

**CLARK COUNTY
MULTIPLE SPECIES HABITAT CONSERVATION PLAN**

**BOULDER CITY CONSERVATION EASEMENT
MANAGEMENT PLAN**

Version 3.4

February 2019



desert conservation
PROGRAM

CLARK COUNTY MULTIPLE SPECIES HABITAT CONSERVATION PLAN

BOULDER CITY CONSERVATION EASEMENT MANAGEMENT PLAN

Version 3.4

February 2019

Acknowledgements

The Desert Conservation Program would like to recognize Thomas O'Farrell for his work in developing Version 1.0 of the Management Action Plan for the Boulder City Conservation Easement. Additionally, we would like to recognize the efforts of Rob Sutter and Mary Peters for their work in the development of Versions 3.0 and 3.1 of this management plan.

Recommended citation: Clark County. 2019. Clark County Desert Conservation Program Boulder City Conservation Easement Management Plan. 46 pp. plus appendices. February 2019.



EXECUTIVE SUMMARY

This management plan identifies actions for managing the Boulder City Conservation Easement (BCCE), a unit of the Clark County reserve system under the Multiple Species Habitat Conservation Plan (MSHCP). This management plan links management actions to the conservation goals and objectives to preserve, protect, maintain, and enhance the natural resource values of the BCCE. It defines management responsibilities and serves as a guide for the day-to-day management activities. The development of a management plan for the BCCE meets the intent of Condition P of the Section 10(a)(1)(B) incidental take permit, which is to ensure that uses of the BCCE are consistent with protection and management of the desert tortoise and its habitat (USFWS 2001).

The BCCE is located in the northeastern Mojave Desert within the Eldorado Valley in southeastern Clark County, Nevada. The 86,423-acre reserve unit is south of Boulder City, approximately 4 miles south of the intersection of U.S. Highways 95 and 93. Primary purpose of the reserve unit is to protect and manage desert tortoise and its habitat.

This management plan describes the background of the MSHCP and history of the easement, and provides detailed descriptions of the reserve unit including physical, biological, water, and cultural resources; land uses; and stressors to natural resources. The primary section of this plan is identification of management goals, objectives, and actions. As listed in the table below, the goals are broad, general statements that establish management direction of the BCCE, whereas the objectives provide further explanation regarding the intent of the goals. Numerous actions are planned that define day-to-day management activities and identify additional actions, steps, and tools to meet these objectives and to achieve goals. Each management action is linked to measures that assess the effectiveness of the action, and ultimately the success of this management plan.

Goal	Protect and manage the BCCE for the desert tortoise and its habitat.
Objectives	Restore and enhance habitat for desert tortoise.
	Install and maintain infrastructure that controls tortoise movement.
	Identify and decrease direct stressors to desert tortoise, as needed.
Goal*	Protect and manage the BCCE for other MSHCP covered species.
Goal	Manage the property and public uses to meet conservation obligations and legal requirements.
Objectives	Promote a road network that supports conservation and provides appropriate access for management and public use.
	Provide law enforcement.
	Control invasive plant species and noxious weeds.
	Promote responsible recreation and inform the public on current activities.
	Manage allowable uses.
	Manage prohibited uses (Appendix B).
* There are no specific management objectives for this goal at this time because the BCCE is protected and managed for the desert tortoise. As concepts from the Adaptive Management and Monitoring Plan (AMMP, TerraGraphics 2017) are further integrated into BCCE Management Plan, specific objectives for this goal will be developed.	



ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
ACEC	Area of Critical Environmental Concern
AFY	acre-feet per year
BCCE	Boulder City Conservation Easement
BLM	Bureau of Land Management
City	City of Boulder City
DCP	Desert Conservation Program
MSHCP	Multiple Species Habitat Conservation Plan
NCA	National Conservation Area
NDOT	Nevada Department of Transportation
NPS	National Park Service
OHV	off-highway vehicle
Permittees	Clark County, the cities of Las Vegas, North Las Vegas, Mesquite, Henderson, and Boulder City, and the Nevada Department of Transportation
RMP	Resource Management Plan
SR	State Route
US 95	U.S. Highway 95
USFWS	U.S. Fish and Wildlife Service



Summary of Updates for Each Version

Version	Summary of Updates
3.3 (2017)	<ul style="list-style-type: none">• Added discussion on ecological resilience and its relationship to ecological stressors (Section 2.4.3)• Incorporation of the 2016 Biological Goals and Objectives (BGOs) in the Appendix E table (Management and effectiveness measures)• Added specific expansion criteria (Section 2.1)
3.4 (2019)	<ul style="list-style-type: none">• Added Appendix D, Vegetation Inventory. This addition displaced previous Appendix D (Contact Information; Now is Appendix E) and previous Appendix E (Management Actions; Now is Appendix F).• Updated information in the Desert Tortoise (sub-section of 2.4.2), Ecological Resilience (Section 2.4.3), and Predation (a sub-section of 2.4.3) sections to reflect updated studies and information.



THIS PAGE INTENTIONALLY LEFT BLANK



CONTENTS

Executive Summary i

Acronyms and Abbreviations..... ii

Contentsv

List of Figuresvi

List of Tables.....vi

List of Appendicesvi

1.0 Introduction 1

 1.1 History of the BCCE..... 1

 1.2 Guiding Documents..... 2

 1.3 Management Roles and Responsibilities 3

 1.4 Implementation Plan and Budget Process 4

2.0 Reserve Unit Description 6

 2.1 Expansion Criteria 6

 2.2 Land Use..... 7

 2.2.1 Land Ownership11

 2.2.2 Historic, Existing, and Adjacent Land Use11

 2.2.3 Land Use Permit Requests.....16

 2.3 Physical Setting17

 2.3.1 Climate17

 2.3.2 Geology and Soils17

 2.3.3 Topography.....18

 2.3.4 Water Resources18

 2.3.5 Cultural Resources23

 2.4 Biological Resources.....24

 2.4.1 Vegetation24

 2.4.2 Wildlife28

 2.4.3 Ecological Resilience29

 Ecological Stressors for the Desert Tortoise, Other Covered Species, and Habitats ..32

 2.5 Public Services and Safety36

 2.5.1 Fire and Medical36

 2.5.2 Law Enforcement.....36



2.5.3	Utilities	37
2.5.4	Safety.....	37
3.0	Management Goals, Objectives, and Actions	39
3.1	Goals and Objectives.....	39
3.2	Discussion of Objectives and List of Management Actions	39
4.0	References.....	45

LIST OF FIGURES

Figure 1.	Location of the BCCE	8
Figure 2.	BCCE Detail Map.....	9
Figure 3.	Land Ownership	10
Figure 4.	Utility Facilities	12
Figure 5.	Designated Open Roads and Limited Use Roads.....	15
Figure 6.	Soils	21
Figure 7.	Water Resources	22
Figure 8.	Cultural Resource Sites	25
Figure 9.	Ecosystems	26
Figure 10.	Desert Tortoise Probability of Occurrence and Proposed Restoration.....	30
Figure 11.	Conceptual Ecological Model for Mojave Desert Tortoise with the BCCE	31
Figure 12.	Restoration Sites.....	35

LIST OF TABLES

Table 1.	Energy Facilities within the BCCE	11
Table 2.	BCCE Soil Types	19
Table 3.	Noxious and Invasive Weeds	27
Table 4.	BCCE Management Goals and Objectives.....	39

LIST OF APPENDICES

- Appendix A: Interlocal Agreement, Conservation Easement Grant, and Amendment
- Appendix B: Restricted Activities and Required Approvals
- Appendix C: Permit Request Process
- Appendix D: Vegetation Inventory List
- Appendix E: Contact Information for Management, Safety, and Services
- Appendix F: Management Actions and Effectiveness Measures



1.0 INTRODUCTION

The Clark County Desert Conservation Program (DCP) manages Endangered Species Act compliance on behalf of Clark County and the cities of Boulder City, Henderson, Las Vegas, North Las Vegas, Mesquite, and the Nevada Department of Transportation (collectively, the Permittees) through implementation of the Clark County Multiple Species Habitat Conservation Plan (MSHCP) and associated Section 10(a)(1)(B) incidental take permit. The incidental take permit required that the Permittees establish a conservation easement in the Eldorado Valley to be managed and protected for the benefit of the desert tortoise as partial mitigation for the take of desert tortoise (*Gopherus agassizii*) and its habitat. The Boulder City Conservation Easement (BCCE) was established by agreement between the County and Boulder City in July of 1995 to fulfill this requirement of the incidental take permit.

The management goal prescribed for the BCCE is to ensure that the property is retained in a natural condition, and to prevent any uses that would 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. The development of a management plan for the BCCE meets the intent of Condition P of the incidental take permit (U.S. Fish and Wildlife Service [USFWS] 2001), which is to ensure that uses of the BCCE are consistent with protection and management of the desert tortoise and its habitat. This management plan describes how the BCCE will be managed by DCP staff and presents specific actions relative to priority focus areas and the goals of the DCP. The purpose for this management plan is to identify actions by which to manage the BCCE in a manner to preserve, protect, maintain, and enhance natural resource values of the property, primarily for the desert tortoise but also for other indigenous flora and fauna. This plan links management actions (Section 3.2) to the conservation goals and objectives developed for the BCCE (Section 3.1), and establishes overall management direction and clarifies management responsibilities (Section 1.3). It serves as a guide for day-to-day activities and defines future discretionary actions to manage public uses and achieve desired habitat conditions for the desert tortoise and other species covered by the MSHCP. Implementation of the many management actions will be detailed in separate restoration or project plans.

1.1 HISTORY OF THE BCCE

In 1958, Congress authorized the Secretary of the Interior to convey up to 126,775 acres of Bureau of Land Management (BLM) land in the Eldorado Valley to the Colorado River Commission, an agency of the State of Nevada. The Colorado River Commission requested in 1968 the conveyance of 107,412 acres from the BLM, referred to as the Eldorado Valley Transfer Area. In 1990, Boulder City (City) proposed to purchase the Eldorado Valley Transfer Area from the Colorado River Commission to manage as a buffer against development that might not meet the City's limited growth ordinance. The Secretary of the Interior eventually signed a Contract of Sale and Land Patent (deed) that conveyed the Eldorado Valley Transfer Area to the Colorado River Commission in July 1995. The Colorado River Commission subsequently transferred the deed to the City. The deed stipulated that the Eldorado Valley Transfer Area was to be used for desert tortoise conservation, public recreation, and a solar power peaking station. The Colorado River Commission also stipulated



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.

Under the Desert Conservation Plan (predecessor to the MSHCP) and associated Section 10 incidental take permit (Clark County 1994; USFWS 1995), the Permittees were required to establish an approximately 85,000-acre conservation easement in the Eldorado Valley Transfer Area that would be managed and protected for the benefit of the desert tortoise as partial mitigation for take of the tortoise and its habitat. During the development of the Desert Conservation Plan, the City and County signed the Interlocal Agreement for Sale and Grant of a Conservation Easement in July 1994 (Appendix A), which stipulated that the City would grant a conservation easement to the County once the land was acquired from the Colorado River Commission. The BCCE was thereby established on 86,423 acres of land by a Conservation Easement Grant from the City to the County in July 1995. Condition 7 of the Section 10 incidental take permit associated with the Desert Conservation Plan stated:

Upon purchase of lands under the Eldorado Valley Transfer Act, Boulder City shall convey a conservation easement affecting 85,000 acres to an entity designated by the County, which will guarantee that those lands will be managed and protected for the benefit of the tortoise. Boulder City shall be responsible for supervising and regulating the activities which it authorizes or permits within the area in a fashion consistent with this Permit and the terms of the [Clark County Desert Conservation Plan]. Boulder City will annex those lands and adopt an ordinance which will incorporate the terms of the conservation easement to make it illegal to carry out any activity prescribed by the conservation easement as incorporated in the ordinance. Boulder City and the County will contract to provide law enforcement services to enforce the terms of the conservation easement and the ordinance.

The Section 10 incidental take permit associated with the MSHCP (USFWS 2001) included the requirement to maintain the BCCE as a conservation reserve for covered species. Condition P of that Section 10 permit stated:

The Permittees shall ensure that any future development or use of the 85,000-acre conservation easement be consistent with the goals outlined in the [Desert Conservation Plan] which are to protect and manage the desert tortoise and its habitat. Furthermore, the Permittees shall take measures necessary to ensure maintenance in perpetuity, of connectivity for desert tortoise and other Covered Species, within the Boulder City Conservation Easement, including an adequate North-South corridor for the desert tortoise, as determined by the [adaptive management program].

1.2 GUIDING DOCUMENTS

The primary guiding documents for the MSHCP include:

- MSHCP and Environmental Impact Statement (Clark County 2000a)
- Incidental Take Permit No. TE034927-0 (USFWS 2001)



- MSHCP Implementing Agreement (Clark County 2000b)
- Biological and Conference Opinion (USFWS 2000)

These documents are available electronically at:

<http://www.clarkcountynv.gov/Depts/dcp/Pages/GuidingDocuments.aspx>

In addition to these guiding documents, the management of the BCCE is governed by a series of specific documents executed between Clark County, on behalf of the Permittees, Boulder City, and the U.S. Fish and Wildlife Service. These documents include:

- Interlocal Agreement for Sale and Grant of a Conservation Easement (July 1994).
- Amendment to the Conservation Easement Grant by and between the City of Boulder City and the County of Clark, Nevada also known as the Boulder City Conservation Easement (August 2010).

The Amendment to the Conservation Easement Grant revised and added language and exhibits to the 1995 Grant that clarified locations of rights-of-way, provided guidelines and requirements for third party projects to restore and mitigate surface disturbances, and identified locations for treated wastewater effluent discharge. These documents are available on the DCP website:

<http://www.clarkcountynv.gov/Depts/dcp/Pages/BCCE.aspx>.

Certain federal, state, and local regulations also apply to actions that occur within the BCCE. Boulder City Code, Title 7, Chapter 5 (7-5-8) lists prohibited activities, with exceptions to these activities that can occur on the easement with appropriate permission from the City, County, and/or USFWS. Any restoration or conservation action that could adversely affect the flood capacity of the 100-year floodplain is subject to review and approval by the City to meet the requirements of the National Flood Insurance Program (Boulder City Code 11-40-3). Any restoration project that disturbs more than one acre is subject to the provisions of stormwater discharge controls under Section 402 of the Clean Water Act and requires compliance with the Construction Stormwater General Permit issued by the Nevada Division of Environmental Protection. Management actions that could affect BLM land would be subject to the Federal Land Policy and Management Act for applicable right-of-way authorization, which also triggers environmental and cultural assessments under the National Environmental Policy Act and National Historic Preservation Act.

1.3 MANAGEMENT ROLES AND RESPONSIBILITIES

Clark County, a Permittee to the MSHCP, serves as the Plan Administrator of the MSHCP on behalf of the other Permittees. Clark County is also the grantee of the conservation easement. The City of Boulder City is also a Permittee to the MSHCP as well as the grantor of the conservation easement. The management of the easement is governed by an interlocal agreement between the City of Boulder City and Clark County executed in July 1994 (Appendix A). The easement agreement outlines the required management activities for the conservation of the desert tortoise, allowable and prohibited uses of the BCCE, rights of the grantor (Boulder City) and the grantee (Clark County), and other policies and procedures. In 2010, Boulder City and Clark County amended the BCCE agreement to address needed clarifications in Clark County's decision process as Plan Administrator



of the MSHCP, Boulder City treated wastewater discharge onto the BCCE, requirements of third party projects that take place in the BCCE, and provisions for law enforcement.

The Clark County Board of County Commissioners represents the County as the grantee of the BCCE with the City. The role of the Board of County Commissioners is to review and approve the budget and expenditure of funds by the DCP to manage the BCCE, and to review the DCP's selection of contractors, approve contract awards, and obligate funds for conservation projects.

The DCP acts on behalf of the Board of County Commissioners as the grantee of the BCCE and serves in the primary role of implementing day-to-day activities to manage the BCCE in accordance with the Grant and guiding documents of the MSHCP. The DCP is responsible for planning and implementing management actions for long-term maintenance of natural resource values of the BCCE for the benefit of the desert tortoise. The DCP is responsible for regularly reviewing this management plan for any changes or additions to management goals, objectives, and actions for the BCCE, and to update priority and implementation status of management actions.

The City holds fee title to the land and is the grantor of the conservation easement grant to the County. The City has the responsibility to enact and enforce ordinances and regulations to restrict the use of the BCCE in accordance with the Grant, as amended, and provides peace officers with authority to patrol the BCCE as agreed with and funded by the DCP. The City maintains the right to permit exceptions to prohibited uses and permit specific activities listed in the Grant, including non-intrusive monitoring for desert tortoise, non-consumptive recreation, and surface disturbance associated with habitat improvements. The City is responsible for minimizing impacts to natural resource values of the BCCE for its use of the property for treated wastewater effluent discharge and for construction of utilities and transmission lines.

The role of the USFWS is to review the biennial budget for managing the BCCE and to approve activities that involve collection of biological data and habitat improvement projects for the benefit of desert tortoise. The USFWS is also responsible for reviewing and approving certain uses of the property, including construction, effluent discharge, and motorized vehicle activities.

1.4 IMPLEMENTATION PLAN AND BUDGET PROCESS

The MSHCP provides guidance on developing biennial budgets for implementation. The DCP, as the MSHCP Administrator, is responsible for developing a biennial Implementation Plan and Budget that is responsive to key provisions outlined in the MSHCP. Although the process of developing the Implementation Plan and Budget has varied over the past biennia, the general steps of the budget development process are to determine available funding and to identify and recommend actions that further the purpose of the MSHCP. Certain actions that are stipulated by the Section 10 incidental take permit are considered required expenditures to maintain compliance, and therefore are non-discretionary. These non-discretionary actions include administering and managing the MSHCP implementation, supporting the Adaptive Management Program, managing the BCCE, managing acquired properties and water rights, maintaining the tortoise fencing program along major roads, wild tortoise pick-up services, and the public information and education program. Other actions that further the goals and objectives of the MSHCP but are not directly specified in the incidental take



permit are considered discretionary, such as scientific research projects and desert tortoise augmentation projects.

Management actions on the BCCE are primarily funded through Section 10 mitigation fees and from the proceeds of federal land sales under the Southern Nevada Public Lands Management Act. Other outside sources of funding for conservation actions could include private grants, donations of in-kind labor, and mitigation fees paid by third parties as part of their compliance with Section 7 of the Endangered Species Act. These third-party Section 7 mitigation fees are typically restricted to enhancement or restoration of desert tortoise habitat.



2.0 RESERVE UNIT DESCRIPTION

The BCCE is located in the northeastern Mojave Desert within the Eldorado Valley, in southeastern Clark County, Nevada (

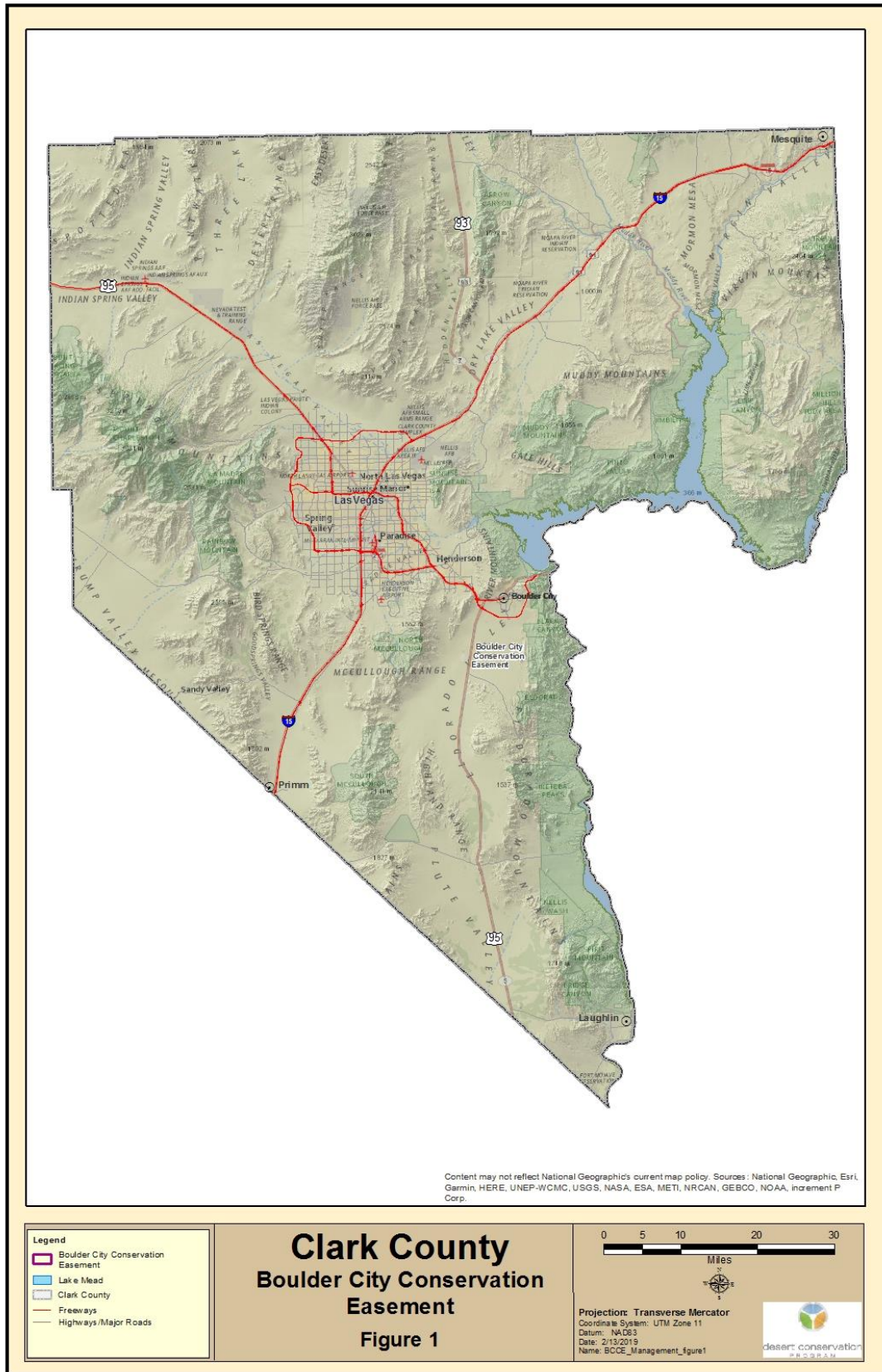




Figure 1). The BCCE begins approximately 4 miles south of the intersection of US 95 and US 93, and extends for approximately 22 miles along US 95. State Route (SR) 165 and Eldorado Valley Drive cross the BCCE to the east and west, respectively. The BCCE is within the city limits of Boulder City, approximately 2 miles south-southwest of the developed area of the City.

The BCCE consists of 86,538 acres that is split by U.S. Highway 95 (US 95) into a North Section, consisting of 39,114 acres, and a South Section consisting of 47,424 acres. Excluded from the South Section is the Energy Zone, an area of 3,064 acres designated by the City for energy development (Figure 2).

The legal description (section-township-range) of the BCCE is included as Exhibit A to Appendix A, the Conservation Easement Grant.

2.1 EXPANSION CRITERIA

Boulder City and DCP have considered and reviewed proposals to reconfigure or expand the Energy Zone. Land within the existing Energy Zone would be exchanged with the BCCE to expand the zone toward US 95. To date, these proposals for exchanges have not been approved.

Any future land expansion of the BCCE will consider the following criteria:

1. Undeveloped Habitat Suitable for Desert Tortoise

Potential expansion areas should include more than 75 percent undeveloped habitat that is suitable for desert tortoise.

2. Contiguity with the BCCE

Potential expansion areas should be either adjacent to the BCCE or adjacent to public lands that are also dedicated to habitat protection for tortoise, other wildlife, or plants, and also border the BCCE.

Any future requests to exchange areas within the BCCE will consider the following criteria:

1. Quality of Desert Tortoise Habitat

Relative quality of desert tortoise habitat for all parcels in consideration shall be evaluated by conducting 100 percent coverage surveys in accordance with the most recent U.S. Fish and Wildlife Service (USFWS) pre-project field survey protocols for potential desert tortoise habitats. The goal of performing 100 percent coverage surveys is to compare the relative abundance of desert tortoise populations amongst all parcels proposed for land swap.

2. Functional Size of Desert Tortoise Habitat

Is the area contiguous with other lands protected for tortoise? Does it meet minimum size and population requirements for an adequate reserve as defined in the revised recovery plan? Is the functional size of the land proposed for swap greater or lesser than the functional size of the habitat that DCP would be exchanging?



3. Review for the Presence of Other Covered Species

Does the proposed exchange land contain suitable habitat or known occurrences of other species covered by the MSHCP, or those recommended for coverage under a proposed amendment to the MSHCP?

4. Equal or Lower Level of Habitat Fragmentation

Review proposed parcels for habitat fragmentation. Are there roads, utility corridors, or other land disturbances that reduce the available habitat for desert tortoises? Review The Nature Conservancy's habitat intactness model. Is the proposed exchange land more or less intact?

5. Ease of Management

Are there BLM corridors, rights-of-way, mining claims, or other similar encumbrances that would make management of the area for the protection of desert tortoises more difficult? Is the property easily accessible? Are any modification required to secure the property?

6. Equal or Greater Level of Habitat Protection

Is the land proposed for exchange currently managed by another agency and would they retain management of the area following the exchange? What is the land use designation of the proposed exchange property? Can we ensure durability of mitigation actions?

