

**MANAGEMENT ACTION PLAN FOR THE
BOULDER CITY CONSERVATION EASEMENT**

**Clark County, Nevada
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EXECUTIVE SUMMARY

After the Mojave population of the desert tortoise was given protection under the Endangered Species Act (ESA) in 1989, Clark County, the cities of Las Vegas, North Las Vegas, Henderson, Boulder City, Mesquite, and the Nevada Department of Transportation, entered into an interlocal agreement to pursue compliance with the law collectively. They prepared a long-term Habitat Conservation Program as part of their request for a Section 10 Incidental Take Permit from the U.S. Fish and Wildlife Service (FWS). One of the most important mitigation measures required by the FWS in issuing the permit in 1995 was that the permittees establish a Conservation Easement that would be managed and protected for the benefit of the tortoise. The Boulder City Conservation Easement (BCCE) was granted on 86,700 acres of private lands owned by the City in 1995. It has a term of at least 50 years.

Subsequently the permittees prepared a Multiple Species Habitat Conservation Plan (MSHCP) covering 2 listed species and 76 unlisted species, to reduce the likelihood of future federal listings under ESA. The continued protection and management of the BCCE was a term and condition of the new permit.

Since a management plan was never prepared for the BCCE property, the major objective of this report was to provide a first iteration of a management plan. It summarizes the history of the property and describes its important characteristics. Management issues observed by the County over the past 14 years are identified for possible resolution including: desert dumping; cultural sites; habitat reclamation; designation of roads; fire; flood; introduction of weeds; development of an energy zone and other proposed project; waste water treatment plant effluent; fencing; law enforcement; recreational uses; a process for requesting access; and mitigation measures for users.

Recommended management actions to address these issues are presented as either fundamental or secondary. If the four fundamental actions are not taken, it is difficult to see how the BCCE can be managed in compliance with the MSHCP and the terms and conditions of the Section 10 Permit. The responsibilities of the Grantor and Grantee of the Conservation Easement are ambiguous and need to be clarified through the development of an Implementation Agreement (IA). Most of the issues would be resolved through an IA. The natural resource values of the BCCE can not be protected by the limited presence of law enforcement personnel as long as the property is unfenced and provides unlimited access for legal and illegal activities. A rigorous site-specific resource inventory must be funded immediately to obtain essential information needed to manage the property. A robust monitoring program should be initiated to evaluate whether the primary purpose of the BCCE is being achieved: insuring that its natural resource values, especially as regards the desert tortoise, are protected, maintained, and enhanced.

The recommended secondary actions will contribute significantly to the management of the BCCE, but only if the fundamental actions are achieved. They include: development of a habitat reclamation program; criteria for road designations; a suggested plan for handling requests for access; mitigation measures required of users; potential cultural/historical sites; an alternative way to clean up desert dumping; inclusion of law enforcement data into the adaptive management plan; and a call for information on the rights of existing holders of other easements and rights-of-way on the BCCE. An on-site team is recommended to implement management of the BCCE.

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INTRODUCTION

Compliance with the Endangered Species Act

In 1989 the Mojave population of the desert tortoise, *Gopherus agassizi*, was listed as endangered under the Endangered Species Act (ESA). It was down-listed to threatened status early in 1990. Concurrently, Clark County, Nevada was commencing one of the largest building booms in the country. The pace of developments was potentially hampered by the need for compliance with ESA. Clark County and the cities of Las Vegas, North Las Vegas, Henderson, Boulder City, and Mesquite entered into an interlocal agreement to pursue compliance collectively. Their Short-term Habitat Conservation Plan (HCP) was accepted on 24 July 1991 and the U.S. Fish and Wildlife Service (FWS) issued a Section 10(a)(1)(B) permit (PRT-756260) to allow incidental take of the desert tortoise.

The permittees and the Nevada Department of Transportation (NDOT) then prepared a long-term HCP, now designated the Desert Conservation Plan (DCP). It was accepted in 1995 when FWS issued a new Section 10 permit (PRT-801045) that allowed incidental take of only the desert tortoise for a period of 30 years.

Arguably one of the most important mitigation measures required by the permit was the establishment of an 85,000-acre Conservation Easement that would be managed and protected for the benefit of the tortoise. The Boulder City Conservation Easement (BCCE) was established in 1995 on 86,500 acres of land owned by the City. It has a term of at least 50 years.

DCP included provisions for conservation planning for other species in the county to reduce the likelihood of future federal listings under ESA. A Multiple Species Habitat Conservation Plan (MSHCP) that covered 2 listed species, the desert tortoise and Southwestern Willow Flycatcher, *Empidonax traillii extimus*, and 76 unlisted species was developed, even though it was not required by Section 10 implementing regulations. The MSHCP was accepted by FWS in November, 2000, and a new 30-year permit (TE034927-0) was effective in January, 2001.

Again, one of the special terms and conditions of the most recent permit is the continued protection and management of the BCCE. FWS added the stipulation that measures be taken to ensure the connectivity for desert tortoise and other covered species within BCCE, including an adequate north-south corridor for the desert tortoise.

Goal

Although the BCCE has been in place for 14 years, a management plan for the property was never prepared. The major goal of this report was to provide an initial management plan that can be used to evaluate whether the intended goals

and purposes contained in the Conservation Easement grant are being achieved, and that the BCCE is being appropriately managed and maintained.

Objectives

The specific objectives to achieve the goal were to:

- Summarize the history of the acquisition of the property and its past and present uses.
- Describe the important ecological characteristics that contribute to its potential as habitat for protected species.
- Identify current maintenance and management issues.
- Recommend land management actions to address the issues, and provide a rationale for each.

History of Property

In 1958 Congress authorized the Secretary of the Interior to convey up to 126,775 acres of land in the Eldorado Valley south of Boulder City to the Colorado River Commission, an agency of the State of Nevada. It was not until 1968 that the Commission submitted an application for 107,412.24 acres which were called the Transfer Area.

The City of Boulder City was developing a master plan for development and was interested in obtaining additional lands that could be managed as a buffer against developments that might not meet the city's limited growth ordinance. Boulder City proposed to purchase the Transfer Area from the Commission on 3 October 1990. Concurrently the Secretary of the Interior certified that the Commission had met its obligations under the 1958 Act. The Board of Clark County Commissioners waived its option to purchase the Transfer Area and concurred with the sale to Boulder City on 18 December 1990. The Legislative Commission of the State of Nevada concurred with the development plan and approved the sale of the Transfer Area from the Commission to Boulder City on 6 March 1991.

On 18 July 1994 Boulder City and Clark County signed an interlocal agreement under which the City would grant the County a Conservation Easement for approximately 85,000 acres of the Transfer Area once it was sold to the City by the Commission. The property contained significant natural resources, ecological and native habitat values, as well as various indigenous flora and fauna of great importance to Boulder City and the County. Significant portions of the Conservation Easement provided habitat for the desert tortoise that Boulder City and the County wanted to preserve, protect, maintain, and enhance. It would also serve as an essential form of mitigation proposed to obtain a Section 10(a) incidental take permit from FWS.

It is important to note that the County has three roles under the MSHCP: as a permittee; as the Administrator of the Permit actions for the permittees; and as the grantee of the Conservation Easement for the permittees. Boulder City is both a permittee and the grantor. When the County is referred to in this report it is in its role as Grantee.

It was not until 9 July 1995 that the Secretary of the Interior signed a Contract of Sale and Land Patent that conveyed the Transfer Area to the Commission, and the Commission signed the deed to the Transfer Area over to Boulder City. It stipulated that the land was to be used for only three purposes: as a desert tortoise reserve; for public recreation; and as a possible site for a solar power peaking station. The Commission also issued the deed with the reservation that the deed was subject to valid existing rights, including rights-of-way, reservations, restrictions, covenants, easements, and conditions of record described in the contract. Boulder City paid the Commission the fair market value of the lands, \$1,233,100, plus \$44,531 to reimburse Commission costs.

The County paid Boulder City \$300,000 for the Conservation Easement when it was granted on 18 July 1995.

SITE DESCRIPTION

In spite of its importance as a conservation area for the protection of the desert tortoise and other indigenous flora and fauna, field studies to characterize the BCCE have not been conducted. As a result, this description is limited to extrapolations from applicable literature and maps provided by the County and Boulder City.

Location

The BCCE is located south and west of the residential area of Boulder City, a small town with an estimated population of 15,000 (Figure 1). The BCCE consists of two almost equally sized, rectangular, northeastern and southwestern units connected by a 1-mile wide isthmus at their common border. Its northern boundary is approximately 2 miles south of residential developments. An energy zone and three electrical substations are located in the southwestern unit. The former consists of 3,042 acres of Boulder City land that are not part of the BCCE. The substations were granted easements for over 655 acres of the BCCE, but are managed for power transmission purposes, not for protected species.

US highway 95 bisects the length of both units and effectively reduces biological interchanges between them. Nevada State highway 165 extends east from US 95 to Nelson, Nevada, along the southern boundary of the northeastern unit.

