the planning area, and within all Areas of Critical Environmental Concern. Depending on the management prescription for an area, access may be limited to existing roads, trails, or dry washes, or to designated roads.

I have been target shooting at Sunrise Mountain area for decades, and now I'm not allowed to. Where can I bring my children to teach them to shoot? Target shooting within Las Vegas Valley is prohibited due to urbanization and development. This coincides with the Clark County shooting ordinance. Clark County entities and private groups are conducting feasibility studies and exploring areas for organized shooting facilities outside the Illegal Firearm Discharge Area of Las Vegas valley The only areas now open to shooting are north of Apex and south of Sloan.

Is there a discussion on the Gold Butte Back Country Byway? This byway is discussed in Chapter 3, page 3-56, of The Draft Plan. The objectives and management direction are intended to enhance recreational opportunities along the Byway and surrounding lands, and continue managing all byways for public enjoyment.

Recreation and Areas of Critical Environmental Concern Management

The Sunrise Mountain and Rainbow Gardens area is a dangerous target shooting area and dump site. What is BLM going to do to clean this area? Why would BLM propose additional uses in the Sunrise Mountain area when it's already heavily used? Will the Rainbow Gardens area be limited to existing roads? The Rainbow Gardens area is a site of considerable casual off-road vehicle activities in recent years, including significant amounts of irresponsible use involving shooting and travel off "existing roads." These activities damage the

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botanical and scenic values for which the Area of Critical Environmental Concern designation was proposed. Shooting would be prohibited, consistent with the Clark County shooting ordinance.

The Plan would limit off-road vehicle use to existing roads, trails, and dry washes in the Sunrise/Rainbow gardens area to protect land, vegetation, geological resources, and managed for dispersed casual multiple use. The Sunrise/Rainbow gardens area represents unique urban-wildland recreation management opportunities to interpret the area for its unique geology, and for hiking and riding trails. The Special Recreation Management Area designation would offer more intensive management of the multiple uses of the area presently receiving heavy use. Development of a plan, or Recreation Area Management Plan, would involve the public in identifying hiking, bicycling, equestrian, off-road vehicle trails, picnic areas, parking/staging areas, and shade ramadas. Implementation of the plan would propose routine patrols to help manage and protect natural resources.

What kind of BLM management will occur at Big Dune, and will camping, off-road vehicle or ATV riding be allowed? Big Dune is a highly popular off-road vehicle area for locals and other casual recreationists from the Beatty and the Las Vegas areas. The off-road vehicle management objective for Big Dune Special Recreation Management Area would manage Big Dune for moderate casual off-road vehicle, camping, and other dispersed recreational uses in the dune area. Long-term recreation management within Big Dune would consider the minimum habitat requirements for several special status invertebrate species. Managing Big Dune would occur in a manner that would prevent the future listing of the four candidate wildlife species.

The proposed Big Dune Special Recreation Management Area is 12,800 acres; the Area of Critical Environmental Concern is proposed at 1,920 acres, and limited to the primary dune area only. Big Dune would be designated an Area of Critical Environmental Concern, a designated right-of-way avoidance area, and withdrawn from mineral entry. Approximately 200 acres of the Area of Critical Environmental Concern would be closed to off-road vehicle use in a restricted area on the north side of the dunes. Big Dune would be designated a Special Recreation Management Area to address and resolve conflicts between recreation and sensitive species. A Recreation Area Management Plan would be developed to identify locations for dedicated ingress/egress, staging loci, parking areas, and group camping around the dune; to plan and construct an informational kiosk to educate and inform visitors of crucial beetle habitat; and to reduce environmental impacts to vegetation and wildlife.

Off-Road Vehicle Use Designations

Off-road vehicle designations as described in The Supplement are confusing, and seemingly overbearing. How will I know on the ground where I am allowed to ride my motorcycle or ATV? The off-road vehicle designations were rewritten and consolidated in an attempt to be more clear. The planning area is separated into four off-road vehicle designations, shown on Map 2-10. The boundaries were revised based on public input and evaluations by BLM. "Open" to motorized uses allows unlimited motorized access.

The open category is limited to a portion of Big Dune and Nellis Dunes Special Recreation Management Areas. In Areas of Critical Environmental Concern, roads would be "designated" open or closed, and posted. In the Special Recreation Management Areas and the Extensive Recreation Management Area outside critical tortoise habitat, "limited to existing roads, trails, and dry washes" restricts motorized vehicles to existing roads, trails, two-track routes, and dry sand/gravel washes used for traditional access. Closed areas would be permanently posted, and are limited to Hidden Valley Area of Critical Environmental Concern, and approximately 200 acres within the Big Dune Area of Critical Environmental Concern to protect crucial dune beetle habitat.

Will racing be allowed in areas outside Nellis Dunes? In The Draft Plan, The Supplement, and carried forward to The Plan, the Extensive Recreation Management Area would be managed for a full spectrum of dispersed and organized recreational opportunities. High speed off-road vehicle competitive events would be allowed in the Nellis Dunes Special Recreation Management Area, the Jean Lake\Roach Lake Special Recreation Management Area, and in other areas of the Extensive Recreation Management Area shown on

the Off-Road Vehicle Race Area Map, outside designated critical desert tortoise habitat Areas of Critical Environmental Concern. However, outside of the "open" areas all off-road vehicle racing use would be limited to existing routes.

Restricted Off-Road Vehicle Uses in Areas of Critical Environmental Concern

According to The Draft Plan and The Supplement, will motorcycle riding be restricted in Areas of Critical Environmental Concern? Yes, in Areas of Critical Environmental Concern and in the area between State Highway 160 and U.S. Highway 95, roads not designated and posted "open" would be designated and posted "closed." Most of the rest of the planning area would be limited to existing roads, trails, and dry washes limiting motorized vehicles to existing roads, trails, two-track routes, and dry sand/gravel washes. The vast majority of casual off-road vehicle recreationists limit themselves to these existing routes of travel. It would be illegal to drive off roads in most of the planning area. Non-speed events would be allowed in Areas of Critical Environmental Concern. Events would be limited to existing roads and trails, in Areas of Critical Environmental Concern. Non-speed events would include dual sport self-guided motorcycle scenic tours, commercial tour guides, ex club outings and rides, and other events on a case-by-case basis.

If BLM and U.S. Fish and Wildlife Service designate the Nelson Hills area within the Piute Valley Area of Critical Environmental Concern, will racing be eliminated, and will I be able to ride my motorcycle there anymore? The Management Objective was revised for the Nelson Hills area, and not included within the Piute Valley Area of Critical Environmental Concern. The Nelson Hills area would be available for casual and competitive off-road vehicle use, limited to existing roads, trails, and dry washes.

Wild and Scenic River Designation

If Congress designates and includes the Virgin River into the National Wild and Scenic River System, what will happen to our water rights, and will the water be removed from agricultural uses? If the Interior secretary designates the Virgin River as a study river, BLM and the National Park Service would have suitable time and funding to complete the wild and scenic river study report for suitability for designation as a component of the Wild and Scenic River System. This would provide opportunities for the public and government agencies to review the entire Virgin River at one time. All water rights applications, dams, other projects and agricultural uses and issues would be reviewed at that time.

Cave Management

How was the 3,200 acre estimate of caves/karst resources derived and what does the term "significant" mean? The 3,200 acres figure was an intuitive judgement based on a limited number of reconnaissance inspections of accessible portions of the planning area. The sample was projected for the area using an estimated number of 50 caves/karst resources within 64 acres (one-tenth of a square mile). These were multiplied for an estimated total.

The *Federal Cave Resources Protection Act* of 19(defines cave resources as any material or substance occurring naturally in caves on Federal lands. This includes biological, paleontological, cultural and geologic resources. A "significant" cave refers to a cave feature that was evaluated by the authorized officer and determined to have biotic, cultural, mineralogic, paleontologic, geologic, hydrologic, or other values for scientific, educational, or recreational purposes.

How can BLM recommend areas within 1/4 mile of a significant cave be closed to mineral entry? Are cave inventories planned in the future? The Federal Cave Resources Protection Act of 1988 (16 U.S.C. 4301-4309) provides criteria and procedures for determination of "significant caves." If a cave does not satisfy those criteria, it would remain open to mineral entry under the General Mining Law. A cave that meets the criteria would remain closed to mineral entry pending a decision by the Secretary of Interior as to its "significance." When cave locations are identified, they would be surveyed, inventoried for the presence of wildlife and other features, and managed under a site-specific cave management plan.

Wilderness Management

Will BLM manage Wilderness Study Areas as wilderness if Congress does not designate them Wilderness Areas? No. BLM will not manage Wilderness Study Areas as wilderness if Congress does not designate them as such. Any lands in Wilderness Study Areas released from wilderness consideration by Congress will be managed for multiple use purposes.

Why are the Sunrise Mountain and Virgin Mountain Instant Study Areas included in table 2-2 located on page 2-30 of The Draft Plan? The Sunrise Mountain Instant Study Area and Virgin Mountain Instant Study Area are included in this table because these Instant Study Areas have not yet been released by Congress. BLM recommended these areas as nonsuitable for designation as wilderness; however, by law, only Congress can make the final determination and release the areas from their Instant Study Area status.

The BLM Wilderness Intensive Inventory appears insufficient for the Buffington Pockets (NV-050-0230) roadless unit, with the wrong conclusions drawn. The Overthrust Belt Special Wilderness Inventory for Buffington Pockets was completed in 1980. The conclusions given on the Wilderness Inventory Summary Sheet identified three reasons for not recommending the Buffington Pockets area for Wilderness designation: 1) The solitude criteria was not met. Solitude was less than outstanding because of minimal vegetation screening, a narrow C-shaped configuration and the less complex topographic diversity; 2) Primitive recreational opportunities are available, but neither diversity nor their quality were found to be outstanding; 3) Major impacts such as mining are too extensive to rehabilitate with hand or natural processes. Because NV-050-0230 does not meet the basic criteria, it was not recommended. There are no plans to include the unit for additional wilderness review.

Will the Final Resource Management Plan use the term "subject to" instead of open when referring to mineral exploration in Wilderness Study Areas released by Congress? All Wilderness Study Areas are open to entry under the general mineral laws. Only designated Wilderness Areas, created by Acts of Congress, are closed to mineral entry. However, mining claims within a WA continue, subject to valid existing rights on the date of creation of a Wilderness Area. All public lands are "subject to" to general mining laws. However, some are "open" to entry while others are "closed" to entry based on Secretarial and Congressional mineral withdrawals, and Acts of Congress. BLM Manual 1624.31A.1. requires all areas under study in a Resource Management Plan be identified as either "open" or "closed" to the operation of the mining laws.

Is there a plan to manage lands released as Wilderness Study Areas consistent with multiple-use mandates? Would racing be allowed and would acreage be subject to disposal in released Wilderness Study Areas? Congress was presented BLM's recommendations of those areas for protection for their wilderness values. Protection of other resource values noted in the report would be accomplished through recommendations provided in The Plan. Page 2-44 of The Supplement notes the general management guidelines for released Wilderness Study Area management. Lands released from Wilderness Study Area designations would be managed consistent with multiple-use policy, laws and regulations. It is doubtful that racing would be allowed in the former Wilderness Study Areas since they are by definition roadless and would be managed as limited to existing roads and trails, which do not exist. There is no land disposal acreage in Wilderness Study Areas in The Plan, consequently, release from the designation would not subject any of these lands to disposal.

Will Wilderness Study Areas released by Congress become Areas of Critical Environmental Concern or Special Recreation Management Areas through this plan? None of the Wilderness Study Areas were directly nominated as Areas of Critical Environmental Concern. However, several Wilderness Study Areas not recommended for wilderness designation are included within Areas of Critical Environmental Concern (including Million Hills, Jumbo Peak, Garret Buttes, Virgin Mountains, and portions of Arrow Canyon). Part of the Muddy Mountains Wilderness Study Area is included in the Muddy Mountain Special Recreation Management Area.

Will the BLM protect areas adjacent to Wilderness Study Areas? There is no authority to impose additional protection to areas adjacent to Wilderness Study Areas. The revision of Wilderness Study Area boundaries would be more appropriately addressed when a wilderness bill is considered in Congress.

Would all Wilderness Study Areas be managed as recreational areas? Other than the Muddy

Mountains area mentioned above, no special emphasis on recreation would occur. Released areas would be managed under policy and regulations that apply to other BLM-administered lands.

Is the Lucky Gypsum Claim area in a proposed Wilderness Study Area? The Lucky Gypsum Claims are in the vicinity of the Sunrise Mountain Instant Study Area, an area recommended by BLM as not a suitable Wilderness Study Area.

Will the Logandale 202 area be recommended for Wilderness? The Logandale Section 202 area would be dropped from further wilderness review because the area does not meet the required standards.

It appears that BLM is designating Wilderness Areas. Doesn't Congress designate Wilderness Areas? The Plan does not preempt Congressional action with regard to designating wilderness. The intention is to provide the public an indication of the future management of areas that Congress does not designate as wilderness.

Is there a conflict in laws or regulations to tunnel underneath an Area of Critical Environmental Concern or Wilderness Study Area for utilities? There would not be a conflict if a proponent proposes construction of a subsurface tunnel beneath an Area of Critical Environmental Concern if it did not impact the resource value that prompted the Area of Critical Environmental Concern designation. The Interim Management Policy for Wilderness Study Area management states, "New rights-of-way may be approved for *temporary* uses that satisfy the nonimpairment criteria." A tunnel would not be considered a temporary use.

Minerals Management

General Questions About Minerals

Will the disposal of the surface and mineral estates of public lands be analyzed? Disposal of the surface estate has already been analyzed. Because none will leave Federal ownership, there is no need to analyze the loss of the mineral estate. Regulations (43 CFR 2720) allow for the disposal of nonexisting mineral values for no cost except an application fee of fifty dollars. Known mineral values may only be disposed if they interfere with or preclude appropriate nonmineral development and such use is more beneficial than the mineral development. This disposal must be made at fair market value. Only a limited number of disposal actions meet this criteria and few applicants are willing to pay fair market value for the available mineral estate. Thus, the only portion of the mineral estate that is normally disposed is the nonexistent portion.

Has BLM complied with requirements for public participation and are maps available showing lands recommended to be withdrawn from mineral entry? All requirements of 43 CFR 1610.2 (Public participation) were met, in particular 1610.2(h) that states, "Supporting documents to a resource management plan shall be available for public review at the office where the plan was prepared." Maps showing established boundaries of lands recommended for withdrawal from the operation of the general mineral laws are available for inspection at the BLM Las Vegas Field Office.

How and when will proposed impacts from new mineral developments be addressed? The Supplement stated, "The economic potential of mineral development cannot be estimated because of the great uncertainty regarding the existence of mineral deposits in sufficient quantity and quality to be commercially feasible." The Plan would be amended annually as needed. All impacts, including economic, from new mineral development would be addressed through this amendment process when they become quantifiable.

What law authorizes the location of mining claims? The location of mining claims is authorized by the General Mining Law of May 10, 1872 (17 Stat. 91, 30 U.S.C. §22). The location of mining claims is a nondiscretionary action, and no permit is required. The law states, "Except as otherwise provided, all valuable mineral deposits in lands belonging to the United States, both surveyed and unsurveyed, shall be free and open to exploration and purchase..."

Aren't new mineral finds nearly always associated with old known mineralized areas? New mineral finds are <u>not</u> always associated with old known mineralized areas. An example would be Nevada's disseminated gold deposits.

What is the status of the sand and gravel leases? The Las Vegas Valley Land Disposal Area would

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be closed to sand and gravel leasing. The existing sand and gravel lease applications within the Las Vegas Valley would not be approved. After June 1, 1999, existing leases within the Las Vegas Valley disposal area would not be renewed, but would be considered under 43 CFR for sand and gravel applications within community pits. No sales under the 3600 regulations would be made until the leases expire.

How will BLM treat its reserved mineral interest in the public lands? Patents and other conveyance documents issued under the Federal Land Policy and Management Act must contain a reservation to the United States of all minerals unless specific findings are made by the Secretary. Section 209(a) of the Federal Land Policy and Management Act (43 USC 1719(a)), states, "All conveyances of title issued by the Secretary ... shall reserve to the United States all minerals in the lands, together with the right to prospect for, mine, and remove the minerals under applicable law and such regulations as the Secretary may prescribe, except that if the Secretary makes the findings specified in subsection (b) of this section, the minerals may then be conveyed together with the surface to the prospective surface owner as provided in subsection (b) of this section."

Section 209(b) of the Federal Land Policy and Management Act authorizes the Secretary to convey mineral interests owned by the United States where the surface is or will be in non-Federal ownership if either 1) he has reason to believe that there are no known mineral values in the land, or 2) the reservation of ownership of the mineral interests in the United States interferes with or precludes appropriate **non-mineral** development of the land **and** such non-mineral development would be a more beneficial use of the land than its mineral development. Mineral interests are conveyed subject to the regulations stated in 43 CFR 2720.

Will adequate sand and gravel sites be made available for construction work? Sand and gravel sites will be made available for construction work, subject to County zoning and permit requirements.

How does BLM distinguish between common varieties and uncommon varieties of mineral materials? In *McClarty* v. *Secretary of the Interior*, 408 F2d 907, 908-909 (1969), the Ninth Circuit Court of Appeals set forth the current standards to distinguish between common varieties and uncommon varieties of mineral materials.

Why is BLM so slow in invalidating mining claims that are in flagrant violation of the mining laws; isn't this mismanagement? As a mining claim is an interest in and a claim to property, the U.S. Supreme Court ruled that it may not be declared invalid except in accordance with due process (Cameron v. *United States*, 252 US 450, 1920). The BLM must abide by the requirement of due process. This process can take decades, as evidenced for the dredge group of sand and gravel claims located in Las Vegas Valley. The BLM began those contest proceedings in 1954, and the final appeal was made to the U.S. Supreme Court in 1981, which was 27 years later *McCall* v. *Andrus*, 628 F2d 1185, (9th Cir., July 10, 1980), *cert. denied*, 49 USLW 3710 (March 23, 1981). Due to limited funding, BLM has not been able to complete validity examinations for all mining claims.

Will a mineral inventory showing known mineral deposits be prepared for the planning area? In Chapter 3 of the Environmental Impact Statement mineral potential is discussed and specific maps are referenced (Maps 3-12 to 3-14). This information was used to analyze mineral potential. Mineral potential reports are a guide for managers to make specific decisions weighing all resource values. They are completed on land exchanges when site-specific information is required for the decision making process. A specific mineral potential report was not completed for The Plan.

Is southern Nevada really a "hotbed" of fraudulent mining activities or is BLM mismanaging the mineral resources? It is fact, not fiction, that southern Nevada is a hotbed of fraudulent mining activities. Due to limited funding, the agency has not been able to complete validity examinations for all mining claims. Nuisance mining claims are common in the area. Some of the more notable examples are the claims the Cities of Mesquite and North Las Vegas were forced to purchase within their land sale areas and the claims the Department of Energy was forced to purchase at Yucca Mountain. In all three cases, a validity examination should have been made on the mining claims. However, the time frames required to give the mining claimants their rights to due process would have precluded all the planned projects.

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On July 25, 1974, the Comptroller General issued report number B-118678 in which he stated at page 10: "Those people who file mining claims on public land and who do not actively explore for and develop minerals may prevent those who wish to conduct legitimate mining activity from entering the land for that purpose; this, in effect, hinders the development of mineral resources, contrary to the intent of the mining laws." The report included inspection of 240 randomly selected unpatented mining claims in Arizona, California, Colorado, and Wyoming. Page 8 states that while non-mining activities were noted on some claims: "Of the 240 mining claims, 239 were not being mined at the time of our visits, and there was no evidence that any mineral extraction had ever taken place on 237 of the claims. Also, we found no evidence of mineral exploration work, such as pits, shafts, or cuts on the land, for 146 of the 240 claims. On the basis of our sample results, we estimate that no minerals had ever been extracted on 197,000 of the estimate 200,000 claims."

Why does The Draft Plan arbitrarily state on page 2-32 that surface occupancy will be avoided "on or within one-quarter mile of developed or designated recreation facilities?" This statement is incorrect. The Draft Plan does not state that surface occupancy will be avoided "on or within one-quarter mile of developed or designated recreational facilities." It states that it would be avoided whenever possible. The one-quarter mile distance was proposed to ensure that operators are aware of and take efforts to allow continued use of developed recreation facilities.

What mining plans of operation require approval prior to the commencement of any mining operation? 43 CFR 3809.1-4 (Plan of operations: When required) mandates that an approved plan of operations is required prior to commencing the following: 1) Operations that exceed the disturbance level (5 acres) described in 43 CFR 3809.1-3 (Notice: Disturbance of 5 acres or less); 2) Operations in areas designated for potential addition to, or an actual component of, the national wild and scenic rivers system; 3) Operations in designated Areas of Critical Environmental Concern; 4) Operations in areas designated as part of the National Wilderness Preservation System and administered by BLM; and 5) Operations in areas designated *closed* to off-road vehicle as defined in 43 CFR 8340.

What is the meaning of the symbol "" on page 2-2 of The Draft Plan and why are the statements so vague and ambiguous?* Page 2-2, the first paragraph under the "No Action Alternative" heading states, "Note: Objectives and Management Direction followed by an asterisk, "*", are taken verbatim from the Esmeralda-Southern Nye Resource Management Plan (Planning Area B). All other Objectives and Management Direction are reproduced verbatim from the Clark County Management Framework Plan." Although many statements in this section may be vague, they cannot be changed because the No Action Alternative retains the status quo. They can only be modified and elaborated as done for Alternatives A through E.

On page 2-81 of The Draft Plan, how can "standard conditions" be standard if they are imposed on just 16 percent of the fluid mineral estate? The term "standard terms and conditions" refers to a set of stipulations that is part of every oil and gas lease. There is no relationship between the percentage of an area subject to these stipulations and whether or not these stipulations are "standard."

On page 4-9 of The Draft Plan, does "all" mineral exploration affect plants? No, but plants are affected by most mineral exploration activities as well as all mineral development activities.

On page 4-20 of The Draft Plan, why is no mention made of the benefits of recording, stabilization, collection, excavation, curation, and other actions? These benefits were not discussed because Chapter 4 describes environmental consequences and is not the proper forum for discussing possible mitigative measures. Although these kinds of actions may provide mitigation, their beneficial nature is questionable.

On page 4-61 of The Draft Plan, doesn't the use of uncertainty as an excuse for failing to address the economic potential of mineral development skew the decision against land use? There is great uncertainty regarding the existence of oil/gas deposits in sufficient quantity and quality to be commercially feasible. Using uncertainty as an excuse for failing to address the economic potential of mineral development is neutral and does not skew decisions for or against land use. The Supplement, "The economic potential of mineral development cannot be estimated because of the great uncertainty regarding the existence of mineral

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deposits in sufficient quantity and quality to be commercially feasible." All impacts, economic and otherwise, from new mineral development would be addressed through this amendment process when they become quantifiable.

On page 4-118 of The Draft Plan, aren't the oil and gas impacts overstated? No, oil and gas impacts are reasonably stated. There is great uncertainty regarding the existence of oil/gas deposits in sufficient quantity and quality to be commercially feasible. In fact, absent this data, possible oil and gas impacts may be understated by excluding field development.

Doesn't oil and gas exploration affect only a small portion of the Las Vegas BLM District? Yes, the estimated exploration disturbance would be roughly two-tenths of one percent of the Las Vegas BLM District.

Shouldn't BLM request technical input from U.S. Geologic Service and Bureau of Mines regarding the Las Vegas BLM District Resource Management Plan since BLM's geologists have too narrow a background to adequately prepare and review this plan? 43 CFR 2310.3-2 requires that a minerals resource analysis be prepared by a qualified mining engineer, engineering geologist, or geologist for the Secretary or the Congress to make a decision or recommendation on a requested withdrawal. There is no requirement that the mineral potential be examined by the U.S. Geologic Service and/or the U.S. Bureau of Mines. The added expertise of a mining engineer, petroleum engineer, and/or mineral economist is not required by either laws or regulation.

On page 3-71, where will BLM list and describe minerals that are currently being mined in the Amargosa Valley? Minerals such as sepiolite, saponite, calcium bentonite, hectorite, and zeolites would be individually listed and described in the mineral inventory of the area encompassed by The Plan.

On page 4-14, are there significant mortality impacts to wildlife from minerals activities? Yes, impacts to wildlife from mineral exploration and development would include direct mortality during construction, loss and degradation of habitat, harassment, increased possibilities of incidental take during these activities, and the proliferation of access roads into wildlife habitat. Depending on the extent and location of the activity, impacts may be significant.

On page 4-20, will seismic surveys using vibrators result in significant impacts to cultural resources? Seismic testing, using vibrators involves truck mounted ground vibrating devices that typically use existing roads. Overland travel over previously undisturbed ground would only occur in gently sloping areas accessible to these trucks. Opening of previously inaccessible areas, and effects to intangible cultural or religious values that could only be identified by associated cultural groups, such as values in Traditional Lifeway Areas.

Mineral Closures and Withdrawals

Will the withdrawal of lands from mineral entry interfere with my property rights? There will be no interference with any property rights, including "proven, producing mineralized claims", as the proposed withdrawal will be subject to all valid rights on the date of the withdrawal. In *United States* v. *Rich Knoblock et al.*, IBLA 90-249, October 18, 1994, stated at 131 IBLA 114-115, "It is a truism long recognized that, despite the mandates of the law, individuals often locate mining claims at the first indication of value, long before evidence is collected that might justify the development of the claims. As long as a discovery ultimately occurs while the land remains open to mineral entry, the Government will not concern itself with the order of the acts of location and discovery. See *Cole* v. *Ralph*, 252 U.S. 286 (1920). However, where the Government has determined to withdraw land from the operation of the mining laws, only such claims already continuing a discovery are excepted from the force of this action, since only such claims possess rights as against the United States."

That case further explains that any individual who locates a claim prior to making a discovery holds the risk that the Government will withdraw the land before a discovery can be completed, thereby negating all his efforts . Sharing a similar risk are those who know of the statutory requirement that discovery precede location, but refrain from staking a claim until such time as a discovery is shown to exist.

What is the purpose of the proposed withdrawal of the Las Vegas Valley Air Quality Non-Attainment

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Area from the mining laws? The purpose of the proposed withdrawal of the Las Vegas Valley Air Quality Non-attainment Area from the operation of the general mining laws, subject to valid existing rights on the date of the withdrawal, was to address the need to comply with Federal, state, and local air quality standards for minerals actions occurring on lands administered by BLM.

In The Plan, the Las Vegas Valley disposal area, which is smaller than the non-attainment area, Map 2-3, would be closed to locatables, leasables and open to salables. The need for sand and gravel in the Las Vegas Valley is recognized by leaving the community gravel pits open to mineral material sales, subject to conformity with the State Implementation Plans for PM10 and carbon monoxide emissions.

What lands will contain closures to locatable, leasable, or saleable mineral entry, and how were they determined? The Supplement was issued in an attempt to address various concerns made by representatives of the minerals industry, specifically concerning the semi-primitive, nonmotorized recreation opportunity spectrum areas. The Supplement emphasized biodiversity and the protection and recovery of the threatened desert tortoise. This alternative was modified based on evaluation of the No Action Alternative and Alternatives A, B, C, and D, and input from the public, and carried forward to The Plan. All Areas of Critical Environmental Concern, Nellis Dunes, Muddy River, and Virgin River riparian zones and floodplains would be recommended for withdrawal from the operation of the general mining laws subject to valid existing rights on the date of the withdrawal. (see Table 2-12 in The Plan) They would be closed to solid mineral leasing and to all mineral material disposals, to include material site rights-of-way, except along specific highway corridors, and fluid mineral leasing would be subject to no surface occupancy stipulations.

Are public lands exempt from withdrawal when the lands encompass valid mining claims that would qualify for patent? All withdrawals from the operation of the general mining laws are subject to valid existing rights on the date of the withdrawal. It is possible that lands with valid existing rights might become completely surrounded by withdrawn lands.

Can existing withdrawals be terminated by decisions made in a planning document? Existing withdrawals cannot be terminated by decisions made in a planning document. Existing withdrawals may only be revoked at the specific request of the agency holding the withdrawal or through the withdrawal review process mandated by the Federal Land Policy and Management Act.