7. Evaluate Proposed Land Exchanges for Loss of Mitigation Actions

Evaluate the land that DCP would be giving up for potential loss of mitigation actions. Examples of the types of mitigation actions that may be affected by proposed land swaps include: road closures and restoration, non-native weed survey and treatment, purchase of grazing allotments, etc. Can the cost of mitigation actions that would be lost be quantified?

8. Evaluate the Proposed Land Exchange for Loss of Long-term Study Areas

Are there long-term study areas/plots that would be lost through the proposed exchange? What ongoing project would be affected by the proposed exchange?

2.2 LAND USE

Land use includes land ownership, existing land use, land use plans, and zoning. Land use and land management practices can have a significant impact on natural resources, including water, soil, nutrients, plants, and animals.

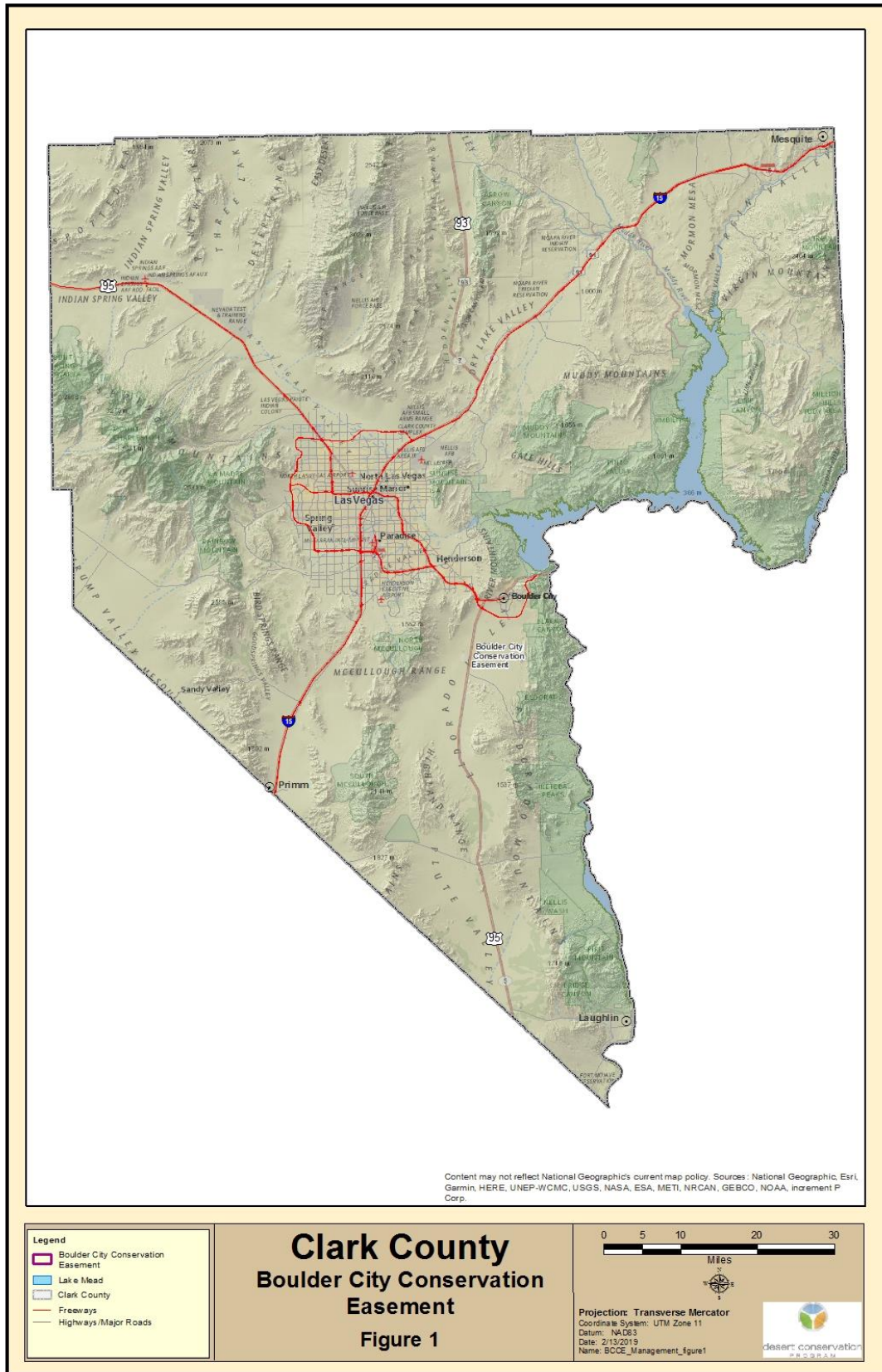


Figure 1. Location of the BCCE

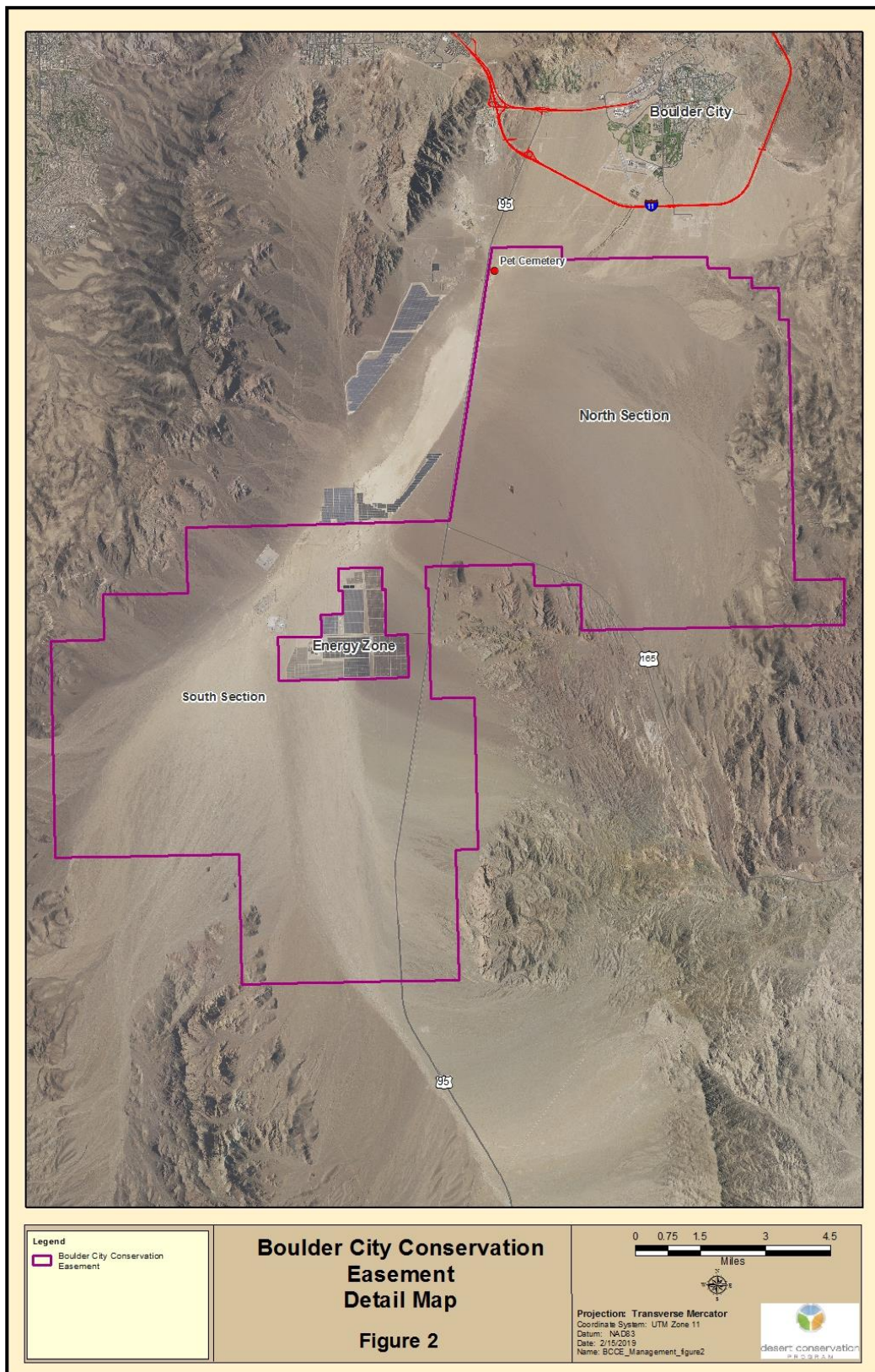


Figure 2. BCCE Detail Map

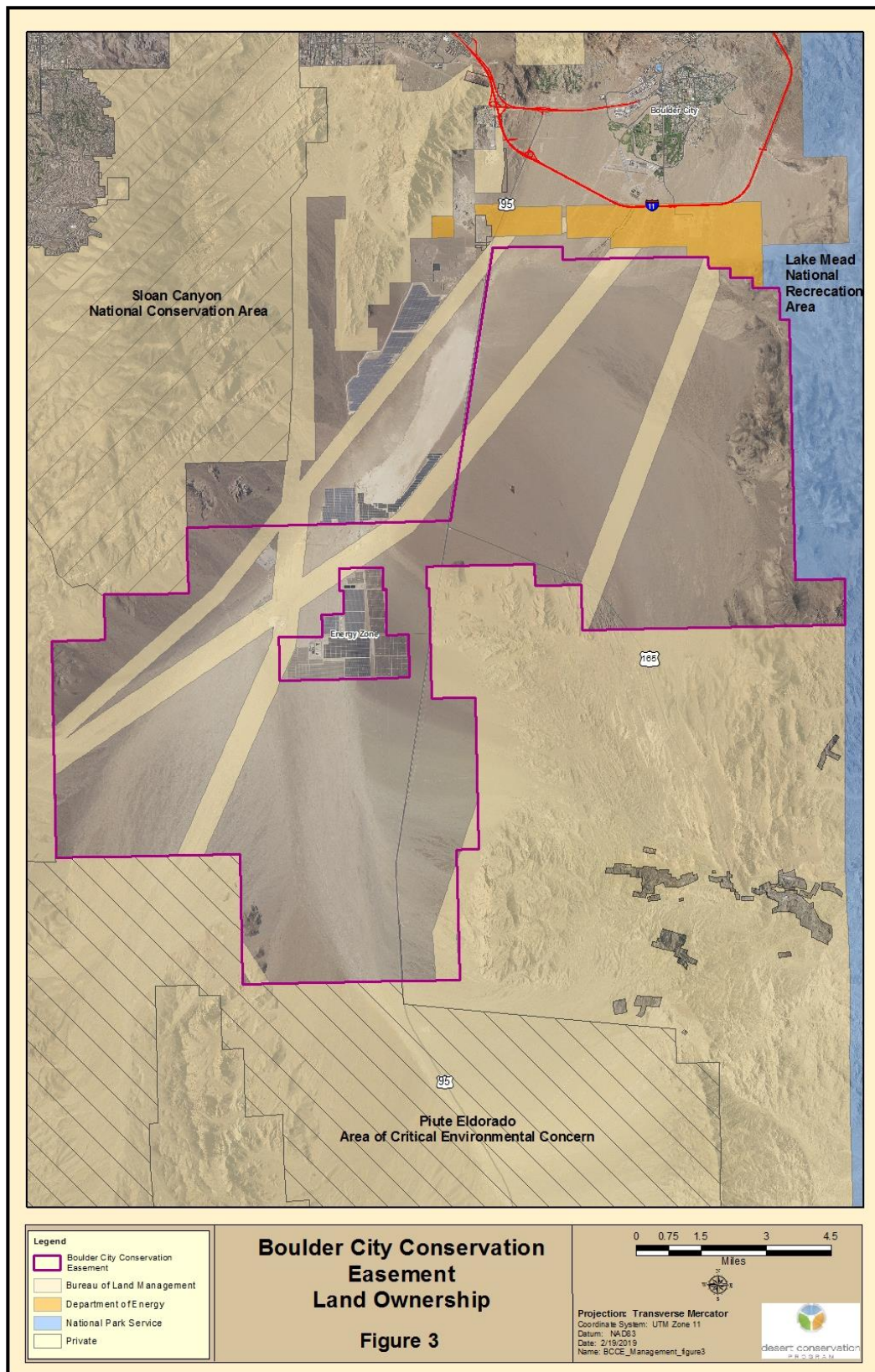


Figure 3. Land Ownership



2.2.1 Land Ownership

The BCCE is located on private lands within the jurisdictional limits of the City of Boulder City (Figure 3). Land to the north of the BCCE is also within Boulder City jurisdiction. Land to the east, west, and south is primarily under federal ownership and is managed by the BLM. The eastern edge of the North Section is adjacent to the Lake Mead National Recreation Area, administered by the National Park Service (NPS). Managed by BLM, Sloan Canyon National Conservation Area (NCA) is to the west of the BCCE and Piute-Eldorado Area of Critical Environmental Concern (ACEC) is to the south.

2.2.2 Historic, Existing, and Adjacent Land Use

Historical Land Use

Prior to conveyance of the Eldorado Valley Transfer Area to the Colorado River Commission and sale to the City, BLM managed the area for multiple uses, including energy transmission, telecommunications, mining, off-highway vehicle (OHV) racing, hunting, grazing, and open recreation. The most prominent use of the area before establishment of the easement was as an energy transmission hub.

A portion of the BCCE was also previously used for the establishment of a pet cemetery. The pet cemetery located in the northwest corner of the North Section of the easement has been in existence since the 1960s (Figure 2). It was at one time authorized by the BLM under a Recreation and Public Purposes lease to the Humane Society of Southern Nevada; however that lease expired in 1986. There were no BLM authorizations for animal burials reserved to the U.S. or transferred in the deed to the Colorado River Commission, and the City has never sanctioned the pet cemetery within the BCCE. Discarding dead animals on public property is prohibited as a nuisance by Boulder City Code 7-3-8. The pet cemetery covers approximately 14 acres with 1,600 graves. A three wire post and cable barrier fence with a lockable gate was installed around the cemetery in 2013 to contain further encroachment into the easement.

Existing Land Use and Allowable Uses

The BCCE guiding documents limited historical uses to transmission of energy and telecommunications. Overhead transmission lines and access roads, primarily in a northeast-southwest direction, cross the easement (Figure 4). There are also three switching yards and



substations located within the BCCE, shown in

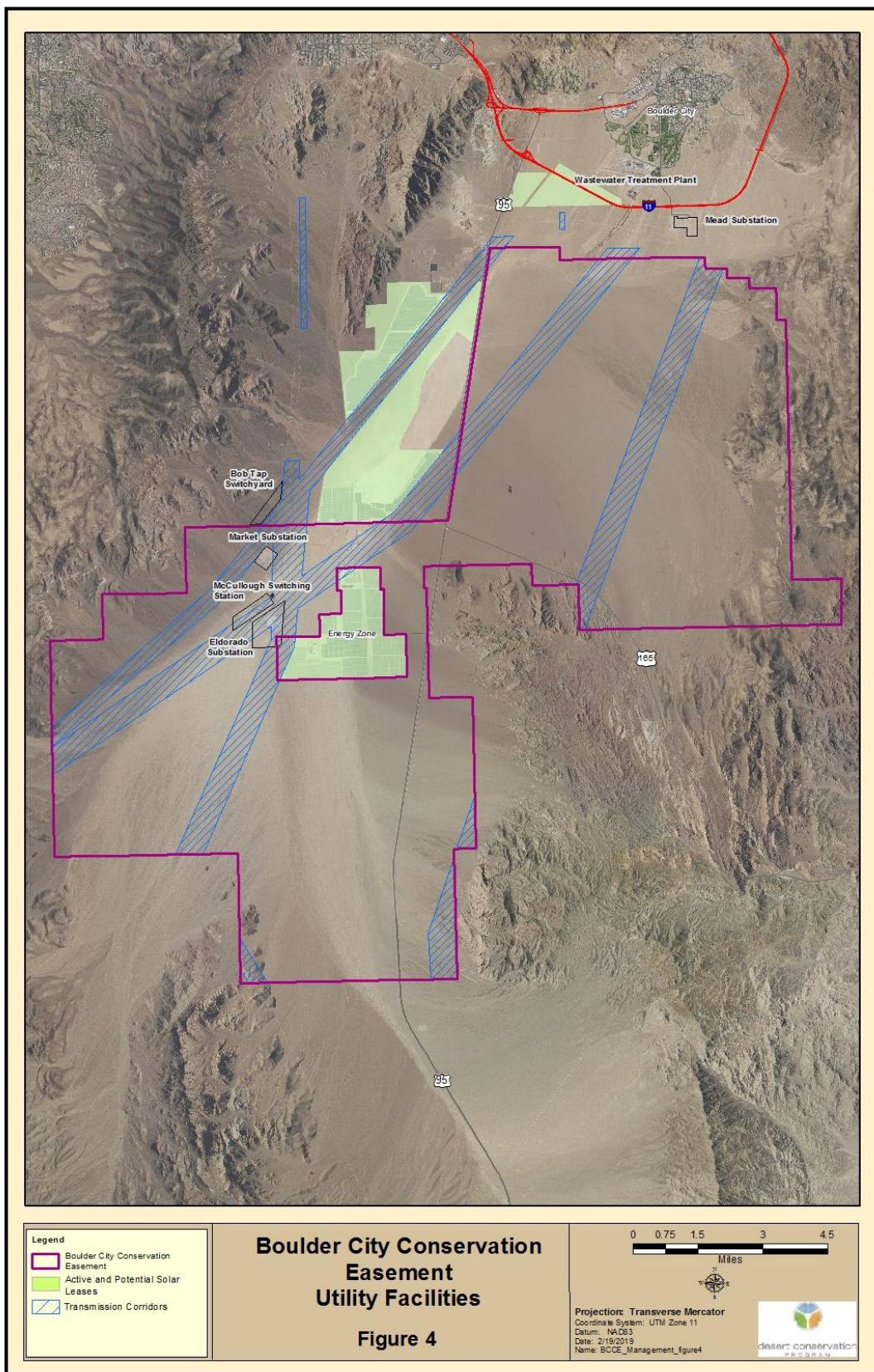




Figure 4 and as listed in Table 1.

Table 1.
Energy Facilities within the BCCE

Facility	Right-of-Way Acreage	Established	BLM Serial Number
Eldorado Substation	366	November 15, 1966	NVN002655
McCullough Switching Yard	406	January 23, 1969	NVN002763
Marketplace (McCullough II) Substation/Switching Yard	170	June 24, 1988	NVN046054

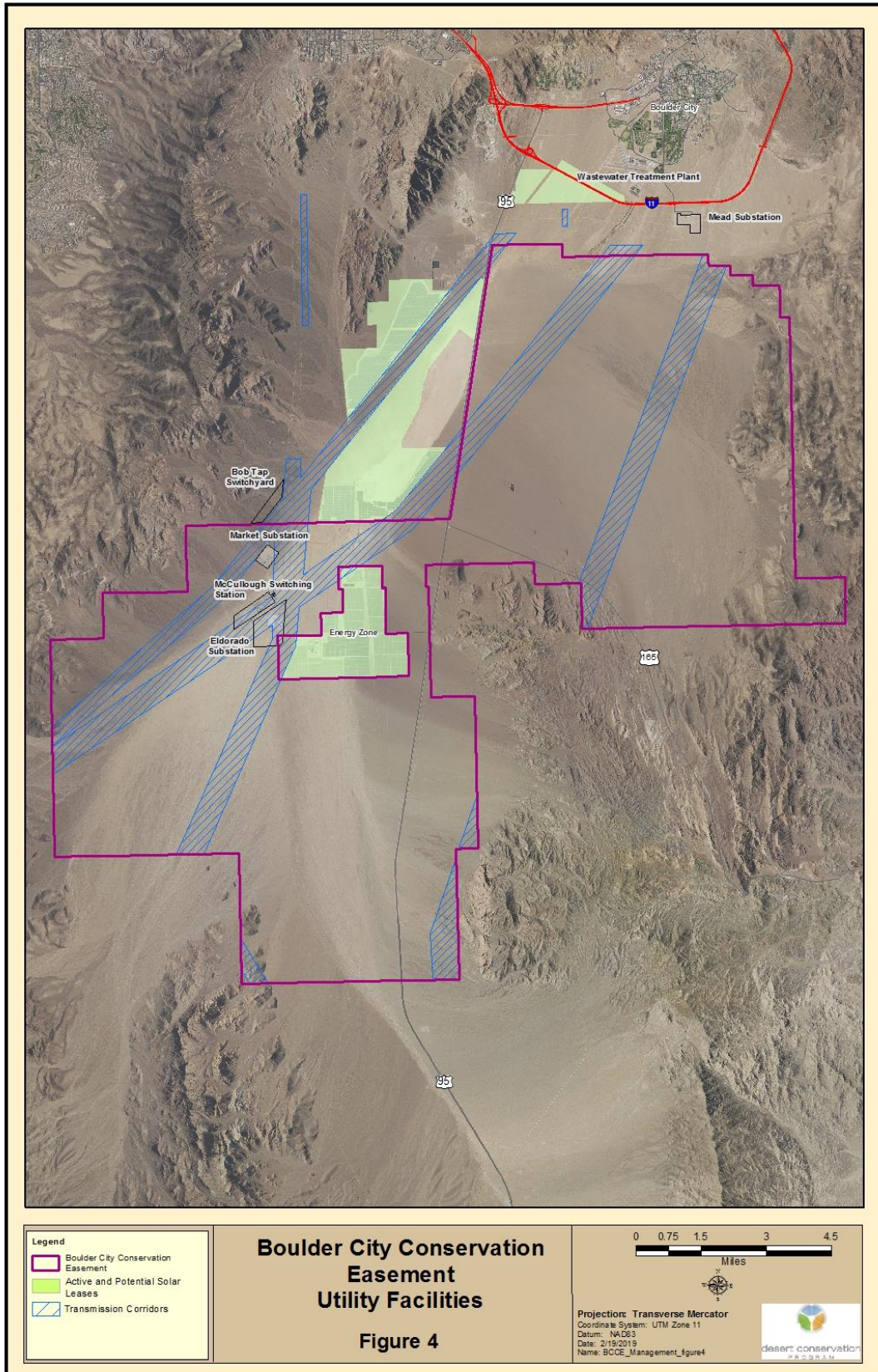


Figure 4. Utility Facilities



The BCCE guiding documents also restricted hunting, non-speed vehicular events, and non-ground disturbing recreation. The BCCE is currently available for non-consumptive recreational uses including hiking, bird watching, bicycling, horseback riding, photography, OHV use, and sightseeing along open roads. Any activity or use of the BCCE that is inconsistent or incompatible with the purposes of the easement is prohibited, except with express written consent of DCP and USFWS and with permission from the City. The list of restricted activities and required approvals is included in Appendix B. Roads that are open to these recreational activities are clearly signed and designated with the road letter for navigation. Limited use roads are private, and generally located within utility



right-of-way corridors (

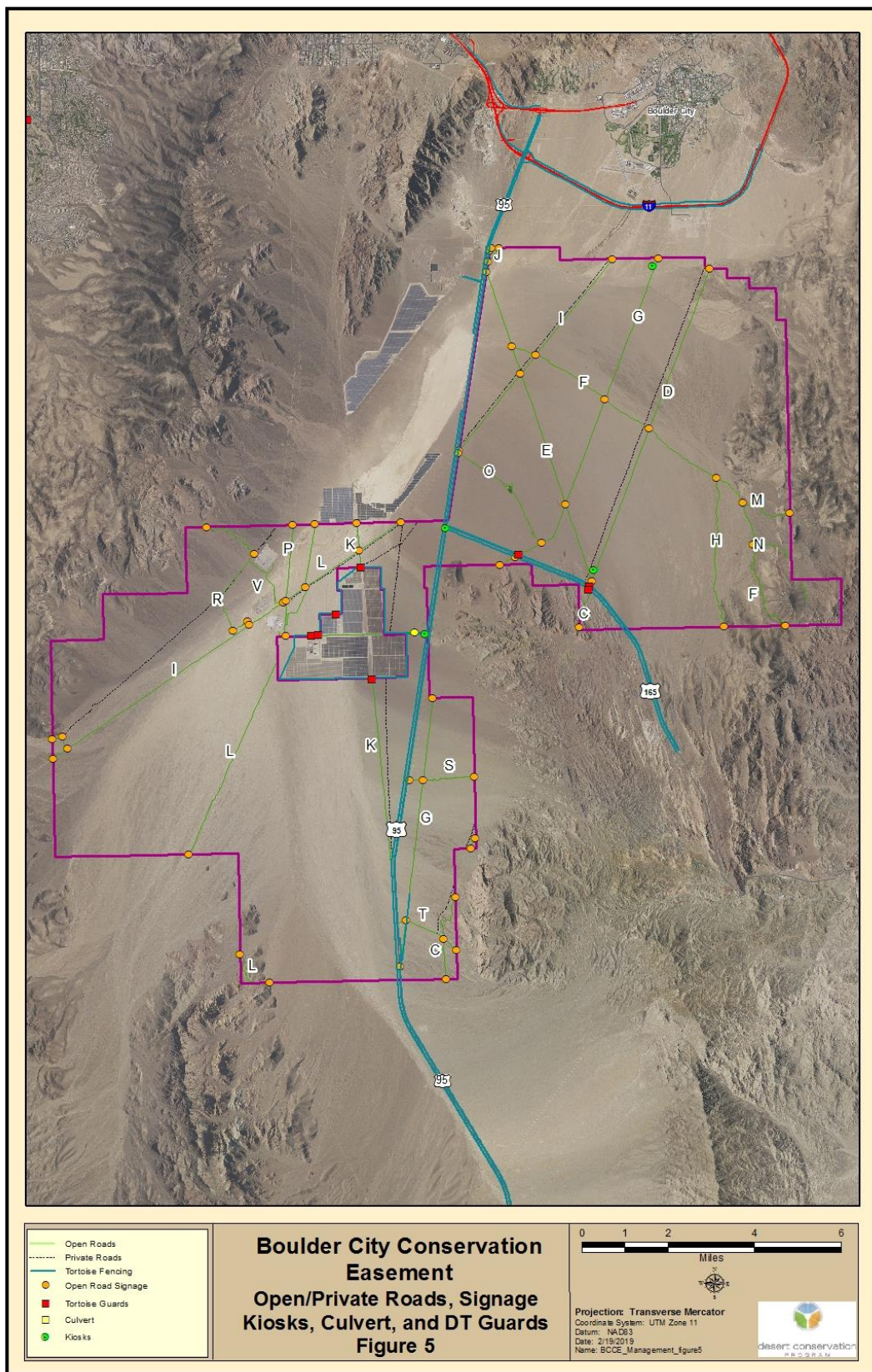




Figure 5).