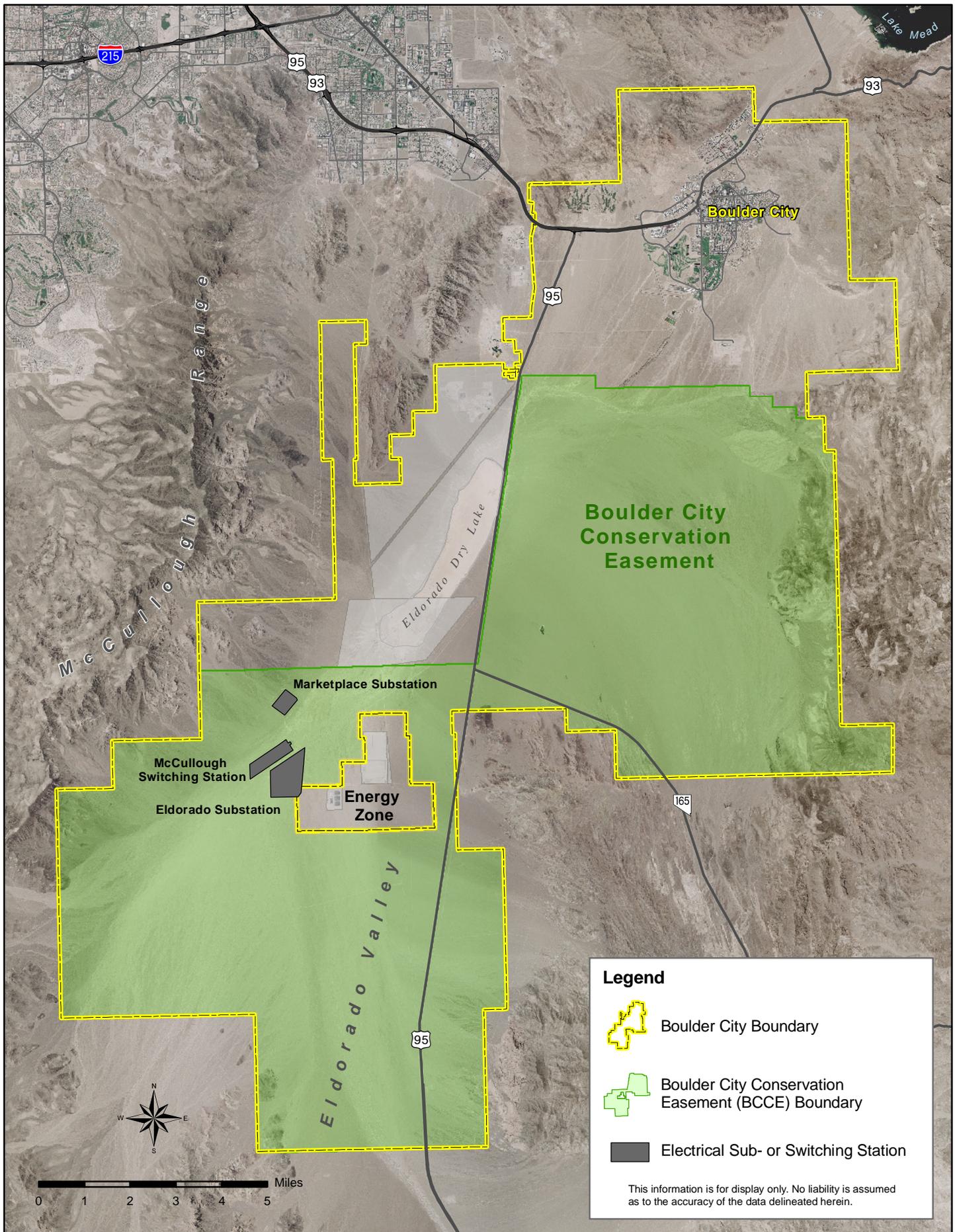


Figure 1. Location of the Boulder City Conservation Easement, Energy Zone Inholding, and Power Grid Substations

Past Uses

Prior to 1995 the property was managed for multiple uses by the Bureau of Land Management (BLM). Just as today, the most important, conspicuous use was as a power transmission corridor. Numerous pylons and power lines, and access roads, cross the property, primarily in a northeast to southwest direction. The site was also used for mining, grazing, and recreational activities including casual and competitive off-highway-vehicle (OHV) uses, hunting, trapping, and hiking.

Adjacent Land Uses

Approximately 44 miles of the BCCE boundary abuts federal property administered by the BLM that manages its property under multiple-use plans and conservation management categories (Figure 2). Property adjacent to about 40 miles of the boundary is designated by the BLM as an Area of Critical Environmental Concern (ACEC), and is categorized as an Intensively Managed Area (IMA) in the MSHCP. The lands are managed using actions that reduce or eliminate potential threats to biological resources and are committed to conservation of the desert tortoise and other species covered by the MSHCP.

Property adjacent to 3 miles of the boundary is designated as the Sloan Canyon National Conservation Area, and is categorized as a Less Intensively Managed Area (LIMA) in the MSHCP. LIMAs are areas where the range of uses allowed is limited to primarily recreational uses. They also function to augment the habitat of IMAs for covered species, and may also provide a buffer from areas of more intensive use and serve to connect IMAs.

Property adjacent to 1 mile of the boundary is described as a Multiple Use Managed Area (MUMA) in the MSHCP. Human activities, which may be intense and frequent, are not proscribed. MUMAs support significant areas of undisturbed habitat and provide connectivity between populations in IMAs and LIMAs.

The BCCE shares a 9.2-mile boundary with the Lake Mead National Recreation Area administered by the National Park Service (NPS). All of the property is classified as an IMA, and the NPS limits the types and locations of human activities within the area to protect its natural resource, scenic, and recreational values.

The remaining 19.8 miles of the boundary are adjacent to other lands owned by Boulder City that are not part of the BCCE. These lands are classified as Unmanaged Areas (UMAs) on which human activities predominate, but which may incidentally support populations of some covered species.

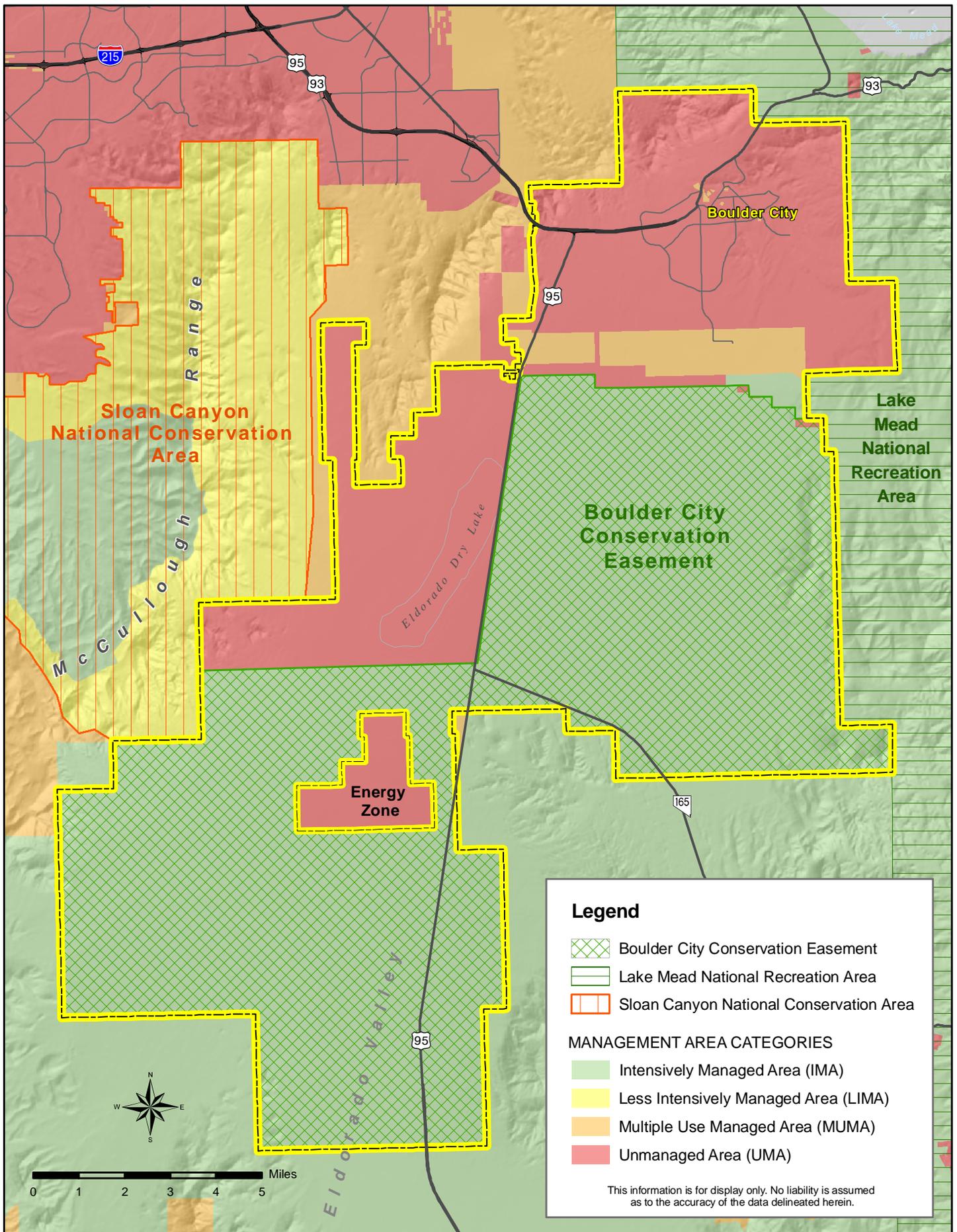


Figure 2. Land Use

Watershed

The BCCE is in a closed drainage basin surrounded by mountains, ridges, and hills of variable but relatively rugged relief. The elevational gradient is between about 1,800 and 3,000 ft. Permanent surface water is limited to 3 small springs. Following heavy precipitation events some drainages contain intermittent streams that empty onto a playa, known as Eldorado Dry Lake, located at the lowest elevation, just north of the southwestern unit.