Isn't it absurd to withdraw lands from existing mining districts and from around old mines? It is not absurd, many people think lands in existing mining districts and around old mines have been exhausted, or "mined out." The reason the mining districts and mines ceased to operate is because a prudent person would not continue to extract minerals when the market or commodity price is low. In reality, existing districts or old mines typically have potential for future extractions and it is that potential conflict with other uses that requires withdrawal from minerals.

Can public lands be withdrawn or reclassified for a specific use only by an Act of Congress? Are areas that are closed to mineral entry also closed to mineral exploration? Areas closed to mineral entry are not necessarily closed to mineral exploration. It is possible to withdraw or classify lands for a specific use without an Act of Congress. However, the management activity that necessitated the withdrawal may preclude access or any earth disturbing work, or removal of samples from the withdrawn lands.

Under Alternative D, how many acres would be open and closed to the location of mining claims? Under Alternative D, approximately 4 million acres would be open to the location of mining claims, and 632,065 acres would be closed.

Why are lands left open to mineral leasing in the Preferred Alternative when they are closed to mineral leasing in Alternative B? Areas closed to all mineral leasing (fluid and solid) in Alternative B were left open to all mineral leasing (fluid and solid) in Alternative D of The Draft Plan, because there would be no reason to offer the six alternatives (No Action, A, B, C, D, and E) if all were the same. Based on evaluation of all comments, the areas closed to mineral leasing are listed in Chapter 2, under M-N-1g.

Mineral Status of Specific Locations

What is the status of the mineralized district in T.70S., R.15E.? Map 2-10 in The Supplement was read incorrectly. T.70S., R.15E. does not exist. T.15S., R.70E. is the correct legal description. Sections 1, 12-14, 23-27, and 34-36 of T.15S., R.70E. occur within the boundary of the Virgin Mountain Area of Critical Environmental Concern. The remainder (sections 2-11, 15-22, and 28-33) of this township occur within the boundary of the Gold Butte A Area of Critical Environmental Concern. The historic Copper King (Bunkerville, Great Eastern, Key West, Virgin Peak) mining district is recognized as including both the Great Eastern and Key West mines. Subject to valid existing rights, these areas are recommended for withdrawal.

What is the status of the rock quarry on the south end of Mount Potosi? A building stone quarry is located at the south end of Mount Potosi on the Flagstone #1-10 group of association placer mining claims. Three claims are located on BLM lands and the other seven are on U.S. Forest Service lands. Six claims are under examination for validity pursuant to mineral patent application N-55979 submitted by Thelma Poole et al.

Why weren't the Bullfrog Mine and its owner, LAC Minerals Ltd., notified that the Las Vegas BLM District Resource Management Plan was being prepared? The Bullfrog Mine is located in the Tonopah Resource Area of the Battle Mountain District. The Draft Plan addresses only this planning unit, and the Bullfrog Mine is outside the boundaries.

Why are patented mining claims in T. 20 S., R. 66 E., Calville Wash, not shown on map 2-25B in The Draft Plan? There are no patented mining claims in either T.20S., R.66E. or in Calville Wash. There are patented mining claims northwest of this location in Lovell Wash in T. 20 S., R. 65 E., Sec. 11-14. The small scale of the map prohibits showing of all patented lands.

Mineral Status of Areas Outside the Planning Area

Does BLM have any responsibility in the management of either the surface or mineral estates located within the Lake Mead National Recreation Area? Doesn't 43 CFR 3109.2 give the Lake Mead National Recreation Area authority to approve, stipulate, or deny lease applications on Park Service lands? BLM is not responsible for surface management within the Lake Mead National Recreation Area. However , BLM has the responsibility for managing the mineral estate of all lands that are located within the Lake Mead National Recreation Area, subject to their General Management Plan. Because locatable minerals are leasable within the Lake Mead National Recreation Area, the mineral estate is administered by BLM's Nevada State Office in Reno. This estate was originally the responsibility of USGS (Conservation Division) until the division was disbanded and its duties divided between BLM and Minerals Management Service.

The Memorandum of Understanding between BLM and the National Park Service relates to cooperation between the two agencies. The reference to the Lake Mead National Recreation Area authority in approving or denying lease applications in 43 CFR 3109.2 only pertains to oil and gas leasing. However, all leasing is subject to the Lake Mead National Recreation Area General Management Plan.

What is the mineral status of lands involved with the Valley of Fire State Park? The lands that comprise Recreation and Public Purpose application N-36868 for the Valley of Fire State Park are open to the operation of the general mining laws, while lands patented to the State of Nevada through Recreation and Public Purpose and classified for disposal through Recreation and Public Purpose (applications N-3836 and N-4202) are closed to the operation of the general mining laws.

Minerals, Caves, Areas of Critical Environmental Concern and Wilderness

Shouldn't karst areas remain open for mineral entry? Because karst areas are considered more valuable for their geologic scientific values than for mineral values, they are closed to mineral entry. The Supplement replaced the term "significant caves and karst resources" with the term "significant caves and alcoves." This change was carried forward to The Plan.

What is the status of Wilderness Study Areas regarding mineral entry, and how will the Resource Management Plan identify this status? Will the Resource Management Plan reflect terminology changes related to Congressional actions on Wilderness Study Area designation, from

"not designated" to released? Wilderness Study Areas are open to mineral entry under the general mineral laws. Only Wilderness Areas, as created by Acts of Congress, are closed to mineral entry. Mining claims with valid discovery rights, on the date of the creation of the Wilderness Areas would remain valid. Wilderness Study Areas are managed under the Interim Management Policy, an interim plan during the study process. Surface disturbance that might impair wilderness values is not allowed. Claims may still be located and non-impairing assessment work performed in Wilderness Study Areas under the General Mining Law. Claim development in a non-impairing manner would be very difficult. The changes in management from "not designated" to "released" are discussed in The Plan.

What is the status of mineral withdrawals, sand and gravel sources, and mineral resources in released Wilderness Study Areas? Environmentally suitable sources of sand and gravel are provided to meet the development needs of southern Nevada. Mineral resources in released Wilderness Study Areas would be available for development consistent with other resource values.

Why aren't the lands located south of the Virgin Mountains and Gold Butte Areas of Critical Environmental Concern protected within an Area of Critical Environmental Concern of their own? The entire Gold Butte area is an Area of Critical Environmental Concern in The Plan. Also, approximately 73 percent of the BLM administered lands located south of the Virgin Mountains Area of Critical Environmental Concern and Gold Butte A Area of Critical Environmental Concern are within the boundaries of the Gold Butte B Area of Critical Environmental Concern, providing certain administrative protection.

Why are Areas of Critical Environmental Concern open to fluid mineral leasing? The rationale for leaving the Areas of Critical Environmental Concern open to fluid mineral leasing in The Plan is that fluid mineral leases are discretionary actions. Additionally, tortoises within the Areas of Critical Environmental Concern could be fully protected by implementation of the no surface occupancy stipulations.

Hazardous Materials Management

Why did the Resource Management Plan fail to address hazardous materials management? While The Draft Plan did not address hazardous materials management, a section concerning this issue is within The Plan. The Hazardous Materials Program has responsibility to evaluate all actions including land use authorizations and disposals, mining and milling activities, and unauthorized land uses. Land use decisions incorporate consideration whether hazardous materials would be used to develop appropriate management prescriptions. Site-specific inventories for hazardous materials are conducted as part of land use compliance actions when lands are proposed for disposal or acquisition. Mining and milling sites are inspected to determine appropriate management for hazardous materials. Knowledge of the locations of these activities alerts the agency concerning existing and potential problems. The agency attempts to minimize releases of hazardous materials through compliance with current regulations. When hazardous materials are released into the environment, impacts on resources is assessed and appropriate response, removal and remedial actions are taken.

Fire Management

Why does the plan suggest erosion can be controlled through implementation of the Las Vegas BLM District Normal Fire Rehabilitation Plan? The plan should provide a summary description of the Fire Rehabilitation Plan. The Las Vegas BLM District Normal Fire Rehabilitation Plan is intended to aid in reducing erosion after wildfires only. It is not stated, nor implied, that it is intended to apply to all potential erosion situations or that fire is the greatest contributor to erosion. An explanation of the purpose of the Fire Rehabilitation Plan was added to The Plan.

What is the rationale for using prescribed fire for resource enhancement and protection? Fire should only be used if it is a benefit to the natural ecosystem. Would there be any prescribed burns without site-specific plans? The two objectives are general guidelines for evaluating the needs for prescribed burns. Prescribed burns are restricted to situations or areas where studies determine that the action would be a positive benefit to the natural ecosystem. There are few areas that meet all these conditions. A site-specific Environmental Assessment and burn plan would be required to analyze any proposed prescribed burn. This process

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requires public and agency cooperation and review. Site-specific mitigation, rationale, and procedures would be discussed in detail.

Planning and National Environmental Policy Act

What is the status of lands and issues, such as hunting and shooting, within Red Rock Canyon National Conservation Area? Lands located within the boundaries of Red Rock are not within the planning area, and therefore not part of The Plan. A separate General Management Plan is being prepared to address all Red Rock lands.

Isn't Assumption 1 in Chapter 4 not "real world?" Funding and staffing should not be "pie in the sky." The availability of funding is uncertain, and often beyond the control of local BLM offices. Congress controls the funding to government agencies through the Federal Budget. Agencies are required to follow specific mandates, laws, regulations and policies, and in developing a proposed budget request make certain assumptions concerning funding. The Plan identifies numerous objectives and management directions based on analyses of needs to implement existing laws, regulations and policy.

This Resource Management Plan planning is a meaningless exercise. Don't these documents simply become "stuck on a shelf" and become ignored? Planning documents such as The Plan are referenced for all actions, such as recreation permits, rights-of-way, and grazing permits, to ensure conformance with existing land use plans. Plan conformance is required by regulations and policy and is documented in categorical exclusions, environmental assessments, and administrative determinations.

There is no reference to the existing cooperative agreement between State Parks and BLM. The cooperative agreement between the Division of State Parks and BLM would continue. Developing and maintaining cooperative agreements with other agencies that are considered consistent with the goals of BLM is a standard operating procedure. At the level of planning in a document such as the Resource Management Plan, identification of each cooperative agreement is not appropriate.

Does the Resource Management Plan fit Ecosystem Management Policy? The Resource Management Plan fits well with the ecosystem management approach. Coordination with other states and agencies is ongoing. The BLM coordinates with other entities on a habitat basis to ensure that Desert Tortoise Recovery Unit boundaries are not delineated by state or county lines. Management of the desert tortoise is the main reason for preparation of the Resource Management Plan.

Why doesn't the Resource Management Plan analyze specific impacts, such as the effects from land disposal to soil, water, air and vegetation, on a site-specific basis? The intent of a 20-year planning document such as a Resource Management Plan is to outline resource objectives and provide general guidance to process individual actions such as approval for the disposal of specific land parcels or processing of individual rights-of-way. Due to a determination that desert tortoise protection is a major issue, this resource management is emphasized in the plan. An analysis of impacts to specific resources such as vegetation from site-specific actions is beyond the scope of The Plan. Site-specific environmental analysis would be completed on a case-by-case basis to comply with the National Environmental Policy Act. If this analysis identifies a parcel with a resource that requires protection, then the management process would determine if the action would be appropriate.

Why weren't public comments to BLM addressed? The written and oral comments provided by the public during scoping meetings, after publications of The Draft Plan and The Supplement, and in public meetings held after publication of The Draft Plan, were reviewed and used by the staff to develop The Plan.

Could actions other than those proposed in The Draft Plan and The Supplement be implemented to accomplish the goals of this plan? Actions not in conformance with a Resource Management Plan cannot be implemented without a plan amendment. For example, closing allotments to grazing due to lack of funding to protect riparian areas is not a feasible action. Private water rights make it difficult to improve riparian habitat conditions, unless a cooperative permittee is involved. BLM is actively working with cooperative permittees to fence riparian areas, providing water outside the fence for livestock and wild horses and burros, where appropriate.

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By combining alternatives, the BLM is not following the proper National Environmental Policy Act process to develop the final plan. The process to develop The Plan is stated in BLM Manual 1616. "The proposed plan may utilize an alternative identified in the draft plan and draft Environmental Impact Statement, portions of other alternatives, or a modified alternative previously analyzed in detail." The public was provided with a set of alternatives, two public comment periods, and eight hearings. The Plan would be analyzed through the appropriate National Environmental Policy Act process.

All individuals, agencies and groups who provided comments during the comment periods have the right to protest The Plan to the BLM Director prior to issuance of a Record of Decision. The protests can only address issues identified in the original comments. The Director's decision is final. The Interior Board of Land Appeals has consistently dismissed any appeal on a Resource Management Plan based on a determination that such cases are outside its jurisdiction. The Interior Board of Land Appeals further stated that the BLM protest period is the only procedure available to resolve differences concerning land use plan decisions. The plan would be forwarded to Congress for review based on the elimination of uses from tracts of land of 100,000 acres or more. Also, there is no requirement for BLM to select the preferred alternative. In this case BLM would select a modified version of Alternative E for The Plan.

Aren't mitigation measures developed through the National Environmental Policy Act process? This is correct. The management direction in The Plan describes the National Environmental Policy Act process that is used for mitigation actions.

Does the 6th Assumption for Analysis imply BLM would analyze undefined disposal areas for impacts. The action for analysis is only the disposal, and specific disposal areas are identified in each alternative.

Why doesn't the environmental consequences section analyze impacts to livestock grazing from lands actions such as rights-of-way, withdrawals, and development of corridors. Based on analysis of the actions in association with the proposed allotments, the determination was made that lands management would not significantly impact the use of any allotment open to grazing. For example, proposed powerline corridors cross only two allotments that would remain open to grazing. Of the two, the Jean Lake allotment already has several powerlines.

Are actions that would occur on private lands considered within the scope of BLM's review? The National Environmental Policy Act states that when considering cumulative impacts the agency should analyze reasonably foreseeable future actions on both public and private lands (40 CFR 1508.7). Therefore, actions occurring on private lands that add cumulatively to the impacts caused by all projects in an area both private and Federal are within the scope of BLM review.

The BLM did not allow the public input early in the process. Weren't the scoping meetings poorly attended due to a lack of advertising to the parties most directly affected? The agency provided adequate opportunities for scoping during nine public meetings held in the urban and rural centers in southern Nevada. The public was notified through the publication of a Notice of Intent in the Federal Register.

The Resource Management Plan should focus first on the positive benefits to people and the Nation. Resource management plans are written to comply with existing laws, regulations, executive orders, and policy. Economic impacts of the proposed plan are included in the document. Impacts to people are not uniform in either a positive or negative sense. Because numerous laws were passed to protect the environment, the BLM is required by law to propose necessary measures to protect the public land resource.

The Resource Management Plan needs to be a "stand alone" document. Only one alternative, which may contain sections from other alternatives, was selected for The Plan. The alternative was selected based on its assessed potential to "stand alone." This would reduce any confusion to the reader.

Why doesn't the Resource Management Plan contain discussion on how or where actual work will be done? An implementation plan will be completed after approval of the Resource Management Plan. Implementation is a method to systematically accomplish those actions determined by approval of The Plan. A clear implementation plan is critical to prepare funding proposals and

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workload estimates, and prioritize and schedule staff workload to ensure Resource Management Plan decisions are completed. Copies of the implementation plan will be available at the Las Vegas BLM District office after its completion.

The Resource Management Plan needs to be more specific on coordination with State, County agencies. Coordination with state and county agencies is standard operating procedure. It is not appropriate in this level of planning document to identify each Memorandum of Agreement. The coordination would continue.

Why didn't the plan identify or consider specific state or county plans in objectives and management direction, within the proposed action? The Plan would be in conformance with those regional plans that are consistent with Federal laws. However, each specific plan would not be identified within the document.

Why doesn't The Draft Plan fulfill National Environmental Policy Act requirements to identify: 1) unavoidable adverse environmental effects, 2) the relationship between short-term uses and long-term productivity, and 3) irreversible commitments of resources? Unavoidable adverse and short-term and long-term impacts are discussed in the Environmental Consequences section of the document. Irreversible commitments of resources are those that can not be reversed, except perhaps in the extreme long-term, such as species that become extinct, removal of subsurface ore and rangeland conditions that are depleted beyond its "threshold." The protection provided through the listing of the desert tortoise and similar actions identified in The Draft Plan are not considered irreversible.

Why didn't The Draft Plan offer mitigation for reducing or offsetting adverse economic impacts to the livestock industry? The 43 CFR identifies compensation to livestock permittees for their interest in range improvements located on public lands. Identifying specific mitigation for offsetting economic impacts is beyond the scope of The Plan.

Why was the Clark County Habitat Conservation Plan identified in an alternative if the plan was not complete, and only a draft? Extensive coordination occurred among Clark County, U.S. Fish and Wildlife Service, and BLM to ensure growth could continue in the Las Vegas Valley, after the desert tortoise was listed as threatened. The Plan reflects this coordination.

The alternatives are not different enough to meet National Environmental Policy Act requirements. The kinds of proposals and protection actions for resources vary among alternatives, are considered "different enough" for National Environmental Policy Act requirements.

BLM violated 40 CFR, 1508.20. Council on Environmental Quality regulations were not violated. According to the National Environmental Policy Act 1500.1 (c), "The National Environmental Policy Act process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore and enhance the environment." The desert tortoise, a threatened species, is part of the environment. Due to its listing, steps must be taken to ensure its survival.

The BLM does not quantify potential impacts. The impacts were stated in an acceptable format, and many were quantified in Chapter 4 of The Draft Plan and The Supplement.

The Resource Management Plan/Environmental Impact Statement is not in conformance with the National Environmental Policy Act because specific mitigation is not referenced, nor is the probability of mitigation implementation discussed. The document is in conformance with the National Environmental Policy Act. Mitigation is built into the alternatives where necessary. Any additional mitigation for specific projects would be developed during a separate National Environmental Policy Act process for each individual proposed action.

Doesn't implementation of this plan have the potential, under Presidential Executive Order 12630, to be considered a "taking" of real and intangible property and property rights? Multiple use management on public lands does not constitute a "taking" of private lands. Proper management should enhance natural resource values and preserve them for the enjoyment of all in the future. The following citation is from Presidential Executive Order 12630, noted incorrectly in the comment as 12930.

Presidential Executive Order 12630 refers to "takings" of private lands. Section 2. *Definitions.* For the purpose of this Order: (a) "Policies that

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have takings implications" refers to Federal regulations, proposed Federal regulations, proposed Federal legislation, comments on proposed Federal legislation, or other Federal policy statements that, if implemented or enacted, could effect a taking, such as rules and regulations that propose or implement licensing, permitting, or other condition requirements or limitations on **private** property use, or that require dedications or exactions from owners of **private** property. "Policies that have takings implications" **does not include**: . . . (4) Studies or similar efforts or planning activities..."

How does BLM propose to increase ranger patrols in tortoise habitat areas as proposed by the Resource Management Plan? How will BLM will enforce off-road vehicle designations? Two BLM law enforcement officers are currently assigned to patrol the proposed tortoise Areas of Critical Environmental Concern. The officers are funded by the *Clark County Short-term Habitat Conservation Plan*. Citations are issued by law enforcement officers under applicable Federal regulations. They work closely with the Metropolitan Police Department, Nevada Highway Patrol, U.S. Fish and Wildlife Service and the Nevada Division of Wildlife Law Enforcement Branch. The BLM law enforcement ranger staff, with assistance from other agencies when needed, would enforce the rules or laws for all resource programs.

Socioeconomic Values

What kinds of economic impacts would implementation of the plan cause to the grazing constituents? Analysis of The Draft Plan and The Supplement in relation to grazing management found that the incremental regional economic benefits derived would be extremely small in comparison with the No Action Alternative (USFWS 1993). In Chapter 4, BLM financial analysis of the affected livestock operations reached the same conclusion. Nonetheless, the customary lifestyle of livestock operators (ranchers) is very much appreciated and respected. There is also the realization that many ranchers depend on their grazing operations for a supplemental income and means of subsistence if necessary, to include a lifeway that develops a commendable work ethic and sense of independence.

Nonetheless, BLM is compelled to comply with the provisions of the Endangered Species Act that mandates the protection and conservation of the endangered desert tortoise. The Act mandated the consideration of the economic benefits, costs, and other relevant effects of critical habitat designation in determining actions to protect and conserve the listed specie. According to the economic analysis of the USFWS in 1993, economic costs were less than the benefits to protect and conserve the desert tortoise.

Won't there be an adverse decline of economic benefits if off-road vehicle racing locations are reduced? No. The decision to concentrate racing activity from areas of higher ecosystem values to lesser values would provide benefits in the preservation of the species and ecosystems for the southern Nevada population. No data indicated any loss of income as a result of BLM's decision to reduce land availability for off-road vehicle racing or use. In fact, the 76 to 229 million dollars range of income that the off-road vehicle industry generates could increase with continued marketing efforts by the industry,

Won't the restrictions on mining in the plan adversely affect the economic basis of a large number of people in southern Nevada? The mini industry provides substantial income and employment opportunities in southern Nevada. However, the economic benefits of the mining industry in Southern Nevada are not as great in comparison to other industries except Nye County. Opportunities to expand mining activities in Southern Nevada are constrained by the actions in The Plan. There is a restriction for extracting sand and gravel resources to a minimal number of regional pits that will be located as close to the resource and construction markets as possible. This would tend to reduce the level of disturbance to the urbanites who want better air quality, less traffic congestion, and landscape problems in their neighborhoods.

The reduction of mining in rural locations is a result of legislated tortoise and wilderness designations that requires BLM compliance. Also, the result of examination of the public values and attitudes in this area indicates the need for a sustained economic growth with minimal impact on the quality of life (Sodin 1995).

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GLOSSARY

ACRE-FOOT: The volume of water that will cover an acre of land to a depth of one foot (323,851 gallons or 43,560 cubic feet).

ACTIVITY PLAN: A detailed, specific plan for management of a single resource program or plan element undertaken as necessary to implement the more general resource management plan decisions.

ADVERSE EFFECT (Cultural Resources): Alteration of the characteristics which contribute to the use(s) determine appropriate for a cultural resource or which qualify a cultural resource property for the *National Register of Historic Places* to such a degree that the appropriate use(s) are reduced or precluded, or the cultural property is disqualified from *National Register of Historic Places* eligibility. Criteria in the regulations of the Advisory Council on Historic Preservation (36 CFR Part 800) guide the process for making the determination of effect.

AIR POLLUTION: Accumulation of aerial wastes beyond the concentrations that the atmosphere can absorb and which may, in turn, damage the environment.

AIR QUALITY CLASSES: Classes established by the Environmental Protection Agency (EPA) that define the amount of air pollution considered significant within an area:

I: Almost any change in air quality would be considered significant.
II: Deterioration normally accompanying moderate, well-controlled growth would be considered insignificant.
III. Deterioration up to the national standards would be considered insignificant.

ALCOVE: A small rock shelter.

ALL-TERRAIN VEHICLE: Any motorized off-highway vehicle 50 inches or less in width, having an unladen dry weight of 600 pounds or less. The vehicle also has three or more low-pressure tires, handle bars for steering control, and a seat designed to be straddled by the operator.

ALL-TERRAIN BICYCLE: A bicycle equipped for both street riding and off-road trail riding.

ALLOTMENT: An area allocated for the use of the livestock or one or more qualified grazing permittees or lessees which includes prescribed numbers and kinds of livestock under one plan of management.

ALLOTMENT MANAGEMENT PLAN: A documented program which applies to livestock operations on the public lands, which is prepared in consultation with the permittee (s) or lessees involved, and which : 1) prescribes the manner in which livestock operations will be conducted in order to meet the multiple-use, sustained yield, economic, and other needs and objectives as determined for the public lands through land use planning.

ALLUVIAL FAN: A fan-shaped accumulation of disintegrated soil material; water deposited and located in a position where the water departs from a steep course to enter upon a flat plain or open valley bottom.

ALLUVIUM: Material, including clay, silt, sand, gravel, or similar unconsolidated sediments, deposited by a stream bed or other body of running water.

AMBIENT AIR QUALITY: Prevailing condition of the atmosphere at a given time; the outside air.

ANIMAL UNIT MONTH (AUM): The amount of food or forage required by an animal unit (one cow or five sheep) for 1 month.

ANNUAL PLANT SPECIES: A plant that completes its life cycle and dies in 1 year or less.

APPARENT TREND: An interpretation of the direction of change in vegetation and soil protection over time, based on a single observation. Apparent trend is described in the same terms as measured trend except that when no trend is apparent, it shall be described as none.**AQUIFER:** A water-bearing unit of permeable rock or sediment which is capable of yielding water to wells.

APPROPRIATE MANAGEMENT LEVEL (AML): The number of wild horses and burros suitable for a herd management area as determined through BLM's planning process and evaluation of monitoring data.

AQUIFER: A formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield economical quantities of water to wells and springs.

ARCHAIC PERIOD: An archeological period of about 8,000 years ago, and continuing to approximately A.D. 500.

ARCHEOLOGICAL DISTRICT: An area that provides a concentration of cultural properties in a discrete, definable location.

AREA OF CRITICAL ENVIRONMENTAL CONCERN: Areas within the public land where special management attention is needed to protect and prevent irreparable damage to important historical, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards.

ASPECT SPECIES: A vegetation species that appears to be dominant in the landscape, although it may be only a small percent of the total vegetation composition.

BASE PROPERTY: Lands or water sources on a ranch that are owned by or under long-term control of the operator.

BIOMASS: The total quantity of living organisms of one or more species per unit of space (called species biomass) or of all the species in a community (called community biomass).

BROWSE: (noun) That part of leaf and twig growth of shrubs, woody vines, and trees available for animal consumption. (verb) To consume browse.

BROWSERS: Animals which feed primarily on browse.

CALICHE: A layer in the soil more or less cemented by calcium carbonates (CaCo3), commonly found in arid and semiarid regions.

CAMPSITE: A cultural site type representative of all periods consisting of temporary habitation areas which usually contain a lithic scatter, evidence of fire use, ground stone, and pottery scatter.

CANDIDATE SPECIES: Any species of plant or animal listed in the for consideration to be listed as threatened or endangered by U.S. Fish and Wildlife Services (USFWS) under the Endangered Species Act. Definitions for Categories 1 and 2 candidate species. excerpted from the *Federal Register*, are as follows:

> *Category 1:* Taxa for which the USFWS currently has on file substantial information on biological vulnerability and threat(s) to support the appropriateness of proposing to list them as endangered or threatened species. Presently, data are being gathered concerning precise habitat needs, and for some of the taxa, concerning the precise boundaries for critical habitat designations. Development and publication of proposed rules on these taxa are anticipated, but, because of the large number of such taxa, could take some years. Also included in category 1 are taxa whose status in the recent past is known, but that may already have become extinct.
>
> *Category 2:* Taxa for which information now in possession of the USFWS indicates that proposing to list them a endangered or threatened species is possible appropriate, but for which substantial data on biological vulnerability and threat(s) are not currently known or on file to support the immediate preparation of rules. Further biological research and field study usually will be necessary to ascertain the status of the taxa in Category 2, and some of the taxa are of uncertain taxonomic validity. It is likely that some of the taxa will not warrant listing, while others will be found to be in greater danger of extinction than some taxa in category 1.

CARRYING CAPACITY: Maximum stocking rate possible without inducing damage to vegetation or related resources. It may vary from year-to-year on the same area due to fluctuating weather conditions and forage production. (See Grazing capacity.)

CAVE: Any naturally occurring void, cavity, recess, or system of interconnected passages which occurs beneath the surface of the earth or within a cliff or ledge (including any cave resource therein, but not including any vug, mine, tunnel, aqueduct, or or

manmade excavation) and which is large enough to permit an individual to enter, whether or not the entrance is naturally formed or manmade. Such term shall include any natural pit, sinkhole, or other feature which is an extension of the entrance.

CLAY: A mineral soil separate consisting of particles less than .0.002 millimeters in equivalent diameter.

CLIMAX VEGETATION COMMUNITY: The final or stable community in a series of successive vegetation states which is self-perpetuating and in dynamic balance with the physical and biotic environment.

COMMUNITY: A group of plants and animals living together in a common area and having close interactions.

CONTRAST (VISUAL): The effect of a striking difference in the form, line, color, or texture of an area being viewed.

CONTRAST RATING: A method of determining the extent of visual impact of an existing or proposed activity that will modify any landscape feature.