The City retained limited rights in the Grant to discharge treated effluent from the Wastewater Treatment Plant onto the North Section of the easement (

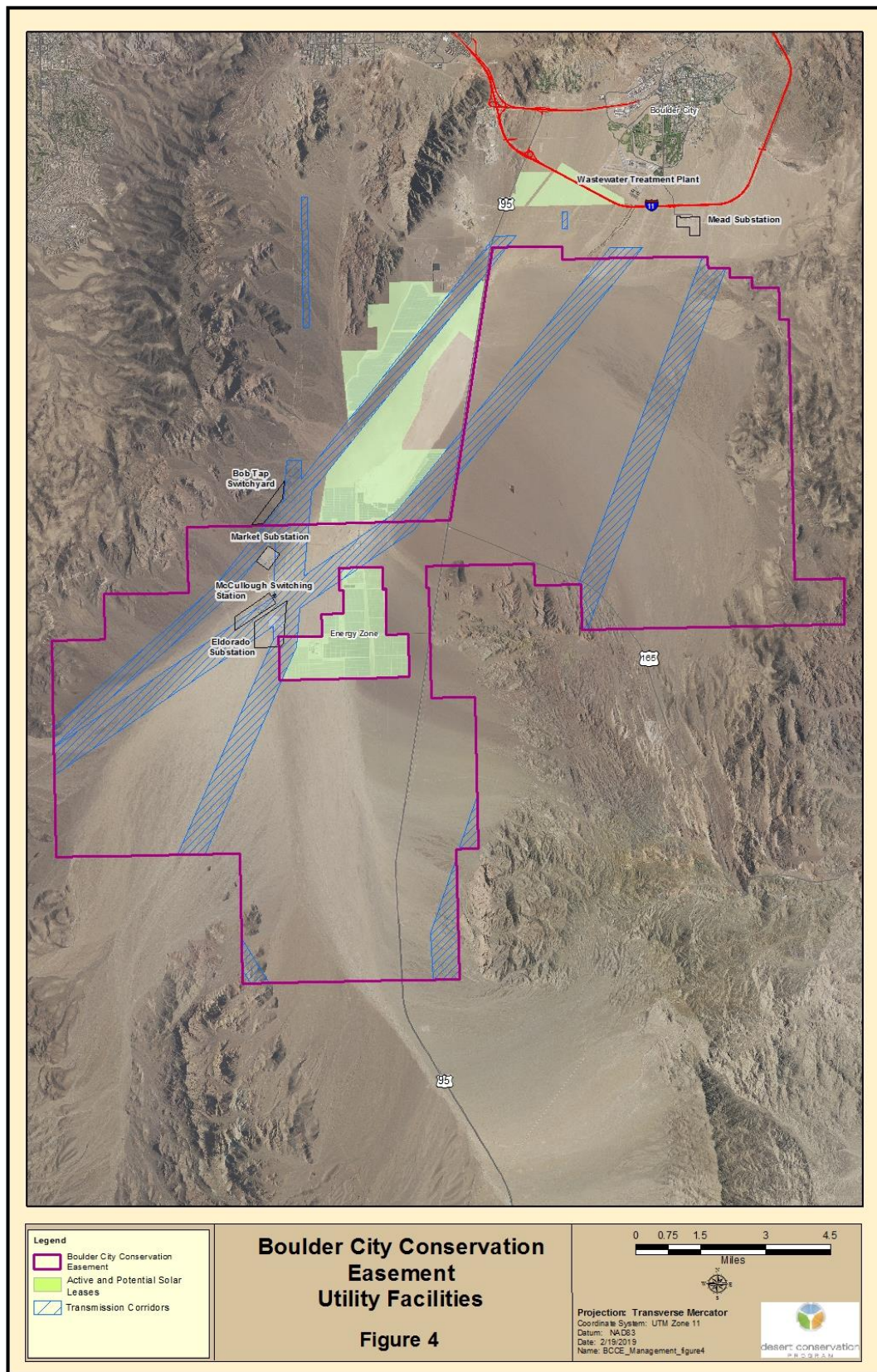




Figure 4). The location allowed within the BCCE for the discharge was set forth in the 2010 Amendment as shown on Exhibit B of the Amendment (Appendix A). The City is authorized to discharge a 30-day average of 1.8 million gallons per day of secondarily treated effluent into two dry washes. Effluent flows in unlined channels in a southwesterly direction and enters the BCCE



approximately 1.5 miles from the Wastewater Treatment Plant (

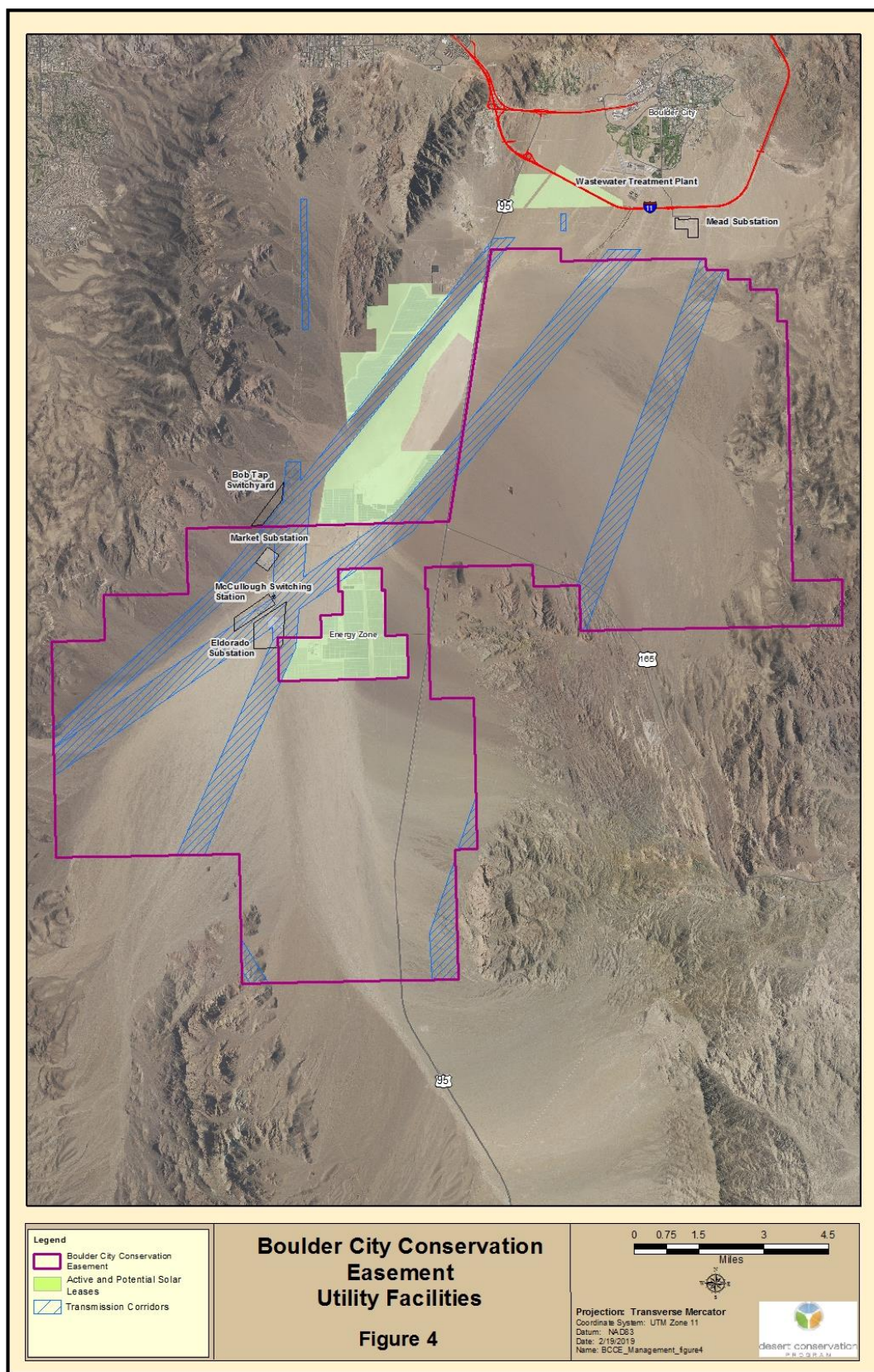




Figure 4). Unlined channels and evidence of effluent on the surface dissipate after approximately 1.8 miles inside the BCCE boundary. Discharge has been significantly reduced or potentially eliminated during 2019 when version 3.4 of this document was prepared. Reasons and expected duration of the decline in discharge is not known and should be evaluated during the next management plan update in 2021.

Adjacent Land Use

Land to the east, west, and south of the BCCE is primarily under federal ownership and land to the north is in Boulder City jurisdiction (

Figure 3). The eastern edge of the North Section is adjacent to the Lake Mead National Recreation Area administered by the NPS. Managed by BLM, Sloan Canyon NCA is to the west of the BCCE and Piute-Eldorado ACEC is to the south. Management focus of the ACEC is protection of desert tortoise and desert tortoise habitat, and the NCA is for conservation, protection, and enhancement of cultural resources. Land within the City limits are managed according to the Boulder City Code and ordinances.

The Nevada Department of Transportation (NDOT) maintains US 95 and SR 165, both of which bisect the BCCE. Rights-of-way for these roads precede the establishment of the BCCE. NDOT



maintains desert tortoise exclusion fencing and several cattle guards along these roads (

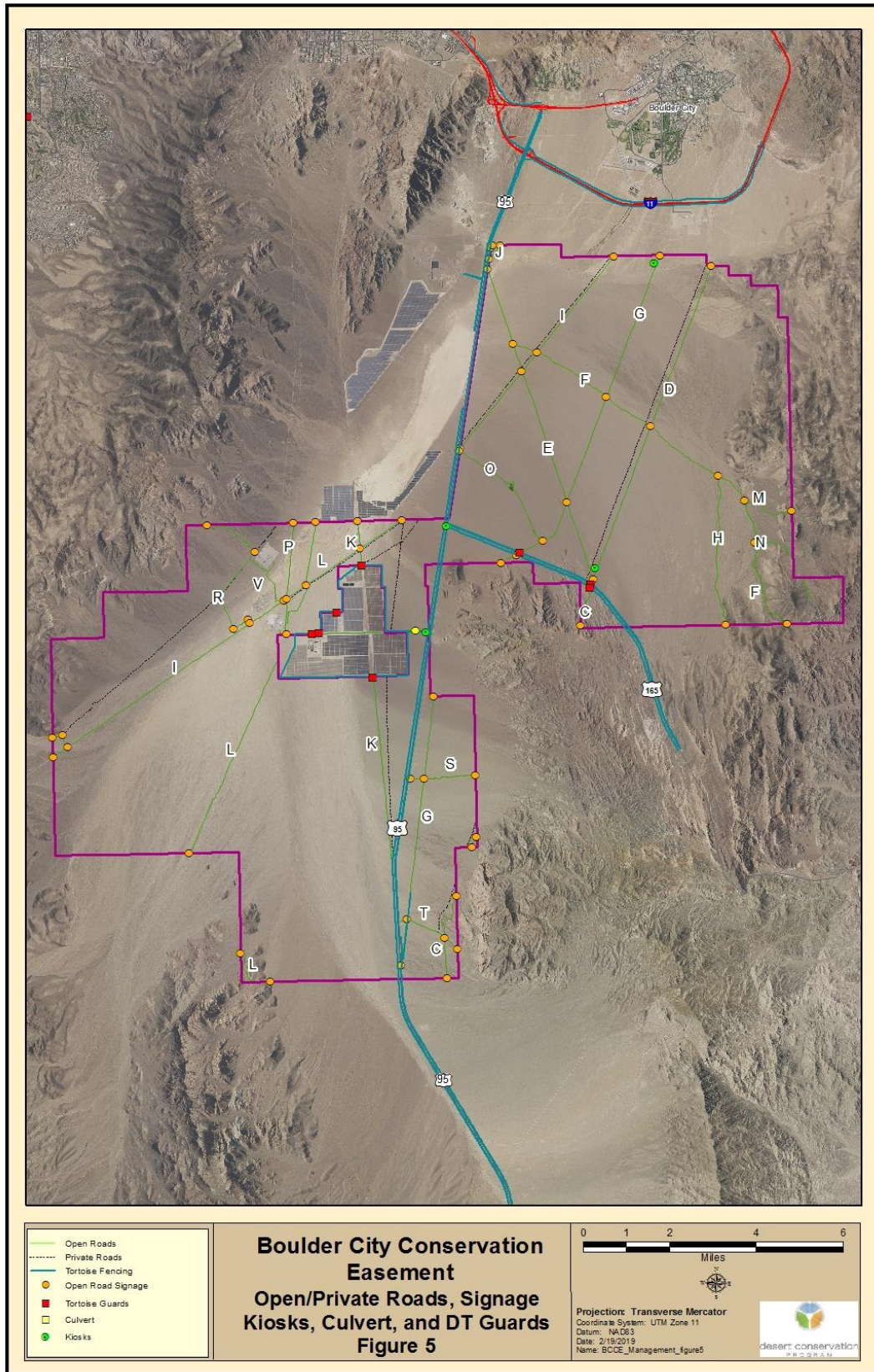




Figure 5). The intent of this fencing is to halt desert tortoise movement into roadways, and in seven locations fencing allows passage by wildlife through storm water box culverts underneath NDOT roadways. It is not known if desert tortoises successfully traverse these culverts.



The Boulder City Energy Zone consists of three areas, which includes one that is surrounded by the BCCE consisting of approximately 3,064 acres (

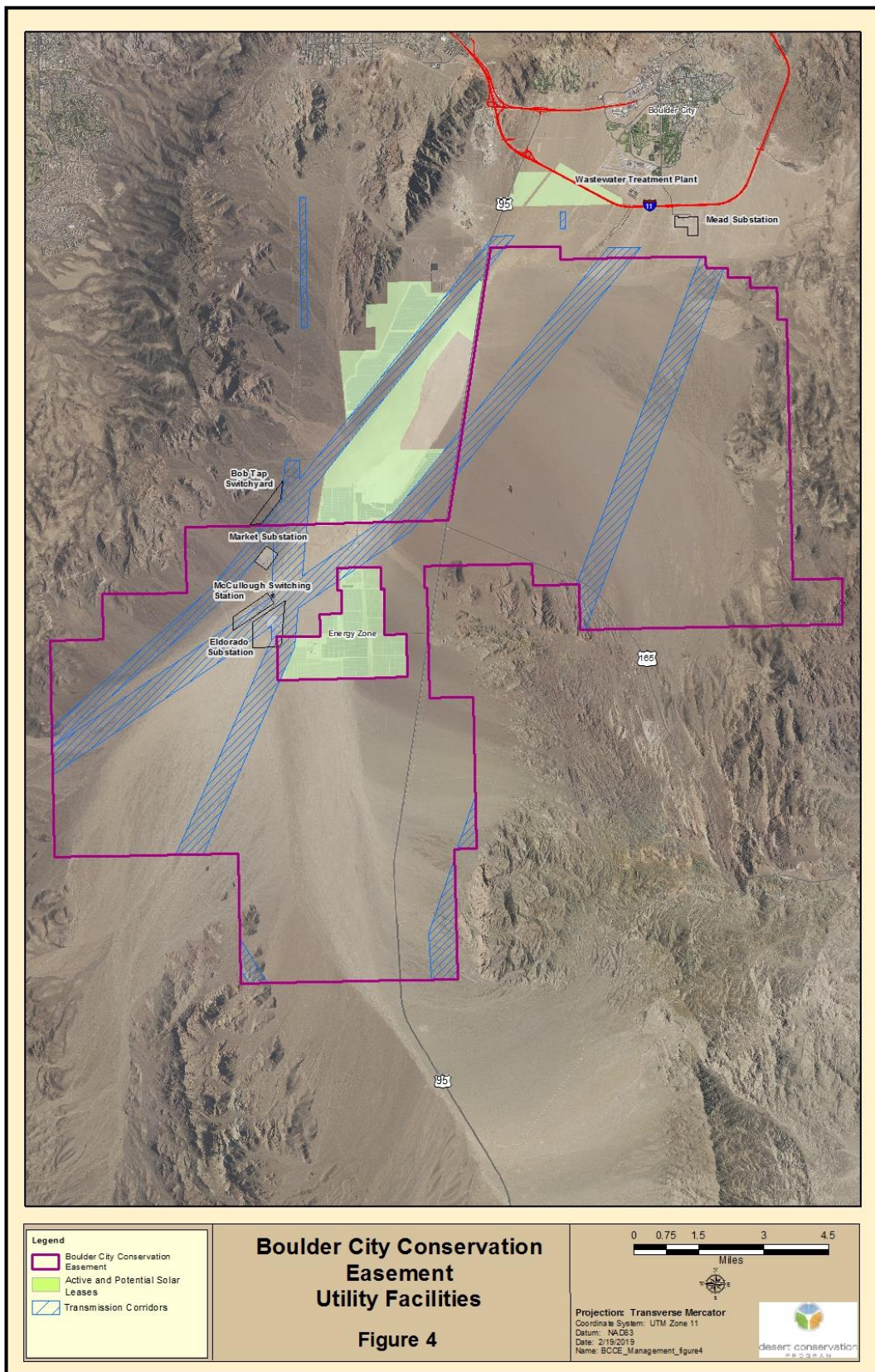




Figure 4). The area has been leased for energy production and research by Boulder City, and includes a natural gas fired power plant, a University of Nevada Las Vegas renewable energy production research facility, and solar energy production facilities using a variety of concentrated solar and photovoltaic technologies. In 2010, Boulder City expanded the Energy Zone by adding approximately 6,560 acres. Expansion areas cover the Eldorado Dry Lake adjacent to the northern boundary of the South Section of the BCCE, and a second expansion area between the North Section of the BCCE and the developed area of the City (Appendix A, 2010 Amendment, Exhibit C).

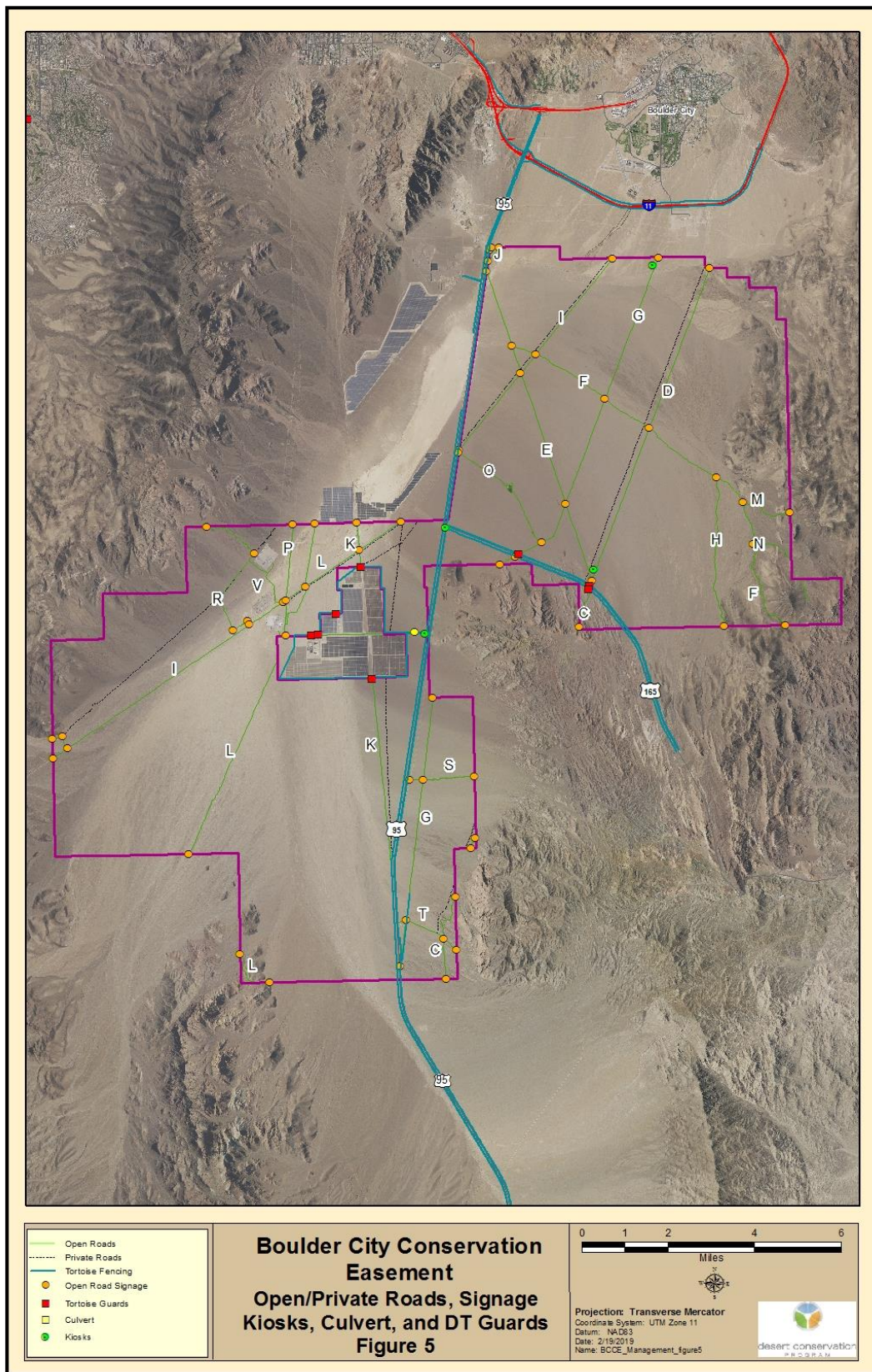


Figure 5. Designated Open Roads and Limited Use Roads



Certain rights-of-way transferred with the deed and have precedence over the easement agreement and grant between Boulder City and Clark County until they are abandoned or terminated. Other rights-of-way for federal purposes were excluded from the deed and reserved to the BLM for a variety of purposes. BLM claims utility and public transportation corridors (areas reserved for future right-of-way issuance) were designated in the patent document (deed) and that all use rights in



these corridors were excluded and reserved from the transferred lands (

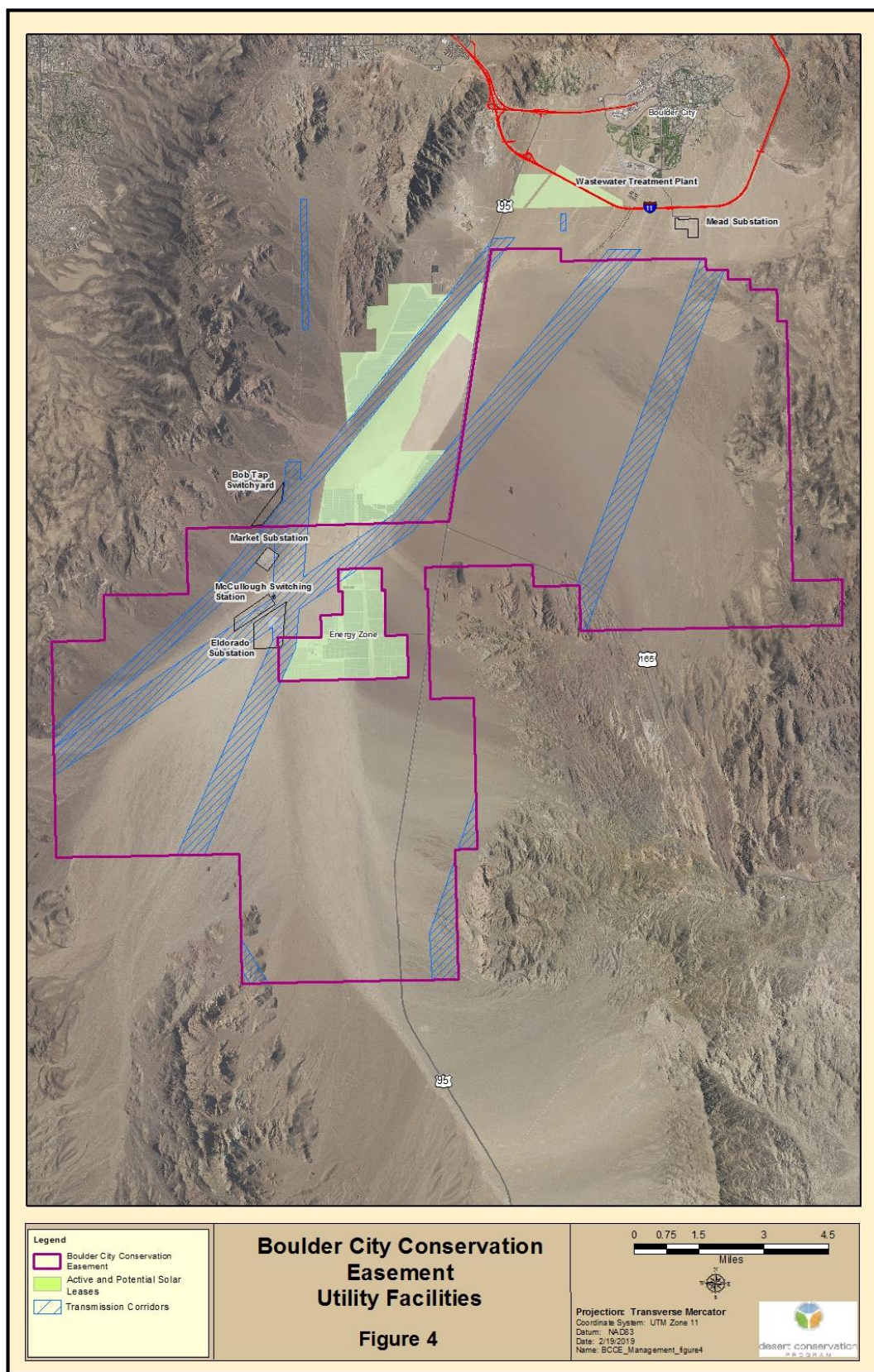




Figure 4). A list of rights-of-way transecting the BCCE is included as Exhibit B to the 1995 Grant (Appendix A).