Soils

Most of the soils developed on alluvial deposits that contained unconsolidated parent materials of both sedimentary and volcanic origins. They developed under conditions of high temperatures and low rainfall, and display characteristics typical of desert soils: coarse texture; an accumulation of carbonates within a few feet of the surface contributing to the formation of a caliche layer; low organic matter content; and low carbon/nitrogen ratios. Most of the soils probably belong to the Thermic Families.

Flora

The vegetation types and associations are typical of the Mojave Desert at elevations below 4,000 ft. The *Larrea-Ambrosia* vegetation association is generally found between 2,000-3,500 ft, in areas of deep, loose sandy soils that lack a surface pavement. The co-dominant shrubs are creosote bush, *Larrea tridentata*, and bursage, *Ambrosia dumosa*. Associated shrubs are indigo bush, *Psoralea fremontii*, little-leaved ratany, *Krameria parvifolia*, Nevada ephedra, *Ephedra nevadensis*, and winterfat, *Krascheninnikovia lanata*. Indian ricegrass, *Oryzopsis hymenoides*, is a characteristic perennial grass. This association has also been called the Creosote-Bursage Community, and was estimated to occupy 80% of the BCCE in the MSHCP.

Above 3,500 ft in elevation, the sandy loam soils include a matrix of scattered, rock fragments, but have a less well developed surface pavement, and lack a near surface hardpan. These soils are dominated by a *Larrea-Lycium-Grayia* association where desert thorn, *Lycium andersonii*, and spiny hop-sage, *Grayia spinosa*, replace bursage as dominants. The associated species are similar to those in the *Larrea-Ambrosia* association. This association has also been called the Mojave Mixed Scrub Community, and was estimated to occupy 20% of the BCCE in the MSHCP.

Fauna

In addition to the desert tortoise the reptilian fauna probably includes several species of lizards including the side-blotched lizard, *Uta stansburiana*, western whiptail, *Cnemidophorus tigris*, zebra-tailed lizard, *Callisaurus draconoides*,

desert iguana, *Dipsosaurus dorsalis*, desert horned lizard, *Phrynosoma platyrhinos*, and the long-nosed leopard lizard, *Gambelia wislizenii*.

The western shovel-nosed snake, *Chionactis occipitalis*, is probably the most common non-poisonous snake. Five species of poisonous snakes may occur on the site including the sidewinder, *Crotalus cerastes*, speckled rattlesnake, *C. mitchelli*, Mojave rattlesnake, *C. scutulatus*, night snake, *Hypsiglena torquata*, and Sonora lyre snake, *Trimorphodon lambda*.

Most of the birds on the BCCE are either transients that migrate through the area during spring and autumn, or are seasonal residents. The most common resident species are probably the Black-throated Sparrow, *Amphispiza bilineata*, House Finch, *Carpodactus mexicanus*, Common Raven, *Corvus corax*, Loggerhead Shrike, *Lanius ludovicianus*, Northern Mockingbird, *Mimus polyglottos*, Greater Roadrunner, *Geococcyx californicus*, Le Conte's Thrasher, *Toxostoma lecontei*, Red-tailed Hawk, *Buteo jamaicensis*, and American Kestrel, *Falco sparverius*. Game birds probably include Gambel's Quail, *Callipepla gambelii*, Chukar, *Alectoris chukar*, and Mourning Dove, *Zenaida macroura*. In winter the BCCE probably provides feeding grounds for flocks of small passerine birds that may remain as winter residents.

Several species of terrestrial mammals and bats occur on the site. Rodents, especially kangaroo rats, pocket mice, and deer mice and their relatives, are probably the most important mammals in terms of distribution and relative abundance. Black-tailed hares, *Lepus californicus*, and desert cottontails, *Sylvilagus audubonii*, are two important medium-sized mammals. The most important carnivores are probably the coyote, *Canis latrans*, kit fox, *Vulpes macrotis*, badger, *Taxidea taxus*, and bobcat, *Lynx rufus*.

Mule deer, *Odocoileus hemionus*, and desert bighorn sheep, *Ovis canadensis*, are found in suitable habitats surrounding the BCCE and they may occasionally transit the site.

There is no evidence that wild horses or domestic livestock occur on the BCCE.

MANAGEMENT ISSUES

Over the past 14 years of implementing the Conservation Easement the County identified issues that needed to be addressed so that actions could be taken to remedy them and adaptively manage the BCCE. Most are described here, and, if needed, corrective measures are proposed in the land management actions provided later.

Dumping and Cleanup Sites

The BLM, Stateline Resource Area, completed an initial Level 1 hazardous materials survey of the Transfer Area on 17 September 1993. No evidence or recorded information was found that any hazardous substance was stored for 1 year or more, or disposed of, or released on the Transfer Area.

There are no past or current landfills on the property.

There are, however, some locations along the road system where desert dumping and littering take place. Much of the refuse appears to be construction and landscaping garbage that was probably deposited there to avoid tipping fees in the Boulder City landfill. With the exception of some paint, solvents, and used motor oil, the refuse does not appear to pose a threat to the indigenous flora and fauna. Some of it is deposited in drainages and could be scattered farther during runoff events.

People illegally dumped animal remains on a 14-acre site near the northern boundary of the BCCE just east of US 95 (Figure 3) when it was administered by the BLM. When the site was included in the Eldorado Valley Transfer Area Boulder City did not sanction it as a site to discard animal remains. Now Boulder City's "Animal Welfare and Control Ordinance," 1003, Title 7, Chapter 3(8)(E) applies to the site. It prohibits the discarding of dead animals onto public property. The "Public Land Use Ordinance," 972, Title 7, Chapter 5(8)(G), adopted to comply with the terms and conditions of the Section 10 Permit, further prohibited dumping within the Transfer Area, which would reasonably include disposal of animal carcasses. Title 7, Chapter 5(9) extends the prohibitions and regulations provided for parks to undeveloped lands, including Title 7, Chapter 5(7)(1) which prohibits, "...dumping...dead animals..."

There is no reason to believe that the buried animal remains, or the memorabilia deposited on the surface, pose a threat to species being protected within the BCCE. However, further burials are not a permitted activity, and would be in violation of both ordinances.

It would be relatively easy, but expensive, to remove the dumped refuse. This would probably not be effective unless the Conservation Easement were fenced to eliminate future littering since law enforcement alone was not effective in curtailing dumping in the past.

Cultural/Archaeological Sites

When actions were taken in 1993 to implement Public Law 85-339 and convey the Transfer Area to the Colorado River Commission, the State Director of the BLM made the determination that this land conveyance was not an undertaking under Section 106 of the National Historic Preservation Act, but was analogous

to a mineral patent. The State Historic Preservation Officer (SHPO) did not concur with the determination and asked the Advisory Council on Historic Preservation (ACHP) for a review by its legal counsel to resolve the issue. The BLM submitted a proposal for a Class II inventory of the Transfer Area that was ultimately concurred with by the SHPO on 5 October 1993. The ACHP subsequently determined that the land conveyance constituted an undertaking subject to Section 106 of NHPA. However, the SHPO does not have documentation of the results of the proposed Class II inventory that would demonstrate a lack of significant archaeological resources.

Reclamation of Disturbances

Habitat reclamation is one of the most important types of mitigation for projects that may result in take of species protected under ESA, especially if the take is associated with habitat disturbances. In addition to its mitigation value as a protected habitat for covered species, the BCCE could also provide additional value as a site for reclamation of previous disturbances. The site contains unused roads, former OHV race courses, and various sized areas where soils and vegetation were disturbed or removed. Most of the disturbances could be re-vegetated to enhance the value of the BCCE as habitat for protected species.

Road Designations

The Conservation Easement permits travel on, and maintenance of, designated and signed roads and trails. It further allows competitive and organized motorized vehicle activities that are approved by Clark County and FWS, and take place on roads approved by same.

The current user map of the BCCE indicates interim road designations. It specifies that only open roads, marked with green signs with arrows indicating the travel route, can be used legally. The interim road designations were established by the County and BLM in 1994 as part of the Implementation Agreement for the Short-term Desert Tortoise Habitat Conservation Plan. They were based on recommendations from the County's Implementation and Monitoring Committee that included representatives from the OHV, mining, sportsmen, and environmental communities. Criteria to finalize these designations are provided below under *Secondary Actions, Road Designations*.