COORDINATED RESOURCE MANAGEMENT PLAN: A plan for management of one or more allotments that involves all the affected resources, e.g. range, wildlife, and watershed.

COVER: Small rocks, litter, basal areas of grass and forbs, and aerial coverage of shrubs that provide protection to the soil surface (i.e. in contrast to bare ground.)

CRITICAL SOILS: Soils that (1) contain very highly saline soils and/or (2) are very susceptible to water erosion.

CRITICAL WATERSHED: An area of soils that (1) have a high potential for salt yield; (2) are subject to severe water and wind erosion when disturbed; (3) have high runoff potential during storm events; (4) are subject to frequent flooding; or (5) have a potential for loss of vegetation productivity under high rates of wind and water erosion.

CRITICAL WILDLIFE HABITAT: Is defined in the Endangered Species Act as follows (i) The specific areas within the geographical area occupied by an animal species at the time it is listed in accordance with the provisions of section 4 of this Act on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific area outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of this Act, upon a determination by the Secretary that such areas are essential for the conservation of the species.

CRUCIAL WILDLIFE HABITAT: Sensitive use areas that are necessary to the existence, perpetuation, or introduction of one or more species during critical periods of their life cycles.

CULTURAL PROPERTY: Any definite location of past human activity, habitation or use identified through a field inventory (see below), historical documentation or oral evidence. This term may include (1) archeological or historic sites, structures and places, and (2) sites or places of traditional cultural or religious importance to a specific group, whether or not represented by physical remains. Cultural properties are managed by the system of inventory evaluation, protection, and use.

CULTURAL RESOURCES: Those fragile and non-renewable remains of human activities, occupations, and endeavors as reflected in sites, buildings, structures, or objects, including works of art, architecture, and engineering. Cultural resources are commonly discussed as prehistoric and historic values, but each period represents a part of the full continuum of cultural values from the earliest to the most recent.

CULTURAL RESOURCE INVENTORY CLASSES: BLM 8100 Manual provides through classes of inventory.

> *Class I* is an Existing Date Inventory: an inventory study of a defined area designed to provide a narrative overview (cultural resource overview) derived from existing cultural resource information and to provide a compilation of existing cultural resource site record data on which to base the development of BLM's site record system.

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Class II is a Sampling Field Inventory designed to locate and record, from surface and exposed profile indications, all cultural resource sites within a portion of a defined area in a manner which will allow an objective estimate of the nature and distribution of cultural resources in the entire defined area. The Class II inventory is a tool utilized in management and planning activities as an accurate predictor of cultural resources in the area of consideration. The primary area of consideration for the implementation of a Class II inventory is a planning unit. The secondary area is a specific project in which an intensive field inventory (Class III) is not practical or necessary.

Class III is an intensive field inventory designed to locate and record, from surface and exposed profile indications, all cultural resource sites within a specified area. The acceptable form to conduct this survey is for a qualified archaeologist to walk transects with a maximum interval of 100 feet. The inventory is used to identify any resources that may qualify for nomination to the *National Register of Historic Places*. Normally, upon completion of such inventories in an area, no further cultural resource inventory work is needed. A Class III inventory is appropriate on small project areas, all areas to be disturbed, and primary cultural resource areas.

CULTURAL SITE: A physical location of past human activities or events. Cultural resource sites are extremely variable in size and range from the location of a single cultural resource object to a cluster of cultural resource structures with associated objects and features. Prehistoric and historic sites which are recorded as cultural resources have sociocultural or scientific values and meet criterion of being more than 50 years old.

DESERT PAVEMENT: A natural, residual concentration of wind-polished, closely packed pebbles, boulders, and other rock fragments, mantling a desert surface where wind action and sheetwash have removed all smaller particles. It usually protects the underlying, finer-grained material from further deflation. The coarse fragments commonly are cemented by mineral matter.

DESIGNATED RIGHT-OF-WAY CORRIDOR: A parcel of land, either linear or areal, that has been identified by Secretarial Order, through the land use planning process, or by other management decision, as a preferred location for existing and future rights-of-way grants and suitable to accommodate more than one type of right-of-way or one or more rights-of-way which are similar, identical, or compatible.

DESIRED PLANT COMMUNITY: The plant community that has been determined through a land use or managementn plan to best meet the plan's objectives for a site. A real documented plant community that embodies the resource attributes for the present or potential use of an area, the desired plant community is consistent with the site's capability to produce the required resource attributes through natural succession, managementn intervention, or a combination of both.

DIVERSITY: An attribute of an area which is an expression of both the total number and relative abundance of species, communities, or habitats. Relative abundance can be measured by numbers individuals, cover, or various other characteristics.

EARLY SERAL STAGE: A plant community with a species composition which is 0-25% of the potential natural community one would expect to find on that ecological site.

ECOLOGICAL SITE: A kind of land with a specific potential natural community and physical site characteristics differing from other kinds of land in its ability to produce vegetation and to respond to management.

ECOLOGICAL STATUS: The present state of vegetation and soil protection of an ecological site in relation to the potential natural community for the site. Vegetation status is the expression of the relative degree to which the kinds, proportions, and amounts of plants in a community resemble that of the potential natural community. If classes are used, they should be described in ecological rather than utilitarian terms. Soil status is a measure of present vegetation and litter cover relative to the amount of cover needed on the site to prevent accelerated erosion.

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ECONOMIC IMPACT: The change, positive or negative, in economic conditions (including distribution and stability of employment and income in affected local and regional economies) that directly or indirectly result from an activity,' project, or program.

ECOSYSTEM: A complex self-sustaining natural system which includes living and nonliving components of the environment and the circulation of matter and energy between organisms and their environment.

ECOSYSTEM MANAGEMENT: The skillful use of ecological, economic, social, and managerial principles in managing ecosystems to produce, restore, or sustain ecosystem integrity and desired conditions, uses, products, values and services over the long term. Also, a process of land and resource management that emphasizes the care and stewardship of an area to ensure that human activities will be carried out to proctect natural processes, natural biodiversity, and ecological integrity.

ENDANGERED SPECIES: An animal or plant whose prospects for survival and reproduction are in immediate jeopardy, and as further defined by the Endangered Species Act of 1973.

ENVIRONMENTAL ASSESSMENT (EA): A concise public document for which a Federal agency is responsible that serves to: (a) briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact; (b) aid an agency's compliance with the National Environmental Policy Act (NEPA) when no environmental impact statement is necessary; (c) facilitate preparation of a statement when one is necessary. An EA includes brief discussions of the need for the proposal, of alternatives as required by Sec. 102 (2) of NEPA, of the environmental impacts of the proposed action and other alternatives, and a listing of agencies and persons consulted.

ENVIRONMENTAL CONSEQUENCE: A temporal or spatial change in the human environment caused by an act of man. The change should be (1) perceptible, (2) measurable, and (3) relatable through a change agent to a proposed action or alternative. A consequence is something that follows an antecedent (as a cause or agent). Consequences are synonymous with impacts and effects.

ENVIRONMENTAL IMPACT STATEMENT (EIS): A written analysis of the impacts on the environment of a proposed project or resource management plan.

EPHEMERAL RANGE: A rangeland that does not consistently produce enough forage to sustain a livestock operation but may briefly produce unusual volumes of forage to accommodate livestock grazing.

EROSION: The wearing away of land surface by wind, running water, and other geological agents.

EVALUATION (Cultural Resources): The analysis of cultural resource inventory records, the application of professional judgement to identify characteristics that contribute to possible uses for recorded cultural resources, and the recommendation of appropriate use(s) for each resource or group of resources. National Register eligibility criteria, 36 CFR Part 60, are interpreted through or with reference to BLM evaluation criteria.

EXISTING RIGHT-OF-WAY CORRIDOR: A parcel of land, without fixed limits or boundaries, that is being used as the locations for one or more rights-of-way.

EXOTIC SPECIES: A species which is not native to the United States.

EXTENSIVE RECREATION MANAGEMENT AREAS (ERMAs): Areas where recreation is unstructured and dispersed and where minimal recreation-related investments are required. ERMAs provide recreation visitors the freedom of choice with minimal regulatory constraint.

FEDERAL LAND: Land owned by the United States, without reference to how the land was acquired or which federal agency administers the land, including mineral or coal estates underlying private surface.

FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (FLPMA): Public Law 94-579, which gives the BLM legal authority to establish public land policy, to establish guidelines for administering such policy and to provide for the

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management, protection, development and enhancement of the public land.

FIRE MANAGEMENT: The integration of fire protection, prescribed burning, and fire ecology knowledge into multiple use planning, decision making, and land management activities.

FORAGE: All browse and herbaceous foods available to grazing animals.

FORAGE UTILIZATION: An index of the extent to which forage is used. Utilization classes range from slight (less than 20 percent) to severe (more than 80 percent).

FORB: Any herbaceous nonwoody plant that is not grass or grass-like.

GRASS: Any of a family of plants with narrow leaves, jointed stems, and seed- like fruit.

GRAZING PREFERENCE: The total number of AUMS of livestock grazing on public lands apportioned and attached to base property owned or controlled by a permittee or lessee. Active preference combined with suspended non-use make up total grazing preference.

GROUND WATER: Water beneath the land surface, in the zone of saturation.

GULLY EROSION: Removal of soil leading to formation of relatively large channels or gullies cut into the soil by concentrations of runoff.

HABITAT: A specific set of physical conditions that surround the single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

HABITAT MANAGEMENT PLAN (HMP): A written and officially approved plan for a specific geographical area of public land which identifies wildlife habitat and related objectives, establishes the sequence of actions for achieving objectives, and outlines procedures for evaluating accomplishments.

HAZARDOUS WASTE OR MATERIAL (HAZMAT): Any substance that poses a threat to the health or safety of persons or the environment. These include any material that is toxic, ignitabl corrosive, or radioactive.

HEAVY USE: Indicates that 60-80 percent of current year's forage production has been eaten or destroyed by grazing animals.

HERD MANAGEMENT AREA PLAN (HMAP): A written and officially approved plan for a specific geographical area of public land which identifies wild horse (or burro) herd use areas and habitat, identifies population and habitat objectives, establishes the sequence of actions for achieving objectives, and outlines procedures for evaluating accomplishments.

HISTORICAL CULTURAL RESOURCES: Historical cultural resources include all mines, ranches, towns, resorts, railroads, trails, and other evidence of human use from the time of the entrance of the Europeans to 1938.

INSTANT STUDY AREA: In additional to the study of roadless areas, Section 603(a) of FLPMA mandated that areas that were formally identified as natural or primitive areas be studied for their wilderness characteristics. With the passage of FLPMA, these *instantly* became study areas. Th recommendations for Instant Study Areas in Nevad were completed in 1985 and forwarded to Congress, where they have received no action, and cotinue to the managed under the policies of the Interim Management Policy and Guidelines for Lands Under Wilderness Reivew (IMP).

ISOLATED TRACT: A parcel of public lands surrounded by non-federal lands.

KARST: A type of topography that results from dissolution and collapse of limestone, dolomite, or gypsum beds and is characterized by closed depressions or sinkholes, caves, and underground drainage.

KEY FORAGE SPECIES: Forage species whose use serves an indicator of the degree of use of associated species.

LAND DISPOSAL: A transaction that leads to the transfer of title of public lands from the federal government.

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LATE SERAL: A plant community with a species composition which is 51-75% of the potential natural community one would expect to find on that ecological site.

LEASABLE MINERALS: Minerals such as coal, oil shale, oil and gas, phosphate, potash, sodium, geothermal resources, and all other minerals that may be acquired under the Mineral Leasing Act of 1920, as amended.

LIMESTONE: A sedimentary rock consisting chiefly (more than 50 percent) of calcium carbonate, primarily in the form of calcite.

LITHIC: A stone or rock exhibiting modification by humans. It generally applies to projectile points, scrapers and chips. rather than ground stone.

LITHIC SCATTER: A prehistoric cultural site type where flakes, cores, and stone tools are located as a result of the manufacture or use of the tools.

LOAM: Soil material that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand.

LOCATABLE MINERALS: A mineral subject to location under the 1872 mining laws. Examples of such minerals would be gold, silver, copper, and lead as compared to oil and natural gas, which are leasable minerals.

LONG-TERM PLANNING: Twenty years and beyond; approximately the year 2012.

MANAGEMENT FRAMEWORK PLAN (MFP): A planning decision document that establishes for a given planning area land use allocations, coordination guidelines for multiple use, and management objectives to be achieved for each class of land use or protection. An MFP is prepared in three steps: (1) resource recommendations, (2) impact analysis and alternative development, and (3) decision making.

METALLIC MINERALS: Those minerals whose native form is metallic or whose principal products after refinement are metallic.

MIC ALLOTMENT CATEGORY CRITERIA:

Maintain Category Criteria

a. Present range condition is satisfactory.
b. Allotments have moderate or high resource production potential, and are producing near their potential.
c. No serious resource-use conflicts or controversies exist.
d. Opportunities may exist for positive economic return from public investments.
e. Present management appears to be satisfactory.
f. Other criteria appropriate to Environmental Impact Statement area.

Improve Category Criteria

a. Present range condition is unsatisfactory.
b. Allotments have moderate to high resource production potential and are producing at low to moderate levels.
c. Serious resource-use conflicts and controversies exits.
d. Opportunities exist for positive economic return from public investments.
e. Present management appears unsatisfactory.
f. Other criteria appropriate to Environmental Impact Statement area.

Custodial Category Criteria

a. Present range condition is not a factor.
b. Allotments have low resource production potential, and are producing near their own potential.
c. Limited resource-use conflicts and controversies exist.
d. Opportunities for positive economic return on public investment do not exist or are constrained by technological or economic factors.
e. Present management appears satisfactory or is the only logical practice under existing resource conditions.
f. Other criteria appropriate to Environmental Impact Statement area.

MID SERAL STAGE: A plant community with a species composition which is 26-50% of the potential natural community one would expect to find on that ecological site.

MINERAL ENTRY: The location of mining claims by an individual to protect his right to a valuable mineral.

MINERAL WITHDRAWALS: Closure of land to mining laws, including sales, leasing and location, subject to valid existing rights.

MITIGATION: The lessening of a potential adverse effect by applying appropriate protection measures, the recovery of cultural resource data or other measures.

MODERN URBAN: One of the six classes of the recreation opportunity spectrum. In modern urban areas, opportunities to experience recreation in affiliation with individuals and groups are prevalent, as is the convenience of recreation sites and opportunities. Opportunities for wildland challenges, risk taking, and testing of outdoor skills are unimportant. Opportunities for competitive spectator sports are common, as are opportunities to use parks and open spaces highly influenced by people.

MODERATE USE: Indicates that 40-60 percent of current year's forage production has been eaten or destroyed by grazing animals.

MONITORING: The orderly collection and analysis of data to evaluate progress in meeting resource management objectives.

MULTIPLE USE: Management of public lands and their various resource values so that they are used in the combination best meeting the present and future needs of the American people. Relative resource values are considered, not necessarily the combination of uses that will give the greatest potential economic return or the greatest unit output.

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS): National standards, established under the Clean Air Act by the Environmental Protection Agency (EPA), prescribed levels of pollution in the outdoor air which may not be exceeded. There are two levels of NAAQS: primary, set at a level to protect the public health from air pollution damage, and secondary set at level to protect public welfare from air pollutic damage.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) OF 1969: A law enacted on January 1, 1970 that established a national policy to maintain conditions under which man and nature can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations of Americans. It established the Council on Environmental Quality for coordinating environmental matters at the federal level and to serve as advisor to the President on such matters. The law made all federal actions and proposals which could have significant impact on the environment subject to review by federal, state, and local environmental authorities.

NATIONAL HISTORIC PRESERVATION ACT (NHPA): The primary federal law providing for the protection and preservation of cultural resources. NHPA established the National Register of Historic Places, the Advisory Council on Historic Preservation, and the State Historic Preservation Officers.

NATIONAL REGISTER OF HISTORIC PLACI (NRHP): A list of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, and culture maintained by the Secretary of the Interior. Expanded as authorized by Section 2(b) of the Historic Sites Act of 1935 (16 U.S.C. 462) and Section 101(a) (1)(A) of the National Historic Preservation Act.

NATURAL AREA: Land managed for (1) retention of its typical or unusual plant or animal types, associations or other biotic phenomena; or (2) its outstanding scenic, geologic, soil or aquatic features or processes.

NONPOINT POLLUTION: Pollution from scattered sources, as opposed to pollution from one location, e.g. a manufacturing plant.

NONUSE: Current authorized grazing use (in AUMs) that is not used during a given time period. Nonuse is applied for and authorized on an annual basis.

OFF-ROAD VEHICLE (ORV): Any motorized vehicle capable of or designed for cross-country trav

over any type of natural terrain.(43 CFR 8340.0-5(a)). Often use interchangeably with OHV.

OFF-HIGHWAY VEHICLE: Any motorized vehicle or mechanical transport designed for moving people or materials in or over land, water, snow or air that has moving parts and that is powered by a living or nonliving power source. This does not include wheelchairs when used as necessary medical appliances. This term is used interchangeably with ORV which more specifically refers to motorized vehicles as defined in 43 CFR 8340.

OFF-HIGHWAY VEHICLE DESIGNATIONS: BLM designations used in this document are as follows:

> **Open areas** are designated areas and trails where ORVs may operate without restrictions.
>
> **Limited areas** are designated areas and trails where the use of ORVs is subject to restrictions such as limits on the number or types of vehicles allowed or the dates and times of use, limit of use to existing roads and trails, or limit of use to designated roads and trails.
>
> **Closed areas** are areas and trails where the use of ORVs are permanently or temporarily prohibited. Emergency use of vehicles is allowed.

OVERGRAZING: Consumption of vegetation by herbivores beyond the endurance of a plant to survive.

PERENNIAL PLANT SPECIES: A plant that has a life cycle of 3 years or more.

PERENNIAL STREAM: A stream of portion of stream which flows continually.

PERMITTEE: One who holds a permit to graze livestock on public land.

PETROGLYPH: A form of rock art manufactured by incising, scratching or pecking designs into rock surfaces.

PICTOGRAPH: A form of rock art created by applying mineral based or organic paints to rock surfaces.

PLANT COMMUNITY: One or more plant species growing in association on a given location of area.

PLAYA: The usually dry and nearly level lake plain that occupies the lowest part of a closed depression.

POTENTIAL NATURAL COMMUNITY: The stable biotic community that would become established on an ecological site if all successional stages were completed without human interference under present environmental conditions.

PREDATOR: An animal that preys on one or more other animals.

PRIMITIVE: One of the six classes of the recreation opportunity spectrum. Primitive areas offer recreation opportunities for isolation from the sights and sounds of human activities. where a visitor can feel a part of the natural environment, experience a high degree of challenge and risk, and use outdoor skills.

PROPER FUNCTIONING CONDITION: Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; filter sediment capture bedload, and aid floodplain development; improve against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The functioning condition of riparian-wetland areas is a result of interaction among geology, soil, water, and vegetation.

PROPOSED SPECIES: Any species of plant or animal formally proposed by the U.S. Fish and Wildlife Service (USFWS) to be listed as threatened or endangered under the Endangered Species Act.

PUBLIC LAND: Any land and interest in land owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management, without regard to how the United States

acquired ownership, except lands located on the Outer Continental Shelf; lands held for the benefit of Indians, Aleuts, and Eskimos; and lands in which the United States retains the minerals, but surface is private.

RANGE IMPROVEMENT: A structure, development or treatment used to rehabilitate, protect or improve the public lands to advance range betterment.

RANGE SITE: Rangeland that differs in its ability to produce a characteristic natural plant community. A range site is the product of all the environmental factors responsible for its development. It is capable of supporting a native plant community typified by an association of species that differ from other range sites in the kind or proportion of species or in total production.

RANGE TREND: The direction of change in range condition; it indicates whether range condition is improving, declining or remaining stable.

RANGELAND CONDITION (ECOLOGICAL): The present state of the vegetation on a range site in relation to the climax (natural potential) plant community for that site. It is an expression of the relative degree to which the kinds, proportions, and amounts of plants in a plant community resemble that of the climax plant community for the site. Rangeland condition is basically an ecological rating of the plant communitY

There are four classes that are used to express the degree to which the composition of the present plant community reflects that of the climax.

Condition Class	Range Site
Excellent	76-100
Good	51-75
Fair	26-50
Poor	0-25

RANGELAND CONDITION TREND: The direction of change in rangeland condition.

RAPTOR: Any predatory bird (such as a falcon, hawk, eagle or owl) that has feet with sharp talons or claws adapted for seizing prey and a hooked beak for shearing flesh.

RECREATION OPPORTUNITY SPECTRUM: A continuum used to characterize recreation opportunities in terms of setting, activity, and experience opportunities. Six classes are included: Primitive, Semiprimitive Nonmotorized, Semiprimitive Motorized, Roaded Natural. Rural, and Modern Urban.RIGHT-OF-WAY (ROW) An easement or permit which authorizes public land to be used for a specified purpose that generally requires a long narrow strip of land. Examples are roads, powerlines, pipelines, etc.

RECREATION VISITOR DAY: An aggregation of 12 visitor hours. A visitor hour is the presence of one or more persons on land and water for outdoor recreation for periods totalling 60 minutes; one person for one hour, two persons for one-half hour each, and so on.

RIPARIAN/WETLAND AREA: A riparian/wetland area is an area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lakeshores and streambanks are typical riparian are: Excluded are such sites as ephemeral streams washes that do not exhibit the presence of vegetation dependent upon free water in the soil.

RIPARIAN ZONE: The banks and adjacent areas of water bodies, water courses, seeps, springs, and meadows, whose waters provide soil moisture sufficiently in excess of that otherwise available locally so as to provide a more moist habitat than that of contiguous plains and uplands.

ROADED NATURAL: One of the six classes of the recreation opportunity spectrum. Roaded natural areas offer about equal opportunities for affiliation with other user groups or isolation from sights and sounds of human activities. Such areas provide the opportunity for visitors to have a high degree of interaction with the natural environment. Challenge and risk opportunities are not very important except in specific challenging activities. The practice of outdoor skills may be important. Opportunities for both motorized and nonmotorized recreation are present.

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ROCK ART (PETROGLYPH OR PICTOGRAPH):. An Archaic to Modern cultural site type consisting of incised or painted figures such as people, animals, plants or abstracts on a rock surface.

ROCK SHELTER: An archaeological or cultural resource site type consisting of an area protected by an overhanging cliff. Rock shelters were used by aboriginal Native Americans from the earliest known presence in the region until the early 1920s. The sites are often associated with the same materials as a campsite or rock art.

RUNOFF: A general term used to describe the portion of precipitation on the land that ultimately reaches streams; may include channel and non-channel flow.

RURAL: One of the six classes of the recreation opportunity spectrum. In rural areas, opportunities to experience recreation in affiliation with individuals and groups are prevalent, as is the convenience of recreation sites. These factors generally are more important than the natural setting. Opportunities for wildland challenges, risk taking, and testing of outdoor skills are unimportant except in activities involving challenge and risk.

SAND: Individual rock or mineral fragments in a soil that range in diameter from 0.05 to 2.0 millimeters. Most sand grains consist of quartz, but they may be of any mineral composition. The textural class name of any soil that contains 85 percent or more sand and less that 10 percent clay.

SECTION: One square mile or 640 acres.

SECTION 202 WILDERNESS STUDY AREA: A Wilderness Study Area under study through the authority of Section 202 of the *Federal Land Policy and Management Act* of 1976. This requires recurrent land use planning by the Bureau of Land Management.

SEDIMENT: Solid, clastic material, both mineral and organic, that is in suspension, is being transported or has been moved from its site of origin by water, wind, or ice and has come to rest on the earth's surface.

SEMI-PRIMITIVE MOTORIZED RECREATION: One of the six classes of the recreation opportunity spectrum. Semiprimitive motorized areas offer some opportunities for isolation from the sights and sounds of human activities, but this is not as important as opportunities for primitive recreation. Use of these areas involves the opportunities for visitors to have a high degree of interaction with the natural environment, to have moderate challenge and risk, and to use outdoor skills. Such an area provides an explicit opportunity to use motorized equipment while in the area.

SEMI-PRIMITIVE NON-MOTORIZED RECREATION: One of the six classes of the recreation opportunity spectrum. Semiprimitive nonmotorized areas offer some opportunities for isolation from the sights and sounds of human activities, but this is not as important as opportunities for primitive recreation. Use of these areas involves the opportunity for visitors to have a degree of interaction with the natural environment, to have moderate challenge and risk, and to use outdoor skills.

SENSITIVE SPECIES: Species of plant and animal designated as such by the BLM State Director, in cooperation with the State of Nevada Department of Conservation and Natural Resources. BLM policy is to provide these species with the same level of protection as is provided for candidate species under BLM Manual 6840.06D.

SEVERE USE: Utilization in excess of 80 percent.

SHORT-TERM IMPACT: Ten years or less; approximately the year 2001.

SILT: Sedimentary material consisting primarily of mineral particles intermediate in size between sand and clay/

SLIGHT USE: Indicates that 0 to 20 percent of current year's forage production has been eaten or destroyed by grazing animals.

SOILS: (a) The unconsolidated mineral material on the immediate surface of the earth that serves as a natural medium for the growth of land plants. (b) The unconsolidated mineral matter of the surface of the earth that has been influenced by genetic and environmental factors including parent material, climate, topography, all acting over a period of time

and producing soil that differs from the parent material in physical, chemical, biological, and morphological properties and characteristics.

SOIL ASSOCIATIONS: (a) A group of defined and named taxonomic soil units occurring together in an individual and characteristic pattern over a geographic region, comparable to plant associations in many ways. (b) A soil mapping unit in which two or more defined taxonomic units occurring together in a characteristic pattern are combined because of map scale or intermixing of taxonomic units.

SOIL COMPACTION: A decrease in the volume of a soil as a result of compressive stress from livestock trampling as an example.

SOIL DEPTH:

Lower boundary in inches.

Very shallow	12
Shallow	12 – 20
Moderately deep	20 – 36
Deep	36 – 40
Very deep	40

SOIL PROFILE: A succession of soil zones or horizons beginning at the surface that have been developed through normal soil-forming processes.

SOIL SERIES: A group of soils having genetic horizons (layers) that, except for texture of the surface layer, have similar characteristics and arrangement in the profile.

SPECIAL RECREATION MANAGEMENT AREA (SRMA): An area where special management or intensive recreation management is needed. Recreation activity plans are required, and greater managerial investment in facilities or supervision can be anticipated.

SPECIAL STATUS SPECIES: Special status species include all species of plants and animals that are federally listed as threatened, endangered or candidates for listing; species proposed for listing as threatened or endangered; species listed by the State for reasons of endangerment or extinction; and species identified by the BLM as sensitive.

SUCCESSION: An orderly process of community development that involves changes in species structure and community processes with time; it is reasonabl... directional and, therefore, predictable.

SUSTAINED YIELD: The achievement and maintenance in perpetuity of a high level of annual or regular periodic output of the various renewable resources of the public lands consistent with multiple use.

THREATENED SPECIES: Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range, and as further defined by the Endangered Species Act of 1973.

THRIVING NATURAL ECOLOGICAL BALLANCE: A thriving ecological balance occurs when: 1) use of key perennial forage species within Herd Management Areas does not exceed 50 percent for grasses and 45 percent of current year's growth for shrubs and forbs; 2) forage plant species exhibit static or apparent upward trend; 3) sufficient water is available for the number of animals found in the Herd Management Area; and 4) the wild horses and burros found in an area are in fair to good physical condition throughout the year.

TRADITIONAL CULTURAL PROPERTY: specific location where a community traditionally conducted exclusive or special activities, or has a unique significance in its spiritual or religious world. Its principal values are often intangible, and not restricted to locations of archaeological artifacts or locations. A Traditional Cultural Property may be encompassed by a Traditional Lifeway Area.

TRADITIONAL LIFEWAY AREA: A specific location where a community traditionally conducted exclusive or special activities, or has a unique significance in its spiritual or religious world. Its principal values are often intangible, and not restricted to locations of archaeological artifacts or features. A Traditional Cultural Property may be encompassed by a Traditional Lifeway Area.

UTILIZATION: The portion of the current year's forage production that is consumed or destroyed by grazing animals.

VEGETATION STATUS: The expression of the relative degree to which the kinds, proportions, and amounts of plants in a community resemble that

the potential plant community (see early seral, mid seral. late seral and potential natural community).