Future Adjacent Land Use

Future uses on lands adjacent to the BCCE are guided by the governing entities' management plans. Future use of adjacent City land is governed by the Boulder City Master Plan (Clark County 2013) and flood control master plan (Clark County Regional Flood Control District 2013). Boulder City provides infrastructure to the Energy Zone and could likely seek to establish new utility easements through the BCCE to the Energy Zone expansion areas, as allowed by Section 6(b)(3) of the Amendment.

Management and future uses of adjacent BLM lands are governed by the Las Vegas Resource Management Plan (RMP) (BLM 1998) that is being revised and updated, and the Sloan Canyon NCA RMP (BLM 2005). Proposed revisions and updates to the BLM Las Vegas RMP could change which areas have further restrictions on use west of the BCCE under an ACEC designation and expand the boundaries of the existing Piute-Eldorado ACEC. NPS manages future use of the Lake Mead National Recreation Area in accordance with their Land Protection Plan (NPS 1987). There are no known proposed future changes to uses on the adjacent NPS land.

2.2.3 Land Use Permit Requests

The conservation easement is not exclusive. Section 6(a) of the Grant reserved the right for Boulder City to permit or invite others to engage in uses of the easement that are compatible with the purpose of the easement. Section 6(b) reserved limited rights for uses that must incorporate measures recommended by USFWS and DCP to minimize and mitigate adverse impacts to natural resources values.

Application Process

DCP developed a procedure by which third parties may request permission to participate in an allowable activity on the BCCE. In general, activities on the BCCE that disturb the soil outside of open roads and trails, remove vegetation or seeds, or require handling or removal of animals (including insects or spiders) require written permission from the City, DCP, and USFWS. Third parties may request permission for activities on the BCCE by following the permit request process included in Appendix C. Third-party project proponents must also submit an application for access to Boulder City for activities that result in disturbance of habitat and/or species on the BCCE. The City reviews the application to make an initial decision as to whether the proposed activities are consistent with the conservation easement.

Mitigation Requirements

The 2010 Amendment to the Grant incorporated procedures to implement best management practices to minimize impacts and restore disturbed habitat for construction and maintenance of infrastructure through the BCCE. Exhibit D to the Amendment (Appendix A) describes the review, minimization, restoration, bonding and monitoring requirements for certain permitted disturbances to the BCCE. Requirements of project proponents include:



- Submit a minimization, restoration, and monitoring plan to Boulder City and DCP for approval,
- Post a bond to Boulder City sufficient to fund the restoration component of the approved plan,
- Pay a monitoring fee to DCP sufficient to fund five years of monitoring post restoration, and
- Provide a written restoration report to Boulder City and DCP for approval and potential release of all or part of the restoration bond.

2.3 PHYSICAL SETTING

2.3.1 Climate

Climate for the project area is typical of the Mojave Desert – hot summers, mild winters, and very little rain. Temperatures usually exceed 100 degrees Fahrenheit (°F) in the summer with humidity normally less than 10 percent. Winters are typically mild with average highs near 60°F. The sky is sunny approximately 85 percent of the year. Annual precipitation averages less than 5 inches per year, with the majority of precipitation falling between January and March; however, monsoonal flows during July and August bring desert thunderstorms, flash floods, and strong winds. High wind events can generate widespread areas of blowing dust and sand. Average annual wind speed is about 9.3 miles per hour and is predominantly from the southwest (Stachelski and Gorelow 2014).

2.3.2 Geology and Soils

Soils within the BCCE are primarily young alluvial deposits derived from sedimentary and igneous sources (Heaton et al. 2011). These soils are characterized as gravelly and sandy with coarse texture, low organic matter content, and low carbon/nitrogen ratios (O'Farrell 2009), and developed under conditions of high temperatures and low rainfall, and display characteristics typical of desert soils. These characteristics include coarse, sandy texture and an accumulation of carbonates within a few feet of the surface that contribute to the formation of a duripan layer. Rock outcrops occur within the BCCE at the foothills of the McCullough Range and Eldorado Mountains, and where there are basalt flows and intrusions.



The Natural Resources Conservation Service has mapped 19 soil types within the BCCE (

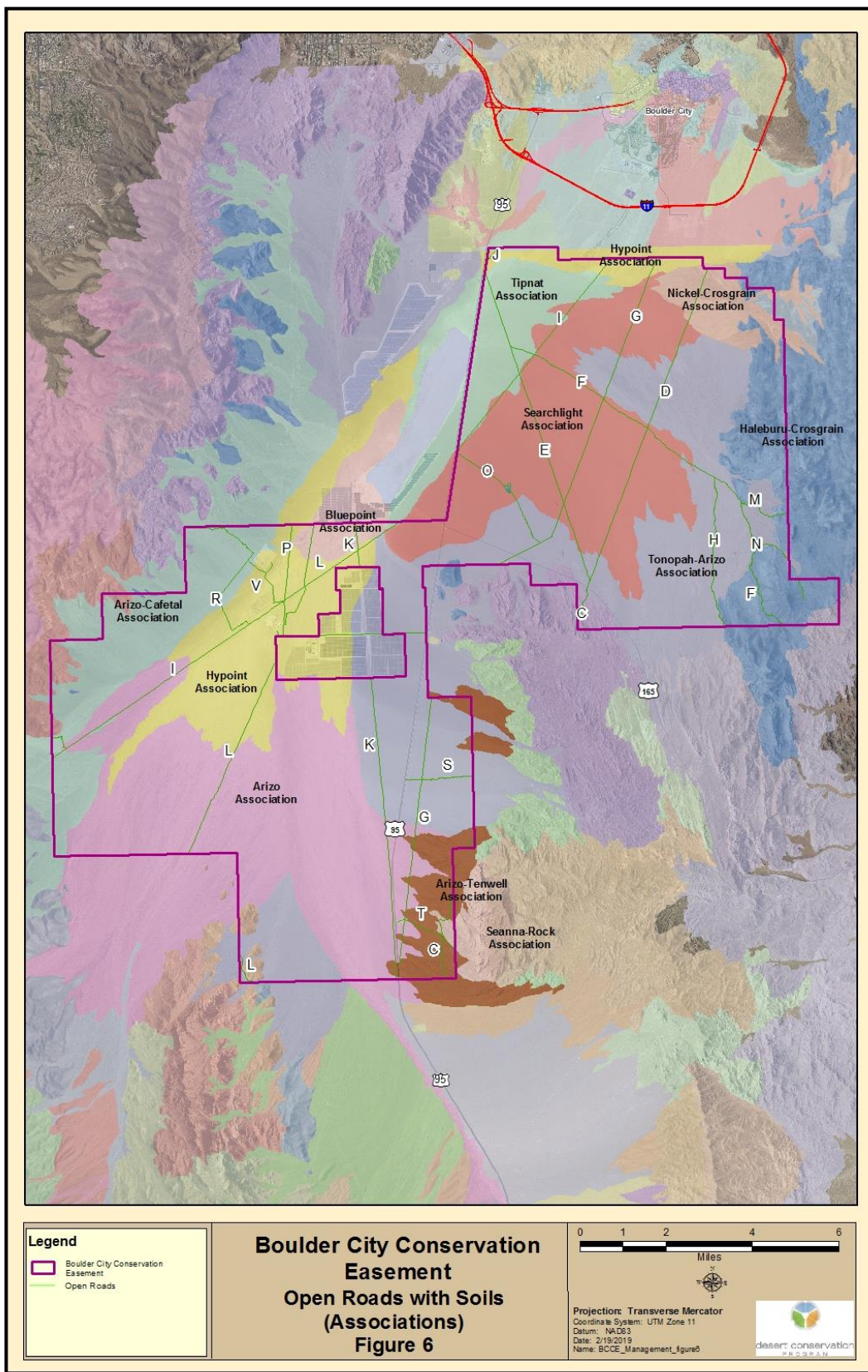




Figure 6). A brief summary of key characteristics of soils within the BCCE is included in Table 2 below. Naturally occurring asbestos fibers have been detected in rock samples from exposed granite outcrops and in soil around Boulder City (Buck et al. 2013). The most common exposure of naturally occurring asbestos fibers is through airborne dust.

2.3.3 Topography

The BCCE is within a closed drainage basin in the Eldorado Valley at an elevation between 1,800 and 3,000 feet (O'Farrell 2009). The area is bordered by the McCullough Range to the west, River Mountains to the north, and Eldorado Mountains and Opal Mountains to the east. Topography of the easement is relatively level where it encompasses the alluvial fan, with rougher terrain as the elevation increases into the foothills of surrounding mountains.

2.3.4 Water Resources

Surface Water

There are no permanent natural surface waters within the BCCE. Runoff following large precipitation events drains onto a playa known as Eldorado Dry Lake, located at the lowest elevation of the



Eldorado Valley. The playa is located just north of the South Section of the BCCE, west of US 95 (

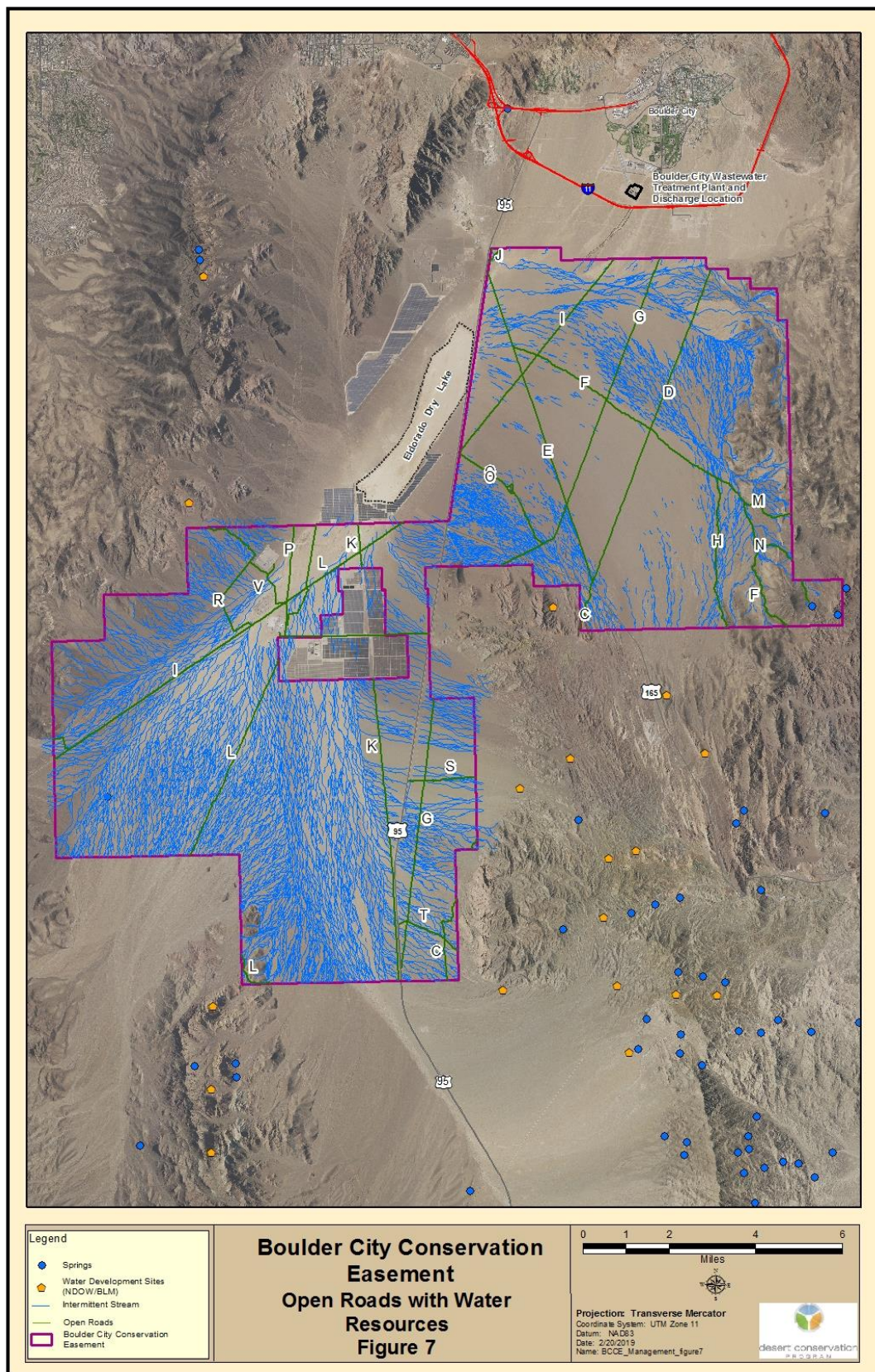




Figure 7). If there is sufficient runoff from storm events, the playa may be covered by a shallow layer of water for a few days to a few weeks (O'Farrell 2009).

Most of the larger washes that cross the BCCE are mapped by the Federal Emergency Management Agency as special flood hazard areas subject to inundation by the one percent annual chance flood



event (100-year flood);

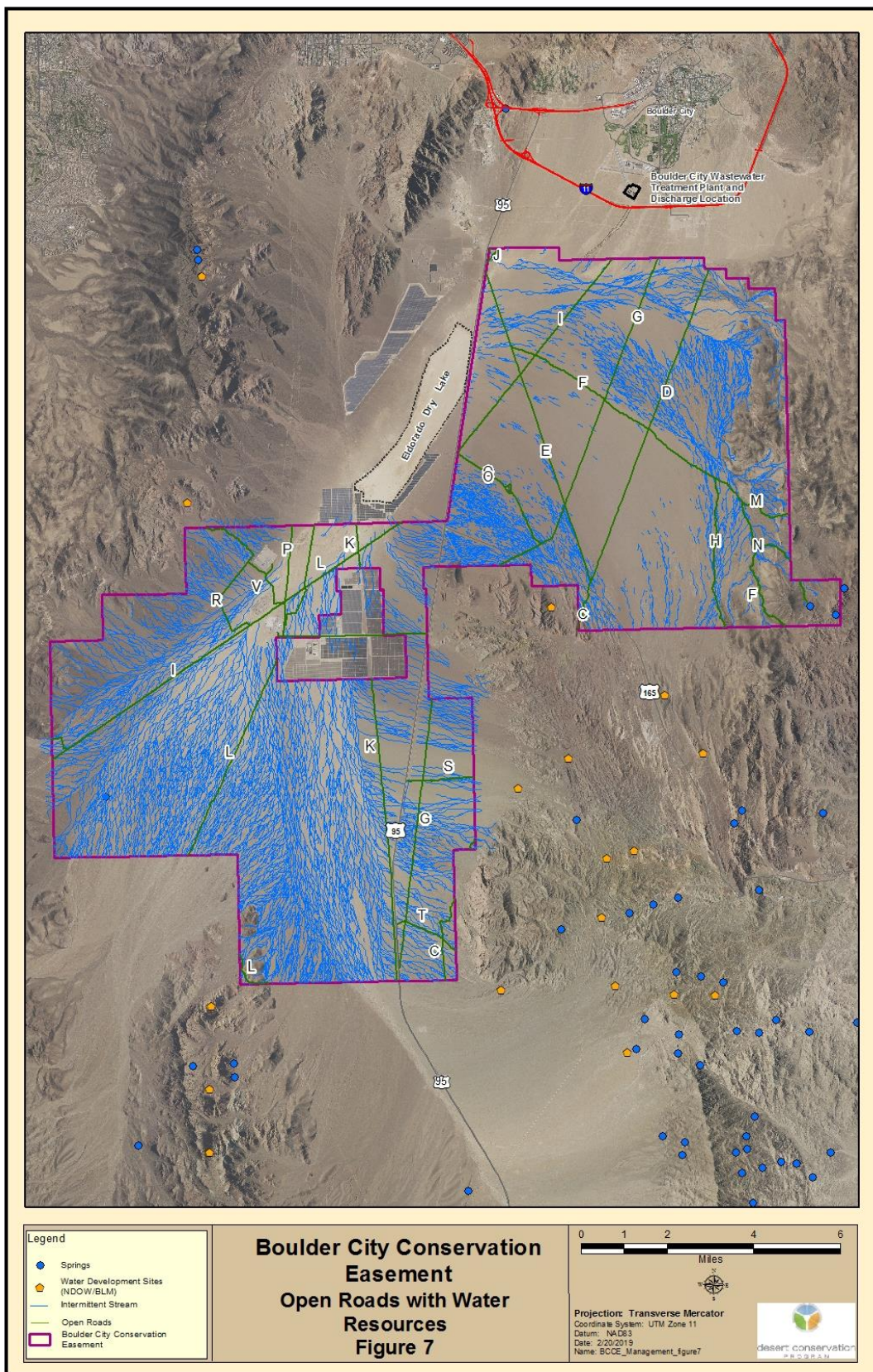




Figure 7). Areas are designated as Zone A where no base flood elevation has been determined.

Construction of US 95 and State Route (SR) 165 (Nelson Road) formed barriers that altered runoff to the east and south sides of the roads, respectively (Clark County 2013). Runoff flows along drainage ditches to culverts that allow water to pass under highways. Since runoff is channeled into smaller areas it occasionally causes damage to roads, vegetation, and deposits soils and silt. However, alterations of the habitat, as well as existing and closed roads, and protective fencing due to periodic flooding are limited in extent and frequency.

Effluent from the Wastewater Treatment Plant is discharged into two unlined drainage channels that flow toward the North Section of the BCCE. Visible signs of the channels and surface water do not



extend very far past the easement boundary (

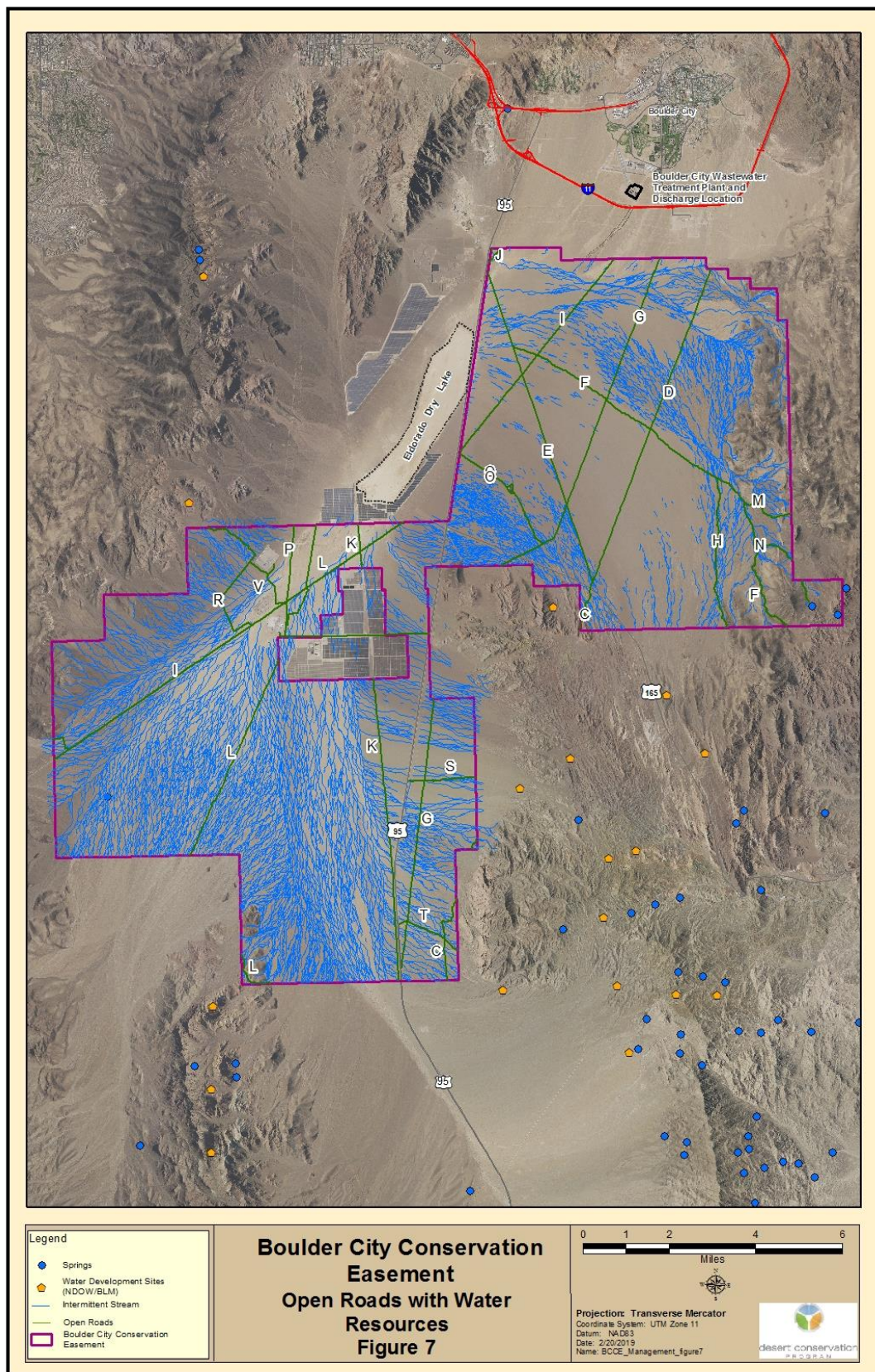




Figure 7).