Fire

Range fires require a combination of adequate fuel loading, appropriate climatic conditions, and an ignition source. Fuel loading is dependent upon the canopy coverage of perennial shrubs, ground coverage and biomass of perennial and annual grasses and forbs, and their flammability.

The vegetation associations within the BCCE do not appear to be susceptible to range fires. Shrubs are widely scattered within most Mojave Desert associations, and canopy coverage ranged from 7% to 23%. Winter annual forbs and grasses are probably the dominant species of ground cover and probably contribute the most to the annual production of biomass. Annual biomass measured within Mojave Desert vegetation types ranged between 17 and 143 lb/acre. It is unlikely that the low densities of shrubs and reduced canopy coverage, combined with variable amounts of standing dead litter from winter annual biomass, would carry the spread of a range fire even under windy conditions.

Aerial photographs of the site taken in 2006 do not show patterns in the vegetative cover consistent with past range fires. The Chief of the Boulder City Fire Department confirmed that they have no records of fighting range fires in the Eldorado Valley. He attributed the absence of such fires to the scattered nature of the native vegetation. He further acknowledged that current equipment can not be used off paved roads and they would be unable to combat a range fire in the unlikely event that one occurred.

Although a range fire on the BCCE is possible the probability is so low that management actions are not currently justified.

Flood

The BCCE is located in a closed drainage basin that is subjected to periodic flash flooding following high intensity precipitation events, usually in the summer. Surface runoff travels downhill towards the playa. If there is sufficient runoff the playa may be covered by a shallow layer of water for a few days to a few weeks.

Construction of US 95 formed a barrier that altered the runoff on the east side of the highway. Runoff now has to move along the eastern drainage ditch towards culverts that allow the water to pass under the highway onto the playa at lower elevations. Since the runoff is channeled into a smaller area it may cause sheet erosion, damage some vegetation, and deposit silt. Alterations of the habitat due to periodic flooding are limited in extent and frequency.

Since runoff is the result of natural rainfall events, and flooding only occurs occasionally along the eastern highway berm, the BCCE does not appear to be negatively affected by flooding to a degree that would require management actions.

Weeds

The introduction of non-native plants that are often referred to as weeds was an unintended consequence of the settling of the West by Europeans. It has been reported that nearly 12% of the floral species of southern Nevada were introduced. Some species, notably the *Brome* grasses, so successfully invaded

undisturbed habitats that it is believed that, lacking historical information regarding their origins, we would infer that they were one of the many native winter annual species.

Although the species composition and distribution of the flora of the BCCE has not been thoroughly surveyed, it likely contains several weedy species. Currently there is no compelling evidence that the presence of some weedy species degrades the quality of the habitat of the BCCE, or compromises the management of the area for protected species. Federal and private programs to control or eliminate alien species on western rangelands have been largely unsuccessful in spite of costing hundreds of millions of dollars.

Energy Zone

The Energy Zone is an inholding of approximately 3,042 acres that contains both solar and gas turbine energy power production facilities. When the Boulder City Council approves the terms and conditions of the latest proposal from a solar energy power company all of the acreage will be committed.

The City is considering expanding the zone by incorporating approximately 6,560 acres north of the existing Energy Zone and the adjacent portion of the BCCE (Figure 3). The City provides infrastructure to the current zone, and will likely seek to establish new utility corridors through the BCCE to service any expansions.

The three substations adjacent to the Energy Zone occupy over 655 acres that were dedicated for power transmission purposes before the land was deeded to Boulder City and the Conservation Easement was granted to the County. Since it is unlikely that they will be managed for natural resource values, the acreage of the BCCE should be adjusted to exclude these 655 acres.

Other Developments

There are other proposed developments that may be located close enough to the BCCE to affect it (Figure 3). The Federal Highway Administration and Nevada Department of Transportation have completed an Environmental Impact Statement describing the building of the Boulder City Bypass highway. The proposed highway would extend US 93 from the Hoover Dam bypass bridge westward from an interchange near the Hacienda Hotel, to an interchange with US 95 at Railroad Pass. The proposed route would travel south of Boulder City and come within one mile of the northern boundary of the BCCE. Since no additional intermediate interchanges are planned the highway will form a barrier between the city and BCCE. This may have a positive impact since it could reduce the amount of OHV travel that currently starts within the city. Because federal funds are limited and the bypass has such a low priority it is doubtful that it will be funded in the foreseeable future.

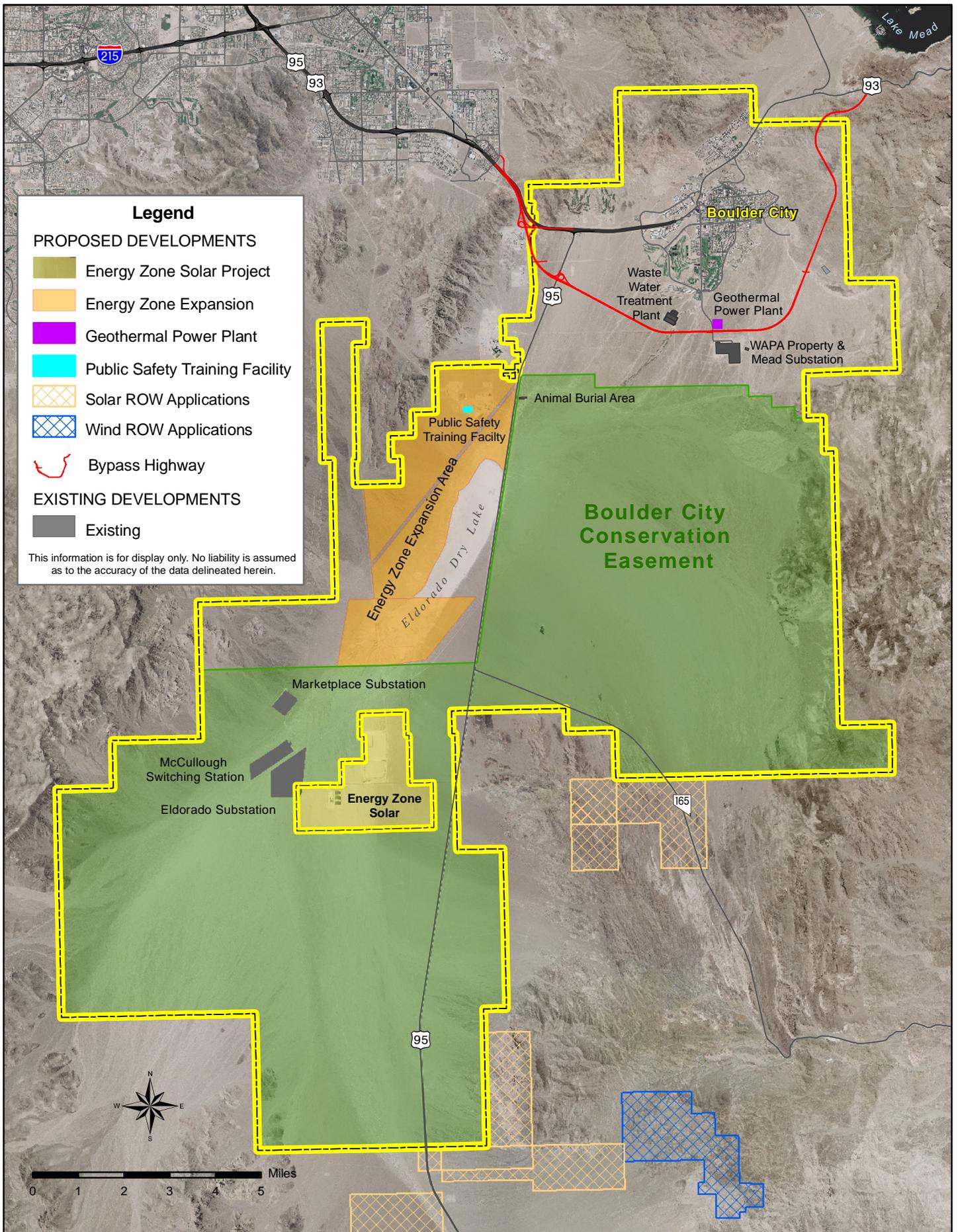


Figure 3. Proposed Developments in the Vicinity of the BCCE

A proposal to build a 250-megawatt geothermal power plant is being reviewed by Boulder City. If approved it may be located on a 25-acre site approximately 1 mile north of the northern boundary of the BCCE. All of the equipment would be located underground and only a 2-story building would be on the surface. It is unlikely that any of the proposed activities associated with this project will impact the BCCE.

Boulder City signed a Memorandum of Understanding with the City of Henderson for the joint development of a Public Safety Training Facility that will be located on 705 acres of excavated land 1 mile west of the northwestern boundary of the BCCE. It is unlikely that activities associated with this proposed facility will impact the BCCE, unless Boulder City has to extend a utility corridor to provide service.