VIABLE POPULATION: A population that contains an adequate number of individuals appropriately distributed to ensure a high probability of long-term survival without significant human intervention.

VIEWSHED: The landscape that can be directly seen under favorable atmospheric conditions from a viewpoint or along a transportation corridor.

VISUAL RESOURCES: Visible features of the landscape including land, water, vegetation, and animals.

VISUAL RESOURCE MANAGEMENT (VRM): The planning, designing, and implementation of management objectives for maintaining scenic value and visual quality on public lands (see appendix on BLM Visual Resource Management).

WASH (DRY WASH): The channel of a flat-floored ephemeral stream. commonly with very steep to vertical banks cut in unconsolidated material. It is usually dry but can be transformed into a temporary watercourse or short-lived torrent after heavy rain within the watershed.

In southern Nevada, dry washes are commonly used transportation corridors due to flat sand or gravel surfaces. lack of vegetation and accessibility as compared to the surrounding terrain. Casual off-road vehicle use would be limited to those dry washes greater than 8 feet in width.

WILDERNESS CHARACTERISTICS: Identified by Congress in the 1964 Wilderness Act; namely size, naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values such as geological, archeological, historical, ecological, scenic, or other features. It is required that the area possess at least 5,000 acres or more of contiguous public land or be of a size to make practical its preservation and use in an unimpaired condition; be substantially natural or generally appear to have been primarily by the forces of nature, with the imprint of man being substantially unnoticeable; and have either outstanding opportunities for solitude or a primitive and unconfined type of recreation.

WILDERNESS STUDY AREAS (WSA): A roadless area which has been found to have wilderness characteristics.

WILDERNESS STUDY CRITERIA: The criteria and quality standards developed in the Wilderness Study Policy to guide planning efforts in the wilderness EISs.

WILD HORSE AREA: An area of the public lands which provides habitat for one or more wild horse herds.

WILD HORSE: All unbranded and unclaimed horses and their progeny that have used public lands on or after December 15, 1971, or that do use these lands as all or part of their habitat.

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ACRONYMS AND ABBREVIATIONS

ABZLAA	Aerojet Buffer Zone Lease Agreement Area
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ADC	Animal Damage Control
AIRFA	*American Indian Religious Freedom Act* of 1978
AML	Appropriate Management Level
AMNWR	Ash Meadows National Wildlife Refuge
AMP	Allotment Management Plan
AMRP	Ash Meadows Recovery Plan
AMS	Analysis of the Management Situation
APE	Area of Potetnial Effect
AQCR	Air Quality Control Regions
AQS	Air Quality Standard
ARMP	Approved Resource Management Plan
ATB	All Terrain Bicycle
ATV	All-Terrain Vehicle
AUM	Animal Unit Month
BCB	Back Country Byway
BMP	Best Management Practices
BO	Biological Opinion
BOR	Bureau of Reclamation
BLM	Bureau of Land Management
CCHD	Clark County Health District
CCRFCD	Clark County Regional Flood Control District
CEQ	Council on Environmental Quality
CDCA	California Desert Conservation Area
CFR	Code of Federal Regulations
CHU	Critical Habitat Unit
CRA	Caliente Resource Area
CRBSP	Colorado River Basin Salinity Project
CRC	Colorado River Commission
CRMP	Coordinated Resource Management and Planning
DCA	Desert Conservation Area
DCP	Desert Conservation Plan
DEIS	Draft Environmental Impact Statement
DLE	Desert Land Entry
DNWR	Desert National Wildlife Range
DOD	Department of Defense
DOE	Department of Energy
DOI	Department of the Interior
DPC	Desired Plant Community
DRMP	Draft Resource Management Plan
DRP	Draft Resource Plan
DTCC	Desert Tortoise Conservation Center
DWMA	Desert Wildlife Management Area
DVNEA	Desert View Natural Environmental Area
DVNM	Death Valley National Monument
DWMA	Desert Wildlife Management Area
EA	Environmental Assessment
ECC	Erosion Condition Class
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	*Endangered Species Act* of 1973
ESL	Endangered Species List
ESR	Erosion Susceptibility Rating
EPA	Environmental Protection Agency
ERMA	Extensive Recreation Management Area
FDWS	Federal Drinking Water Standards
FEIS	Final Environmental Impact Statement
FFMA	Fire Fuels Management Area
FLPMA	Federal Land Policy and Management Act
FMIR	Fort Mojave Indian Reservation
FP	Flood Plain
FRLSP	Floyd R. Lamb State Park (formerly Tule Springs)
FRP	Fire Rehabilitation Plan
FSA	Fire Suppression Area
FUA	Fire Use Area
FY	Fiscal Year
GAO	General Accounting Office
GIS	Geographic Information Systems
GMP	General Management Plan
HAZMAT	Hazardous Materials
HCP	Habitat Conservation Plan
HMA	Habitat/Herd Management Area
HMAP	Herd Management Area Plan
HMP	Habitat Management Plan
I-	Interstate (highway)
IBLA	Internal Board of Land Appeals
IMP	Interim Management Policy
IPP	Intermountain Power Project
ISA	Instant Study Area
LADWP	Los Angeles Department of Water and Power
LDA	Lands Disposal Areas
LLDA	Laughlin Land Disposal Area

LMNRA	Lake Mead National Recreation Area (NPS)
LVDO	Las Vegas District Office (BLM)
LVDRL	Las Vegas Dunes Recreation Lands
LVPIR	Las Vegas Paiute Indian Reservation
LVVAQNA	Las Vegas Valley Air Quality Non-attainment Area
LVVWD	Las Vegas Valley Water District
MAT	Marketplace-Allen 500 kV Transmission project
MCL	Mid-Carpace Length
MDA	Minerals Disposal Area
MFP	Management Framework Plan
mg/l	milligrams per liter
MMS	Mineral Management Service
MNSAMP	Mojave National Scenic Area Management Plan
MNWR	Moapa National Wildlife Refuge
MOA	Memorandum of Agreement
MOG	Management Oversight Group
MOU	Memorandum of Understanding
MRIR	Moapa River Indian Reservation
MSA	Management Situation Analysis
NAAQS	National Ambient Air Quality Standards
NAFB	Nellis Air Force Base
NAFR	Nellis Air Force Range
NBS	National Biological Survey
NDOT	Nevada Department of Transportation
NDOW	Nevada Division of Wildlife
NDF	Nevada Division of Forestry
NEPA	National Environmental Policy Act of 1969
NERC	National Ecology Research Center
NHA	Natural Hazard Area
NHPA	*National Historic Preservation Act* of 1966
NOI	Notice of Intent
NPS	National Park Service
NRCA	National Resources Conservation Service (previously SCS)
NRI	National Rivers Inventory
NRS	Nevada Revised Satutes
NRSTF	National Range Studies Task Force
NSO	Nevada State Office
NTS	Nevada Test Site
NWHR	Nevada Wild Horse Range
NWR	National Wildlife Refuge
ONA	Outstanding Natural Areas
ORV	Off-road Vehicles
OST/MR	Old Spanish Trail/Mormon Road
OSWMA	Overton State Wildlife Manag Area
PFC	Proper Functioning Condition
PNC	Potential Natural Community
PRP	Proposed Resource Plan
PRMP/FEIS	Proposed Resource Management Plan/Final Environmental Impact Statement
PL	Public Law
RAMP	Recreation Activity/Area Management Plan
R&PP	Recreation and Public Purposes (Act)
RFDS	Reasonable Foreseeable Development Scenario
RFFA	Reasonably Foreseeable Future Action
RL	Recreation Lands
RMA	Recreation Management Area
RMAP	Recreation Management Area Plan
RMP	Resource Management Plan
RNA	Resource Natural Area
RPS	Rangeland Program Summary
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
ROW	Right-of-way
RRCNCA	Red Rock Canyon National Conservation Area
RRCRL	Red Rock Canyon Recreation L
RSD	Release Site Description
RZ	Riparian Zone
SCS	Soils Conservation Service (name change to NRCA)
SDRMP	Supplement to the Draft Resource Management Plan
SHPO	State Historic Preservation Office
SMA	Special Management Area
SMBR	Sheep Mountain Bombing Range
SMNA	Sunrise Mountain Natural Area
SMNRA	Spring Mountains National Recreation Area (Toiabe National Forest)
SR	State Route (highway)
SRA	Stateline Resource Area
SRMA	Special Recreation Management Area
SSS	Special Status Species
T&E	Threatened and Endangered (Species)
TAS	Total Adjusted Sign
TCP	Traditional Cultural Property
TDS	Total Dissolved Solids
TLA	Traditional Lifeway Area
TMA	Tortoise Management Area
TNC	The Nature Conservancy
TNF	Toiyable National Forest
URTD	Upper Respiratory Tract Disea

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USAF	United States Air Force
US	United States
USC	United States Code
USDI	United States Department of the Interior
USGS	United States Geological Survey
USFS	United States Forest Service
USFWS	United States Fish and Wildife Service
USLW	
VMNNA	Virgin Mountain National Natural Area
VOFSP	Valley of Fire State Park
VRM	Visual Resource Management
VRNRL	Virgin River National Recreation Lands
WA	Wilderness Area
WAPA	Western Area Power Administration
WH&B	Wild Horse(s) and Burro(s)
WHBA	*Wild Horse and Burro Act*
WMP	Watershed Management Plan
WSA	Wilderness Study Area
WSR	Wild and Scenic River

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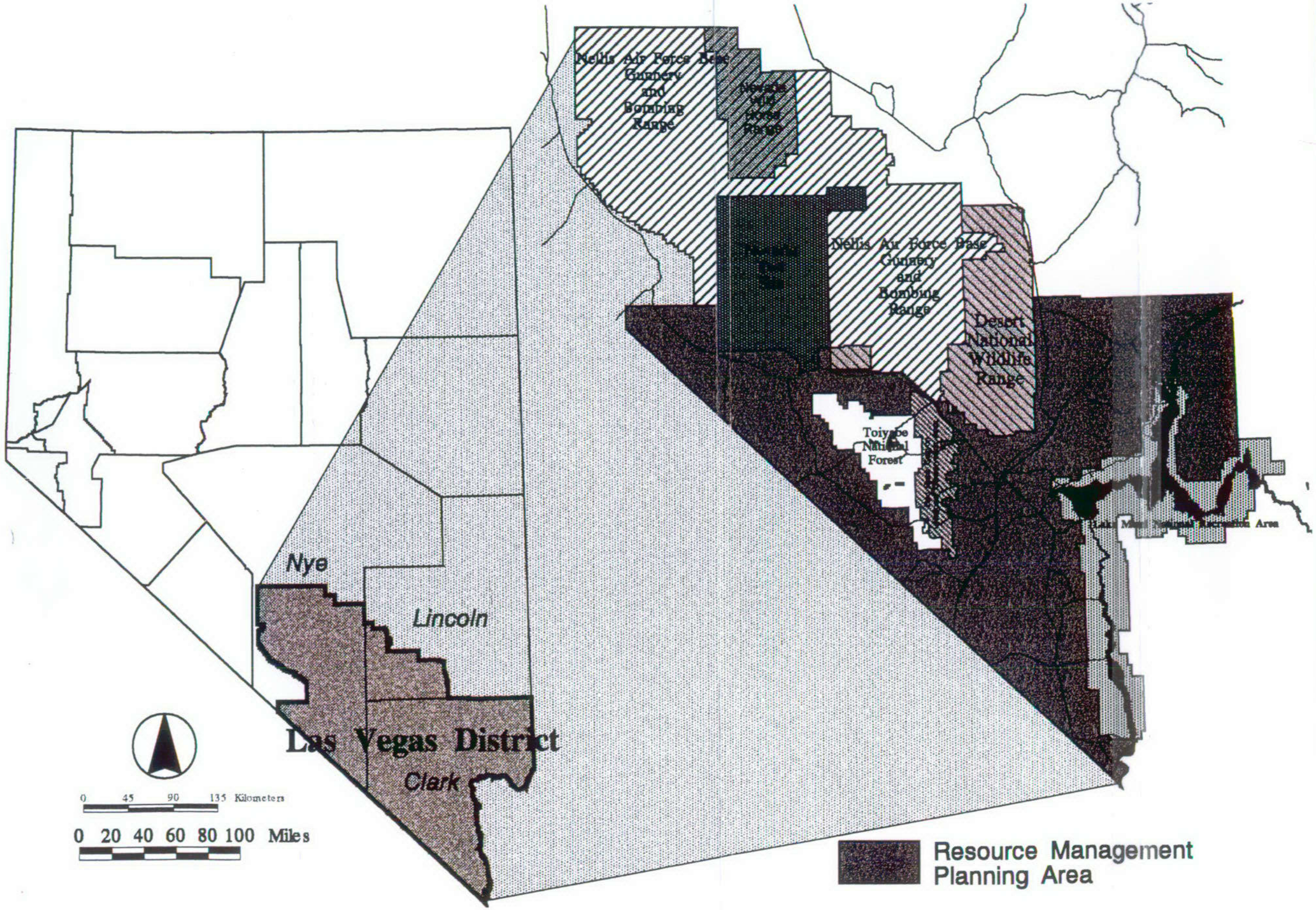
Resource Management Plan

Bureau of Land Management
Las Vegas District



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Map # 1-1

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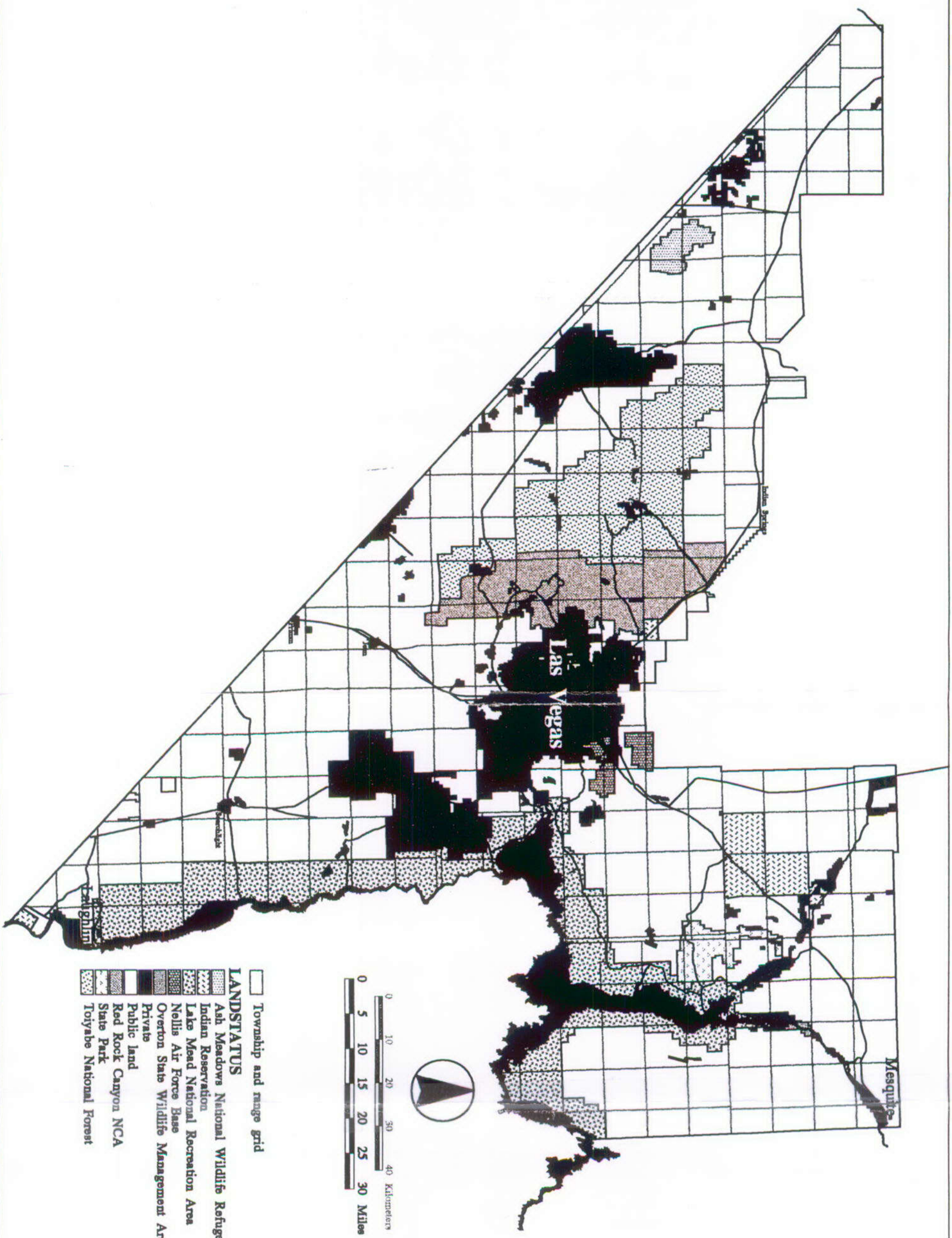

Township and range grid

LANDSTATUS

- Ash Meadows National Wildlife Refuge
- Indian Reservation
- Lake Mead National Recreation Area
- Nellis Air Force Base
- Overton State Wildlife Management Area
- Private
- Public land
- Red Rock Canyon NCA
- State Park
- Toiyabe National Forest

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Map # 1-2

Prepared July 11, 1997

Bureau of Land Management
Las Vegas District

Resource Management Plan

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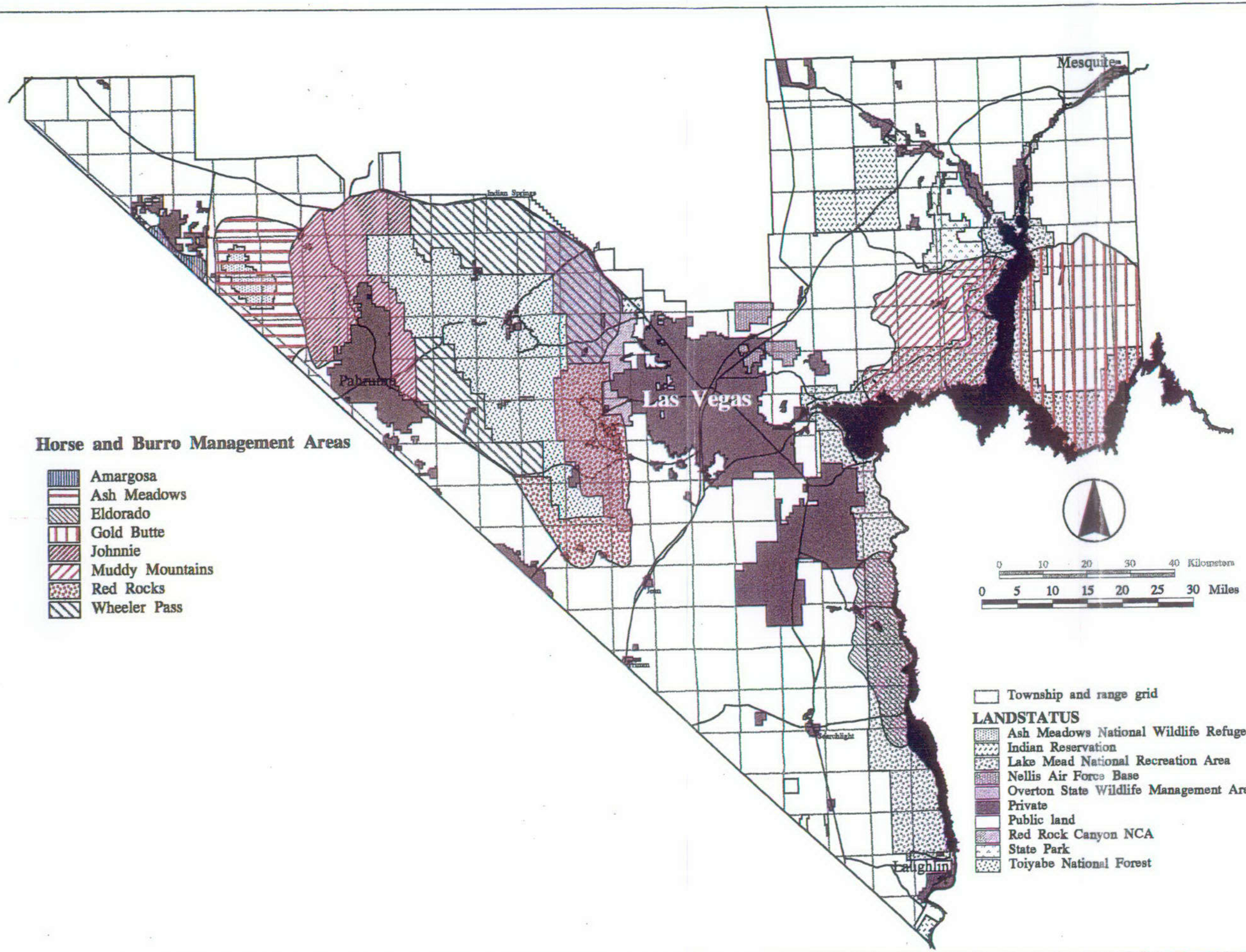
Resource Management Plan

Bureau of Land Management
Las Vegas District



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Map # 2-1

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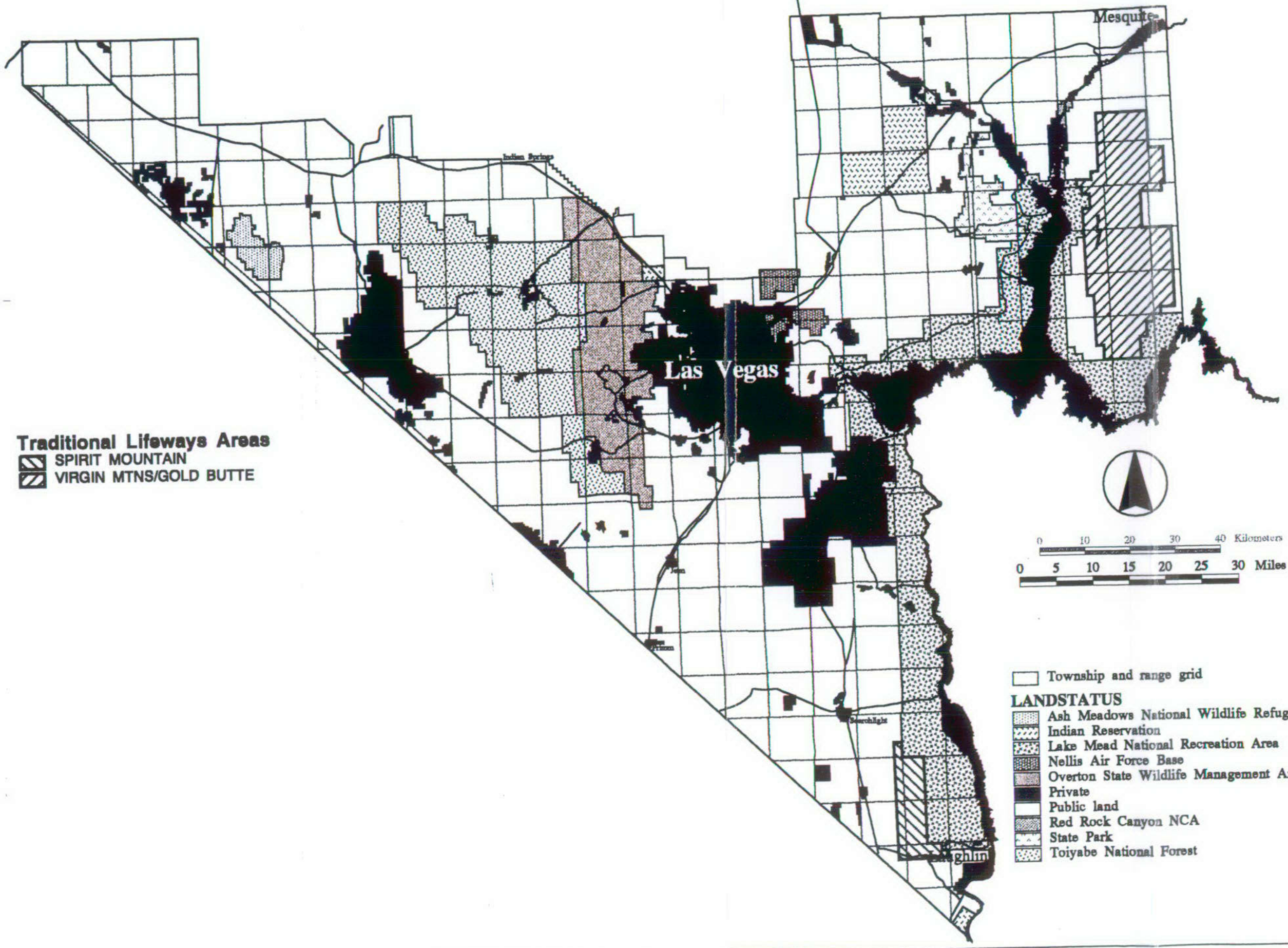
Resource Management Plan

Bureau of Land Management
Las Vegas District



Traditional Lifeways Areas
- SPIRIT MOUNTAIN
- VIRGIN MTNS/GOLD BUTTE

0 10 20 30 40 Kilometers
0 5 10 15 20 25 30 Miles

Township and range grid

LANDSTATUS
- Ash Meadows National Wildlife Refuge
- Indian Reservation
- Lake Mead National Recreation Area
- Nellis Air Force Base
- Overton State Wildlife Management Area
- Private
- Public land
- Red Rock Canyon NCA
- State Park
- Toiyabe National Forest

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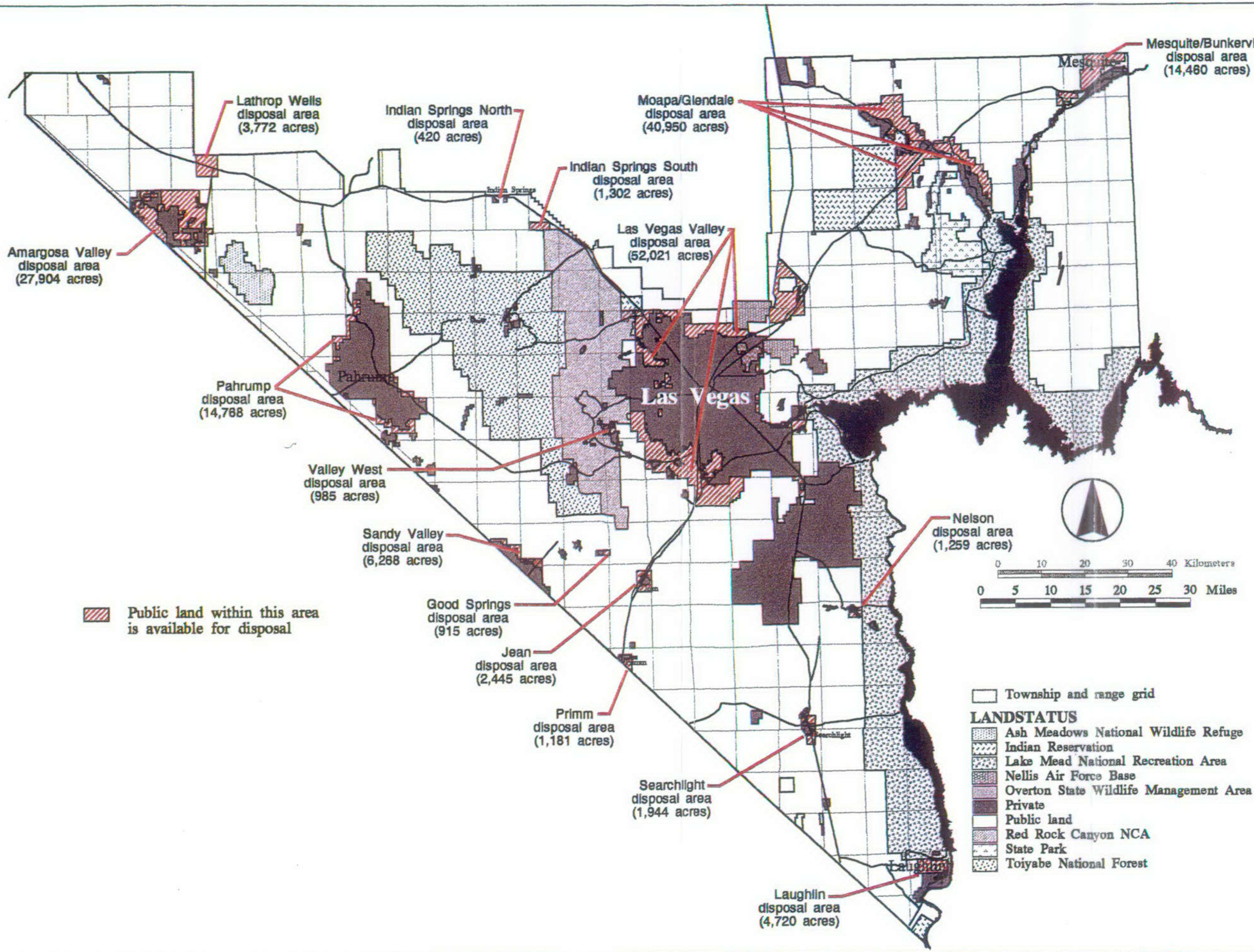
The data was prepared using the BLM's ESRI ARC/INFO geographic information system and maps plotted using the ESRI ArcView system.