**Table 2.
BCCE Soil Types**

Soil Series Name	Total Acres in the BCCE	Percent of Total Area in the BCCE	Landscape	Landform	Parent Material	Runoff	Flooding	Drainage Class
Tonopah-Arizo association	21,299	24.6	Fan Piedmont	Fan Remnants	Alluvium Derived from Mixed Sources	Low	Very Rare	Excessively Drained
Arizo association	19,255	22.2	Fan Piedmont	Fan Aprons	Mixed Alluvium	Low	Very Rare	Excessively Drained
Searchlight extremely gravelly sandy loam, 2 to 4 percent slopes	14,528	16.8	Fan Piedmont	Fan Aprons over Fan Remnants	Mixed Alluvium	Very Low	Rare	Well Drained
Hypoint gravelly sandy loam, 0 to 4 percent slopes	8,911	10.3	Piedmont	Fan Skirts	Mixed Alluvium	Very Low	Rare	Somewhat Excessively Drained
Arizo-Cafetal association	6,683	7.7	Fan Piedmont	Inset Fans	Mixed Alluvium	Low	Very Rare	Excessively Drained
Haleburu-Crosgrain-Rock outcrop association	4,886	5.6	Mountains	Backslopes of Mountains	Colluvium and/or Residuum Weathered from Volcanic Rock	Very High	None	Well Drained
Tipnat-Hypoint-Grapevine association	3,855	4.5	Bolson	Alluvial Flats	Mixed Alluvium	Low	Rare	Well Drained
Arizo-Tenwell association	2,239	2.6	Fan Piedmont	Inset Fans	Mixed Alluvium	Low	Very Rare	Excessively Drained
Nickel-Crosgrain association	2,083	2.4	Fan Piedmont	Summits of Fan Remnants	Mixed Alluvium	Very Low	None	Well Drained
Bluepoint-Tipnat-Grapevine association	849	1.0	Bolson	Sand Sheets	Eolian Sands	Negligible	Rare	Somewhat Excessively Drained



Soil Series Name	Total Acres in the BCCE	Percent of Total Area in the BCCE	Landscape	Landform	Parent Material	Runoff	Flooding	Drainage Class
Nipton-Haleburu-Rock outcrop association	605	0.7	Mountains	Northeast Facing Summits of Mountains	Colluvium and/or Residuum Weathered from Metavolcanics	Very High	None	Somewhat Excessively Drained
Haleburu-Hiddensun association	496	0.6	Mountains	Backslopes of Mountains	Colluvium and/or Residuum Weathered from Volcanic Rock	Very High	None	Well Drained
Haleburu association	364	0.4	Hills	Backslopes of Hills	Colluvium and/or Residuum Weathered from Volcanic Rock	Very High	None	Well Drained
Seanna-Goldroad-Rock outcrop association	158	0.2	Mountains	Backslopes of Hills and Mountains	Residuum Weathered from Granite	Very High	None	Well Drained
Seanna-Rock outcrop association	138	0.2	Mountains	Backslopes of Hills and Mountains	Residuum Weathered from Granite	Very High	None	Well Drained
Crosgrain very stony loam, 8 to 30 percent slopes	93	0.1	Fan Piedmont	Backslopes of Partial Ballenas	Mixed Alluvium Derived from Metamorphic Rock	Very High	None	Well Drained
Bluepoint loamy fine sand, 0 to 2 percent slopes	75	0.1	Basin Floor	Sand Sheets	Eolian Sands	Very Low	None	Somewhat Excessively Drained
Playas	14	0.0	Bolson	Playas	N/A	Negligible	N/A	N/A
Pits, gravel	9	0.0	Fan Piedmont	Fan Piedmont	N/A	N/A	N/A	N/A

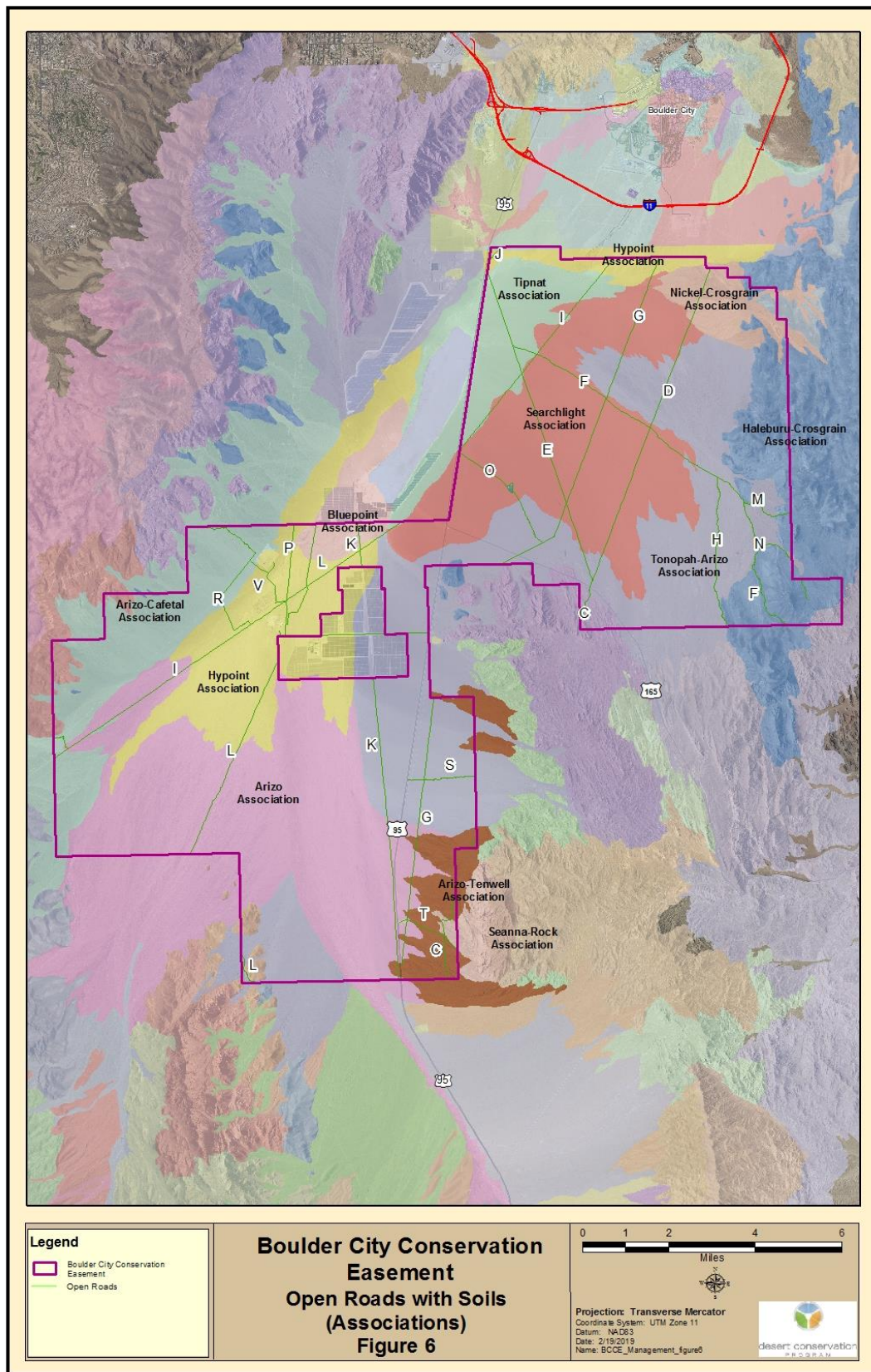


Figure 6. Soils



There are wildlife guzzlers maintained by the Nevada Department of Wildlife (NDOW) that are located just outside of the BCCE. The guzzlers are accessed by NDOW officials and hunters using existing open roads on the BCCE (Clark County 2013).



Groundwater



There are two known springs or seeps within the BCCE (

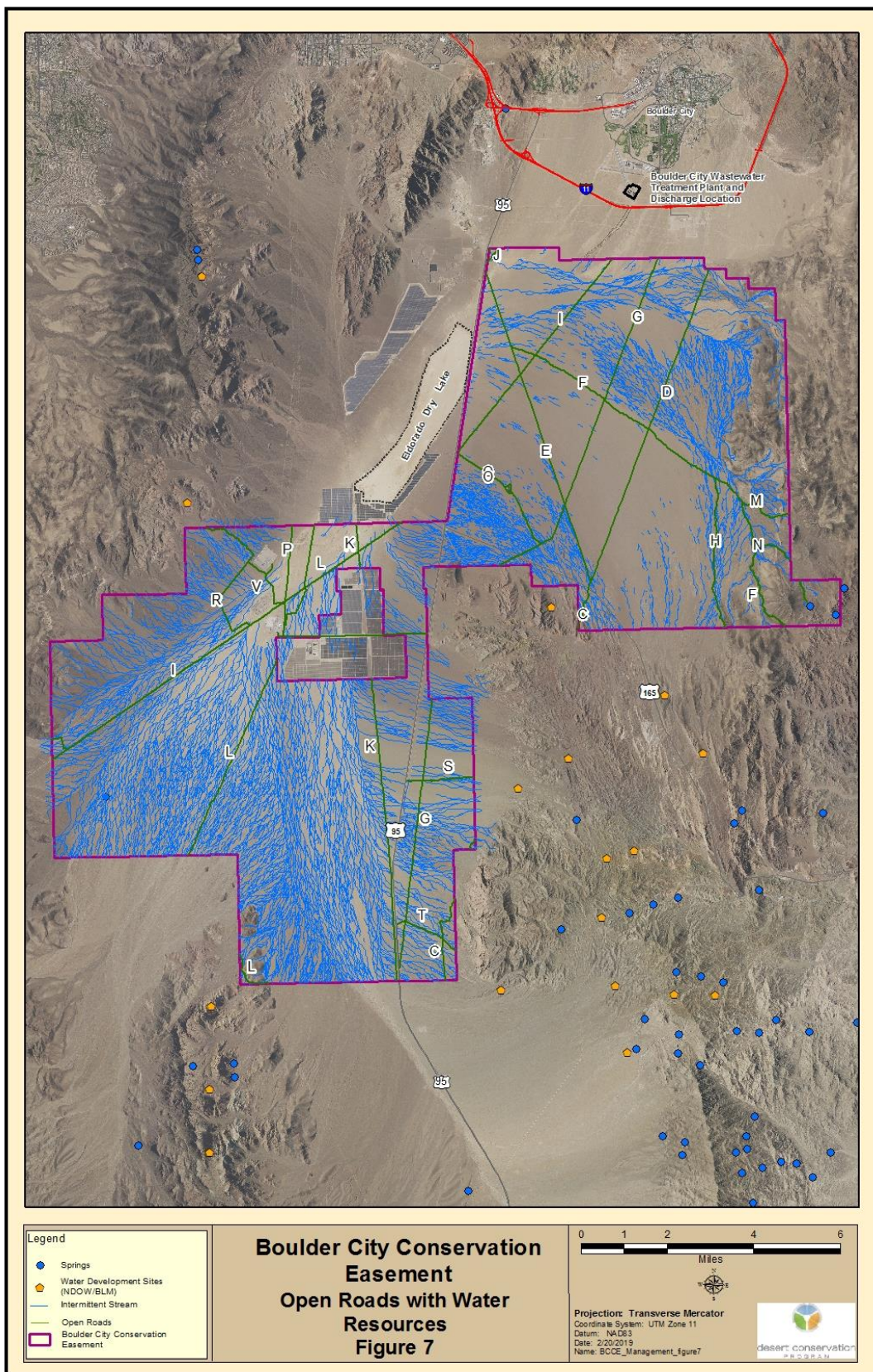




Figure 7). The first spring, referred to as Forlorn Hope Springs, is located in the southeastern corner of the North Section. The second spring is a seasonal seep located near one of the energy facilities in the north part of the South Section of the BCCE (L. Bice, personal communication). Groundwater in Eldorado Valley occurs at depths ranging from approximately 275 to 320 feet below the land surface in the north-central part of the basin (Buqo and Giampaoli 1988).

Water Rights

The BCCE falls within the Eldorado Valley Hydrographic Basin (167) and was ordered “designated” in 1988. The Nevada State Engineer’s Office estimates perennial yield of 500 acre-feet per year (AFY). The total committed groundwater permits/certificates in Eldorado Valley currently exceed the perennial yield by roughly 1,750 AFY. The State Engineer has not granted any new appropriations of groundwater in the Eldorado Valley Hydrographic Basin since 1993 and it is unlikely that additional groundwater rights would be permitted within the basin in the future. There are no known points of diversion (withdrawals of groundwater) within the BCCE (Clark County 2013).

2.3.5 Cultural Resources

Cultural resources in Eldorado Valley include properties ranging from early prehistoric period to historic mining and ranching sites. Prehistoric sites have been recorded around the perimeter of Eldorado Dry Lake, but none were determined eligible for listing on the National Register of Historic Places. Historic period sites in the vicinity of the BCCE are mostly isolated occurrences of cans, which may have been left behind by prospectors or by Hoover Dam construction workers passing through the area. General Land Office maps dated 1941 show the path of the old highway that predated US 95 passing through the BCCE. The principal highway from Las Vegas to Los Angeles passed through Searchlight and Eldorado Valley until the mid-1930s. The historic Boulder (Hoover) Dam transmission line constructed in 1930 through the valley is still in use by Southern California Edison (Knight & Leavitt Associates 2008; BLM 2012).

A Class II cultural resources inventory of the Eldorado Valley Transfer Area was completed by the BLM in 1994 prior to transferring land to the Colorado River Commission. That inventory consisted of a number of 160-acre blocks that represented an approximate 10 percent sample of the survey area. The BLM documented in Report 5-2244 that the inventory was sufficient to characterize cultural resources in the area designated for transfer. There were five prehistoric sites and two large diffuse prehistoric lithic scatters in 18 subsites recorded during the inventory, but none of the sites were determined eligible for the National Register of Historic Places (BLM 1994).

There are three locations (grave site, surveyor campsite, and air race course markers) on the BCCE that could be eligible but have not been evaluated for listing in the State Historic Marker Register (Clark County 2013). The State Register documents sites and objects of importance in Nevada history, architecture, archaeology and culture. A grave site along the former wagon trail between



Las Vegas and the mining town of Nelson is believed to be that of a wagon driver (

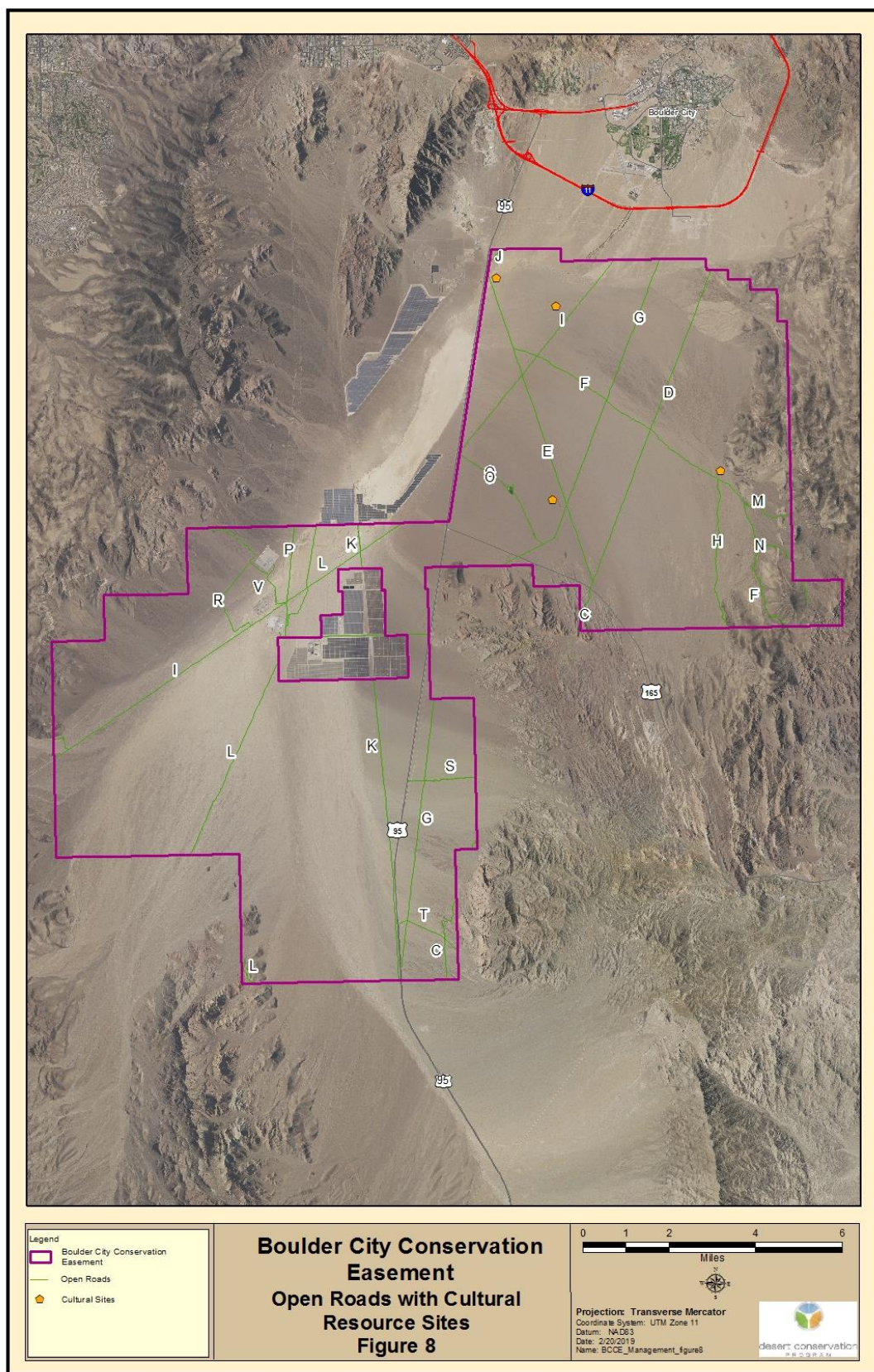




Figure 8). In the 1920s, the U.S. Geological Survey had crews in the area surveying Black Canyon of the Colorado River and their campsite is located along the old Yucca Camp Road (

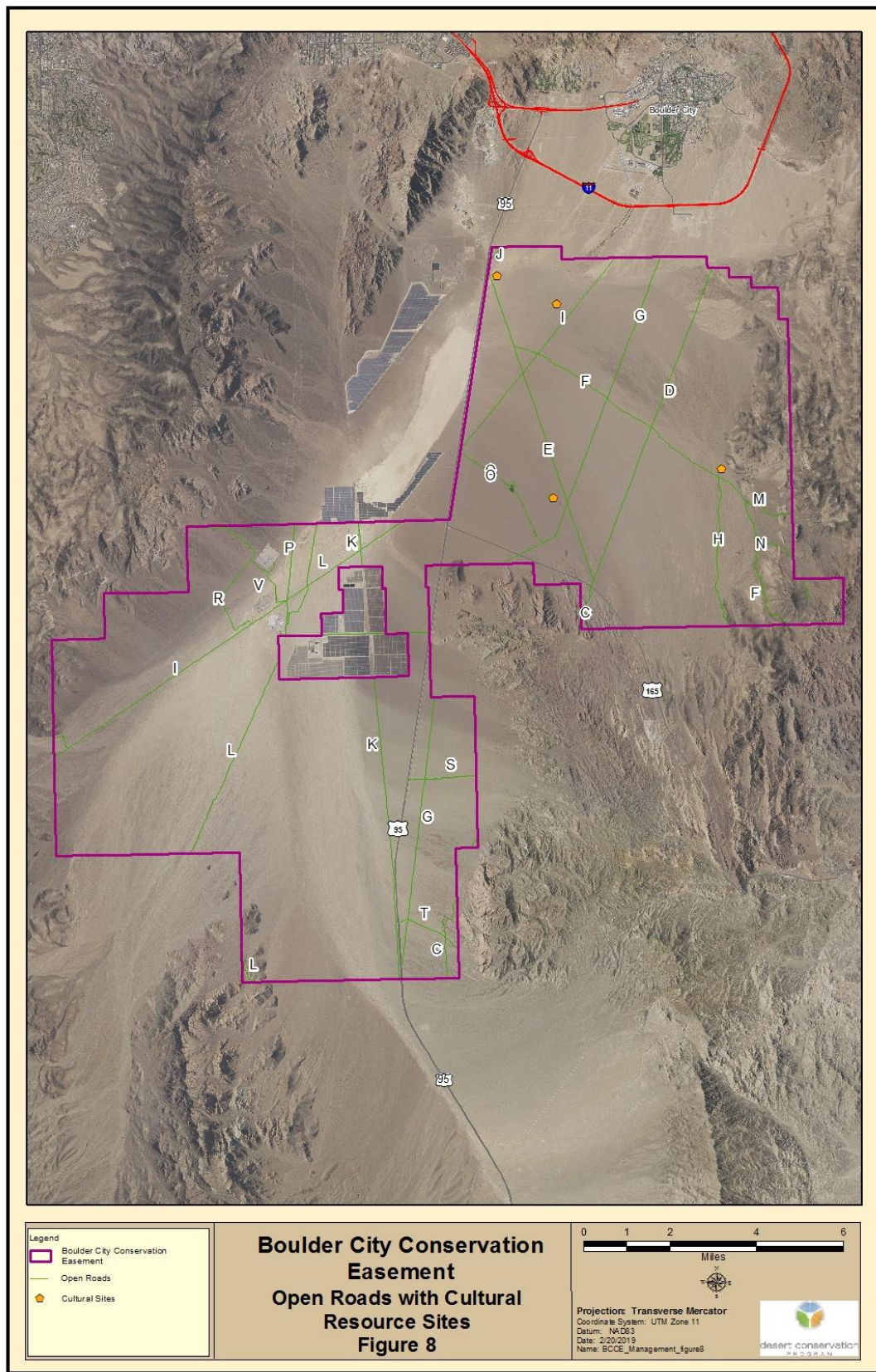




Figure 8). In September 1965, the Las Vegas Air Race was held south of the original Boulder City airport and 12 of the pylons that aircrafts raced around are still standing, with 2 of them in the



northwestern corner of the BCCE (

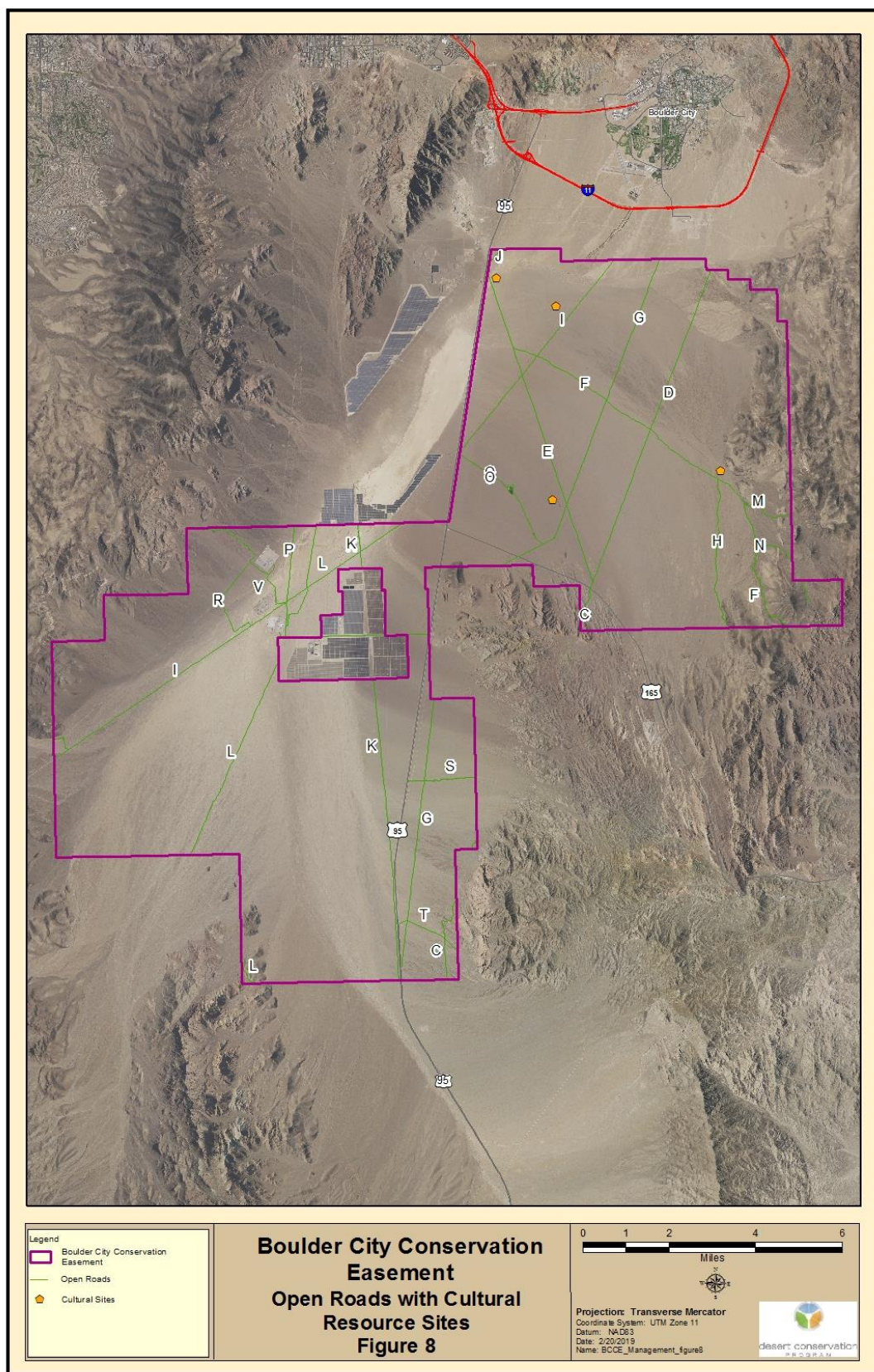




Figure 8).



2.4 BIOLOGICAL RESOURCES

2.4.1 Vegetation

Ecosystems



Ecosystems within the BCCE include Mojave Desert scrub, mesquite/acacia, and salt desert scrub (

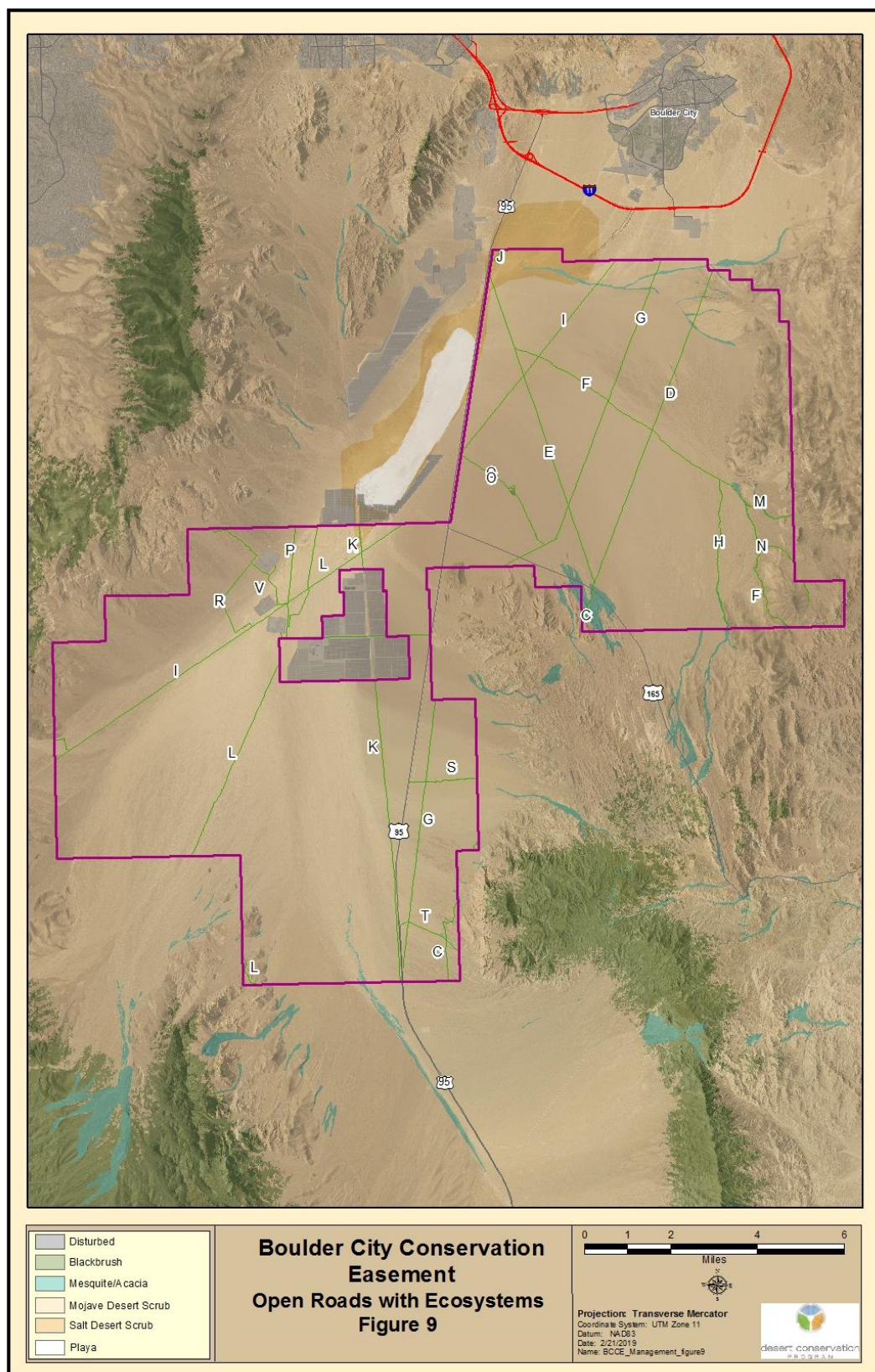




Figure 9). Vegetation inventories were conducted in 2014-2016 to support other studies occurring within the BCCE. A complete list of vegetation from this study is included as Appendix D.