The BLM is reviewing proposals for both solar and wind projects that could be developed within the Eldorado Valley. Currently there are 5 proposed solar projects: 3 abut boundaries of the BCCE; 1 is within 0.5 mile; and 1 is within 1 mile. The 2 proposed wind projects are at least 3 miles away. The most likely impacts would occur if the utility or transmission corridors for the projects had to enter the BCCE. The probability that this might occur is unknown.

There are preliminary plans for a proposed power transmission line from Kansas to the power grid south of Boulder City. If the routing takes it to the Mead Substation there will be no impacts on the BCCE. If the routing extends to either the McCullough or Eldorado substations it would impact the site. The proponents are using federal funds so either an Environmental Assessment or an Environmental Impact Statement would have to be written that would require consideration of effects on listed species and the BCCE.

Waste Water Treatment Plant Effluent

In Section 6(b)(1) of the Conservation Easement Grant Boulder City retained the limited right to adversely impact the natural resource values of the Conservation Easement by discharging effluent onto it from the Waste Water Treatment Plant.

The Boulder City Waste Water Treatment Plant is located 1.1 miles north of the BCCE. It is authorized to discharge a 30-day average of 1.8 million gallons per day of secondarily treated effluent into two dry washes. The effluent travels down the washes in a southwesterly direction and enters the BCCE approximately 1.5 miles from the plant. Evidence of the effluent on the surface disappears within 0.6 miles of the BCCE boundary.

The effluent alters the ecology of the BCCE. It provides a source of free water that would not exist in this desert environment. It is a potential source of water for predators of tortoises and other covered species. The surface moisture also creates a mesic environment that provides habitat for riparian vegetation that

normally would not be present. It also forms a barrier that fragments the Mojave Desert habitat. The Boulder City Fire Chief indicated that when the dense vegetation along the effluent channels dried it could provide fuel for a brush fire. Based on existing records the probability of such a fire is remote, but if it did occur it might injure indigenous flora and fauna.

Boulder City informed the FWS of this use, and its location, through the granting of the Conservation Easement. It also agreed to incorporate any reasonable measures proposed by the FWS to minimize and mitigate possible adverse impacts to the greatest extent practicable. To date the FWS has not proposed any mitigation measures for operation of the Waste Water Treatment Plant.

Fencing

There are 2 types of fencing associated with the BCCE: tortoise-proof barrier fencing; and boundary/security fencing. Construction and maintenance of the former along major roads is a term and condition of both the DCP and MSHCP Section 10 permits. The barriers are required to minimize or eliminate mortality of tortoises due to road kills.

US 95, that transects the length of the BCCE, and Nevada Highway 165, which heads east from US 95 to Nelson, are paralleled by tortoise-proof barriers. The County contracts for repairs of the tortoise-proof fencing on a quarterly schedule. The unpaved roads within the BCCE are used so seldom that barrier fencing of them is currently unjustified as a mitigation measure.

The requirement for tortoise-proof fencing poses a paradox. *The Desert Tortoise (Mojave Population) Recovery Plan* states that habitat fragmentation is one of, “The most serious problems facing the remaining desert tortoise populations in the Mojave population...” Presence of a barrier on the BCCE insures that the habitat will remain fragmented and that gene flow will be prevented. The effectiveness of barrier fencing for recovering the population is unknown, as are the culverts sometimes put in place to allow tortoises to cross under highways. There has been no published analysis of the tradeoff between the importance of barrier fencing to prevent mortality of individuals, and the importance of habitat continuity and gene flow to the survival of the species.

Both highways are also paralleled by 2-strand, reinforced barbwire fences erected for safety and security along the roads. The 2 strands are spaced about 4 inches apart at the top of the fence. There is a large space between the lower strand and the top of the tortoise barrier to allow users to pass through the fence without damaging it. Gaps in the fences are provided for access to unpaved roads associated with rights-of-way and easements. Most have gate posts but no gates, while others have unlocked gates. Some also have cattle guards that were installed in lieu of barriers to prevent tortoises from entering roads.

The highway fencing also provides boundary fencing for approximately 20 miles of the BCCE (Figure 4). The solar energy development zone and the electrical power plants and substations are also fenced, but the paved road into them is not fenced.

Law Enforcement

Boulder City is responsible for enacting, and keeping in full force and effect, all ordinances, such as the “Public Land Use Ordinance,” necessary to restrict the uses of the BCCE. The City also allows peace officers provided by the County to cite those violating such ordinances. Boulder City is also responsible for providing peace officers to monitor activities that it specifically permits to occur on the BCCE, such as organized OHV events on designated roads, and to cite and prosecute violators of such permitted uses.

Currently law enforcement is the most significant management effort. The County has contracted for law enforcement officers since February, 2000. Their primary task is to ensure that users follow the conditions of the Conservation Easement. But, since they are the representatives of the County that the public is most likely to meet, they also serve in the capacities of public relations and conservation educators. Their emphasis has been on helping the public understand the mission of the BCCE, its importance as a preserve for protected species, and the uses that are allowed and prohibited. They generally issue citations only to flagrant, or persistent violators.

Some of the most egregious violations result from OHV users who drive off the established roads and trails, usually at high speeds, creating new scars on the habitat, and potentially threatening harm to protected species. The law enforcement officers are not equipped with vehicles capable of pursuing such violators, nor are they required to engage in potentially dangerous tactics to arrest them.

While the law enforcement officers have issued many citations since 2000, there are no records that they ever encountered, or prevented, the taking of desert tortoises or other covered species.

Recreational Uses

The BCCE is used for non-consumptive recreational uses including hiking, bird watching, bicycling, horseback riding, photography, sightseeing along the roads, and picnicking. The area is also used by hunters during the dove, quail, and chukar seasons.

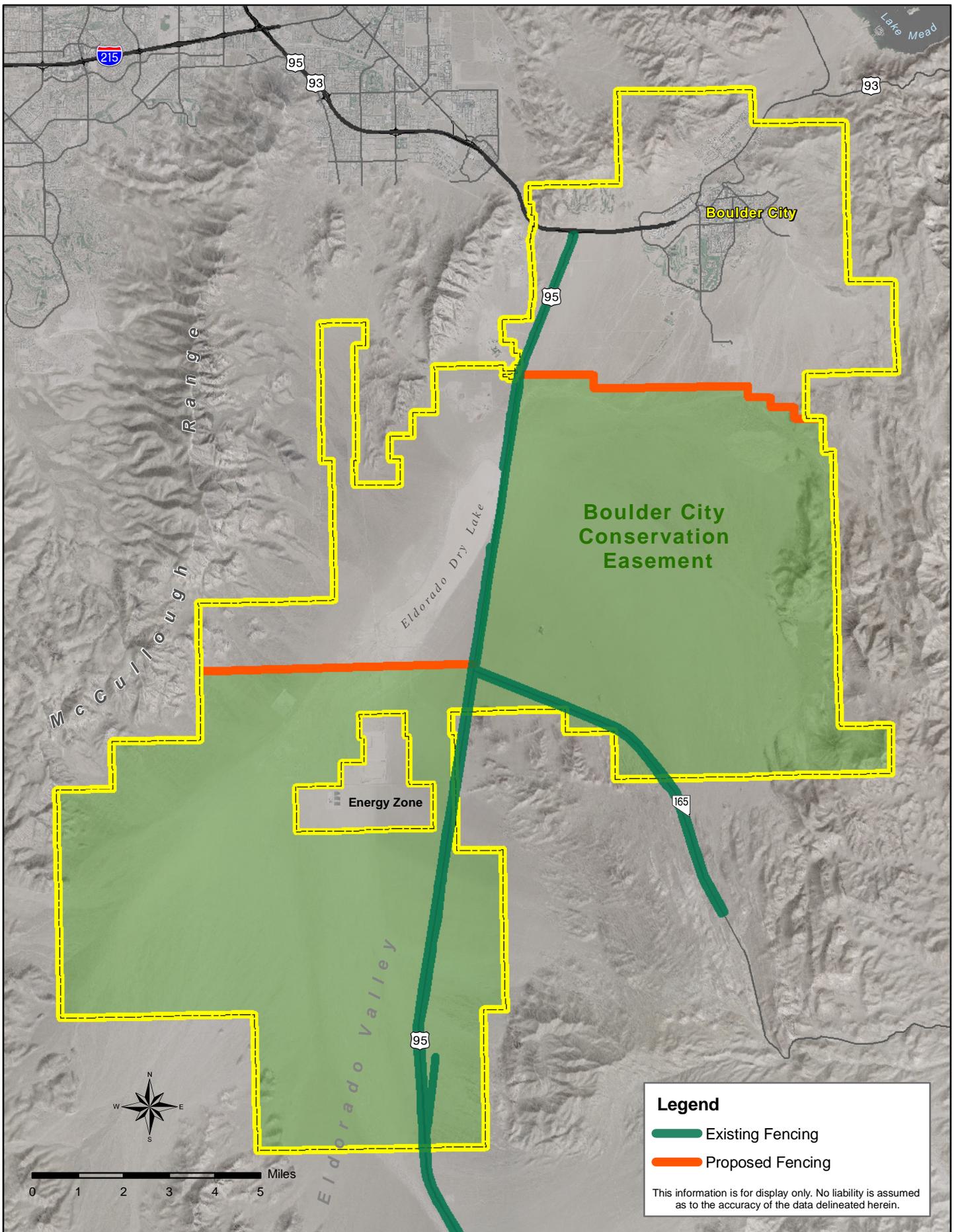


Figure 4. Existing and Proposed Fence Lines on the BCCE

The Conservation Easement allows parking and camping in designated areas approved by FWS in consultation with the County. This could be in conflict with the prohibition against disposal and littering unless litter barrels and toilet facilities were installed and maintained. To date no areas have been designated for camping.