Map # 2-2
Prepared July 11, 1997

Resource Management Plan

Bureau of Land Management
Las Vegas District



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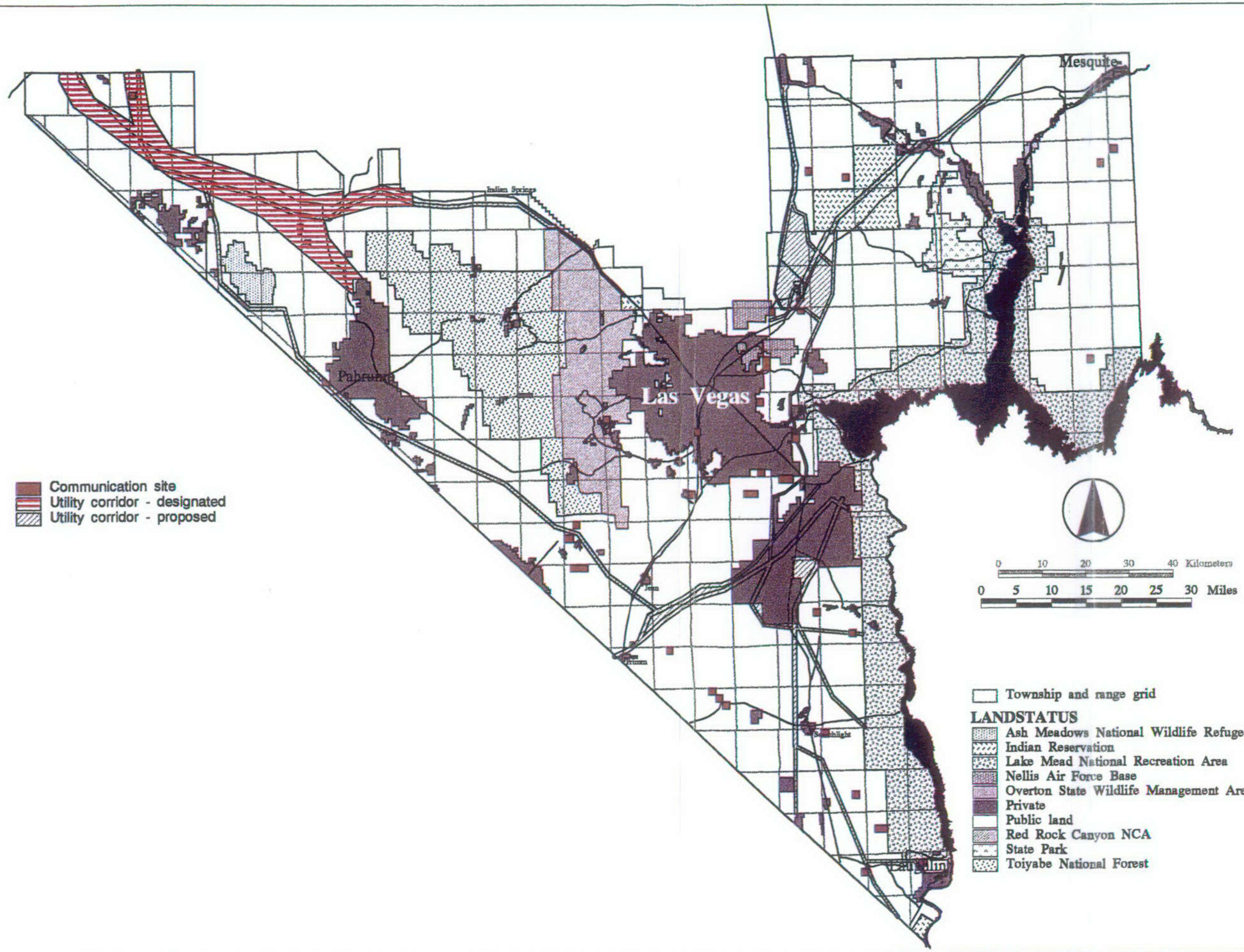
Map # 2-3

Prepared January 22, 1998

Resource Management Plan

Bureau of Land Management
Las Vegas District



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The data was prepared using the BLM's ESRI ARC/INFO geographic information system and maps plotted using the ESRI ArcView system.

Map # 2-4

Prepared July 11, 1997

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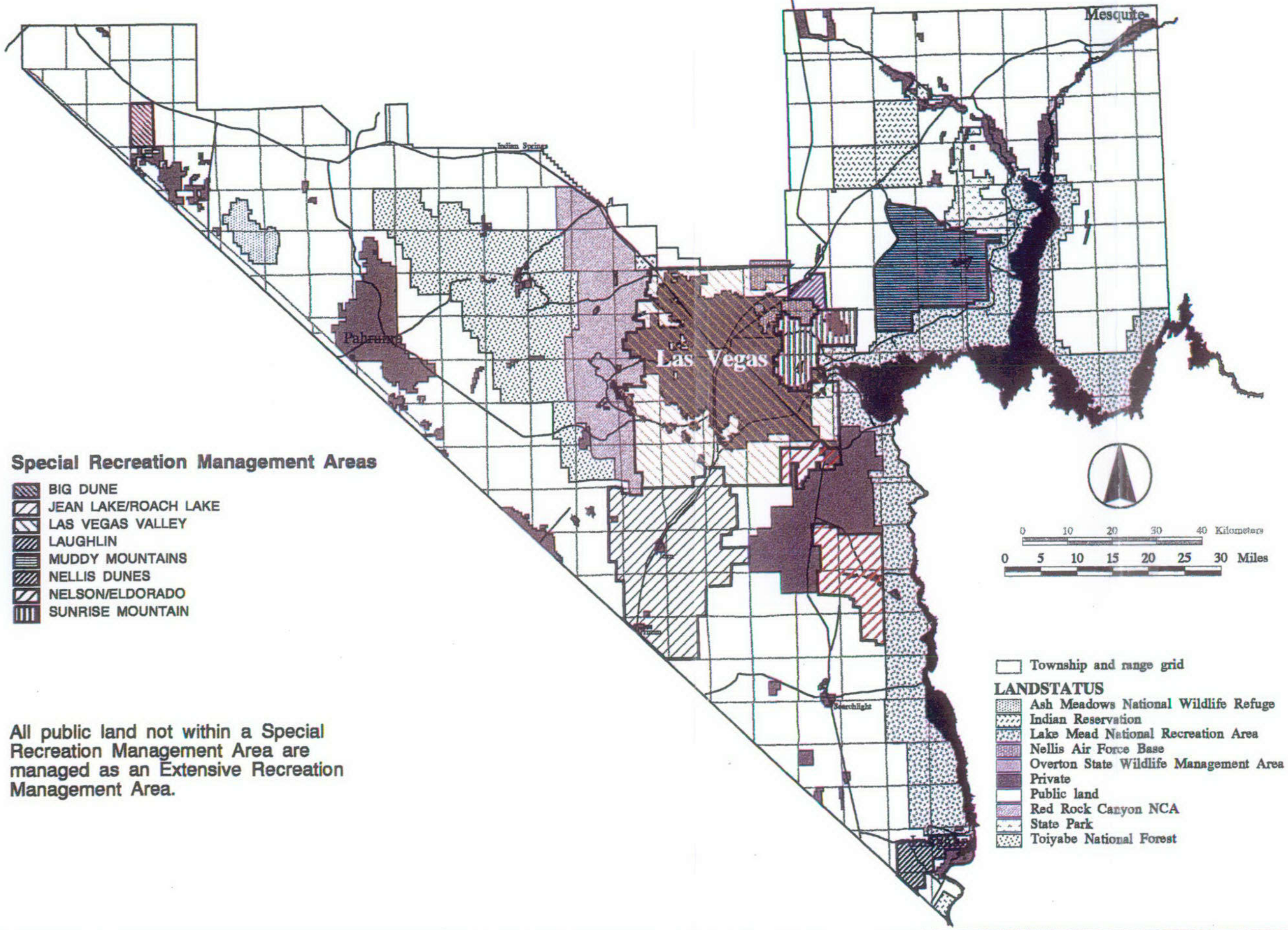
Resource Management Plan

Bureau of Land Management
Las Vegas District



Special Recreation Management Areas

- BIG DUNE
- JEAN LAKE/ROACH LAKE
- LAS VEGAS VALLEY
- LAUGHLIN
- MUDDY MOUNTAINS
- NELLIS DUNES
- NELSON/ELDORADO
- SUNRISE MOUNTAIN

All public land not within a Special Recreation Management Area are managed as an Extensive Recreation Management Area.

0 10 20 30 40 Kilometers
0 5 10 15 20 25 30 Miles

Township and range grid

LANDSTATUS

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Map # 2-5

Prepared July 11, 1997

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Resource Management Plan

Bureau of Land Management
Las Vegas District

Mesquite
Indian Springs
Pahrump
Las Vegas
Laughlin

0 10 20 30 40 Kilometers
0 5 10 15 20 25 30 Miles

Instant Study Areas
- SUNRISE MOUNTAIN NATURAL AREA
- VIRGIN MOUNTAIN NATURAL AREA

Wilderness Study Areas
- Arrow Canyon Range
- El Dorado
- Fish and Wildlife #1
- Fish and Wildlife #2
- Fish and Wildlife #3
- Garret Buttes
- Ireteba Peaks
- Jumbo Springs
- LaMadre Mountains
- Lime Canyon
- Meadow Valley Range
- Million Hills
- Mormon Mountians
- Mount Stirling
- Muddy Mountains
- Nellis # 3
- Nellis #1
- Nellis #2
- North McCullough Mountains
- Pine Creek
- Quail Springs
- Resting Springs
- South McCullough Mountains

Township and range grid

LANDSTATUS
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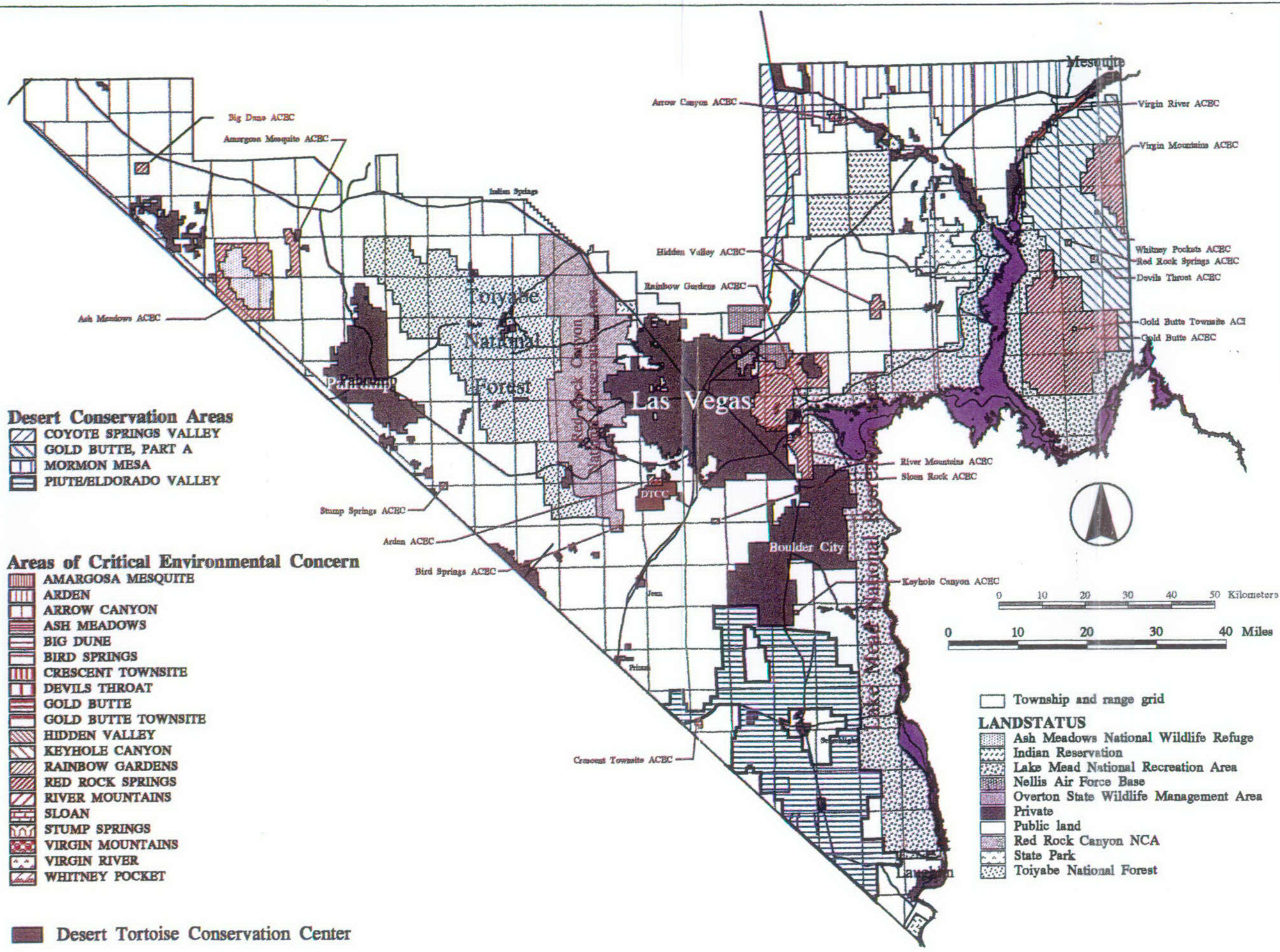
Map # 2-6
Prepared July 11, 1997

Resource Management Plan

Bureau of Land Management
Las Vegas District



Desert Conservation Areas
- COYOTE SPRINGS VALLEY
- GOLD BUTTE, PART A
- MORMON MESA
- PIUTE/ELDORADO VALLEY

Areas of Critical Environmental Concern
- AMARGOSA MESQUITE
- ARDEN
- ARROW CANYON
- ASH MEADOWS
- BIG DUNE
- BIRD SPRINGS
- CRESCENT TOWNSITE
- DEVILS THROAT
- GOLD BUTTE
- GOLD BUTTE TOWNSITE
- HIDDEN VALLEY
- KEYHOLE CANYON
- RAINBOW GARDENS
- RED ROCK SPRINGS
- RIVER MOUNTAINS
- SLOAN
- STUMP SPRINGS
- VIRGIN MOUNTAINS
- VIRGIN RIVER
- WHITNEY POCKET

Desert Tortoise Conservation Center

Township and range grid

LANDSTATUS
- Ash Meadows National Wildlife Refuge
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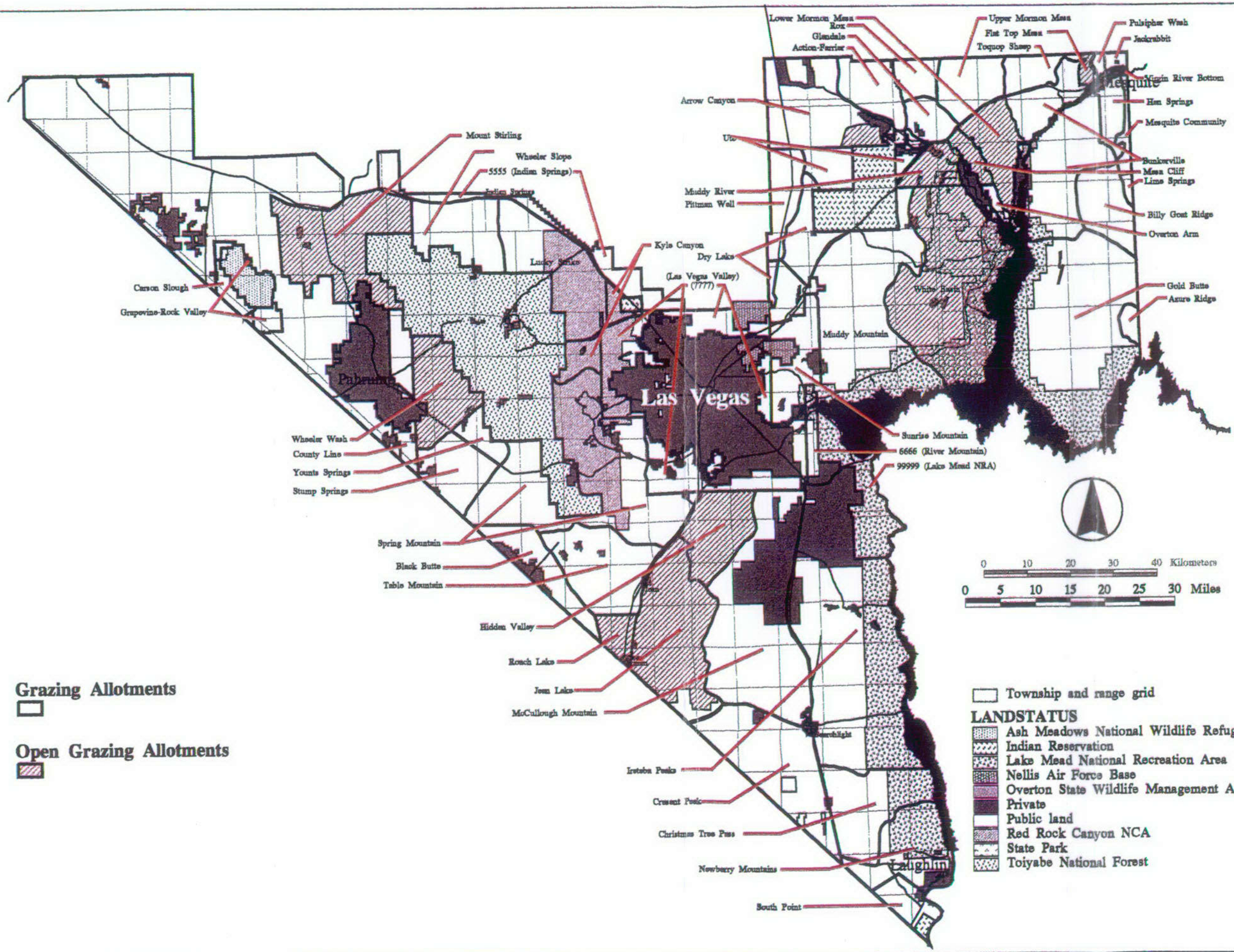
Map # 2-7
Prepared May 10, 1997

Resource Management Plan

Bureau of Land Management
Las Vegas District



Grazing Allotments

Open Grazing Allotments

Township and range grid

LANDSTATUS

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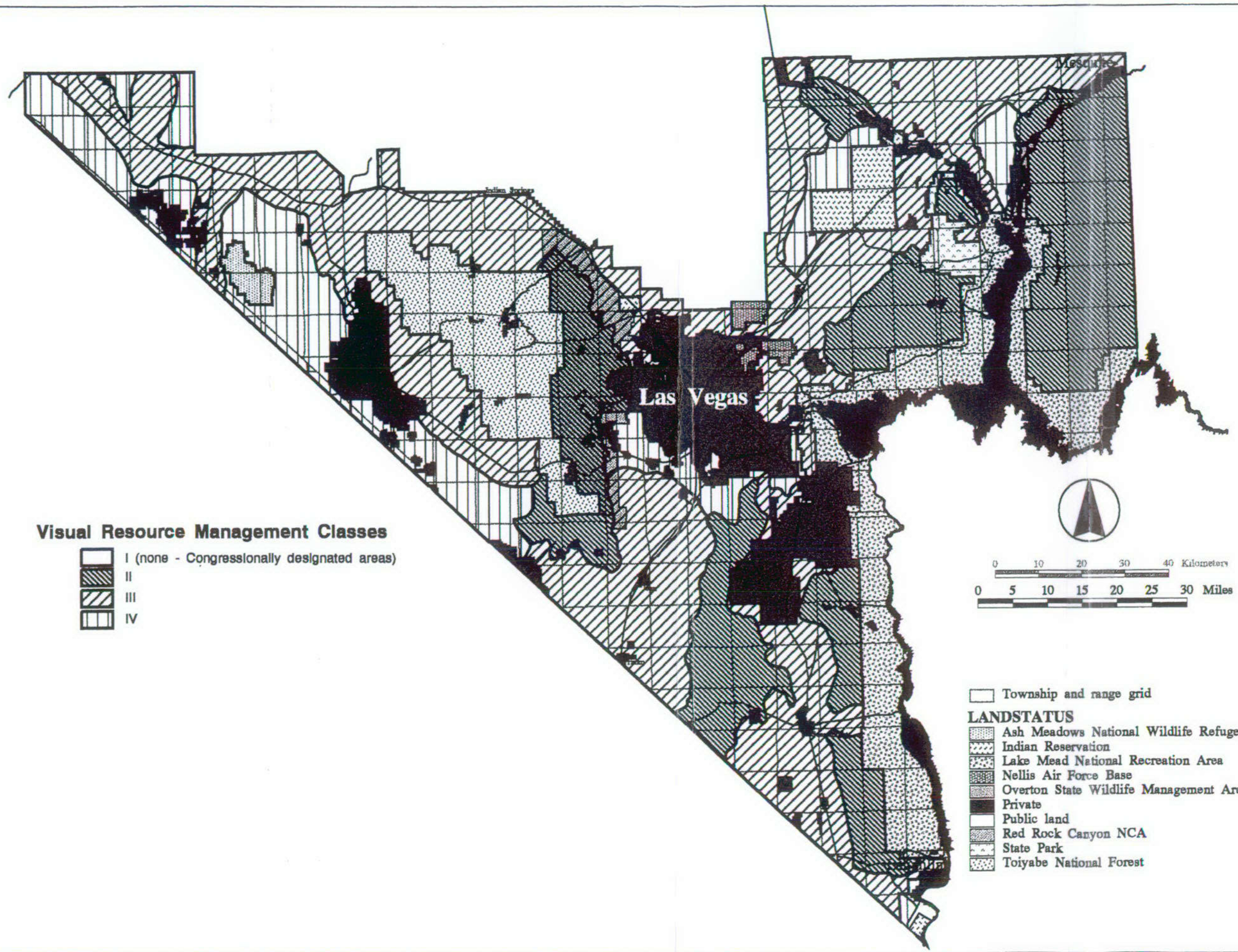
Map # 2-8

Prepared July 11, 1997

735

Resource Management Plan

Bureau of Land Management
Las Vegas District



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Map # 2-9

Prepared July 11, 1997

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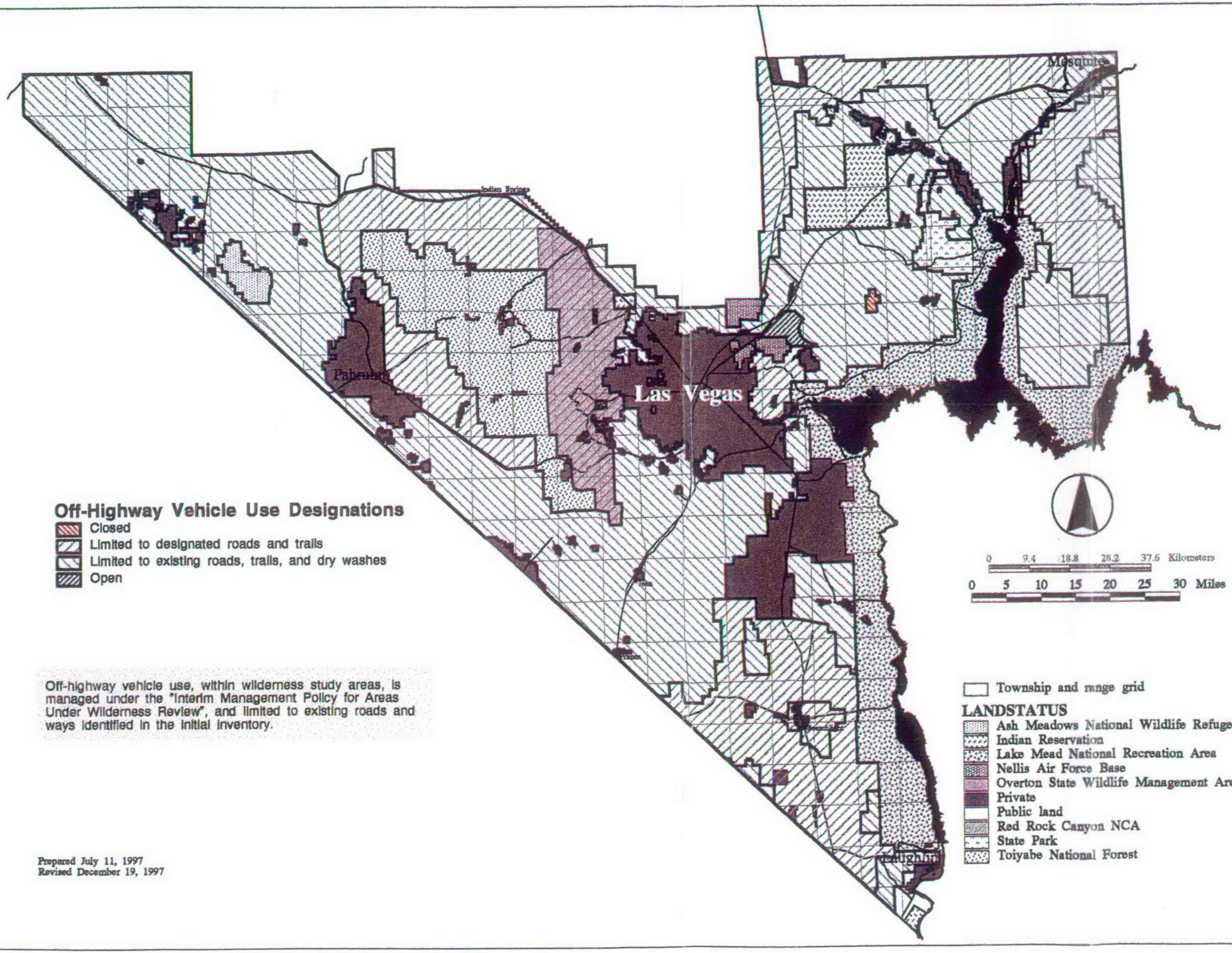

Resource Management Plan

Bureau of Land Management
Las Vegas District

Off-Highway Vehicle Use Designations

- Closed
- Limited to designated roads and trails
- Limited to existing roads, trails, and dry washes
- Open

Off-highway vehicle use, within wilderness study areas, is managed under the "Interim Management Policy for Areas Under Wilderness Review", and limited to existing roads and ways identified in the initial inventory.