The Mojave Desert scrub ecosystem comprises approximately 97.2 percent (84,100 acres) of the land cover within the BCCE. This ecosystem type typically occurs on slopes, hillsides, and washes with alluvial soils from about sea level to 4,000 feet in elevation, but may occur 1,000 feet higher on south-facing slopes (Turner 1994). Within the BCCE, approximately 80 percent of this ecosystem type is located in the valley bottom in areas with deep sands, some of which have a near-surface duripan. Creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) are the dominant vegetation (O'Farrell 2009). The remaining 20 percent of this ecosystem type occurs in areas characterized by rocky or gravelly soils, where the predominant vegetation consists of creosote bush, desert thorn (*Lycium andersonii*), and spiny hop-sage (*Grayia spinosa*) (O'Farrell 2009).

Salt desert scrub ecosystem comprises approximately 1.5 percent (1,277 acres) of the land cover within the BCCE. This ecosystem type typically occurs near localized depressions with poorly draining, alkaline, or saline silty loam soils. Dominant vegetation consists of salt bush (*Atriplex polycarpa*), creosote bush, and desert thorn (*Lycium* spp.). Salt desert scrub is found in the northwestern corner of the North Section. This ecosystem follows the lake bed outside the boundary and reappears within the boundary just north of the solar energy zones.

The mesquite/acacia ecosystem comprises approximately 0.9 percent (805 acres) of the land cover within the BCCE. This ecosystem type is generally biogeographically nested within the Mojave Desert scrub ecosystem, but for management purposes it is considered a distinct ecosystem.

Mesquite/acacia dominated communities typically occur at lower elevations in valley bottoms where deep alluvial and playa lake deposits cover basin floors. It also occurs along large watercourses such as rivers and perennial or ephemeral streams. Within the BCCE mesquite/acacia can be found along ephemeral streams and washes as they flow towards the dry lake bed. Both mesquite (*Prosopis glandulosa*) and acacia (*Acacia greggii*) are intermittently distributed and can be found with desert senna (*Senna armata*), cheesebush (*Hymenoclea salsola*), and brittlebush (*Encelia* spp.).

The remaining 0.4 percent (356 acres) of the land cover within the BCCE is comprised of disturbed land. These areas can be sources of non-natives and may include a variety of native species.

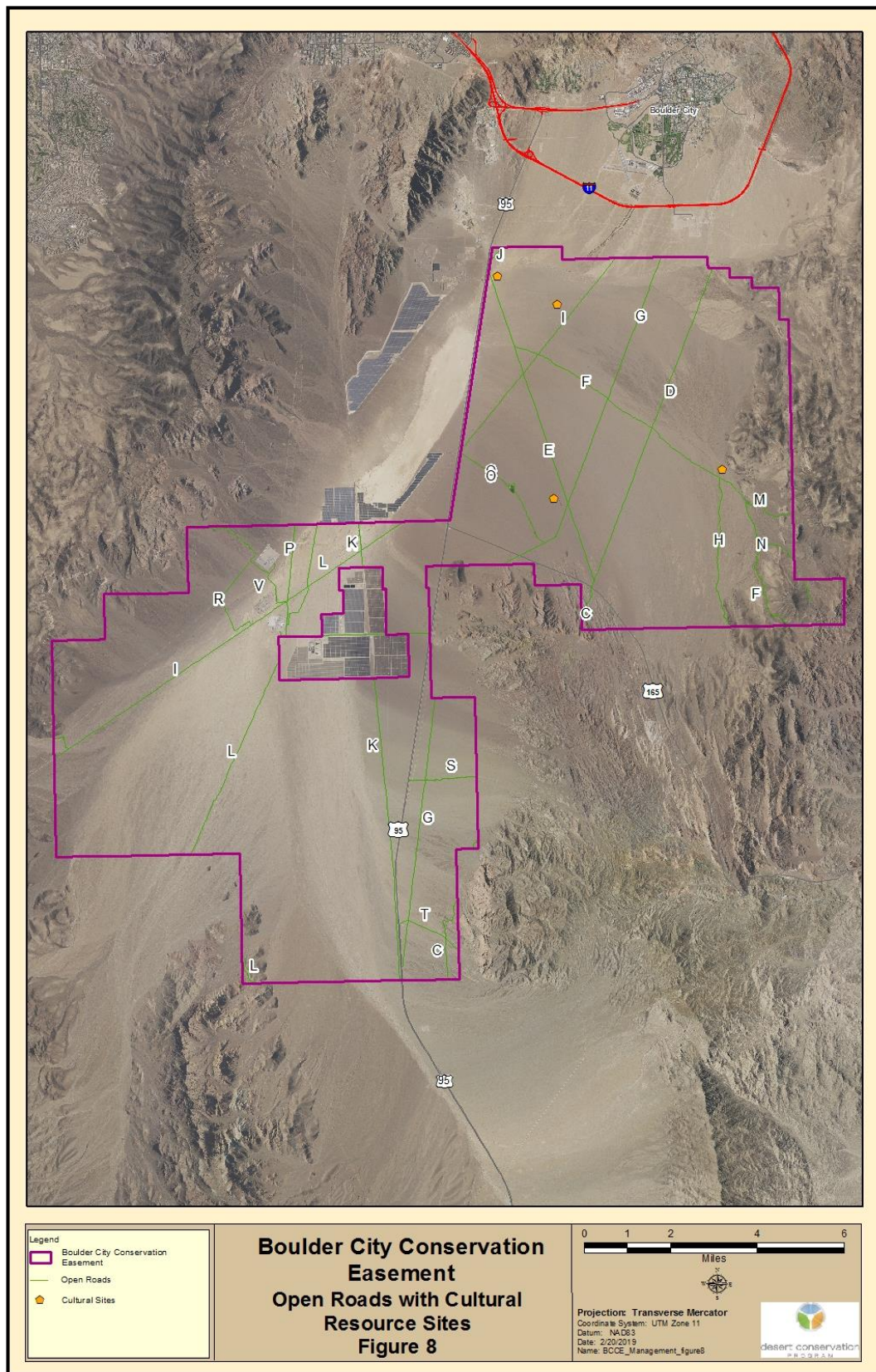


Figure 8. Cultural Resource Sites

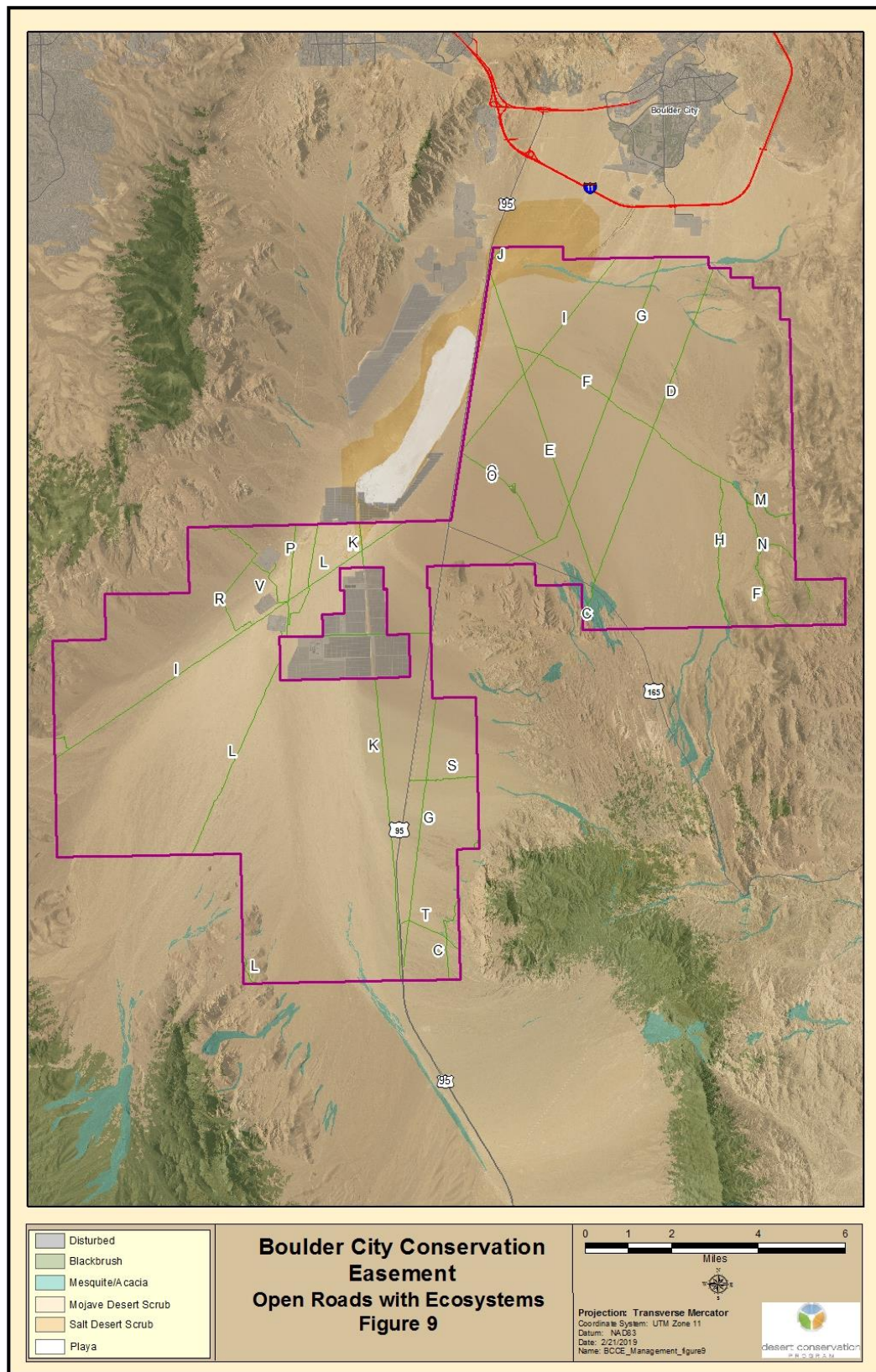


Figure 9. Ecosystems



Effluent discharge from the Boulder City Wastewater Treatment Plant creates a mesic environment that provides habitat for riparian vegetation that would not normally occur in a creosote-bursage scrub community. Visible signs of discharge dissipate after a short distance inside the BCCE boundary.

MSHCP Plant Species

There are no known occurrences of MSHCP covered plant species within the BCCE and suitable habitat to support MSHCP covered plant species is not known to occur. Barrel cactus (*Ferocactus cylindraceus*), an MSHCP watch list species, has been documented within the BCCE.

Noxious and Invasive Weeds

Noxious weeds are those weeds designated as a pest by state or federal law or regulation. The state of Nevada designates plants as noxious if the plant is found to be “detrimental or destructive and difficult to control or eradicate” (Nevada Revised Statute 555.005). Invasive weeds are non-native species whose introduction does or is likely to cause economic or environmental harm (The National Invasive Species Council 2006).

Surveys for noxious and invasive weeds along BCCE open and private roads have been conducted since winter 2014. These surveys are conducted semi-annually; once during winter and once during spring/summer. During surveys, noxious and invasive weeds are identified and the location and patch size of each species is documented. The BCCE currently has few or low levels of infestation of these species; however, restoration of these habitats is difficult. Areas where weeds have been located are near the City and around the Energy Zone. Incipient occurrences of noxious and invasive species are treated, if determined appropriate. Treatments methods may consist of herbicide application or hand-pulling, with the particular treatment method depending on the species being treated and the time of year that the treatment is applied. A list of noxious and invasive species that have been documented during these surveys is provided in Table 3 below.

**Table 3.
Noxious and Invasive Weeds**

Common Name	Scientific Name	State Listed Noxious ¹
Giant reed	<i>Arundo donax</i>	A
Sahara mustard	<i>Brassica tournefortii</i>	B
Black mustard	<i>Brassica nigra</i>	No
Chilean brome	<i>Bromus trinii</i>	No
Redstem filaree	<i>Erodium cicutarium</i>	No
Bigleaf mallow	<i>Malva</i> sp.	No
Russian thistle	<i>Salsola kali</i>	No
London rocket	<i>Sisymbrium irio</i>	No
Salt cedar	<i>Tamarix ramosissima</i>	C

¹ Nevada Department of Agriculture noxious weed categories:

- Category A weeds are generally not found or are limited in distribution throughout the state. These species are subject to active exclusion from the state, eradication where found, and eradication from nursery stock.
- Category B weeds are generally established in scattered populations in some counties of the state. These species are subject to active exclusion where possible and active eradication from nursery stock.
- Category C weeds are generally established and widespread in many counties of the state. These species are subject to active eradication from nursery stock.



Source: Nevada Department of Agriculture (2014)

2.4.2 Wildlife

Desert Tortoise

Located within the Piute-Eldorado Valley Critical Habitat Unit, the BCCE was created in 1995 to be managed for the protection and benefit of the Mojave desert tortoise. Since its inception a number of projects have been implemented to help achieve that goal. Due to its location within a critical habitat unit, the USFWS has conducted line distance surveys between 2004 and 2012, 2016, and 2017. Data from these surveys have been used in calculating density trends across the habitat unit. As of 2017 the density in Eldorado Valley was estimated to be approximately 5.6 tortoises per square kilometer (USFWS unpublished data). In 2014, in conjunction with the USFWS, the DCP performed an intensive line distance sampling project across the northern section of the BCCE. This project was conducted to determine current densities specific to the BCCE North Section and to determine relative health of the population. These data were used to determine the viability for population augmentation in the area. In the fall of 2014, 98 adult desert tortoises were translocated to the North Section of the BCCE from the Desert Tortoise Conservation Center as part of a large-scale translocation project run by the San Diego Zoo and the USFWS. A subset of these animals were followed (using radiotelemetry) for four years to determine the effectiveness of the project. In spring of 2016, three tortoise were removed from the construction of a solar facility within the BCCE energy zone. These animals were also translocated to the same area as above.

The data from this project was examined in 2017 and a new translocation plan was issued by the USFWS and Clark County (USFWS and Clark County 2017). Analysis of the data showed there was an initial cost to translocation through predation during the first year post translocation but that the effect did not persist throughout the rest of the study. There also did not appear to be an effect based on the soil type where the tortoises resided. This led to a second scheduled release of 36 tortoise in September 2017. These tortoises were to be placed farther into the searchlight soil type to see if it would affect survival rates or increase movement rates out of that soil type. 16 of the newly translocated individuals received radiotransmitters and were added to the study. The radiotelemetry study was extended in 2018 for another 5 years.

Beginning in 2013, the County has conducted a study to look at desert tortoise occupancy throughout the BCCE. Data from the occupancy sampling study was used to create a fine-scale probability of occurrence model for the area. This model will be used for spatial prioritization of habitat restoration and to enhance protection of tortoises on the BCCE (Figure 11). Data obtained from successive years of this study may be used to inform future monitoring strategies and management decisions within the BCCE.

MSHCP Wildlife Species

No covered wildlife species have been documented within the BCCE; however, suitable habitat to support several covered species is present. Covered species have been documented in areas adjacent to the BCCE; these include desert iguana (*Dipsosaurus dorsalis*), phainopepla (*Phainopepla nitens*), Arizona bell's vireo (*Vireo bellii arizonae*), Mojave green rattlesnake (*Crotalus scutulatus scutulatus*), and speckled rattlesnake (*Crotalus mitchelli*) (Nevada Natural Heritage Program 2014). MSHCP evaluation species that have been documented in the BCCE include banded Gila monster



(*Heloderma suspectum cinctum*), LeConte's thrasher (*Toxostoma lecontei*), and loggerhead shrike (*Lanius ludovicianus*). One MSHCP watch list species, the rosy two-toned beardtongue (*Penstemon bicolor* ssp. *roseus*) has also been documented in the BCCE (Nevada Department of Wildlife 2010, Nevada Natural Heritage Program 2014).

Other Wildlife Species

Other wildlife species that may be present on the BCCE include several species of lizards, snakes, small mammals, and birds (O'Farrell 2009). Most of the birds are transients that seasonally migrate through the area. Common resident species include black-throated sparrow (*Amphispiza bilineata*), raven (*Corvus corax*), northern mockingbird (*Mimus polyglottos*), and mourning dove (*Zenaidura macroura*). The more abundant small mammals include rodents, such as the white-tailed antelope squirrel (*Ammospermophilus leucurus*) and desert pocket mouse (*Chaetodipus penicillatus*), and the black-tailed jackrabbit (*Lepus californicus*) (O'Farrell 2009). Larger mammals that have been observed in and around the BCCE include coyote (*Canis latrans*) and kit fox (*Vulpes macrotis*). Mule deer (*Odocoileus hemionus*) and desert bighorn sheep (*Ovis canadensis nelsoni*) are found in suitable habitats surrounding the BCCE and may occasionally transit the site. Wild horses (*Equus ferus*) or burros (*Equus africanus asinus*) are not known to occur in the vicinity of the BCCE.

2.4.3 Ecological Resilience

Ecological resiliency (as defined in Clark County 2016) is the capacity of an ecosystem to withstand acute and diffuse stressors without experiencing widespread negative regime changes, such as species extirpation or a fundamental loss of ecosystem function. To better understand how ecological resiliency can practically be addressed on the BCCE, putting it in the context of ecological conservation is important. Ecological representation, redundancy, and resiliency make up "The Three R's of Conservation" and are described here:

- Representation— describes which ecosystems are present on a landscape within designated conservation units or study areas (i.e., wilderness areas or county-owned land). Key concepts regarding representation include:
 - Saving something of everything.
 - Conserving a full variety of habitat types.
 - If representation exists within designated conservation units or study areas then there is a higher potential for protecting biodiversity under climate change.
- Redundancy— describes how redundant (i.e., number of occurrences) an ecosystem is on a particular landscape within designated conservation units or study areas. Key concepts regarding redundancy include:
 - Redundancy can be a hedge against the failure of any particular species population or habitat type
- Resiliency—describes the capacity of an ecosystem to respond to perturbation by resisting, recovering, and transforming. It is important to identify what is being targeted:
 - What is the focal system?
 - Resiliency...of what? [key components of the system]
 - Resiliency...to what? [specific disturbance, disruption, and uncertainty]

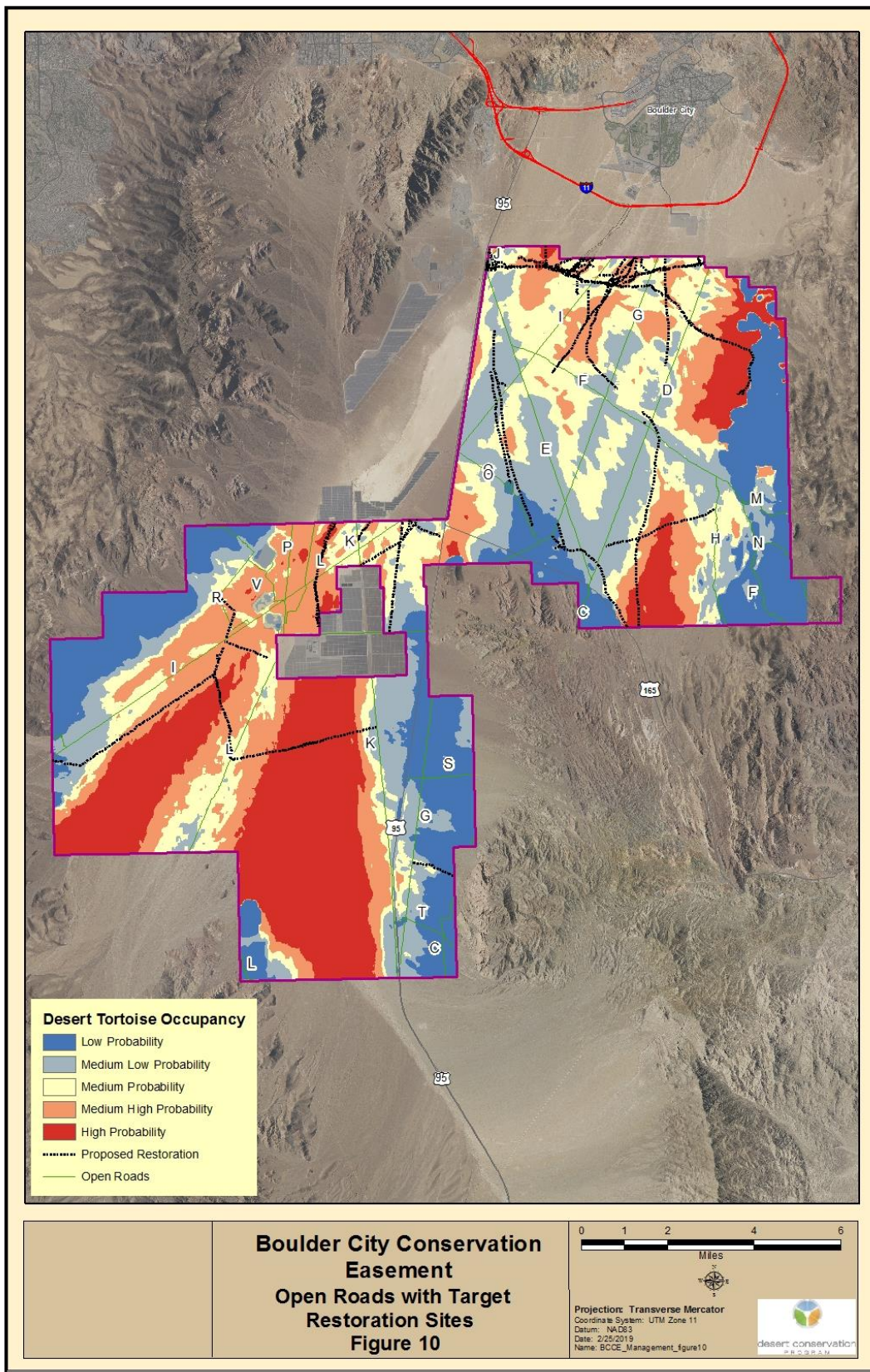
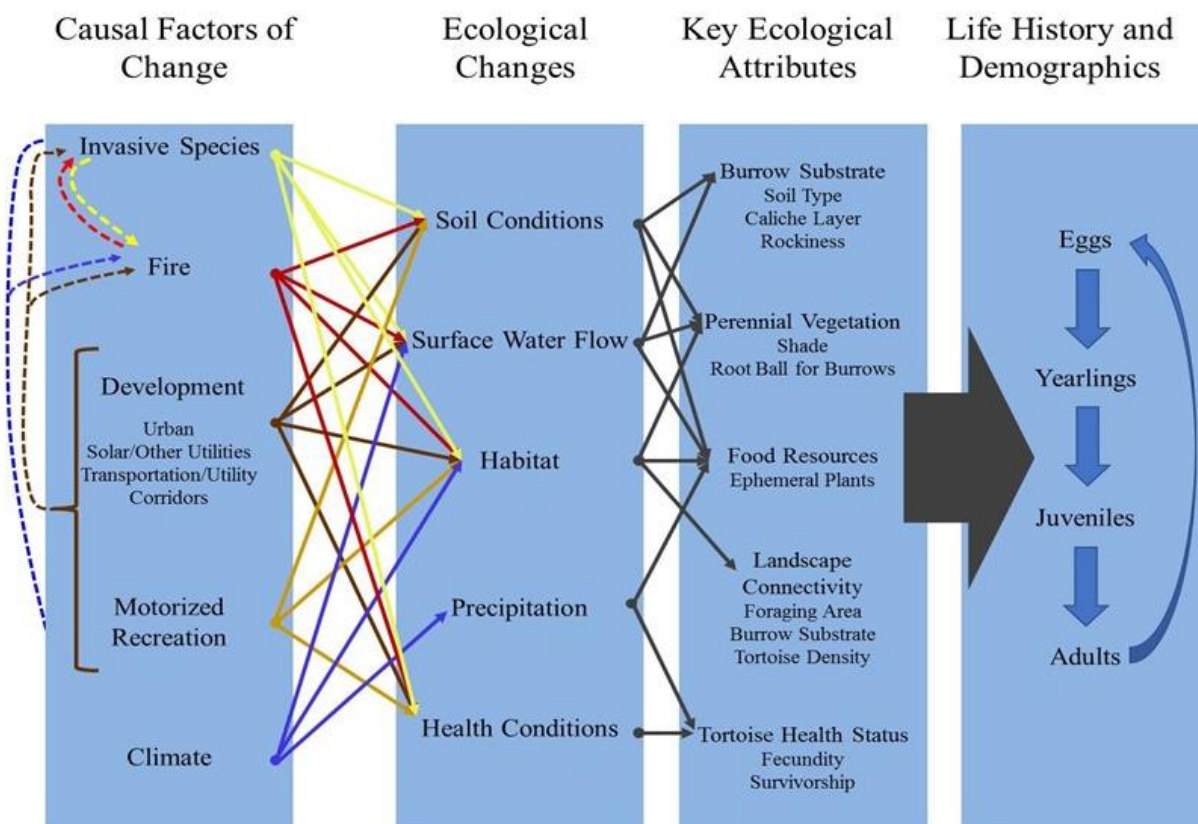


Figure 10. Desert Tortoise Probability of Occurrence and Proposed Restoration



Representation, redundancy, and resiliency, and their applicability to specific project and management concepts were discussed at an internal workshop in 2018 (Alta 2018). Each of the Three R's was discussed in relation to both fine-scale and landscape levels and a multitude of project concepts were evaluated (project concepts were both new concepts and those already being implemented or were included with the upcoming IPB). Overall, the following management concepts work to achieve or inform representation, redundancy, and resiliency: Maintain spatial connectivity and spatiotemporal variability in ecological processes; understanding natural levels of spatial and temporal variability; strategic property acquisition and partnerships; and identification of key ecosystem stressors and the types of ecological changes that may be affected by these stressors (i.e., filling in the blanks of "Resiliency...of what?" and "Resiliency...to what?"). The current state of understanding of the factors influencing the life history and survival of the desert tortoise on the BCCE has been summarized in a conceptual model (Figure 10; modified from Clark County 2012).