Application Process/Requests For Access

It is important to remember that the purpose of the Conservation Easement is to insure that the property is retained in a natural condition, and to prevent any uses that will impair the conservation, protection, restoration and enhancement of the natural resource values, especially those values associated with habitat for the desert tortoise and other indigenous flora and fauna. Any activity on, or use of the BCCE that is inconsistent or incompatible with the above purposes, is prohibited, including, but not limited to, the following:

- All motorized vehicle activities that take place off of approved, designated roads and trails.
- Competitive and organized motorized vehicle activities that are not approved by, or take place on roads that have not been approved by, Clark County and FWS.
- Military activities, clearing for agriculture, land fills, and any other surface disturbances that diminish the habitat value for tortoises and other indigenous flora and fauna.
- Grazing by cattle, horses, burros, and domestic sheep.
- Commercial collection of flora and fauna.
- Non-commercial collecting of flora and/or fauna except when permitted by Boulder City, and relevant state and federal agencies.
- Dumping, disposal of refuse, littering.
- Application of pesticides or biocides.
- Release of captive or displaced desert tortoises, or other animals, unless they are part of a translocation program authorized by FWS.
- Uncontrolled dogs out of vehicles.
- Construction of any physical improvement without consent of Boulder City and FWS.
- Discharge of firearms, except in conjunction with hunting or trapping from September to March.

The prohibited activities listed above may be allowed to occur with the express written consent of the County and FWS. Curiously there are no provisions for permitting intrusive ecological studies such as live-trapping small mammals.

Although Boulder City incorporated these prohibitions into its Public Land Use Ordinance it reserved the right to permit these activities:

- Non-intrusive monitoring of desert tortoise populations and their habitat.
- Travel on and maintain designated and signed roads and trails.
- Non-consumptive recreation such as hiking, bird watching, casual bicycling and horseback riding, and photography.
- Parking and camping in designated areas approved by FWS in consultation with Clark County.
- Fire suppression.
- Approved or controlled maintenance of utilities and ancillary structures.
- Surface disturbances that enhance the quality of habitat for wildlife, enhance watershed protection, or improve opportunities for non-motorized recreation. Construction of visitor centers, wildlife water projects, and camping facilities.
- Population enhancement of native species.
- Non-manipulative and non-intrusive biological or geological research (by written permit).

The current permitting policy seems to contain conflicting rights and responsibilities that might diminish protection of the BCCE. The County is responsible for enforcing the terms of the Conservation Easement, but Boulder City has reserved rights that would appear to preclude the County from establishing policies and procedures to protect the primary purpose of the BCCE. It is unclear why the City reserved the right to travel on and maintain designated and signed roads and trails since once the County and FWS designated open roads pursuant to Section 4(a) of the Easement all motorized users, including City personnel, were free to travel on them.

It is the responsibility of the County, not the City, to manage and study the natural resource values, and to determine what uses of the BCCE are consistent with the MSHCP, but the City reserved the right to allow non-consumptive recreational uses, and to permit surface disturbances and other activities associated with management of wildlife.

The list of prohibited activities that the County can allow with the consent of the FWS was adapted from the Desert Tortoise Recovery Plan, Appendix D, entitled *Human Activities Which Directly or Indirectly Threaten Naturally-Occurring Populations of Desert Tortoises and Their Habitats in the 1990's*, without eliminating those activities that are unlikely to occur on the BCCE. It is unclear why the County and the FWS would allow any of these activities since they appear to be inconsistent with the goals of the Conservation Easement and Boulder City Ordinances, or why they would exclude Boulder City from the consent process.

As currently written, FWS must give written consent before prohibited uses can be allowed by the County, any physical improvement is constructed, or displaced or captive animals are released. Boulder City is also required to inform the FWS before if conducts activities that may have adverse impacts on the BCCE. The City is also obliged to implement reasonable mitigation measures recommended by the FWS. The involvement of the FWS in management decisions on the BCCE is problematical. When the FWS accepted the MSHCP, and issued the Section 10 permit, its involvement as the regulatory agency was to monitor compliance because the permit now belongs to the permittees. Although the management of the BCCE rests with the County it seems inappropriate to provide FWS with a continuing role in decision making and management of the BCCE.

Application Process/Mitigation Measures

There is only one requirement for mitigation measures in the Conservation Easement. Boulder City is required to implement any reasonable measures recommended by the FWS to minimize or mitigate adverse impacts to the BCCE resulting from activities such as the discharge of effluents, or the construction of utility corridors and infrastructure.

Rights-of-Way and Easements

Both the contract of sale between the United States and the Commission, and the deed of transfer from the Commission to Boulder City, contained the requirement that all such patents issued subject to valid existing rights, including those certain easements, reservations, rights-of-way, must be upheld.

Currently there are about 58 rights-of-way or easements on the BCCE. The scope of this report did not include a review of them and their potential impacts on management of the BCCE. Because of their potential importance they must be considered before proposed land management actions can be used to develop a comprehensive land management plan for the BCCE.

RECOMMENDED MANAGEMENT ACTIONS

The information provided above indicates that certain management actions need to be implemented before a more detailed management plan for the activities conducted on the BCCE can be developed. The four fundamental actions are essential, and without them, it is difficult to see how the activities can be managed in compliance with the Conservation Easement Agreement. The secondary actions will contribute significantly to the revision of a management plan, but their value is dependent upon the completion of the fundamental actions.

Fundamental Actions

Clarification of Roles and Responsibilities

Some of the important elements of the Conservation Easement Grant, especially the assignment of roles and responsibilities, need to be clarified. Sections 2 and 9 describe the role of Boulder City as the continuing owner, manager, operator, and maintainer of the property, and oblige the City to allow only those uses of the property that do not impair the conservation, protection, restoration, and enhancement of the natural resource values of the habitat for the desert tortoise and other indigenous flora and fauna.

It is unclear in the Grant, and in subsequent actions by the City, how decisions regarding uses of the property would be evaluated to ensure that they would not interfere with the purpose of the Conservation Easement. One might infer that the City can make such decisions without consulting the County, even though the County is responsible for enforcing the terms of the Conservation Easement. It is also unclear why the County and FWS would exclude Boulder City if they consented to allow prohibited actions on City property that might be inconsistent with City Ordinances.

Once the earlier Section 10 Permit for the DCP, and the current Permit for the MSHCP, were issued, it was the sole responsibility of the County to implement their terms and conditions, including establishment of the BCCE. As the Grantee the County is currently responsible for managing the BCCE with the involvement of Boulder City and the FWS. It seems inappropriate to continue to involve the FWS, the regulatory agency, in management decisions on the BCCE. This does not suggest that the County should discontinue a dialog with the FWS, only that it modify or eliminate FWS' formal, legal role in the decision making process on the BCCE.

Clarifying roles and responsibilities could be accomplished in at least two ways. Clark County could request that Boulder City amend specific wording in the Conservation Easement Grant to eliminate the current ambiguities. The City and the County would have to agree on changes to the wording of both the general goals of the Conservation Easement and specific procedural details. Since the wording in an easement is general in nature and describes the broader aspects of the grant, trying to add language that deals with details of implementation might be out of place and cumbersome.

The recommended action would be that the County and City write an Implementation Agreement (IA) that tiers off the broader terms of the Conservation Easement Grant. An IA would allow them to describe the policies and procedures that they will implement to fulfill their roles, without amending the current Conservation Easement.

An IA would allow Boulder City to reaffirm its ownership, use, and management of the property in ways that would preserve the natural resource values of it. It would also provide the details of the policies and procedures that it would implement to ensure that proposed City activities comply with the goals of the Conservation Easement, the MSHCP, and the Terms and Conditions of the Section 10 Permit. The City has acknowledged the County's right to enforce the terms of the Conservation Easement, therefore, an important element of the IA would be the establishment of an early consultation process with the County to obtain concurrence on compliance issues.

In the IA the County would acknowledge that it has the right to conduct specific activities on the property, but that it does not own, nor does it manage the BCCE. The early consultation process described above for the City should work both ways, requiring the County to obtain concurrence on activities that it may initiate that might have impacts, either positive or negative, on the property. This would be most important if the County and FWS consented to a prohibited use of the BCCE, since it would give the City an opportunity to determine whether the activity was in compliance with its Ordinances, and if it concurred with the consented action.

The Conservation Easement conveys the right to the County to, "...manage and study the Natural Resource Values of the Property..." However the management of Nevada flora and fauna is the responsibility of the Nevada Department of Wildlife; the management of migratory birds is the responsibility of the FWS. The IA would allow the County and Boulder City to acknowledge this, and include the agencies in the process if the proposed activities might impact Nevada wildlife or migratory birds.