Prepared July 11, 1997
Revised December 19, 1997

0 9.4 18.8 28.2 37.6 Kilometers
0 5 10 15 20 25 30 Miles

Township and range grid

LANDSTATUS

- Ash Meadows National Wildlife Refuge
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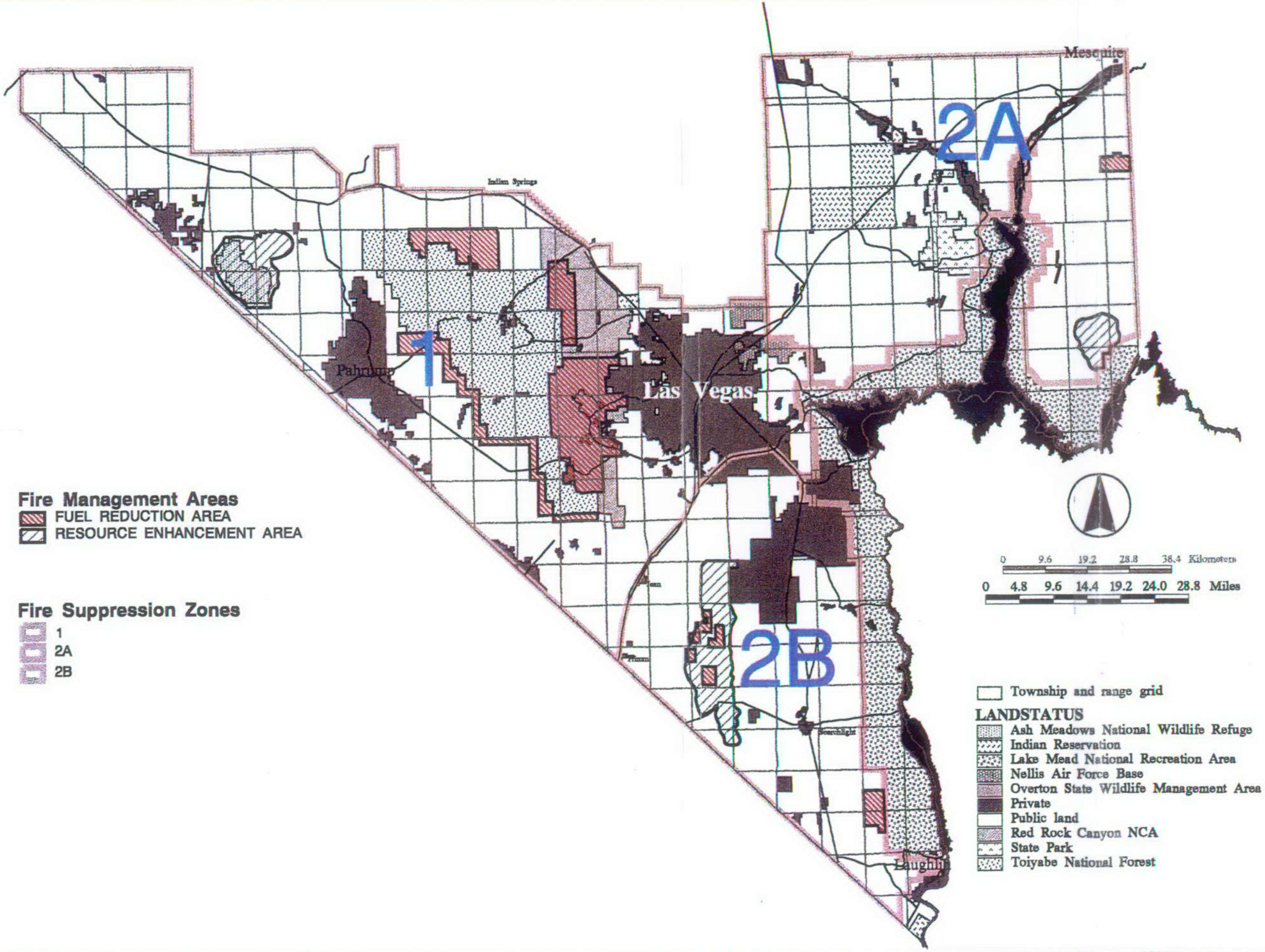
Map # 2-10

Resource Management Plan

Bureau of Land Management
Las Vegas District



Fire Management Areas
- FUEL REDUCTION AREA
- RESOURCE ENHANCEMENT AREA

Fire Suppression Zones
- 1
- 2A
- 2B

0 9.6 19.2 28.8 38.4 Kilometers
0 4.8 9.6 14.4 19.2 24.0 28.8 Miles

Township and range grid

LANDSTATUS
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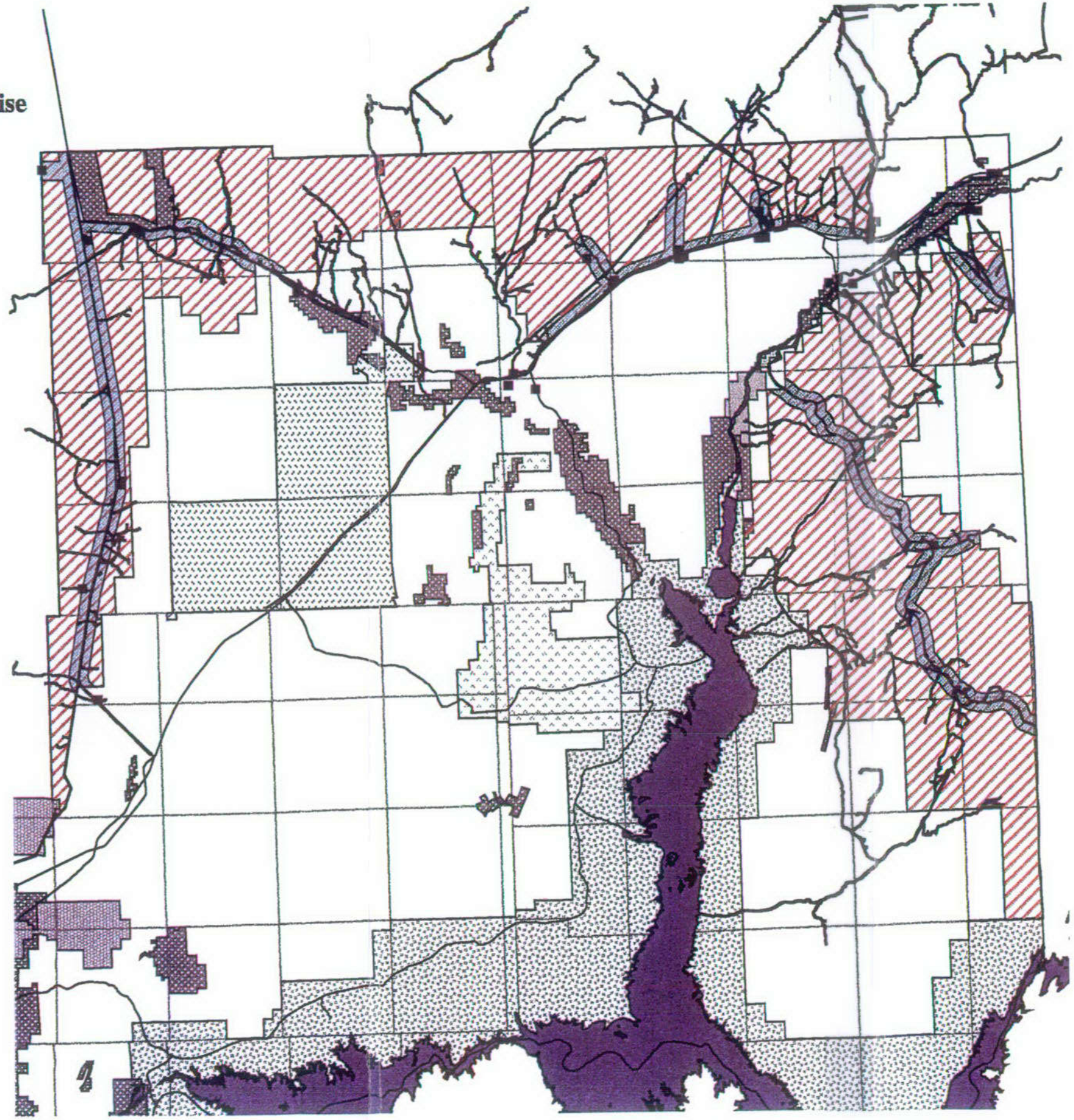
Map # 2-11
Prepared July 11, 1997

738

Material Site Rights-of-Way and Free Use Permits in the Northern Tortoise Areas of Critical Environmental Concern



Landstatus

- Indian Reservation
- Lake Mead National Recreation Area
- Nellis Air Force Base
- Overton State Wildlife Mgmt Area
- Private
- Public land
- State Park

- Township and Range Grid
- Major Roads and Highways
- Roads and trails in and around tortoise ACECs (Source: GPS data)
- Tortoise ACEC
- Area open to material site ROWs and free use permits
- Material site ROW or free use permit

0 4.9 9.8 14.7 19.6 24.5 Kilometers

0 5 10 15 20 Miles

Bureau of Land Management
Las Vegas District

Resource Management Plan

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The data was prepared using the BLM's ESRI ARC/INFO geographic information system and maps plotted using the ESRI ArcView system.

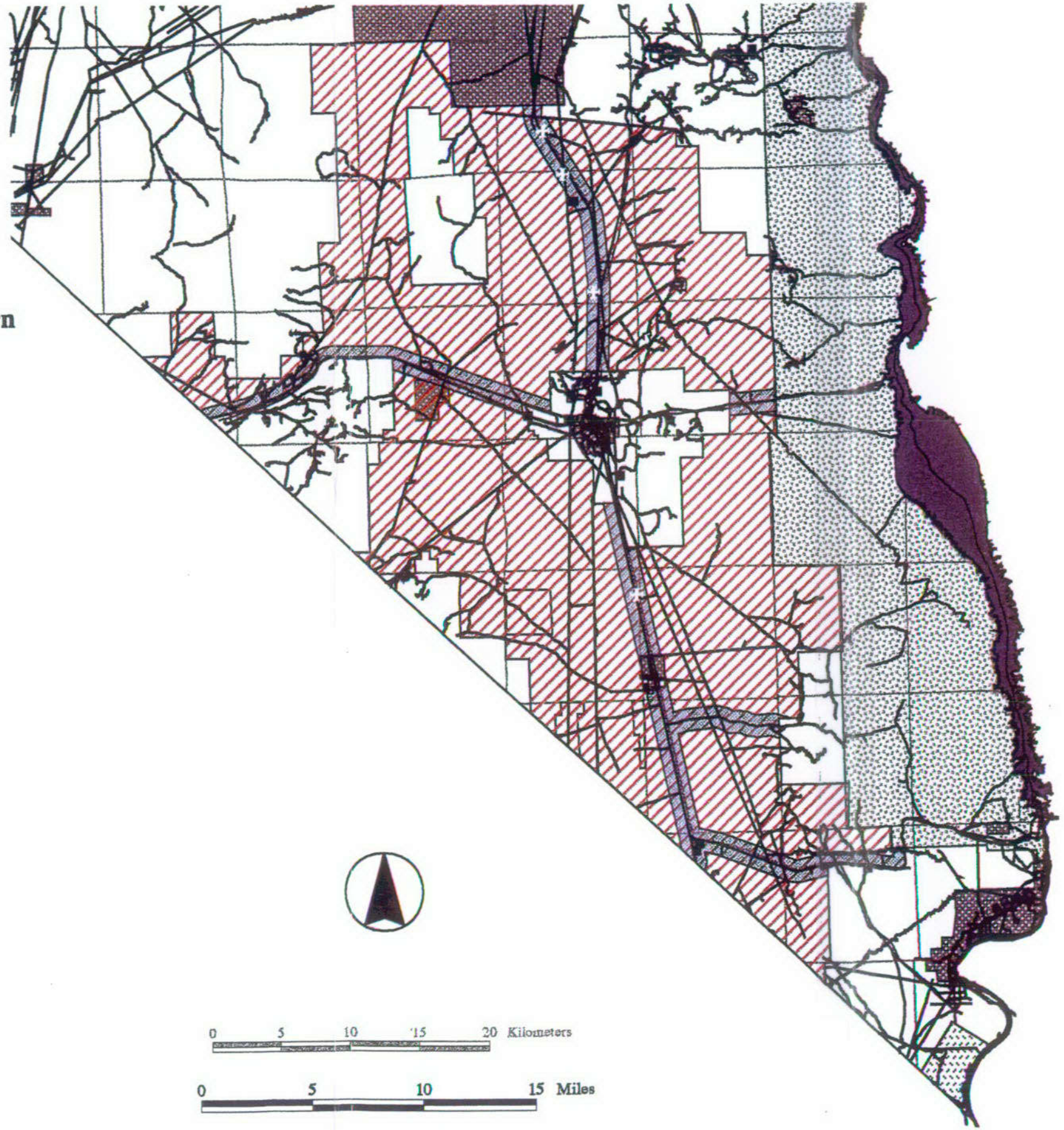
Map # 2-12

Prepared January 12,1998

Material Site Rights-of-Way and Free Use Permits in Piute/Eldorado Tortoise Area of Critical Environmental Concern

Landstatus

- Indian Reservation
- Lake Mead National Recreation Area
- Private
- Public land
- Township and Range Grid
- Roads and trails (Source: USGS DLGs)
- Piute/Eldorado Tortoise Area of Critical Environmental Concern
- Area open to material site ROWs and free use permits
- Material site right-of-way or free use permit
- Material site ROW to be relinquished per Clark County Habitat Management Plan



0 5 10 15 20 Kilometers

0 5 10 15 Miles

Bureau of Land Management
Las Vegas District

Resource Management Plan

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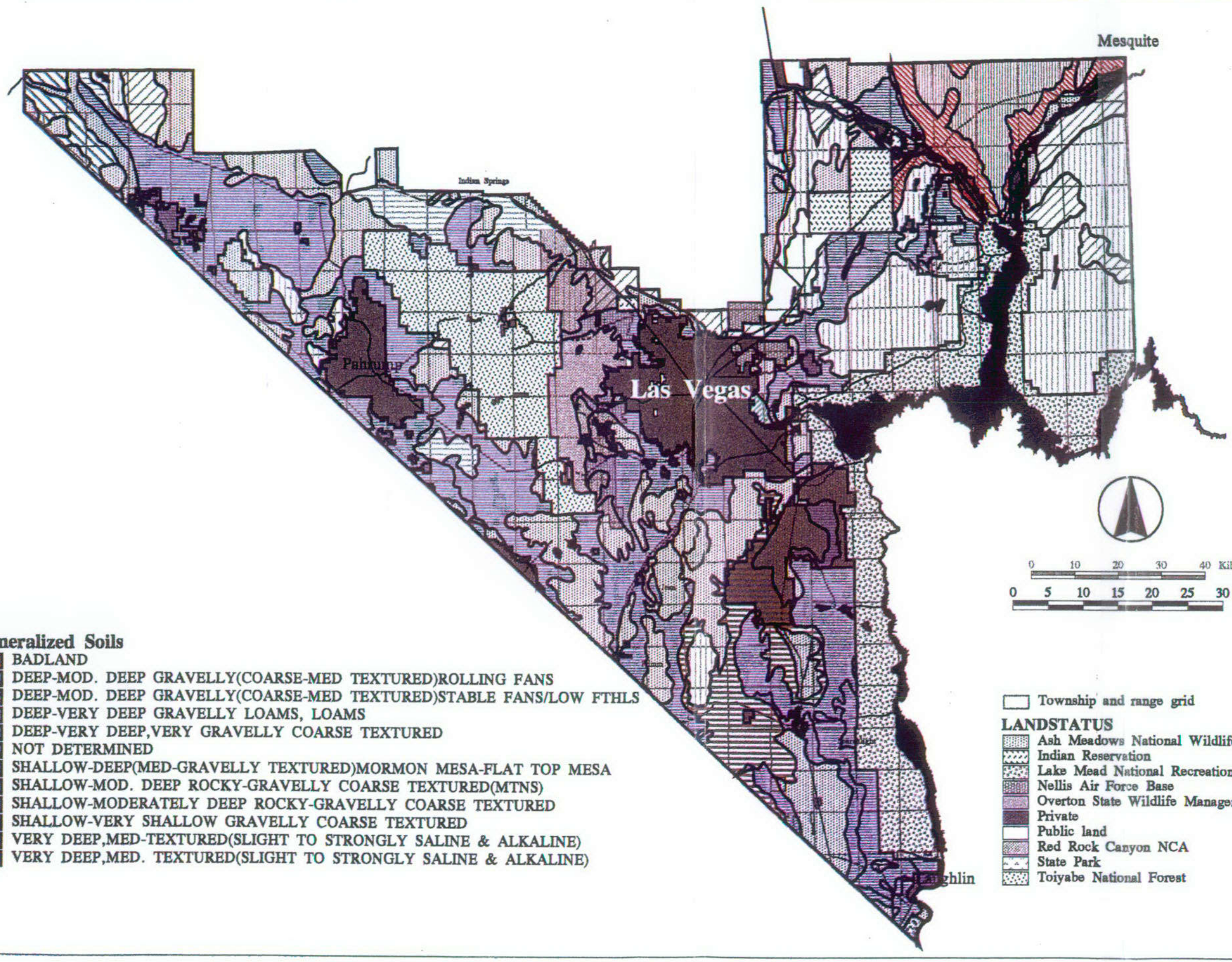
Map # 2-13
Prepared January 12, 1998

Resource Management Plan

Bureau of Land Management
Las Vegas District



0 10 20 30 40 Kilometers
0 5 10 15 20 25 30 Miles

Generalized Soils

- BADLAND
- DEEP-MOD. DEEP GRAVELLY(COARSE-MED TEXTURED)ROLLING FANS
- DEEP-MOD. DEEP GRAVELLY(COARSE-MED TEXTURED)STABLE FANS/LOW FTHLS
- DEEP-VERY DEEP GRAVELLY LOAMS, LOAMS
- DEEP-VERY DEEP,VERY GRAVELLY COARSE TEXTURED
- NOT DETERMINED
- SHALLOW-DEEP(MED-GRAVELLY TEXTURED)MORMON MESA-FLAT TOP MESA
- SHALLOW-MOD. DEEP ROCKY-GRAVELLY COARSE TEXTURED(MTNS)
- SHALLOW-MODERATELY DEEP ROCKY-GRAVELLY COARSE TEXTURED
- SHALLOW-VERY SHALLOW GRAVELLY COARSE TEXTURED
- VERY DEEP,MED-TEXTURED(SLIGHT TO STRONGLY SALINE & ALKALINE)
- VERY DEEP,MED. TEXTURED(SLIGHT TO STRONGLY SALINE & ALKALINE)

Township and range grid

LANDSTATUS

- Ash Meadows National Wildlife Refuge
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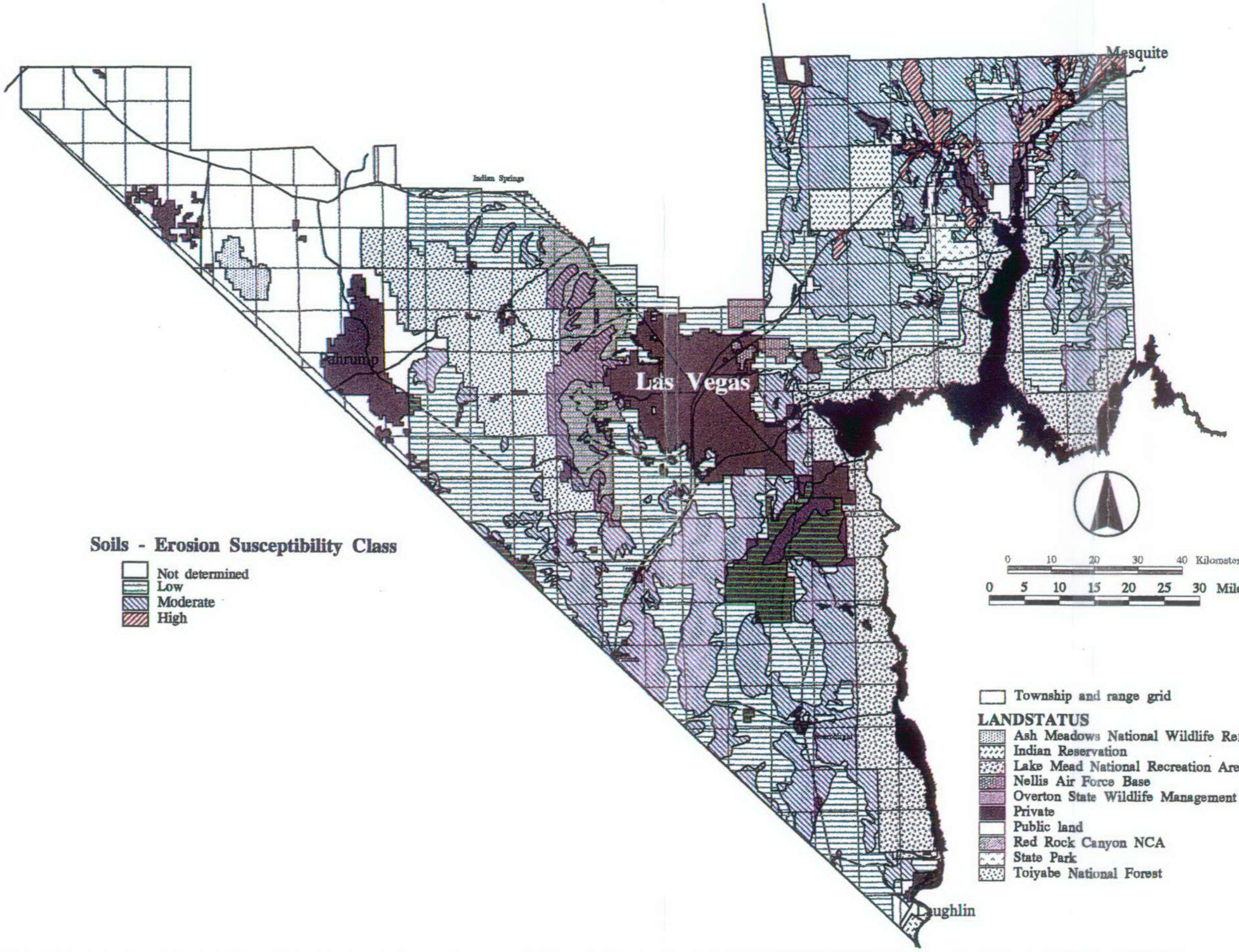
Map # 3-1

Prepared March 24, 1998

Resource Management Plan

Bureau of Land Management
Las Vegas District



Soils - Erosion Susceptibility Class

- Not determined
- Low
- Moderate
- High

0 10 20 30 40 Kilometers

0 5 10 15 20 25 30 Miles

Township and range grid

LANDSTATUS

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Map # 3-2

Prepared March 24, 1998

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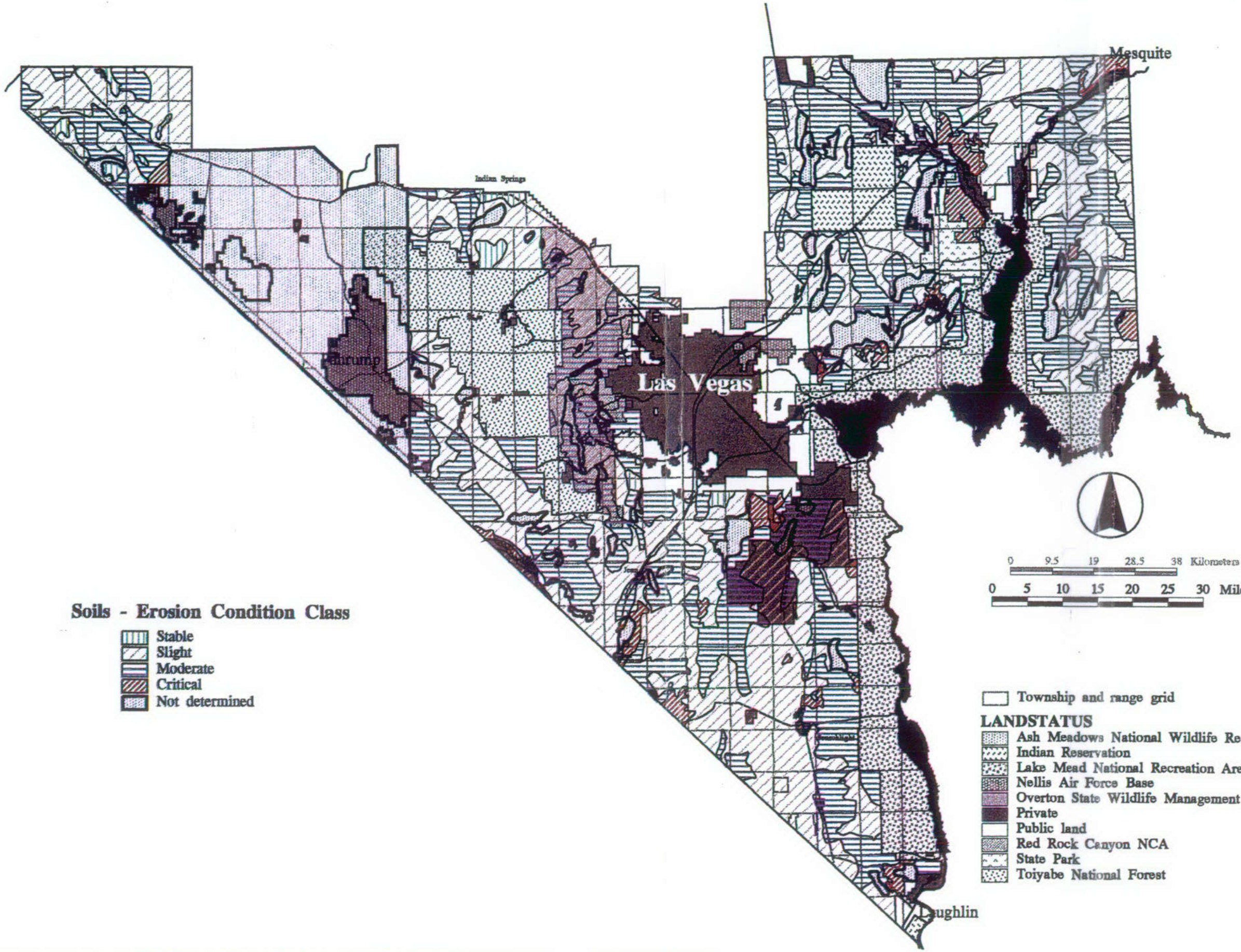
Resource Management Plan

Bureau of Land Management
Las Vegas District



Soils - Erosion Condition Class

- Stable
- Slight
- Moderate
- Critical
- Not determined

0 9.5 19 28.5 38 Kilometers

0 5 10 15 20 25 30 Miles

Township and range grid

LANDSTATUS

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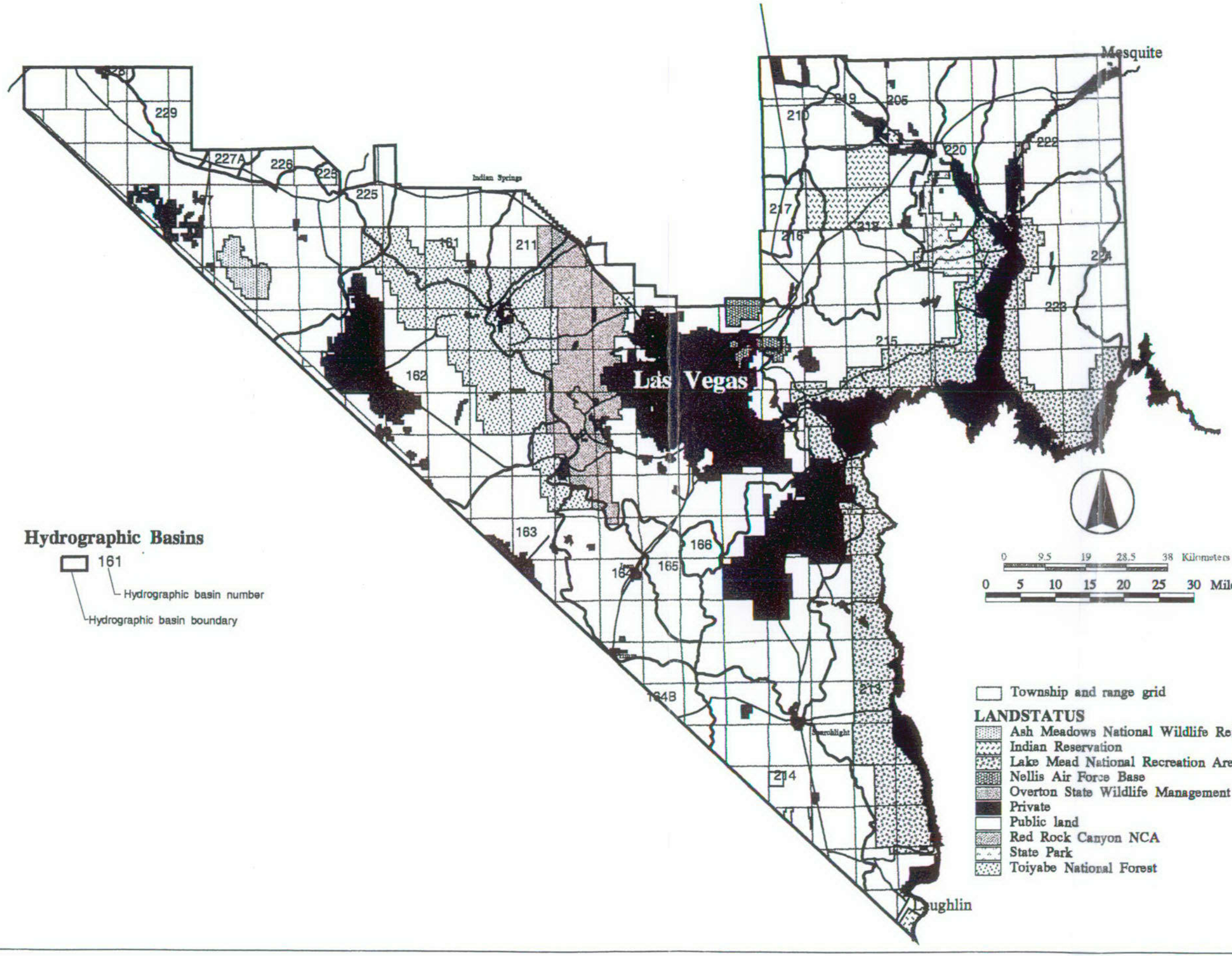
Map # 3-3