Modified from Clark County, 2012. Colored arrows indicate connections between ecological stressors and the ecological changes they affect (Climate stressors = blue arrows; Fire and invasive species stressors = red and yellow arrows, respectively; and Development and transportation stressors = brown and light brown, respectively).

Figure 11. Conceptual Ecological Model for Mojave Desert Tortoise with the BCCE



Ecological Stressors for the Desert Tortoise, Other Covered Species, and Habitats

The primary stressors (aka, "causal factors of change") affecting the desert tortoise and other covered species and habitat on the BCCE have been summarized from several documents, including the MSHCP (Clark County 2000a) and a desert tortoise conceptual model (Clark County 2012).

All of these stressors have associated uncertainty about rates and magnitude of change; whether the affected ecological change will respond linearly or in a non-linear fashion and whether there are threshold responses, as well as the potential for interactions between and among stressors and associated ecological change.

These primary stressors have been grouped according to the influence that management can direct towards understanding, minimizing, and mitigating the magnitude, uncertainty, and effects of the stressor.

- Climate change: DCP ability to influence: low to none. (See blue arrows in Figure 11).
- Fire & invasive species: DCP ability to influence: low to moderate. (See red and yellow arrows, respectively, in Figure 11).
- Development, transportation, and recreation: DCP ability to influence: moderate to high. (See brown and light brown arrows in Figure 11).

Climate Change

Projections of climate change for the northeast Mojave Desert suggest that the changes will be profound by 2060 (Comer et al. 2013), including substantial changes in most monthly maximum temperatures, July maximum temperature, and August minimum temperature. Some of the potential effects of climate change include decrease in plant growth, expansion of invasive species distribution and density, increase in fire frequency, increase in wind erosion, reduction of groundwater recharge, and increase in flood events from higher precipitation levels at high elevations (Comer et al. 2013). Climate change can be a severe stressor to these ecological systems and species over the next 50 years.

Invasive Species

The presence of non-native invasive species, including red brome (*Bromus rubens*), Mediterranean grass (*Schismus barbatus*), and Sahara mustard (*Brassica tournefortii*) are important stressors on the Mojave Desert ecosystems. These species compete with and reduce abundance of native plants, primarily annuals and short-lived perennials, which can lead to extirpating populations. Invasive species can also alter ecological processes, such as increasing fire frequency and intensity and reducing soil moisture and altering soil nutrients. Increased levels of nitrogen deposition can increase abundance and vigor of invasive species.

Fire

The increase in fire frequency and intensity outside its historical range of occurrence is a stressor on the ecosystem. Mojave Desert ecosystems are not fire-adapted and fire causes a major shift in species composition. Some shrub species may be completely eliminated by fire and will rarely reestablish under natural conditions. With the lack of seed source and past and future climatic



change, seedling establishment may not be possible. Herbaceous species are also impacted by having seeds killed in the soil, less appropriate soil conditions for germination and growth following fire, and competition from mostly non-native species that respond favorably to fire. Fire effects on vegetation and soils can reduce landscape connectivity for wildlife and fire can also kill or seriously injure many wildlife species, including desert tortoise. The extent of these impacts is influenced by the timing of fire and the activity of tortoises, depth of burrows, fire intensity, how quickly fire moves across an area, and the patchiness of fire (Esque et al. 2003). There have been no major fires in or around the BCCE and the fuel loading is currently low (O'Farrell 2009). Although this stressor can be severe, it is limited in scope and restoration is difficult.

Development

The types of development that have the highest stressor potential to the BCCE are the development of solar energy facilities and other utilities and supporting infrastructure (roads, transmission lines). The Mojave Desert has some of the highest potential for solar development; a recent study identified alternatives ranging from 285,000 to 98,774,342 acres available for solar development (Lovich and Ennen 2011). With the increase in renewable energy development and the need to provide better connectivity within the electrical grid, major transmission line projects are planned to connect with the existing substations inside the BCCE (Sue Wainscott, personal communication), along with possible upgrades and expansions to the existing substations. These stressors can cause direct loss of wildlife and habitat, increased habitat fragmentation, and indirect introduction of predators.

Transportation Infrastructure

Transportation infrastructure includes linear corridors consisting of paved and unpaved roads and trails. Transportation corridors affect desert tortoises and habitat by increasing mortality through collisions with vehicles, fragmenting habitat and reducing connectivity across habitat, and facilitating access by humans. The effect of transportation corridors varies by road type (high speed divided highways roads, paved secondary roads, unimproved roads) and by presence of tortoise exclusion fencing. Whether transportation corridors have an effect on the density of tortoise populations is unknown, but studies have shown that they do have an effect on abundance of tortoises within a quarter mile from high traffic roads (von Seckendorff Hoff and Marlow 2002, Boarman and Sazaki 2006). In contrast to these studies, increased sheet flow runoff from roads and stormwater drainage often results in more robust and diverse ground cover that may be an attractant to tortoises. Major paved roads that cross the BCCE have tortoise exclusion fences. Transportation corridors cause habitat alteration and fragmentation. These corridors are moderate in severity but low in areal extent across the BCCE.

Recreation

Motorized recreation includes various vehicle types, individuals or group participants, and travel on or off of paved and unimproved roads and trails. Motorized OHVs commonly use desert environments, including washes and playas for recreation purposes. While a quantitative relationship between motorized OHVs and reduced tortoise densities is lacking, qualitatively the likelihood of direct mortality, collapsed burrows, and reduced food resources (by direct elimination and by indirect changes in soil condition, such as compaction, soil moisture, and reduction in soil crusts) suggest that this stressor has an impact on tortoise populations. Comparison of areas used for



motorized OHVs and those that are unused provide support for this impact (Bury and Luckenbach 2002). To date, the DCP has closed 12 roads, totaling 30.67 miles, to help protect native species. Of the 30.67 miles of roads that have been closed, 13.42 miles have had some sort of



restoration/barrier installation to restrict access and illegal use (

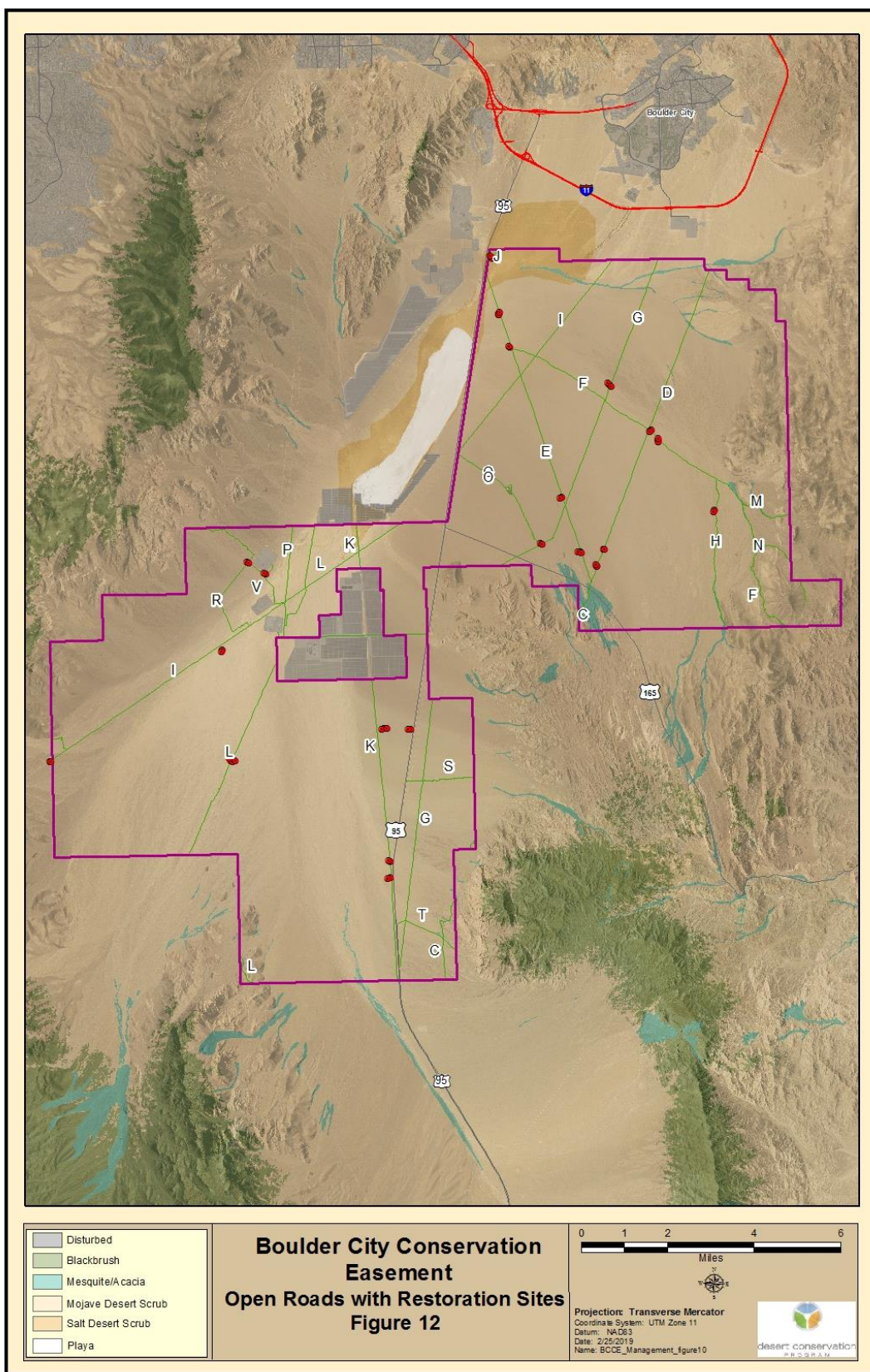




Figure 12).

Non-motorized recreation includes hiking, biking, horseback riding, hunting, camping, and target shooting. These activities can directly damage soil by altering soil structure and disrupting soil crust, and damage and reduce vegetation. These activities are minimal across the Mojave Desert, but can be quite intense in certain places. Non-motorized recreation in the BCCE is not intense or extensive. No data exists correlating these activities with impacts to desert tortoise. Indirect impacts of non-motorized recreation, such as ignition of fire, introduction of invasive species, increased predators, and handling and collection of plants and/or wildlife, are stressors on the ecosystem.

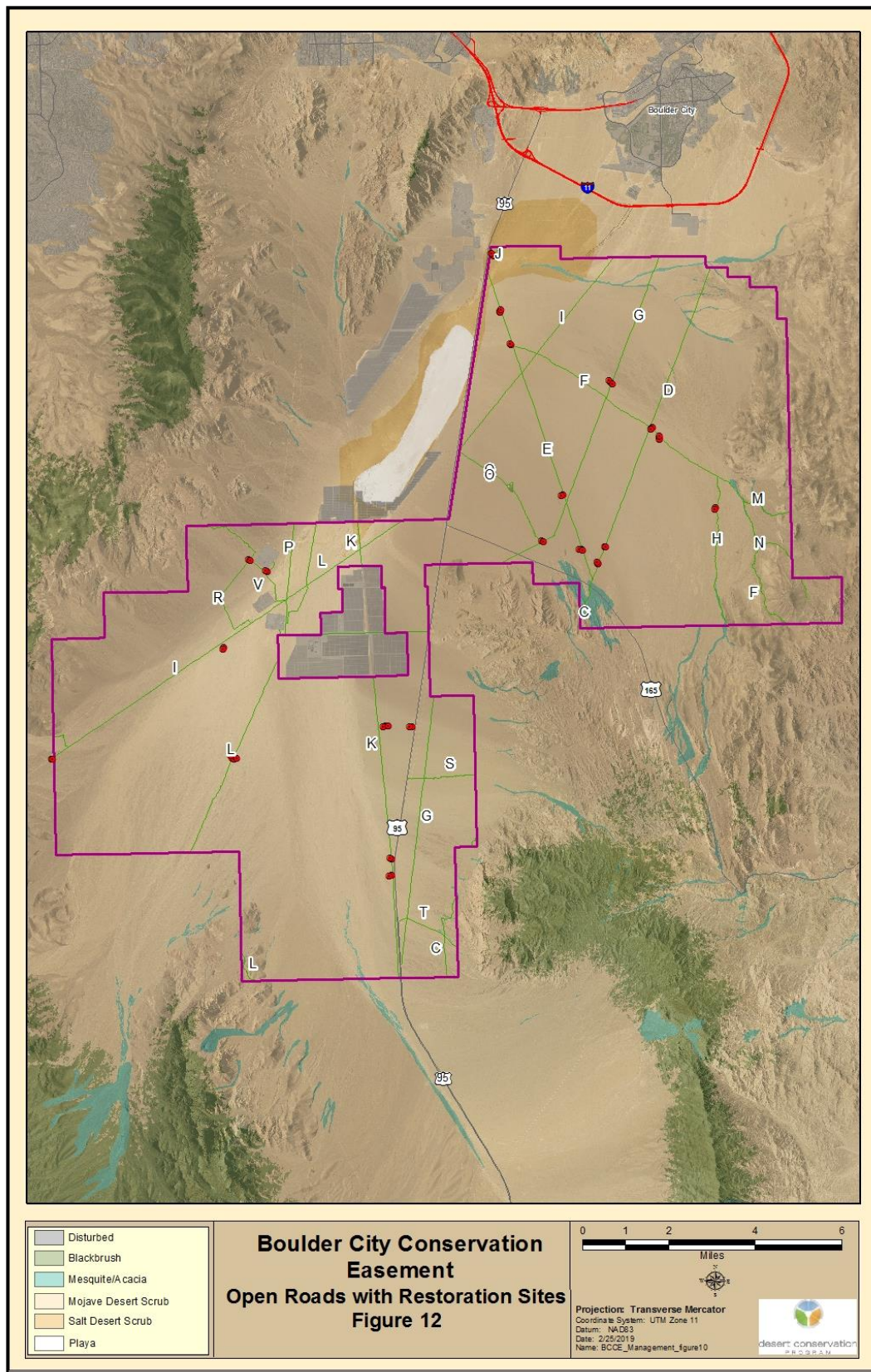


Figure 12. Restoration Sites



Predation

Predation is defined as the mortality of wildlife by species other than humans. Natural predation rates are not considered a stressor; however, current predation has been enhanced by increased populations of predators through changes in trophic structure, increases in food and water sources and nesting substrates (billboards, utility towers, buildings), and introduction of non-native predators (Boarman et al. 2006). Subsidized predators include native species such as the common raven (*Corvus corax*), which is the most well-documented subsidized predator in the Mojave Desert, and the coyote (*Canis latrans*), as well as introduced species such as dogs and cats. Raven predation of juvenile desert tortoises has been well documented (USFWS 2011). The contribution of predation to the survivorship and demographic impacts of desert tortoises have not been quantified and is complicated by spatial and temporal variability and difficulty of monitoring juvenile tortoises (USFWS 2011). A recent project has surveyed for the extent of predation pressure in the BCCE and found that it is largely restricted to the area south of Boulder City (Boarman et. al., 2018). Management recommendations include reducing predator subsidies of trash and open water. Across the full BCCE, predation is currently assumed to be a minimal stressor.

2.5 PUBLIC SERVICES AND SAFETY

Public services and safety address agencies responsible for utilities on and across the BCCE, emergency response within the BCCE and surrounding areas, and safety procedures followed by DCP and contractors that access the BCCE. Since the BCCE is located within the jurisdiction of Boulder City, public safety services are provided by the City agencies. Agency contacts and telephone numbers are listed in Appendix C.

2.5.1 Fire and Medical

Boulder City Fire Department provides fire protection and emergency medical response for the BCCE. The Department maintains mutual aid contracts with surrounding fire departments, including the County and Henderson, as well as with BLM and NPS. BLM and NPS law enforcement rangers and fire crews are responsible for fire and medical emergency response on BLM and NPS lands.

2.5.2 Law Enforcement

Boulder City Police Department is the agency providing police protection to the BCCE. Law enforcement on the BCCE is an important management objective addressed by the DCP, and it is required by both the Grant and the incidental take permit. The DCP has contracted for law enforcement on the BCCE since February 2000 to ensure that the public complies with the uses outlined in the Grant. As representatives of the DCP and the County, law enforcement personnel also serve a role in public relations and conservation education. As a result, emphasis is placed on helping the public understand the purpose for the BCCE, its importance as a reserve for covered species, and uses that are allowed and prohibited.

Boulder City is responsible for enacting and enforcing codes and ordinances for public land uses that are necessary to permit allowable uses and enforce prohibited uses on the BCCE. The City allows peace officers provided by DCP to issue citations to BCCE users violating City Code 7-5-8, Prohibited Uses within the Eldorado Valley Transfer Area; however, citations are rarely issued and generally to



flagrant or repeat offenders only. The City is also responsible for providing officers to monitor activities that it permits on the BCCE and to cite and prosecute violators of permits.

A summary of law enforcement activities that occur on the BCCE are submitted to DCP on a weekly basis. The summary report is reviewed to monitor the type, frequency, and location of violations, and integrate the findings to adaptively manage the BCCE. Since DCP is responsible for enforcing the terms of the Grant, the data help focus law enforcement efforts to the areas where most violations take place, and attempt to reduce infractions over time.

Nevada Highway Patrol enforces traffic regulations on US 95 and SR 165. BLM and NPS law enforcement rangers patrol federal lands and are responsible for protecting the resources, preventing illegal dumping, and enforcing traffic codes on BLM and NPS lands.

2.5.3 Utilities

There are no requirements for utilities to manage the BCCE for conservation purposes, although some public utilities are available in the area. Potable water service to the energy facilities in the Energy Zone and on the BCCE is provided by the City and it is distributed via an underground water main that parallels Eldorado Valley Drive. There is no municipal sanitary sewer collection service provided to the Eldorado Valley; facilities have septic tanks and drain (i.e., leach fields) for wastewater treatment and disposal needs. The energy facilities provide for their own electricity needs. An underground natural gas pipeline owned by Southwest Gas Corporation crosses the BCCE from south to north. Fiber optic cables and telecommunications are located underground and parallel Eldorado Valley Drive.



The Boulder City Wastewater Treatment Plant is located a little over a mile north of the North Section of the BCCE (

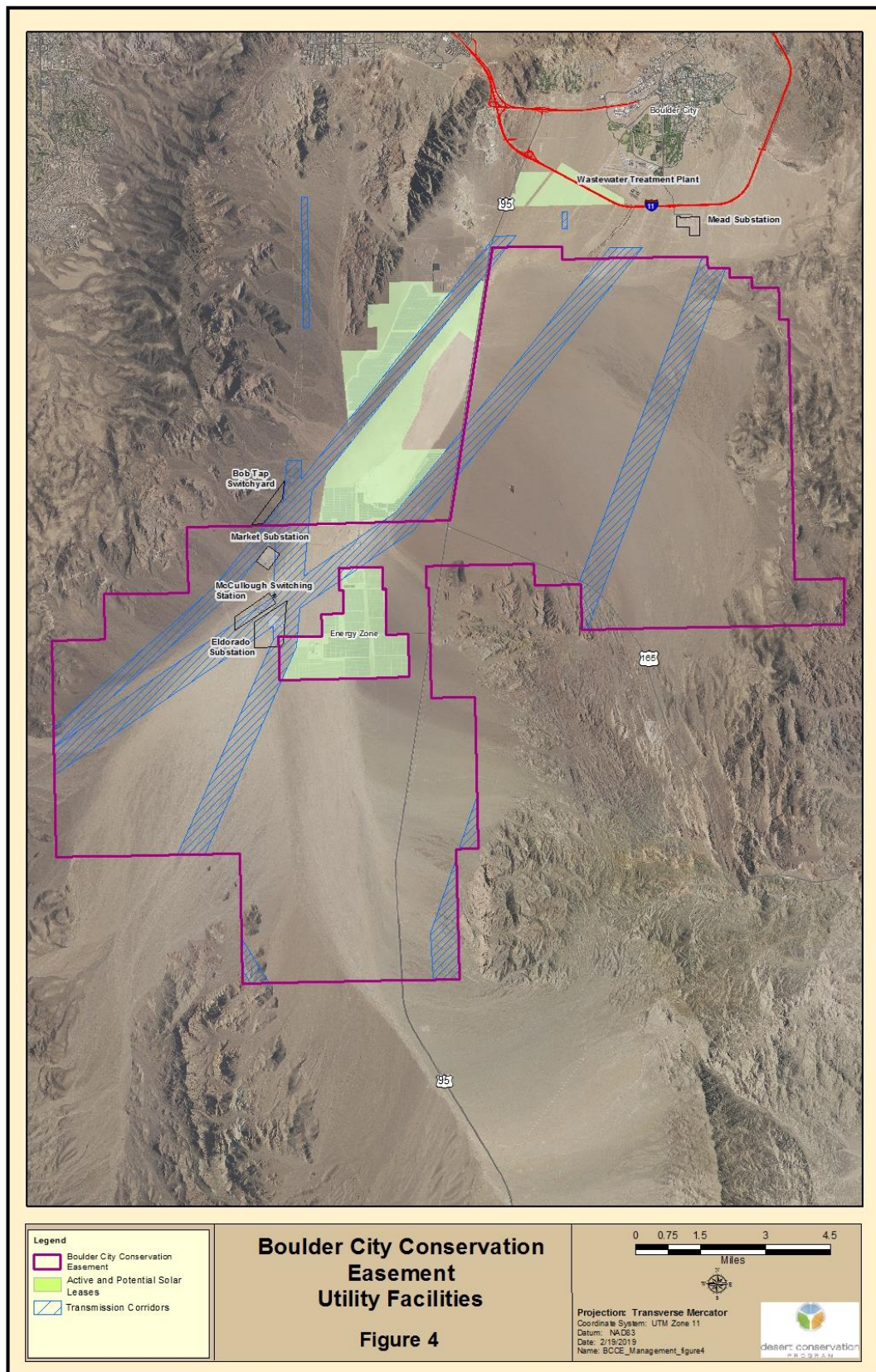




Figure 4). The City retained limited rights in the Grant to allow treated effluent from the plant to discharge onto the BCCE.

2.5.4 Safety

The DCP follows standard health and safety procedures for working in the desert environment, including guidelines for weather related risks and biological hazards (snakes, insects). Emergency contact is provided through 911 service; non-emergency support is requested by dialing 311. Cell phone service is available on and near the BCCE through most telecommunication carriers. A list of contacts for management, safety, and services is provided in Appendix E.

The DCP has established procedures to minimize exposure to naturally occurring asbestos fibers that could be present in airborne dust. Procedures were developed with the assistance of the Clark County Department of Air Quality and with references from the Environmental Protection Agency and the Agency for Toxic Substances and Disease Registry. The procedures address measures to minimize staff exposure and reduce the spread of fibers that may be on field clothes, equipment, and vehicles. The procedures described here are intended to reduce risk of exposure to naturally occurring asbestos fibers.

Procedures for digging or working in the ground:

- Always thoroughly wet the ground where working to prevent dust (a water can used for plants should be sufficient).
- When digging or pounding items into the ground always make sure the area is wet to prevent dust.