Fencing

It is unrealistic to believe that the natural resource values of the BCCE can be protected by the limited presence of law enforcement personnel, as long as the property provides unlimited access for legal and illegal activities. The most direct way to regulate uses would be to complete fencing the boundary of the property with reinforced 3-4-strand barbwire security fence, install locked gates at selected access locations, and remove and close off all other access points. Legitimate users would gain access from a site manager or law enforcement personnel who would unlock the gates being used, and relock them when the party left.

Fencing would have to be done in compliance with existing rights-of-way and easements, and with the concurrence of Boulder City. It is likely that most of the holders of easements and rights-of-way would welcome fencing and tighter access requirements as long as their access was not hindered.

Fencing would not prohibit access for public recreation, but would help the County and Boulder City regulate access. Therefore, fencing would not violate Section 2(d) of the land sale contract between the Colorado River Commission and Boulder City, which specifies that the property is to be used for public recreation as well as for protection of the desert tortoise.

Even though it already exists along the boundary adjacent to US 95, installing fencing around the rest of the irregularly shaped BCCE would be expensive. It could, however, be installed in segments starting with the areas having the highest needs for security. The current law enforcement officer recommended that the first two fences should be constructed along the northern boundaries of both units, from US 95 to the boundary of the Lake Mead National Recreation Area, and from US 95 west to the boundary with the Sloan Canyon National Conservation Area (Figure 4). It would be an excellent time to fence the former boundary since the National Park Service has funding to construct a fence along the eastern boundary of the BCCE from Boulder City south. Only one gate will be installed at Yucca Camp Road.

Resource Inventory

The Conservation Easement Grant says that the BCCE contains significant natural resource, ecological and native habitat values, as well as habitat for the desert tortoise and other indigenous flora and fauna, and that it should be preserved and protected. There are no data available to independently evaluate this characterization since the site was never surveyed and inventoried. Without knowledge of these resources, their distribution on the property, and their significance relative to other sites, it would be impossible to develop a scientifically-based management plan.

An integrated resource inventory survey should be funded immediately to provide the essential information on the following:

- Characteristics of the watershed.
- Geology and surface hydrology.
- Characteristics and distribution of major surface soil types.
- Distribution and species composition of vegetation associations.
- Distribution, relative abundance, and seasonal occurrence of birds, reptiles, and mammals within major vegetation associations.
- Types, areal extent, and distribution of past human disturbances.

It is essential that adequate field studies be conducted to establish the distribution and relative abundance of the desert tortoise population on the property to more accurately gauge the value of the habitat for this listed species.

The results of a resource inventory would provide valuable information for managing the property for resource values. First, it provides a benchmark

quantifying the present conditions of the property. This is fundamental to any subsequent monitoring program established to evaluate changes in resource values over time.

Second, the layers of information would be the primary data needed to establish a geographic information system (GIS) that could greatly assist managers making decisions about proposed uses or activities. For example, it is unlikely that the desert tortoise is distributed throughout the property, but without the results of surveys to describe its distribution, the current default assumption has to be that any project or activity will impact tortoises. But if the results of field surveys indicated that tortoises were absent from large acreages in the sandy soils in the lowlands surrounding the playa, managers could choose to locate projects there if possible. The reciprocal is also true. Those areas that the field data showed to be the most desirable desert tortoise habitat could receive more conservation management attention and be protected from further consumptive uses. Both the County and Boulder City have and use GIS capabilities for obtaining information for making management decisions such as these.

You can not manage what you do not know and understand.

Monitoring

Without a robust monitoring program there is no way to qualitatively, much less quantitatively, evaluate the resource values, changing conditions, impacts of human uses, and effectiveness of management actions as a function of time on the BCCE. It is essential that the status of the only listed species, the desert tortoise, be assessed as rigorously as possible. It is the keystone species that justified creation of the Conservation Easement. If the mere existence of the BCCE were sufficient to justify its value as a significant mitigation factor, monitoring might be irrelevant. A monitoring program is necessary to evaluate whether the primary purpose is being achieved: insuring that its natural resource values are protected, maintained, and enhanced.

Although the focus of the monitoring program should be on the desert tortoise and its habitat, the types of information gathered will be applicable to many other species. It should include the following:

- Measurements of microclimatological information as a function of elevation, soil types, and vegetation associations. The measurements should include air and soil temperatures, as well as amounts and timing of precipitation. These are the triggers for vegetative growth.
- Annual measurements of the living-aboveground-biomass of both perennial and winter annual plants. These are the food base for tortoises and many other species.
- Estimating the relative abundance of desert tortoises. Thus far there is no agreement on how to quantitatively estimate numbers of tortoises so

relative abundance indices are the default measure. Relative abundance indices were used to justify listing the species so they should be adequate for monitoring purposes.

- Determining the sources and rates of mortality, and reproductive success of desert tortoises.
- Sampling seasonal changes in the species composition and relative abundance of selected fauna characteristic of various vegetative associations
- Documenting the types, location, and impacts of human uses.
- Synthesis of actions conducted by law enforcement personnel.

Secondary Actions

Habitat Reclamation

In the past 30 years the science of habitat reclamation has evolved from largely small scale research trials into cost effective, operational programs capable of successfully reclaiming large disturbances. The U.S. Department of Energy (DOE) pioneered much of the research directed towards re-vegetating arid lands habitats in both deserts and steppes. Over 1,000 acres disturbed on the Naval Petroleum Reserves in California were re-vegetated to mitigate for the loss of habitat for endangered and threatened species on site. DOE successfully adapted and applied the program to disturbances of Mojave and Great Basin desert sites on the Nevada Test Site and on Yucca Mountain. It is likely that the techniques could be applied to the BCCE as well.

The resource inventory action would provide a GIS data base documenting the types, distribution, and areal extent of past surface disturbances that are potential candidates for reclamation.

Once sites were selected they would be visited to determine what types of reclamation would be implemented. First they would be ripped and disked to remove compaction and to provide a suitable soil surface. If the terrain were sloped in such a way that soil erosion might be a problem the site could be contoured and water bars installed to moderate and control surface water flow.

Next mixtures of native grass and forb seeds would be applied using a seeder modified for wild seeds and rough terrain. They could also be applied by hand using a number of proven methods. To the extent possible the seed mixture would include plant species that provide high quality food for tortoises.

Finally a layer of organic matter would be applied using a hydro-mulcher. This would provide some initial protection from wind erosion and consumption by insects, birds and small mammals. It would also provide some additional organic matter which might be lacking in the previously disturbed soils.

Some of the narrow, linear disturbances might only need to be ripped and disked, because once a more suitable soil surface is created it could be reseeded by plants in adjacent undisturbed habitats.

Larger disturbances would also be candidates for revegetation of shrubs. The most effective way to reintroduce shrubs is to plant containerized seedlings. This is more labor intensive, but, when successful, leads to development of more structure, canopy coverage, and diversity in the reclaimed habitat. Botanists on NTS have recently developed successful techniques for reintroducing creosote bushes, the dominant shrub species on much of the BCCE.

Reclamation sites would have to receive some additional protection from OHV users since the border of the BCCE is open, and law enforcement officers would not be able to apprehend vandals until after they damaged sites. Temporary concrete road barriers or large boulders have proven to be effective.

There are a number of reclamation contractors operating primarily out of the Midwest and Rocky Mountain states. They have the demonstrated capabilities, proper equipment, and trained field personnel to successfully conduct large habitat reclamation projects. Because the Mediterranean growing season of the BCCE occurs during the winter months, when the contractors are usually idle, they are readily available and less expensive.

Road Designations

Although the interim road designations have served well for 14 years it might be an appropriate time to consider other criteria for finalizing the road designations. The following discriminators are comparable with those used on adjoining federal lands. Consideration should be given to closing roads that have characteristics such as:

- Parallel roads with comparable origins and destinations.
- Roads that terminate in areas lacking space for parking or turnarounds.
- Roads that connect with closed roads on adjoining properties.
- Roads composed of fine soils that are susceptible to damage from frequent use, and wind and water erosion.
- Roads leading to sensitive archaeological, cultural, historical, or biological sites that might suffer from increased access.
- Roads that have deteriorated to the point that they pose a safety risk to OHV drivers.
- Roads designated for habitat reclamation.

Roads established and maintained under existing rights-of-way or easements should be reviewed for possible closure by the holders of the agreements and Boulder City, the land owner.

Access Requests

The Conservation Easement is not exclusive: Section 6(a) gives Boulder City the right to permit or invite others to engage in uses of the property as long as they are consistent with the purpose of the Conservation Easement. Project proponents submit their applications for access to Boulder City. During the City's review process they make an initial decision as to whether the proposed activities are consistent with the Conservation Easement.

Logically the next step in any City decision to grant access would be an early review by the County since Section 3 gives it the right to enforce the terms of the Conservation Easement. But no formal procedures have been established to guide the City's review process, or to involve the County in a review/concurrence role. And no formal procedures were established to guide the County when project/activity proponents made their applications to the County.

This is a compelling reason why an IA should be completed to define roles and responsibilities during the significant process of reviewing other potential uses of the property.