Prepared March 24, 1998

Resource Management Plan

Bureau of Land Management
Las Vegas District



Hydrographic Basins

161
- Hydrographic basin number
- Hydrographic basin boundary

Township and range grid

LANDSTATUS

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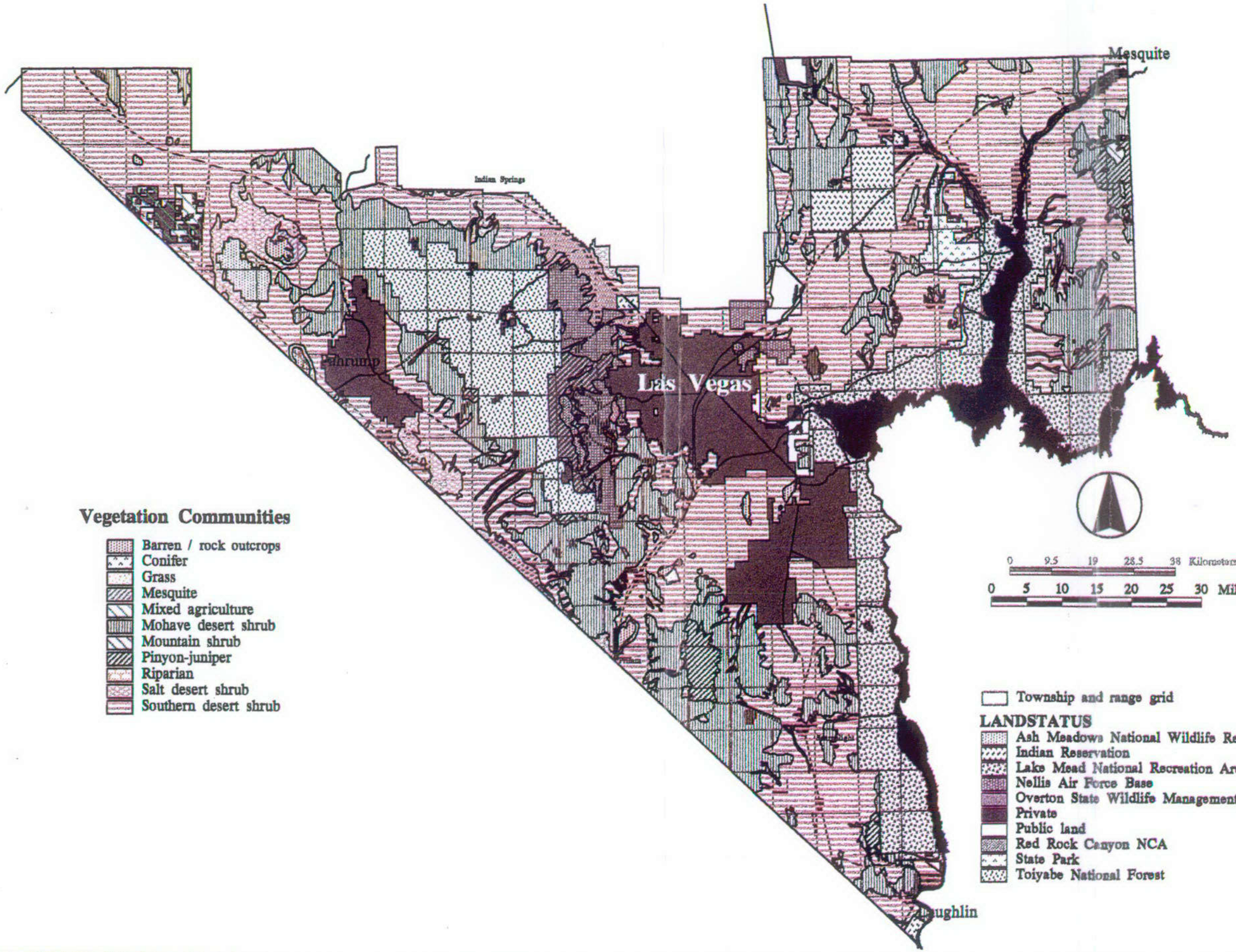
Map # 3-4

Prepared March 24, 1998

Resource Management Plan

Bureau of Land Management
Las Vegas District



Vegetation Communities

- Barren / rock outcrops
- Conifer
- Grass
- Mesquite
- Mixed agriculture
- Mohave desert shrub
- Mountain shrub
- Pinyon-juniper
- Riparian
- Salt desert shrub
- Southern desert shrub

0 9.5 19 28.5 38 Kilometers

0 5 10 15 20 25 30 Miles

Township and range grid

LANDSTATUS

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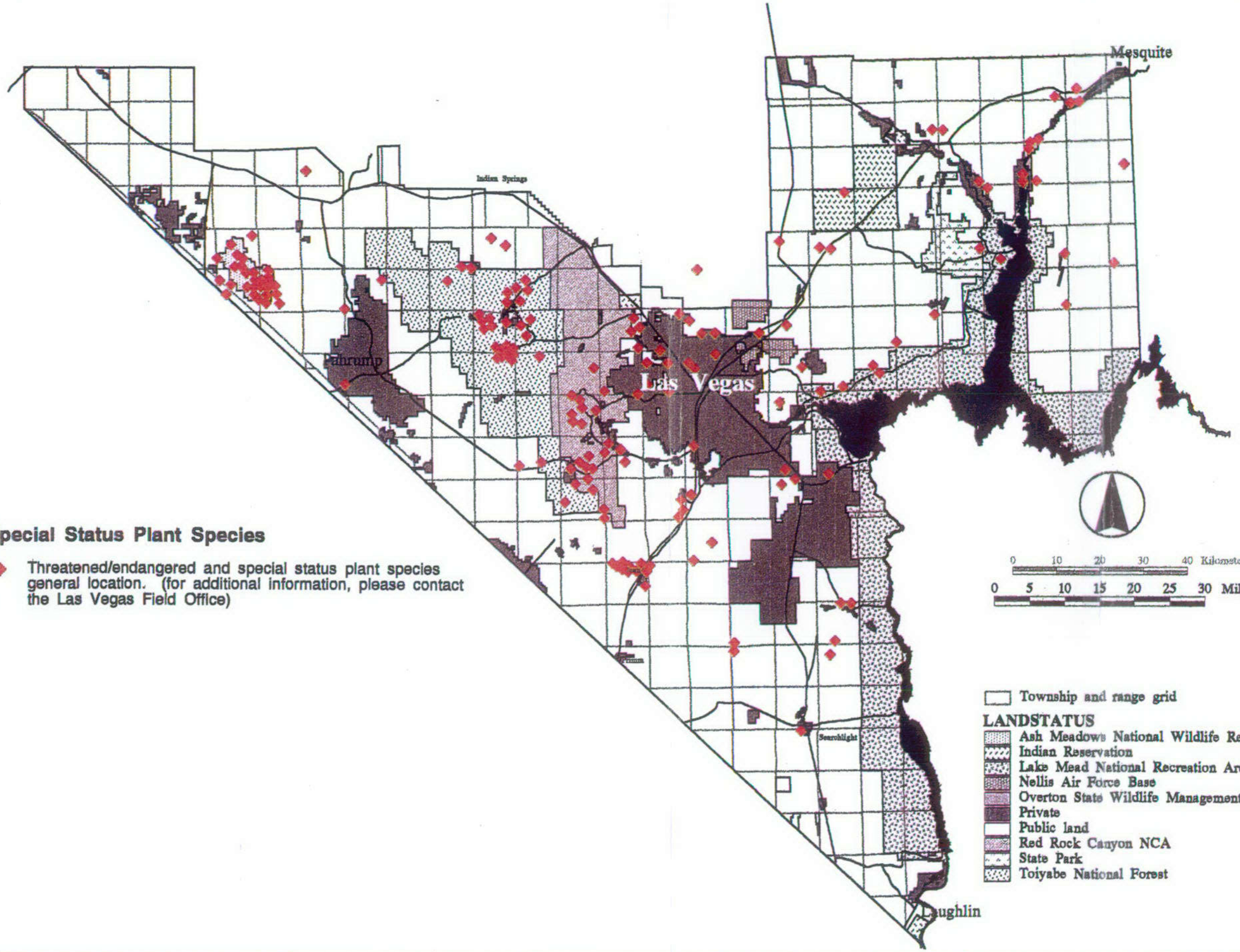
Map # 3-5

Prepared March 24, 1998

Resource Management Plan

Bureau of Land Management
Las Vegas District



Special Status Plant Species

- Threatened/endangered and special status plant species general location. (for additional information, please contact the Las Vegas Field Office)

0 10 20 30 40 Kilometers
0 5 10 15 20 25 30 Miles

Township and range grid

LANDSTATUS

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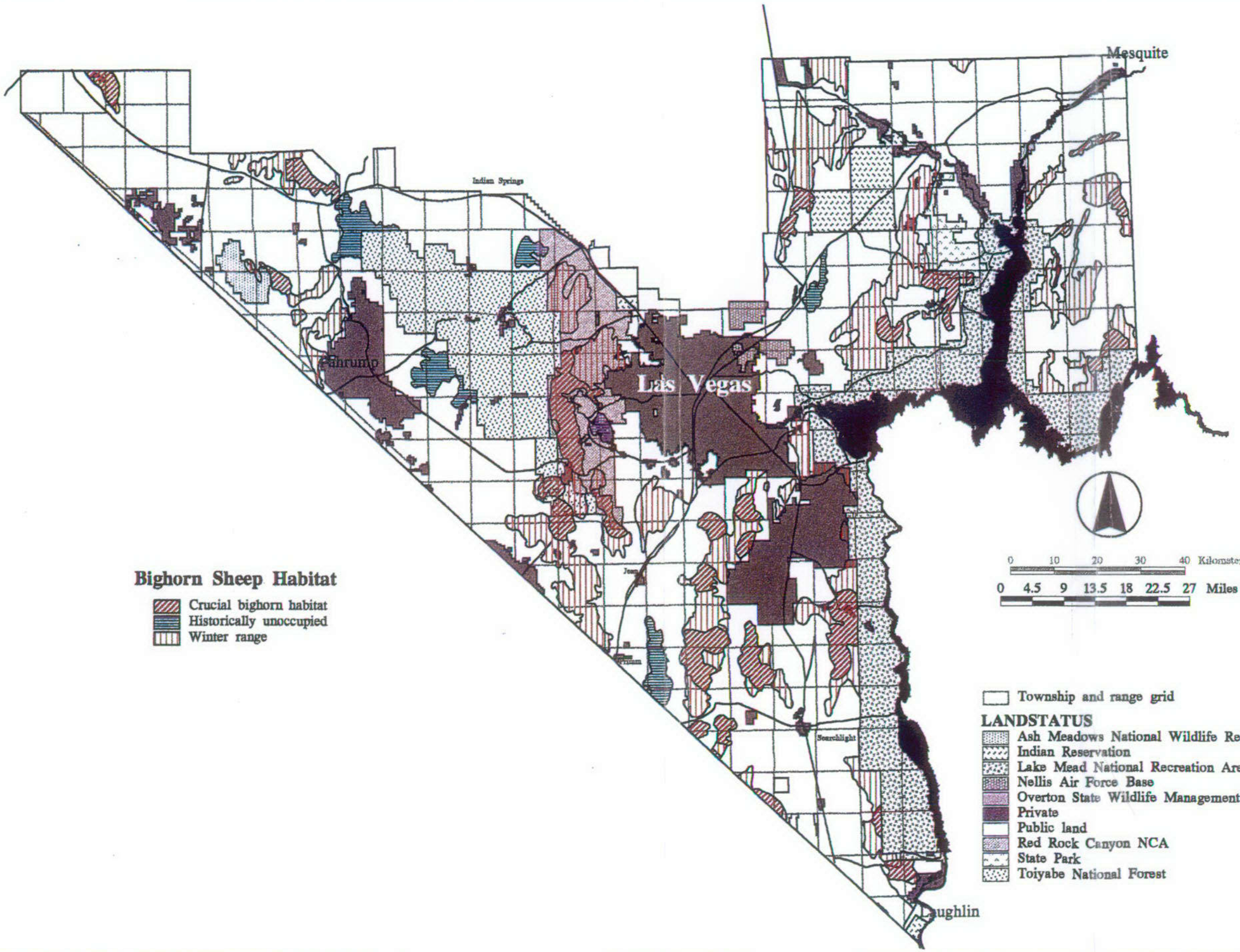
Map # 3-6

Prepared May 13, 1998

Resource Management Plan

Bureau of Land Management
Las Vegas District



Bighorn Sheep Habitat

- Crucial bighorn habitat
- Historically unoccupied
- Winter range

0 10 20 30 40 Kilometers
0 4.5 9 13.5 18 22.5 27 Miles

- Township and range grid

LANDSTATUS

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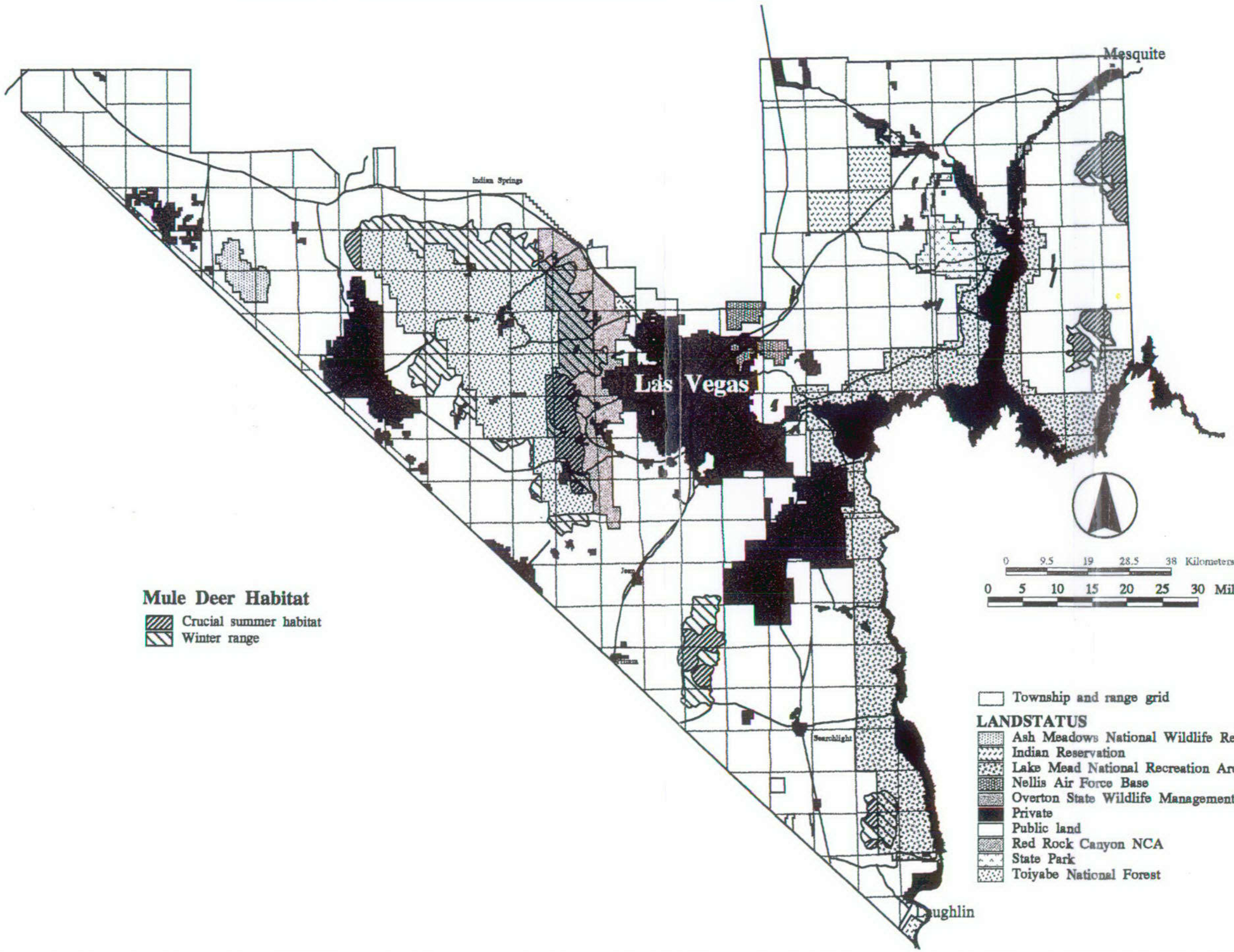
Map # 3-7

Prepared March 24, 1998

Resource Management Plan

Bureau of Land Management
Las Vegas District



Mule Deer Habitat

- Crucial summer habitat
- Winter range

- Township and range grid

LANDSTATUS

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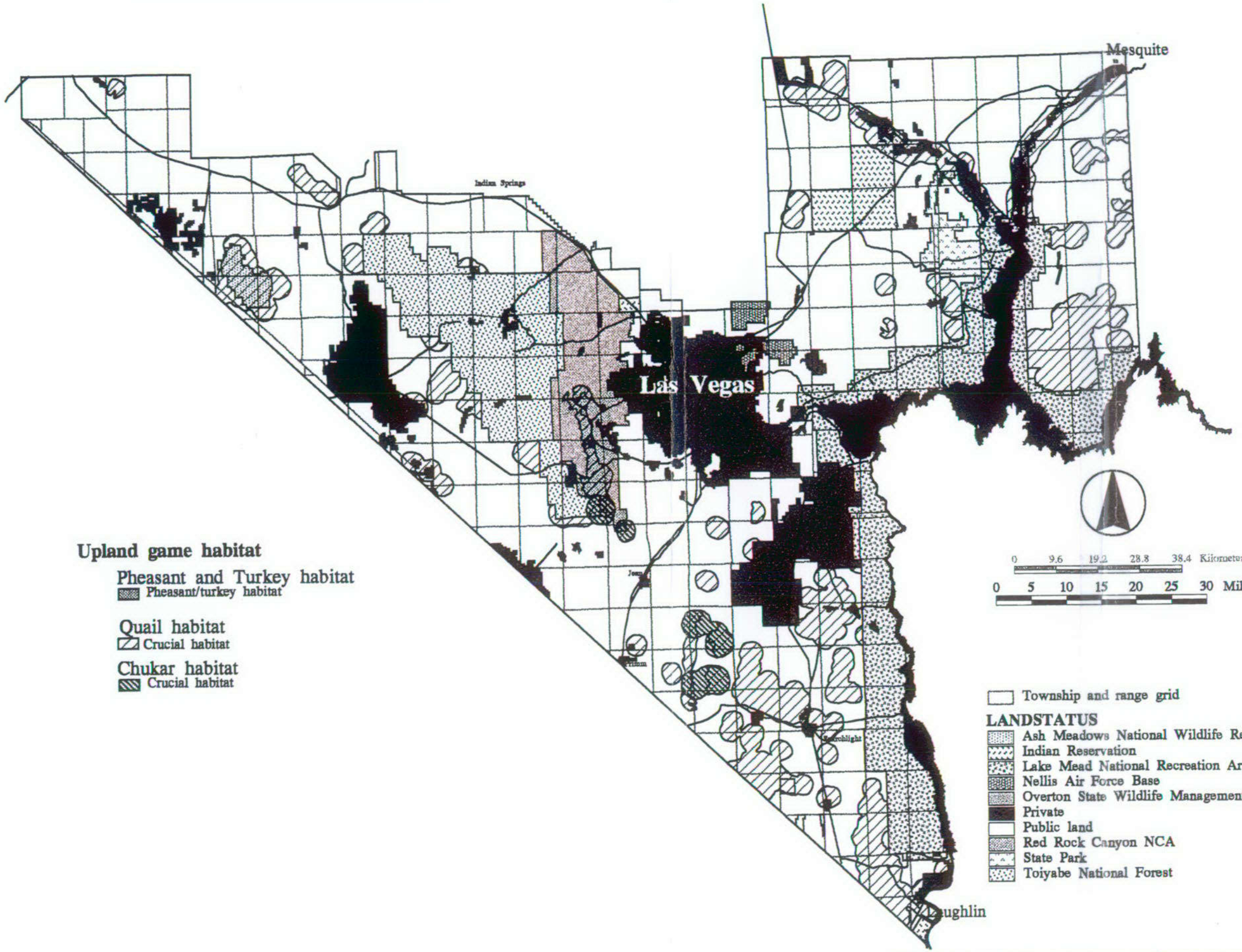
Map # 3-8

Prepared March 24, 1998

Resource Management Plan

Bureau of Land Management
Las Vegas District



Upland game habitat

Pheasant and Turkey habitat
- Pheasant/turkey habitat

Quail habitat
- Crucial habitat

Chukar habitat
- Crucial habitat

0 9.6 19.2 28.8 38.4 Kilometers

0 5 10 15 20 25 30 Miles

Township and range grid

LANDSTATUS
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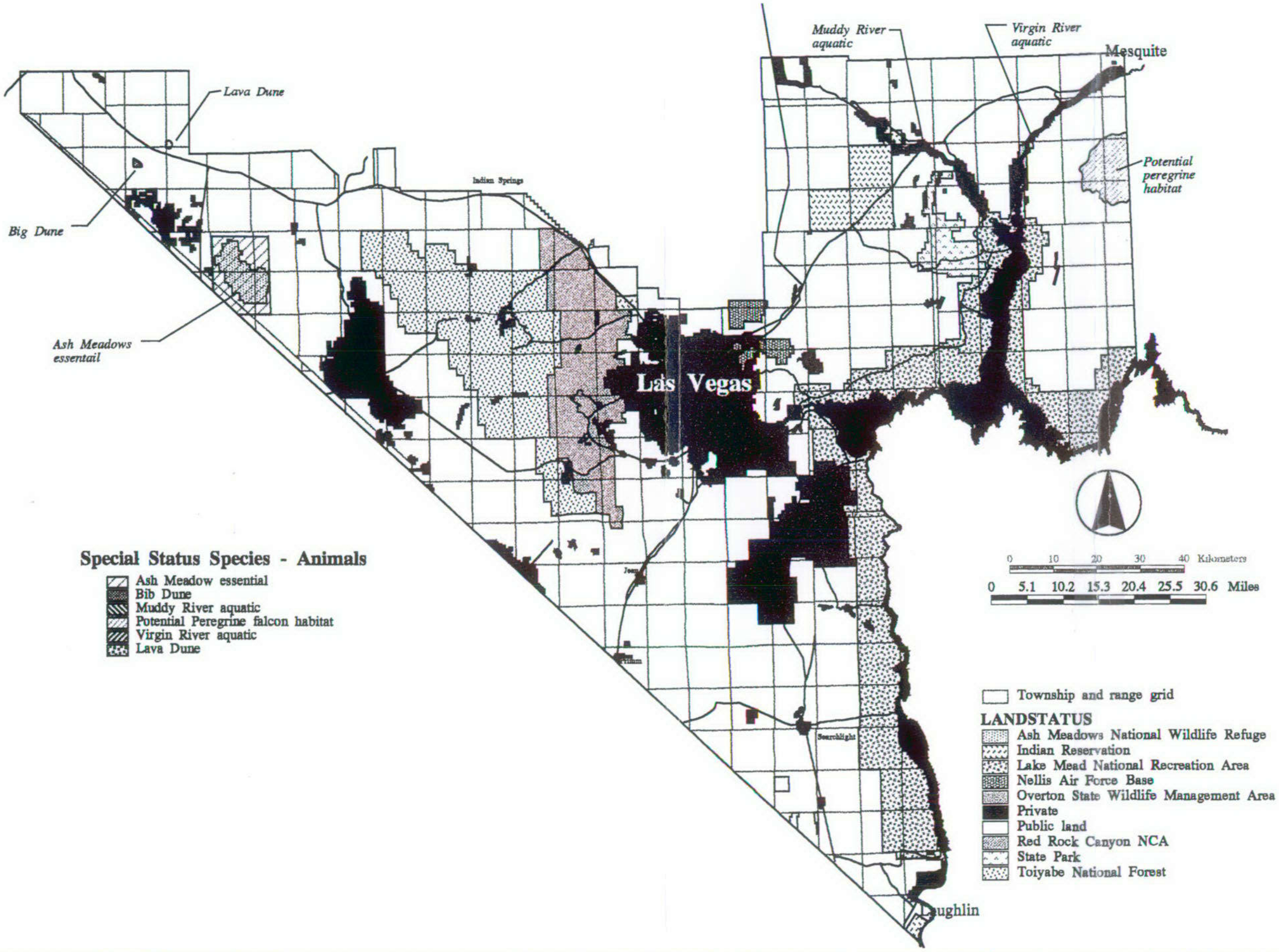
Map # 3-9

Prepared March 24, 1998

Resource Management Plan

Bureau of Land Management
Las Vegas District



Special Status Species - Animals

- Ash Meadow essential
- Bib Dune
- Muddy River aquatic
- Potential Peregrine falcon habitat
- Virgin River aquatic
- Lava Dune

0 10 20 30 40 Kilometers

0 5.1 10.2 15.3 20.4 25.5 30.6 Miles

- Township and range grid

LANDSTATUS

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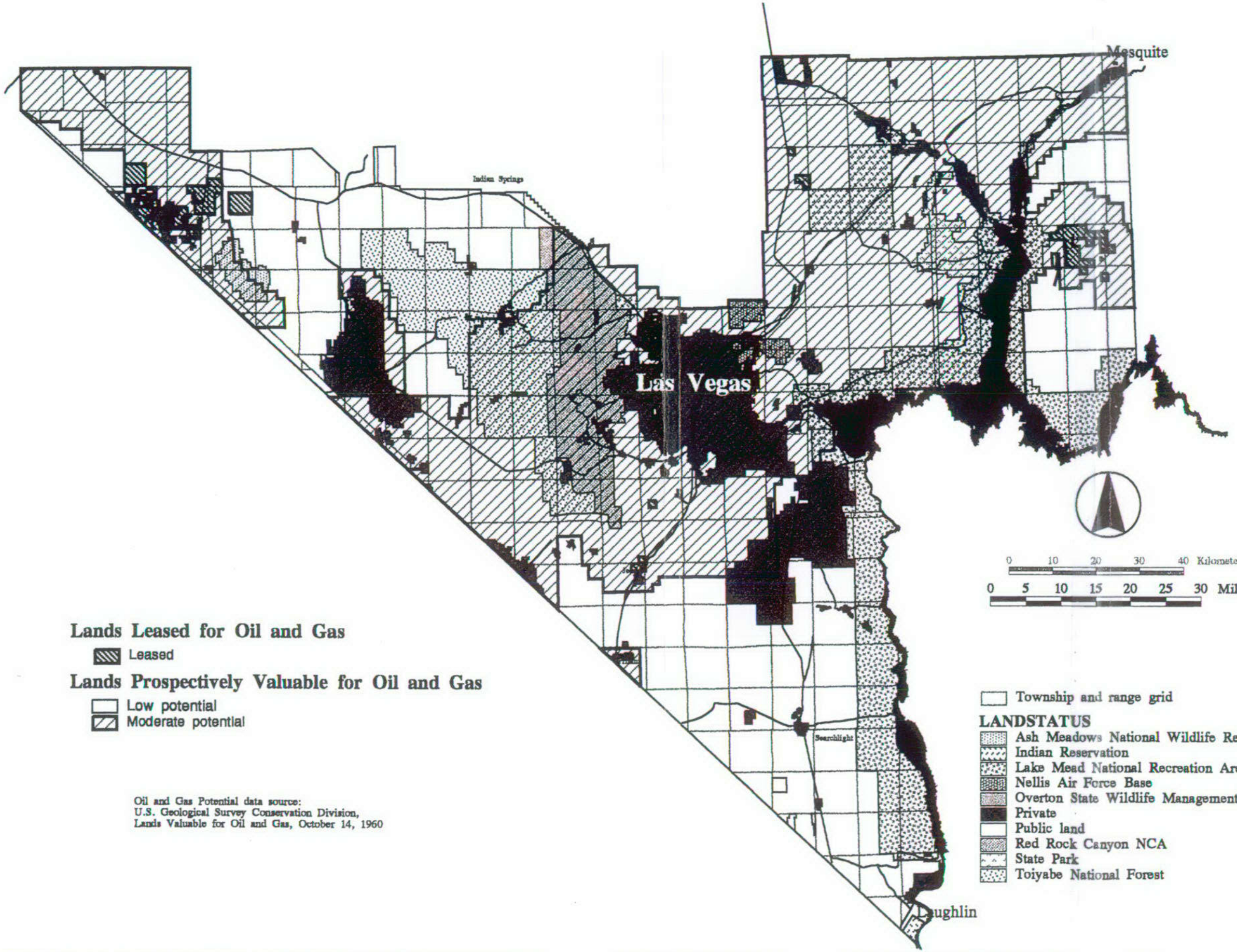
Map # 3-10