The County would have to have strong justifications for disapproving Boulder City's granting of a new lease or easement on the BCCE. No criteria have been established to determine when a proposed activity or project would be inconsistent with the MSHCP. This is another compelling reason to complete an IA that would provide initial criteria. It is also a compelling reason to complete a thorough resource inventory of the property to provide scientific data to support acceptance/rejection criteria.

Mitigation Measures

As mentioned above, the Conservation Easement is not exclusive and other activities and projects may be located on the property. When new projects are approved it is reasonable to expect that the proponents should be required to initiate and fund measures to mitigate take on the BCCE.

Until the resource inventory described above is completed there is no way to discriminate between occupied and vacant desert tortoise habitat. All activities that may negatively affect surface soils, vegetation, tortoises, or their burrows must be preceded by a pre-activity survey to locate natural resource values that might have to be avoided. Emphasis would be placed on avoiding all take of tortoises by moving them out of harm's way for the duration of any activities that might threaten them.

All of the personnel conducting the approved activity, especially the workers that will operate the heavy equipment used during land clearing operations, must complete a worker education course. The course would cover applicable

elements of the ESA, MSHCP, importance of the BCCE and the terms and conditions of its use. They should also be briefed on the desert tortoise and what they are required to do if they encounter one. They should be told what types of information they can provide to the program since they are out in the field and would most likely be the ones observing tortoises, their burrows, or other natural resources.

Vehicles would have to be driven at speeds of 25 mph or less and to use existing, approved roads. If construction of an access road were part of the project, vehicles could use it.

Any pit, hole, depression, dug into the surface soils that was determined to pose a threat as a potential pitfall trap would have to be covered with mesh to prevent tortoises and other wildlife from falling in and being injured or killed.

Adequate garbage receptacles and sanitary facilities would have to be provided and used. All food refuse would have to be placed into secured, covered containers to prevent attracting scavenging animals.

Proponents of all activities that will disturb the surface soils should be required to remove the upper 2-4 inches of topsoil and stockpile it adjacent to the disturbance. If the activity is temporary this valuable topsoil can then be reapplied after the surface is ripped and disked prior to reseeding and mulching. If the disturbance will be long lasting the proponent should be required to transport the topsoil to one of the previously disturbed sites that is selected for the reclamation program described above. The vegetation removed from a site should be chopped, shredded and used for mulch. Proponents should have to post a sufficiently large performance bond to insure that reclamation was completed.

Cultural Sites

There are three sites on the BCCE that may have cultural or historical significance (Figure 5). There is a grave along the former wagon trail between Las Vegas and the mining town of Nelson. It is believed to be the grave of a wagon driver.

In the 1920s the U.S. Geological Survey had crews in the area surveying the Black Canyon of the Colorado River. The campsite they used is located along the old Yucca Camp road.

In September, 1965, the Las Vegas Air Race was held south of the original Boulder City airport. Twelve of the pylons that the aircraft raced around are still standing: two are in the northwestern corner of the BCCE.

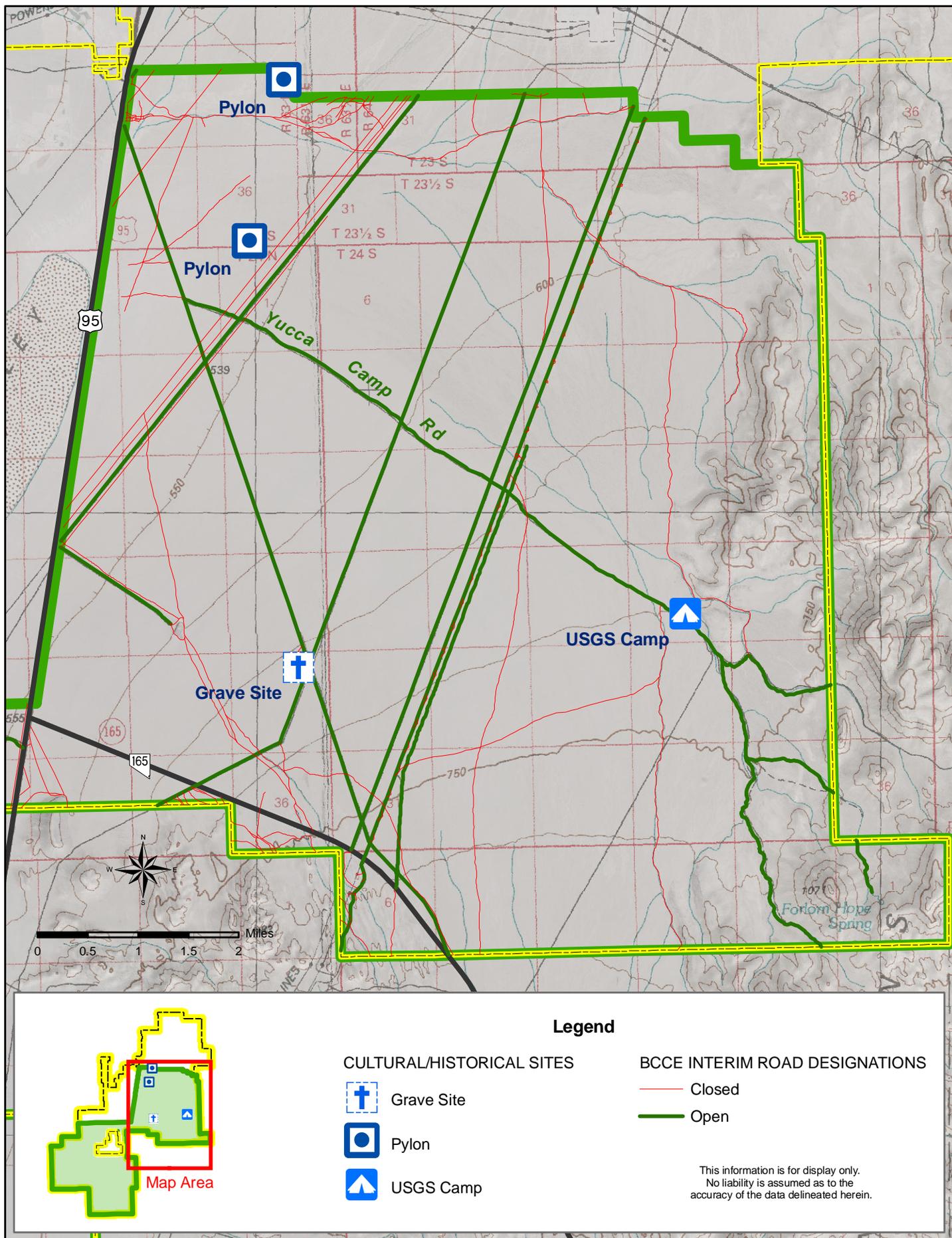


Figure 5. Potential Cultural and Historical Sites on the BCCE

The County and Boulder City should submit descriptions and maps of these sites to the SHPO to determine whether any of them are eligible for listing in the State Historic Marker Register. The Register documents districts, sites, buildings and objects of importance in Nevada history, architecture, archaeology and culture.

Desert Dumping

Law enforcement alone was not effective in curtailing dumping in the past. Until the easement is fenced littering will continue. The County should provide Boulder City with the locations of the desert dumping sites so that Boulder City can clean them up. The County might also suggest that the Boulder City Court consider including clean up of desert dumping as part of the public service commitment of persons convicted of misdemeanors.

Law Enforcement

Currently the law enforcement officer submits a monthly report of activities. There is no formal process established to analyze the activities, learn the types, frequency and locations of violations, and integrate the findings into the adaptive management plan for the MSHCP. Since the County is responsible for enforcing the terms of the Conservation Easement such a process should be established. The results might help focus the limited law enforcement efforts into the areas where most violations take place, and help reduce infractions over time.

Rights-of-Way and Easements

The 58 rights-of-way and easements on the land within the BCCE should be reviewed to determine what they are for, what areas they cover, what rights are given the lessees or grantees, when they will expire, and who they are issued to. This information will be essential when the management plan is revised, since it will influence decisions involving issues such as fencing, reclamation sites, access limitations, and road designations.

On-site Management of the BCCE

Currently the County uses staff and secures contractors to conduct individual tasks associated with the BCCE. The activities they conduct, or the information they gather, must then be evaluated and merged by County staff that has diverse tasks, priorities, backgrounds, and longevity. It adds additional layers as analyzer, integrator and implementer, to the County's current, complex roles as Section 10 permittee, MSHCP administrator, and BCCE grantee.

When the actions recommended in this initial management plan are refined further, and included in the proposed IA, it will be evident that the BCCE will require a full-time, on-site manager and a team of scientists contracted by the County to conduct specific tasks described above. Only an on-site management

team will be able to integrate the fundamental tasks of establishing and maintaining a collegial working relationship with Boulder City and the adjacent land owners, designing and carrying out rigorous resource inventories and an applied monitoring program, implementing a habitat restoration program funded in part by project proponents, fencing and controlling access to the property, and working with law enforcement to protect the resource values of the BCCE. Like the current law enforcement, the manager and contractors, need to be present and working on-site. Their goals need to be focused on this single task to ensure the successful management of the BCCE.

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