Prepared March 24, 1998

Resource Management Plan

Bureau of Land Management
Las Vegas District



Lands Leased for Oil and Gas

Leased

Lands Prospectively Valuable for Oil and Gas

Low potential
Moderate potential

Oil and Gas Potential data source:
U.S. Geological Survey Conservation Division,
Lands Valuable for Oil and Gas, October 14, 1960

Township and range grid

LANDSTATUS

- Ash Meadows National Wildlife Refuge
- Indian Reservation
- Lake Mead National Recreation Area
- Nellis Air Force Base
- Overton State Wildlife Management Area
- Private
- Public land
- Red Rock Canyon NCA
- State Park
- Toiyabe National Forest

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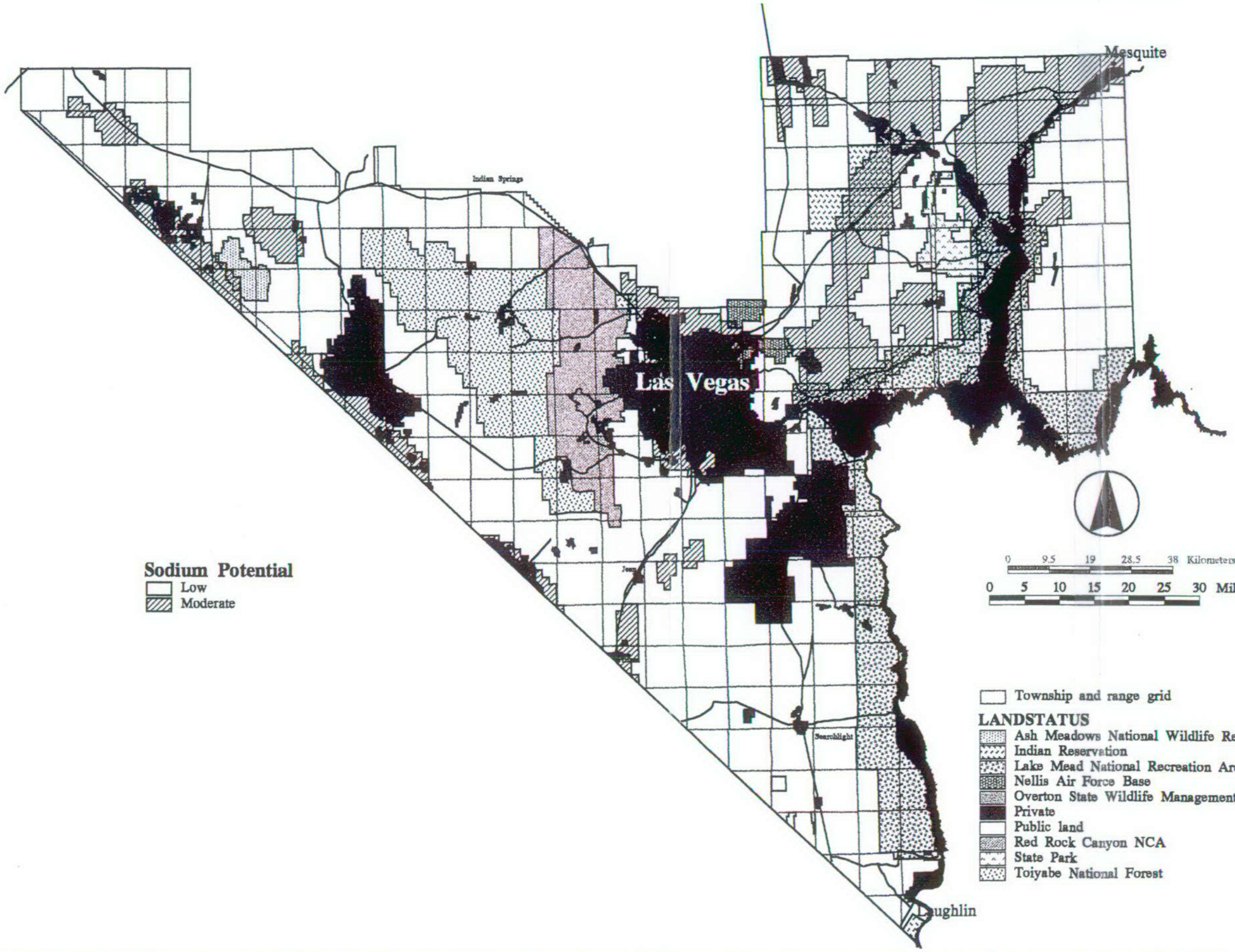
Map # 3-11

Prepared March 24, 1998

751

Resource Management Plan

Bureau of Land Management
Las Vegas District



Sodium Potential
- Low
- Moderate

0 9.5 19 28.5 38 Kilometers
0 5 10 15 20 25 30 Miles

- Township and range grid

LANDSTATUS
- Ash Meadows National Wildlife Refuge
- Indian Reservation
- Lake Mead National Recreation Area
- Nellis Air Force Base
- Overton State Wildlife Management Area
- Private
- Public land
- Red Rock Canyon NCA
- State Park
- Toiyabe National Forest

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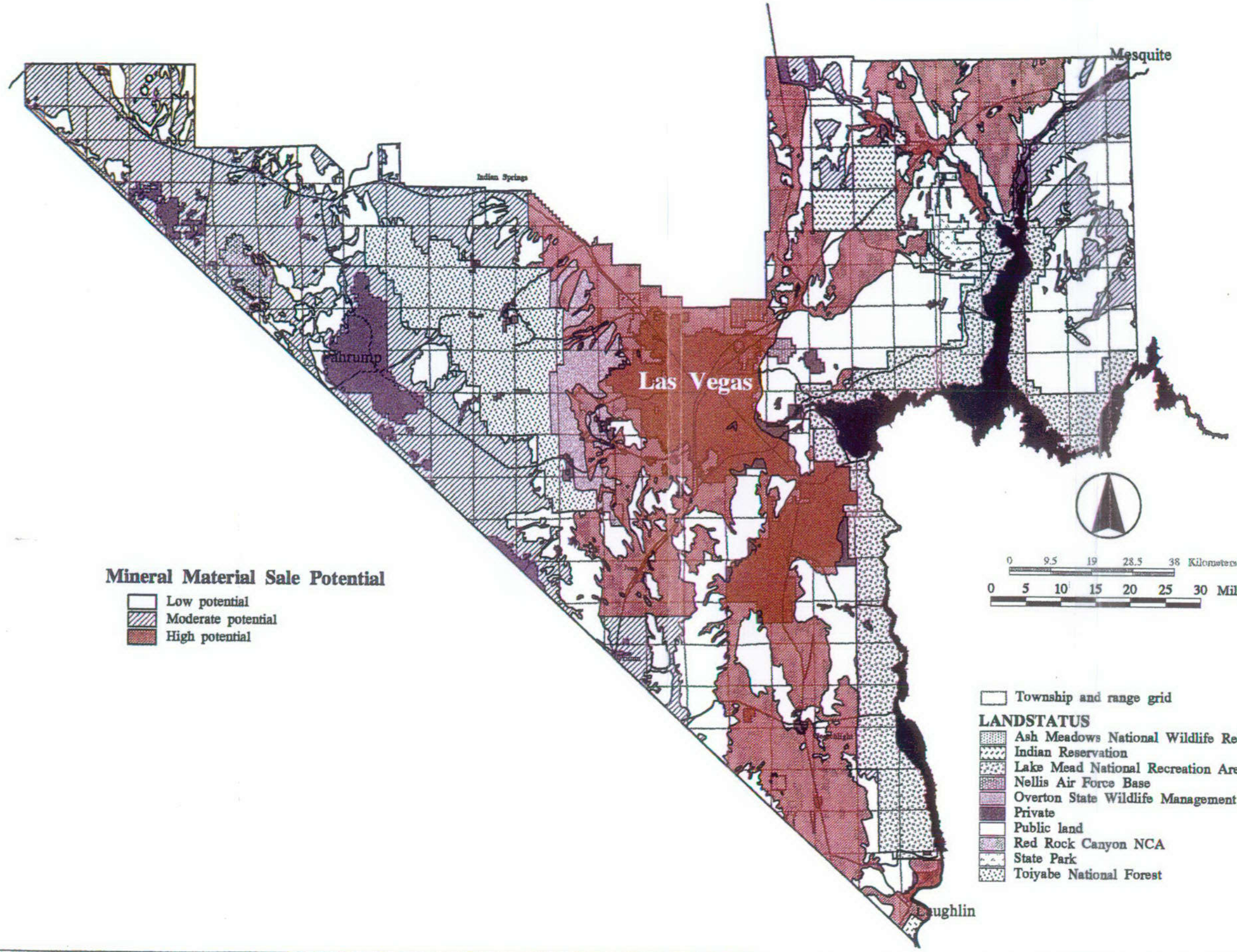
Map # 3-12
Prepared March 24, 1998

Resource Management Plan

Bureau of Land Management
Las Vegas District



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The data was prepared using the BLM's ESRI ARC/INFO geographic information system and maps plotted using the ESRI ArcView system.

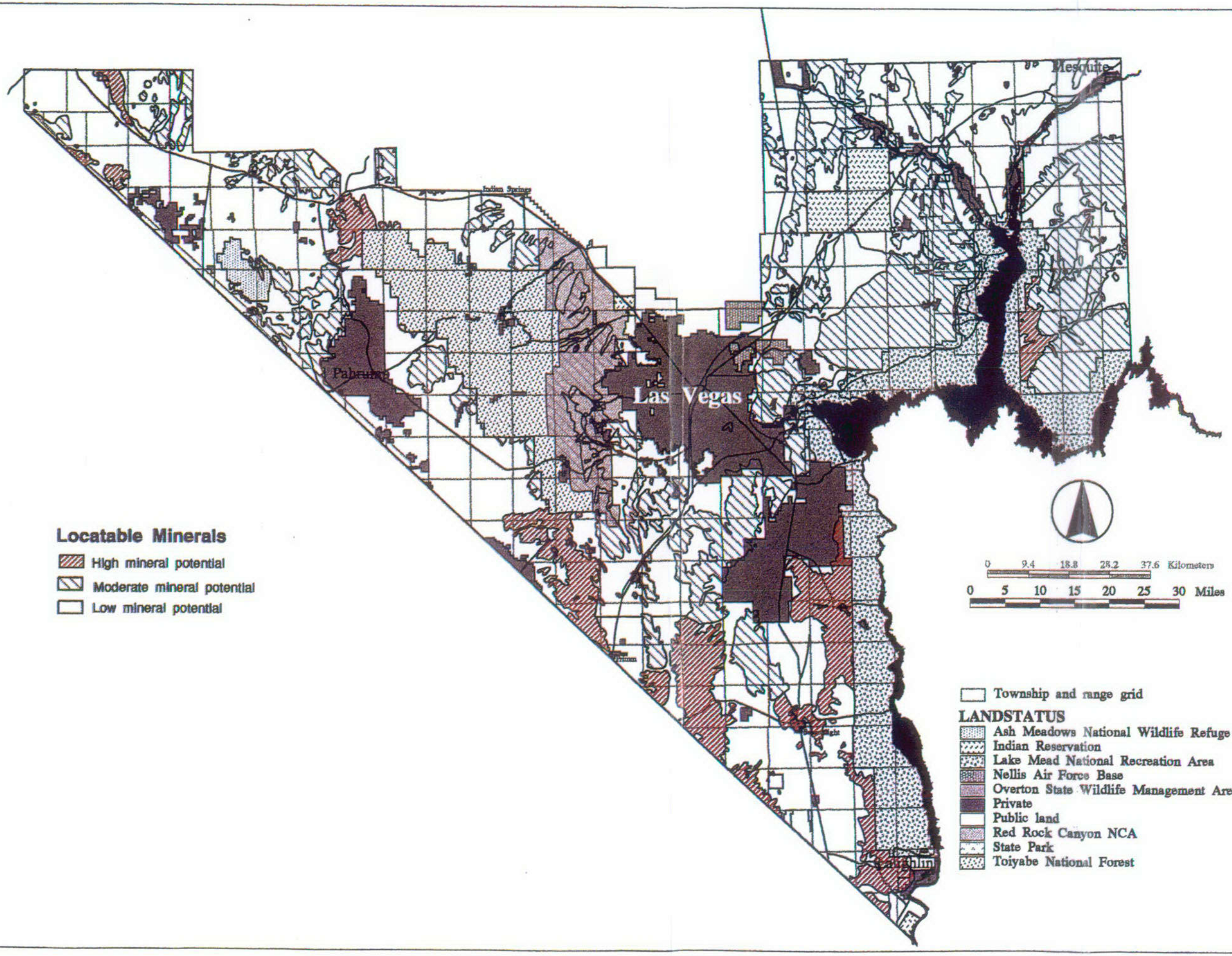
Map # 3-13

Prepared March 24, 1998

753

Resource Management Plan

Bureau of Land Management
Las Vegas District



Locatable Minerals

- High mineral potential
- Moderate mineral potential
- Low mineral potential

- Township and range grid

LANDSTATUS

- Ash Meadows National Wildlife Refuge
- Indian Reservation
- Lake Mead National Recreation Area
- Nellis Air Force Base
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- Public land
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- State Park
- Toiyabe National Forest

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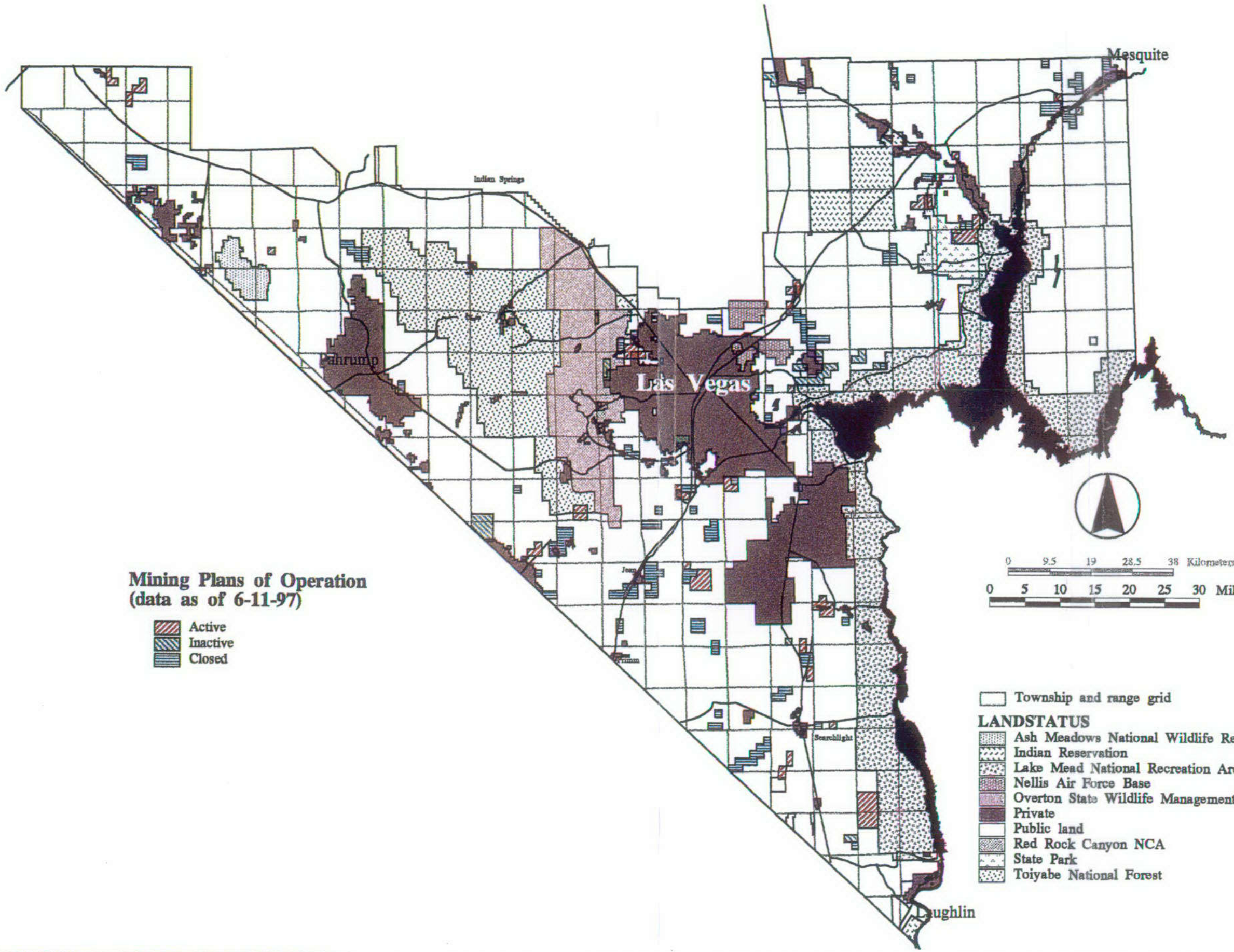
Map # 3-14

Prepared August 1, 1997

Resource Management Plan

Bureau of Land Management
Las Vegas District



0 9.5 19 28.5 38 Kilometers
0 5 10 15 20 25 30 Miles

Mining Plans of Operation
(data as of 6-11-97)

- Active
- Inactive
- Closed

- Township and range grid

LANDSTATUS

- Ash Meadows National Wildlife Refuge
- Indian Reservation
- Lake Mead National Recreation Area
- Nellis Air Force Base
- Overton State Wildlife Management Area
- Private
- Public land
- Red Rock Canyon NCA
- State Park
- Toiyabe National Forest

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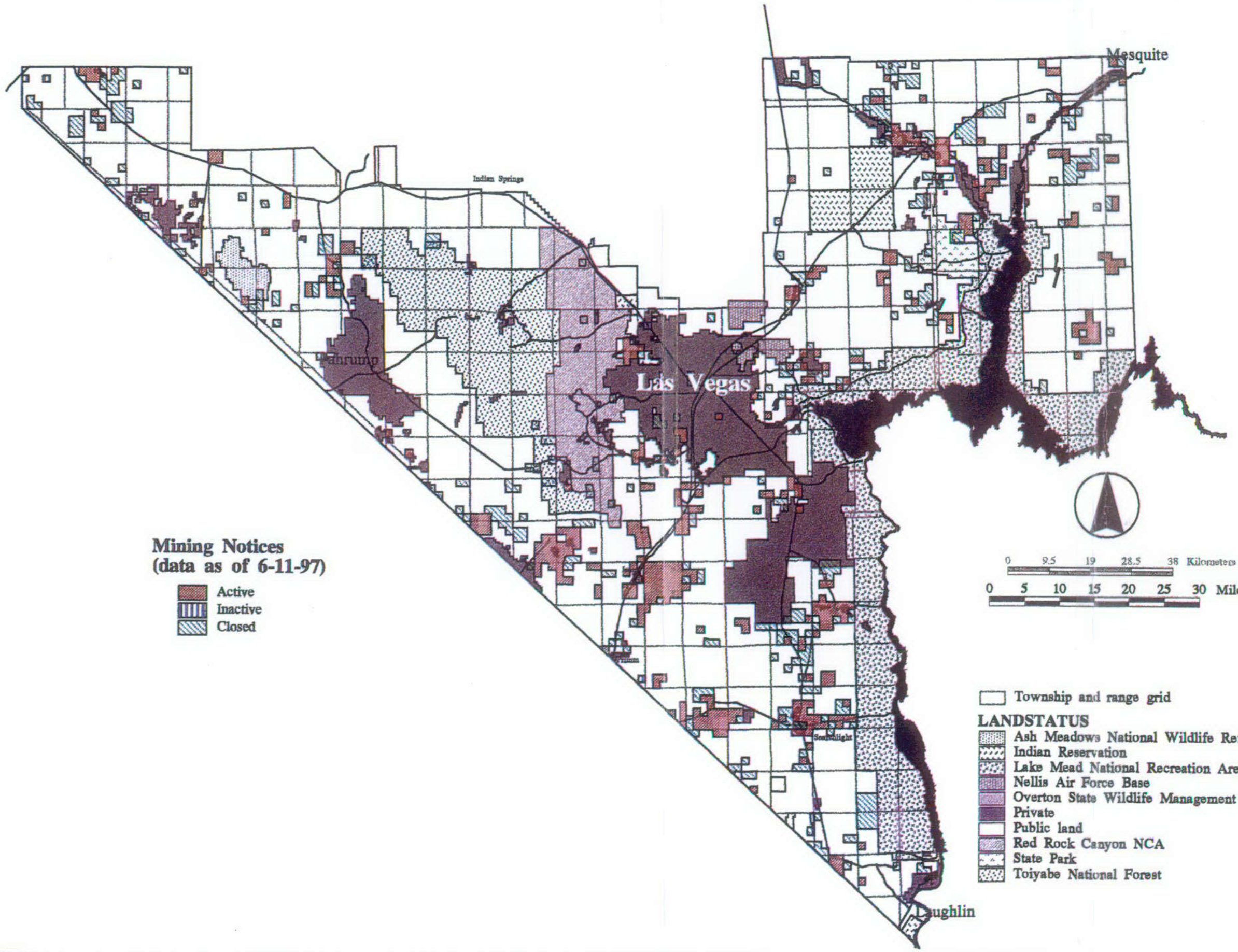
Map # 3-15

Prepared March 24, 1998

Resource Management Plan

Bureau of Land Management
Las Vegas District



Mining Notices
(data as of 6-11-97)

- Active
- Inactive
- Closed

0 9.5 19 28.5 38 Kilometers

0 5 10 15 20 25 30 Miles

Township and range grid

LANDSTATUS

- Ash Meadows National Wildlife Refuge
- Indian Reservation
- Lake Mead National Recreation Area
- Nellis Air Force Base
- Overton State Wildlife Management Area
- Private
- Public land
- Red Rock Canyon NCA
- State Park
- Toiyabe National Forest

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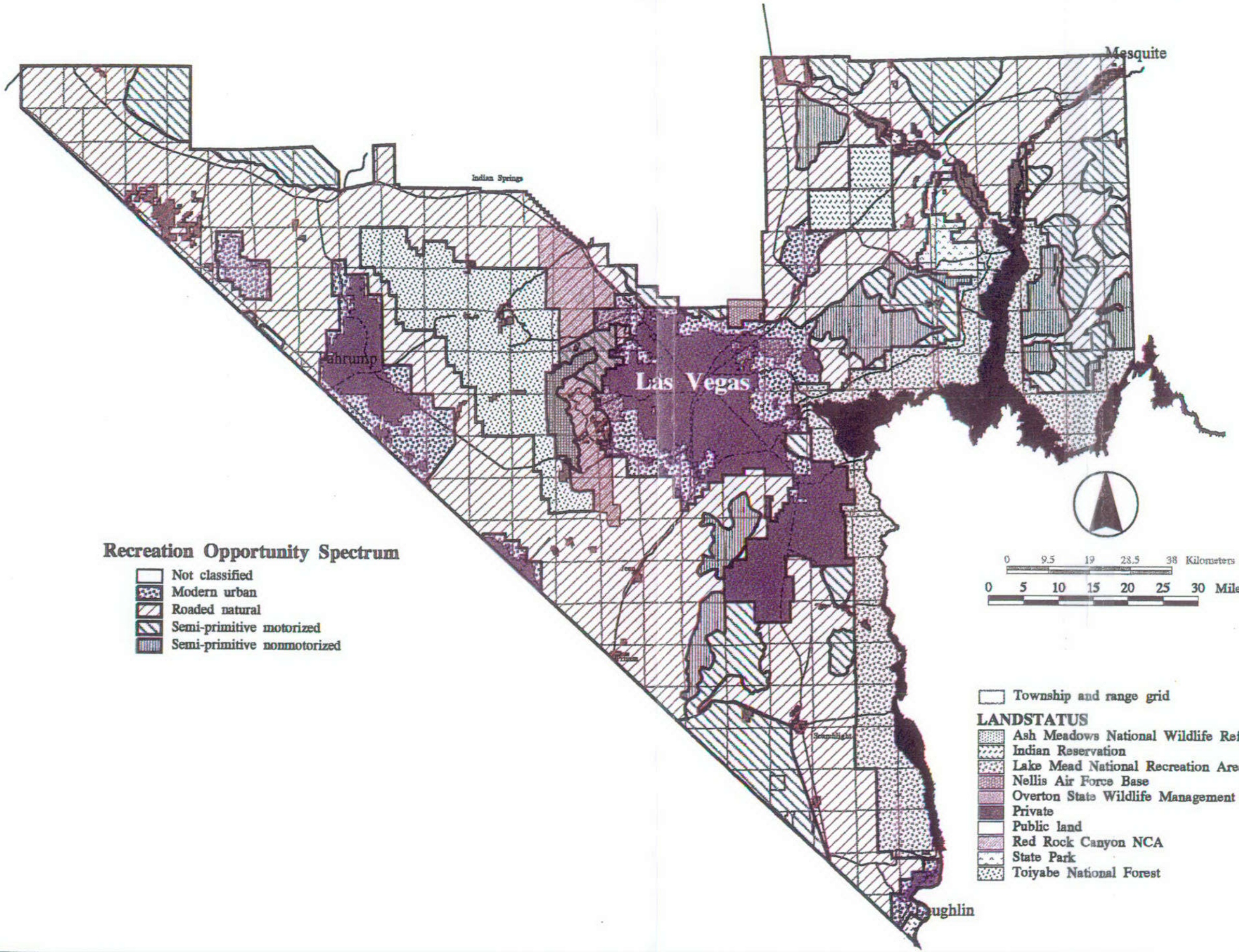
Map # 3-16

Prepared March 24, 1998

Resource Management Plan

Bureau of Land Management
Las Vegas District



Recreation Opportunity Spectrum

- Not classified
- Modern urban
- Roaded natural
- Semi-primitive motorized
- Semi-primitive nonmotorized

N

0 9.5 19 28.5 38 Kilometers

0 5 10 15 20 25 30 Miles

Township and range grid

LANDSTATUS

- Ash Meadows National Wildlife Refuge
- Indian Reservation
- Lake Mead National Recreation Area
- Nellis Air Force Base
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Map # 3-17

Prepared March 24, 1998

Department of the Interior
Bure f Land Management
L egas Field Office
4765 West Vegas Drive
Las Vegas, NV 89108-5000

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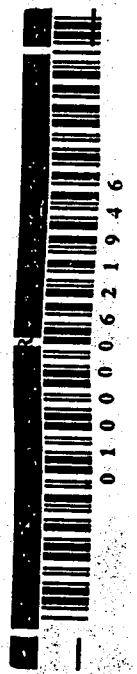
857