3.0 MANAGEMENT GOALS, OBJECTIVES, AND ACTIONS

The management goals for the BCCE are based on the Section 10 incidental take permit and the guiding documents for the easement.

3.1 GOALS AND OBJECTIVES

Goals are broad, general statements to establish the direction for the management of the easement. Objectives provide further explanation regarding the intent of the goals and are established to measure progress towards achieving management goals for the BCCE. Management goals and objectives are presented in Table 4.

**Table 4.
BCCE Management Goals and Objectives**

Goal	Protect and manage the BCCE for the desert tortoise and its habitat.
Objectives	Restore and enhance habitat for desert tortoise.
	Install and maintain infrastructure that controls tortoise movement.
	Identify and decrease direct stressors to desert tortoise, as needed.
Goal*	Protect and manage the BCCE for other MSHCP covered species.
Goal	Manage the property and public uses to meet conservation obligations and legal requirements.
Objectives	Promote a road network that supports conservation and provides appropriate access for management and public use.
	Provide law enforcement.
	Control invasive plant species and noxious weeds.
	Promote responsible recreation and inform the public on current activities.
	Manage allowable uses.
	Manage prohibited uses (Appendix B).
<i>* There are no specific management objectives for this goal at this time because the BCCE is protected and managed for the desert tortoise. As concepts from the Adaptive Management and Monitoring Plan (AMMP, TerraGraphics 2017) are further integrated into BCCE Management Plan, specific objectives for this goal will be developed..</i>	

3.2 DISCUSSION OF OBJECTIVES AND LIST OF MANAGEMENT ACTIONS

Objectives are what guide identification and development of management actions and day-to-day activities. Management actions are defined as specific actions, methods, or tools by which objectives are met and goals are achieved. Actions make up the “how do we get there” part of the planning process and are linkages between the plan and implementation. This section provides a general discussion of each objective and lists management actions that would meet each objective. Appendix F contains the table of management actions with further details on what, where, when, and who implements each action, and how to measure effectiveness of implementation of the action.



Objective 1.0 - Restore and enhance habitat for desert tortoise

The primary purpose for establishing the easement was to manage and protect habitat for desert tortoise. The incidental take permit also states that connectivity for desert tortoise and other covered species should be maintained within the easement. Restoring closed roads and trails and enhancing areas of degraded or marginal habitat provides additional habitat for covered species. Priority should be given to closed roads and degraded habitat in areas within the BCCE where desert tortoises have been recently documented.

Culverts and other drainage structures under roadways can provide an avenue for connectivity between different areas of the Eldorado Valley and sections of the BCCE that are separated by infrastructure and tortoise exclusion fences. Opportunities to reestablish connectivity should be explored.

Management actions that will restore and enhance desert tortoise habitat include:

- 1.1 Evaluate easement for the spatial extent and trends of tortoise occupancy
- 1.2 Assess environmental variables that influence the spatial extent and trends of tortoise occupancy
- 1.3 Identify and prioritize locations for habitat restoration and enhancement
- 1.4 Develop restoration/enhancement plans for priority locations
- 1.5 Implement restoration/enhancement plans
- 1.6 Monitor and adaptively manage restoration/enhancement

Objective 2.0 - Install and maintain infrastructure that controls tortoise movement

Fences, road crossing guards, and gates eliminate or minimize the mortality of tortoises by preventing access onto roadways and by keeping vehicles on roadways and off habitat. Construction and maintenance of tortoise exclusion fences along major roads is a non-discretionary requirement in managing the BCCE as a condition of the incidental take permit. Tortoise exclusion mesh was added to the NDOT fences that parallel US 95 and SR 165, and gates and/or crossing guards are installed at right-of-way access locations. NDOT and DCP is responsible for monitoring and maintaining these fences, crossing guards, gates, and the drainage culverts.

The exterior of the BCCE boundary is not fenced, and allows for tortoise passage and connectivity with adjacent lands. Unimproved roads within the BCCE do not experience sufficient traffic or speed to warrant tortoise protective barriers. Future expansion and increased development of the Energy Zone may warrant protective fences along Eldorado Valley Drive.

Management actions that will control tortoise movement include:

- 2.1 Inspect tortoise fences, road crossing guards, gates, and culverts for maintenance needs
- 2.2 Conduct emergency repairs and/or schedule maintenance repairs
- 2.3 Notify NDOT for highway fence repairs and culvert cleaning/maintenance



- 2.4 Identify locations for new or replacement tortoise fences, gates, and road crossing guards
- 2.5 Install new or replace tortoise fences, road crossing guards, and gates

Objective 3.0 - Identify and decrease direct stressors to desert tortoise, as needed

There are a number of direct and indirect stressors to the desert tortoise (Section 2.4.3) that affect management of the BCCE to various degrees. Some stressors, such as recreation and development, are managed indirectly by addressing other objectives and management actions. Although future actions may be warranted to address other direct stressors that may be increasing, potential harm from predation has generated interest.

Management actions that will address predation stressors include:

- 3.1 Evaluate presence of predators to determine need for control
- 3.2 Consider use of effective predator control techniques, as appropriate
- 3.3 Develop plan to implement and monitor predator control techniques

Objective 4.0 - Promote a road network that supports conservation and provides appropriate access for management and public use

Travel on and maintenance of designated and signed roads and trails are allowed on the BCCE. While roads that experience reduced traffic flow and lower speeds are a minimal stressor to desert tortoises, closing roads and reducing traffic speed further protects the species, provides additional habitat, and reduces habitat fragmentation. Additionally, it reduces public access to areas of the BCCE, thus reducing human stressors on the species and its habitat.

DCP reviews the earlier interim road designations and makes adjustments to open and closed travel routes based on origins and destinations within the BCCE and on adjacent lands, usage, substrate (surface soils and desert washes) and physical condition, and existing right-of-ways.

DCP tracks and monitors the development of emerging technologies such as unmanned aerial vehicles and wildlife cameras. Use of unmanned aerial vehicle technology in the BCCE has been discussed and will continue if there is continued interest. Wildlife cameras could be used for monitoring wildlife movements in and around culverts, roads, and restoration areas.

Management actions that will manage the road network include:

- 4.1 Inventory and identify (name) open and closed roads
- 4.2 Determine travel patterns and usage
- 4.3 Identify and prioritize road closures
- 4.4 Post and maintain open road signs
- 4.5 Implement road closures
- 4.6 Develop restoration plans for permanently closed roads
- 4.7 Implement and monitor restoration of closed roads



Objective 5.0 - Provide law enforcement

Providing law enforcement is a non-discretionary requirement of managing the BCCE as a condition of the incidental take permit. Law enforcement has two roles: to educate the public about the purpose of the easement and allowable uses, and to protect the easement from unauthorized uses. Boulder City Police Department provides peace officers to patrol the BCCE in close coordination with DCP to best address effectiveness of patrols in fulfilling conservation obligations of the easement.

Management actions that will address law enforcement include:

- 5.1 Maintain patrols by Boulder City peace officers
- 5.2 Monitor and adjust patrol schedule and locations
- 5.3 Monitor and enforce prohibited uses
- 5.4 Evaluate officer/public contacts for opportunities to improve patrols

Objective 6.0 - Manage property to control invasive plant species and noxious weeds

One of the most destructive stressors on the Mojave Desert ecosystem is the occurrence of fire. Fires reduce or eliminate desert shrubs and herbaceous diversity and thus reduce structure and food resources. Frequency of fire in the Mojave Desert is related to the increase in fine fuels, the source of which is generally non-native invasive plant species. These invasive species also compete with native herbaceous species. The DCP, as a landowner, is required by the NRS to control the spread of noxious weeds. Most likely locations for invasive plant species and noxious weeds are along roadways, but systematic assessments of areas away from roads should be considered. While there is no evidence that invasive plant species and noxious weeds are degrading habitat or in densities that provide fuel for fire on the BCCE, it is important to be proactive in inventory and control.

Management actions that will control invasive plant species and noxious weeds include:

- 6.1 Identify locations infested or susceptible to invasive plant species and noxious weeds
- 6.2 Develop plan to eradicate or reduce invasive plant species and noxious weeds
- 6.3 Implement the plan to eradicate or reduce invasive plant species and noxious weeds
- 6.4 Monitor locations for recurrence of invasive plant species and noxious weeds

Objective 7.0 - Promote responsible recreation and inform the public on current activities

It is important to achieving conservation obligations to ensure that the public and users of the BCCE understand the purpose of the easement, know allowable and prohibited uses on the property, and can locate the physical extent (boundaries) of the BCCE. Information can be provided through signage, interpretive materials, kiosks, and the DCP webpage.

Management actions that will educate the public on allowable uses and current activities include:

- 7.1 Establish a consistent brand and design for signs, kiosks, interpretive materials, and webpage
- 7.2 Identify locations and maintain database for signs and kiosks



- 7.3 Post easement boundary signs
- 7.4 Post "Limited Use Area" signs
- 7.5 Develop content, purchase, and install interpretive signs and kiosks
- 7.6 Monitor and maintain condition of all posted signs and kiosks
- 7.7 Develop content, print, and distribute interpretive brochure(s)
- 7.8 Update information on BCCE webpage

Objective 8.0 - Manage allowable uses

Section 2 of the Grant states that use of the property is allowed for only such activities which do not impair the conservation, protection, restoration, and enhancement of the natural resource values of the property. Allowable uses include reserved rights (Section 6 of the Grant) that are compatible with the purpose of the Grant, such as non-consumptive recreational activities, maintenance and construction of utilities and ancillary structures, and discharge of treated wastewater effluent. Other allowable uses with permission from the City, DCP, and/or USFWS include exemptions to prohibited uses.

Management actions that will ensure DCP identifies and manages allowable uses of the BCCE include:

- 8.1 Monitor condition of three historic sites located on the BCCE
- 8.2 Maintain relationships and coordinate with adjacent landowners to protect conservation values of the BCCE
- 8.3 Monitor and coordinate with utility companies to minimize impacts from existing and proposed transmission corridors and facilities
- 8.4 Review exceptions to prohibited uses (discharge of firearms) for conflicts with Boulder City Code and Ordinances and Nevada hunting regulations
- 8.5 Monitor location and effects of treated effluent discharge

Objective 9.0 - Manage prohibited uses

Section 4 of the Grant states that any activity that is incompatible with the purpose of the easement is prohibited and lists a number of activities on and uses of the property that are not allowed. Prohibited uses include, with limited exceptions, surface disturbances, motorized vehicle use off designated roads, grazing, commercial or non-commercial collection of flora and fauna, dumping and littering, application of herbicides or biocides, release of captive or displaced tortoises, uncontrolled dogs outside of vehicles, and discharge of firearms. Continued use of the pet cemetery is no longer allowed. Many of these prohibited uses are curtailed by the presence of law enforcement and through monitoring by DCP staff.

The management actions that will manage prohibited uses of the BCCE include:

- 9.1 Review and revise easement documents for conflicting uses and restrictions with Boulder City Code



- 9.2 Maintain fence and gate installed around pet cemetery
- 9.3 Monitor for burials of animal remains outside the fenced pet cemetery area
- 9.4 Monitor known and potential locations of illegal dumping activity
- 9.5 Remove trash and debris from illegal dump sites
- 9.6 Monitor for other prohibited uses



4.0 REFERENCES

- Alta Science and Engineering. 2018. Resiliency Workshop Summary. Memorandum to Scott Cambrin, Desert Conservation Program. September 18, 2018.
- Boarman, W. I., M. A. Patten, R. J. Camp, and S. J. Collis. 2006. Ecology of a population of subsidized predators: Common ravens in the central Mojave Desert, California. *Journal of Arid Environments* 67:248-261.
- Boarman, W. I., and M. Sazaki. 2006. A Highway's Road-effect Zone for Desert Tortoises (*Gopherus agassizii*). *Journal of Arid Environments* 65:94-101.
- Boarman, W. I., R. D. Mlenar-Boarman, and W. K. Kristan III. 2018. Boulder City Conservation Easement Desert Tortoise Predation Study: Predatort Assessment Report.
- Buck, B. J., D. Goossens, R. V. Metcalf, B. McLaurin, M. Ren, and F. Freudenberger. 2013. Naturally Occurring Asbestos: Potential for Human Exposure, Southern Nevada, USA. *Soil Science Society of America Journal* 77:2192.
- Buqo, T. S., and M. E. Giampaoli. 1988. Hydrologic Study and Water Supply Evaluation, Searchlight, Nevada, Final Report.
- Bureau of Land Management. 1994. Environmental Assessment for Sale under P.L. 85-339, Eldorado Valley Act.
- _____. 1998. Record of Decision for the Approved Las Vegas Resource Management Plan and Final Environmental Impact Statement.
- _____. 2005. Sloan Canyon National Conservation Area, Record of Decision for the Approved Resource Management Plan/Final Environmental Impact Statement and Approval of the North McCullough Wilderness Management Plan.
- _____. 2012. Eldorado Valley Transmission and Utility Corridor Programmatic Environmental Assessment. Report Environmental Assessment DOI-BLM-NV-S010-2012-0024-EA.
- Bury, R. B., and R. A. Luckenbach. 2002. Comparison of Desert Tortoise (*Gopherus agassizii*) Populations in an Unused and Off-Road Vehicle Area in the Mojave Desert. *Chelonian Conservation and Biology* 4:457-463.
- Clark County. 1994. The Desert Conservation Plan.
- _____. 2000a. Final Clark County Multiple Species Habitat Conservation Plan and Environmental Impact Statement for Issuance of a Permit to Allow Incidental Take of 79 Species in Clark County, Nevada.
- _____. 2000b. Implementing Agreement, Clark County, Multiple Species Habitat Conservation Plan.60.
- _____. 2012. Mojave Desert Tortoise Conceptual Model for the Boulder City Conservation Easement, Clark County, NV.
- _____. 2013. Management Plan for the Boulder City Conservation Easement, Draft Version 1.3.
- _____. 2016. Biological Goals and Objectives for the Clark County, NV Multiple Species Habitat Conservation Plan - Final. June 22, 2016.
- Clark County Regional Flood Control District. 2013. Boulder City Flood Control Master Plan Update.



- Comer, P., P. Crist, M. Reid, J. Hak, H. Hamilton, D. Braun, G. Kittel, I. Varley, B. Unnasch, S. Auer, M. Creutzburg, D. Theobald, and L. Kutner. 2013. Mojave Basin and Range Rapid Ecological Assessment Report.
- Esque, T. C., C. R. Schwalbe, L. A. Defalco, R. B. Duncan, and T. J. Hughes. 2003. Effects of Desert Wildlifes on Desert Tortoise (*Gopherus agassizii*) and other Small Vertebrates. *The Southwestern Naturalist* 48:103-111.
- Heaton, J. S., X. Miao, K. Von Seckendorff Hoff, D. Charlet, A. Grimmer, and R. Patil. 2011. Final Vegetation GIS Data Delivery: Final Report. Report to Clark County MSHCP 2005-UNR-578:D21.
- Knight & Leavitt Associates. 2008. Records Search and Cultural Assessment of a Parcel in Eldorado Valley, Clark County, Nevada.
- Lovich, J. E., and J. R. Ennen. 2011. Wildlife Conservation and Solar Energy Development in the Desert Southwest, United States. *BioScience* 61:982-992.
- National Park Service. 1987. Lake Mead Land Protection Plan, with Amendments.
- Nevada Department of Agriculture. 2014. Noxious Weeds Categories.
- Nevada Department of Transportation. 2005. Boulder City/U.S. 93 Corridor Study Final Environmental Impact Statement and Section 4(f) Evaluation.
- Nevada Department of Wildlife. 2010. Wildlife Occurrence Dataset.
- Nevada Natural Heritage Program. 2014. Nevada Natural Heritage Program Data.
- O'Farrell, T. P. 2009. Management Action Plan for the Boulder City Conservation Easement.
- Stachelski, C., and A. Gorelow. 2014. Climate of Las Vegas.
- TerraGraphics. 2017. Adaptive Management and Monitoring Plan. Prepared for Clark County DCP. January 19, 2017.
- The National Invasive Species Council. 2006. Invasive Species Definition Clarification and Guidance White Paper.
- Turner, R. M. 1994. Mohave Desertscrub. Pages 157-168 *in* D. E. Brown, editor. *Biotic Communities: Southwestern United States and Northwestern Mexico*. University of Utah Press, Salt Lake City, Utah.
- U.S. Fish and Wildlife Service. 1994. Desert Tortoise (Mojave Population) Recovery Plan.
- _____. 1995. Incidental Take Permit for the Desert Conservation Plan.
- _____. 2000. Intra-Service Biological and Conference Opinion on Issuance of an Incidental Take Permit to Clark County, Nevada for a Multiple Species Habitat Conservation Plan.
- _____. 2001. Clark County Desert Conservation Plan Permit PRT 801045.
- _____ and Clark County Desert Conservation Program. 2017. Translocation Plan Northeast Boulder City Conservation Easement Clark County, Nevada: Progress Report and Addendum.
- von Seckendorff Hoff, K., and R. W. Marlow. 2002. Impacts of Vehicle Road Traffic on Desert Tortoise Populations with Consideration of Conservation of Tortoise Habitat in Southern Nevada. *Chelonian Conservation and Biology* 4:449-456.

Appendix A

Interlocal Agreement, Conservation Easement Grant, and Amendment



THIS PAGE INTENTIONALLY LEFT BLANK

Appendix B

Restricted Activities and Required Approvals



THIS PAGE INTENTIONALLY LEFT BLANK



Grant Section	Restricted Activity or Use	Requires Approval From
3(d)	Construction of trails, access facilities, or improvements	Boulder City, USFWS
4(a)	All motorized vehicle activities off designated roads and trails	Prohibited
4(a)	Competitive and organized motorized vehicle events on designated roads and trails	DCP, USFWS
4(b)	Military maneuvers, clearing for agriculture, landfills, and any other surface disturbance that diminish habitat values	Prohibited
4(c)	Grazing by cattle, horses, burros, and domestic sheep	Prohibited
4(d)	Commercial collection of flora and fauna	Prohibited
4(e)	Non-commercial collecting of flora	DCP, USFWS, Boulder City, relevant state/federal agencies
4(f)	Non-commercial collecting of fauna	DCP, USFWS, Boulder City, relevant state/federal agencies
4(g)	Dumping, disposal of refuse, littering	Prohibited
4(g)	Application of herbicides or biocides	Prohibited
4(h)	Release of captive or displaced desert tortoises or other animals, except as part of an authorized translocation program.	DCP, USFWS
4(i)	Uncontrolled dogs out of vehicles.	Prohibited
4(j)	Construction of any physical improvement	DCP, USFWS, Boulder City
4(k)	Discharge of firearms, except in conjunction with hunting or trapping from September to March	Prohibited
5(b)	Post signs on or about the BCCE for prohibited and permitted uses	DCP, Boulder City
6(a)(1)	Non-intrusive monitoring of desert tortoise populations and habitat	Boulder City
6(a)(2)	Travel on and maintain designated and signed roads and trails	Boulder City
6(a)(3)	Non-consumptive recreation including hiking, bird watching, bicycling, horseback riding, and photography	Boulder City
6(a)(4)	Parking and camping in designated areas	Boulder City, DCP, USFWS
6(a)(5)	Fire suppression	Boulder City
6(a)(6)	Approved or controlled maintenance of utilities and ancillary structures.	Boulder City
6(a)(7)	Surface disturbances that enhance quality of wildlife habitat, watershed protection, or improve opportunities for non-motorized recreation	Boulder City
6(a)(7)	Construction of visitor centers, wildlife water projects, and camping facilities.	Boulder City
6(a)(8)	Population enhancement of native species	Boulder City
6(a)(9)	Non-manipulative and non-intrusive biological or geological research (by written permit).	Boulder City
6(b)(1)	Discharge of treated wastewater effluent onto an area defined in Exhibit B to the 2010 Amendment	Boulder City, USFWS



Grant Section	Restricted Activity or Use	Requires Approval From
6(b)(2)	Construction of electrical, water, sewer, gas, drainage and other utilities to support the maintenance and operation of power generating facilities at sites within the energy zone	Boulder City, USFWS
6(b)(2)	Implement best practices for construction, maintenance, and operation of infrastructure within the BCCE in accordance with Exhibit D to the 2010 Amendment	Boulder City, USFWS, DCP
6(b)(3)	Construction of utility transmission lines to connect federal utility corridors or a federal utility corridor to an existing electrical substation	Boulder City, USFWS
6(b)(3)	Implement best practices for construction, maintenance, and operation of infrastructure within BCCE in accordance with Exhibit D to the 2010 Amendment	Boulder City, USFWS, DCP

Appendix C

Permit Request Process



THIS PAGE INTENTIONALLY LEFT BLANK



Requests for Third Party Activities on the Reserve Units

(Version 1_4, December 2012)

While the primary purpose of the Desert Conservation Program (DCP) reserve system properties is to provide mitigation for loss of covered species and their habitat, there are a variety of other allowable activities in the reserve system. The types of allowable uses vary among the reserve system properties as do requirements for formal, written permission for certain activities. In general, activities on DCP reserve properties that disturb the soil outside of open roads and trails, remove rocks, vegetation, seeds or require handling or removal of animals (including insects or spiders) require written permission from the County. The DCP does not process hunting requests but defers to Nevada Department of Wildlife permits, rules, and regulations. Hunting is allowed in the reserve system where allowable by state law and local ordinances.

Request Requirements

All requests must be made in writing or by email. Minimum request details include:

- Requestor name and contact info,
- Location of the activity,
- Date of the activity (range of dates is OK),
- Description and purpose of the activity,
- Description of any ground or species disturbance, and
- Description of collection of plant/animal/mineral or other materials.

Please complete and submit the attached form to DCP@ClarkCountyNV.gov but do not sign it. A signature will be requested from the applying party upon approval and will acknowledge any terms and conditions set forth by the DCP.

Notification

Approval or rejection of each request, along with any conditions on the request, will be provided to the requestor by email. Approval of a request will contain a signed copy of the following form and any terms and conditions set forth by the DCP. The actions requested are not completely approved until the requestor returns a copy of the form with their signature and date acknowledging acceptance of the Reserve Use Permission terms and conditions. Rejected applications will receive an email with a brief explanation as to why the application was rejected



Request for Third Party Activities on the Reserve Units

Clark County Desert Conservation Program
4701 W Russell Rd, Suite 200
Las Vegas, NV 89118

dcp@ClarkCountyNV.gov
Phone (702)455-3536

Requestor's name, email, phone number(s) and mailing address:

Permission is sought for the undersigned to conduct the following activities. Requestor may also attach a summary or complete methods description.
Activities:

Dates Requested:

Name of Desert Conservation Program Reserve:

This permission is not valid until a countersigned and dated copy of this form is received from the Clark County Desert Conservation Program. The undersigned shall indemnify, defend and hold harmless Clark County, Nevada and its officers, agents, and employees against any and all damages, claims, or causes of action arising from or in connection with the activities described on this form. The undersigned is responsible for compliance with all federal, state, and local laws, rules, and regulations and any terms and conditions attached to this Reserve Use Permission. A copy of the final form, including terms and conditions, must be with the undersigned at all times while conducting these activities on the reserve property.

Requestor's Signature _____ Date _____

Department of Air Quality Director or Assistant Director Signature _____ Date _____



THIS PAGE INTENTIONALLY LEFT BLANK

Appendix D

Vegetation Inventory



THIS PAGE INTENTIONALLY LEFT BLANK



The following table lists all vegetation species that have been inventoried within the BCCE. Vegetation surveys were performed at 80 random locations across the BCCE from 2014-2016 and that information along with other incidental observations during other projects were used in the creation of this list. Descriptions for columns found in the table are:

- **Scientific Name:** Scientific name listed may not be reflective of current nomenclature if they have been changed.
- **USDA Code:** Code assigned to each scientific name by the United States Department of Agriculture.
- **Family:** Name of which family each species belongs to according to its taxonomic classification.
- **Duration:** Classification of length of time each species is expected to persist. P= Perennial, A=Annual, B=Biennial.
- **Growth Habit:** FH=Forb/Herb, G=Gramminoid, S=Shrub, Su=Subshrub, T=Tree, V=Vine.
- **Origin:** N=Native, I=Introduced

Scientific Name	USDA Code	Family	Duration	Habit	Origin
<i>Yucca baccata</i>	YUBA	Agavaceae	P	FHSSu	N
<i>Yucca brevifolia</i>	YUBR	Agavaceae	P	ST	N
<i>Yucca schidigera</i>	YUSC2	Agavaceae	P	FHST	N
<i>Amaranthus blitoides</i>	AMBL	Amaranthaceae	A	FH	I
<i>Amaranthus fimbriatus</i>	AMFI	Amaranthaceae	A	FH	N
<i>Tidestromia oblongifolia</i>	TIOB	Amaranthaceae	P	FHSSu	N
<i>Amsonia tomentosa</i>	AMTO2	Apocynaceae	P	FH	N
<i>Asclepias erosa</i>	ASER2	Apocynaceae	P	FHSu	N
<i>Asclepias subulata</i>	ASSU	Apocynaceae	P	FH	N
<i>Acamptopappus shockleyi</i>	ACSH	Asteraceae	P	Su	N
<i>Acamptopappus sphaerocephalus</i>	ACSP	Asteraceae	P	SSu	N
<i>Adenophyllum cooperi</i>	ADCO2	Asteraceae	P	Su	N
<i>Adenophyllum porophylloides</i>	ADPO	Asteraceae	P	Su	N
<i>Ambrosia dumosa</i>	AMDU2	Asteraceae	P	SSu	N
<i>Ambrosia eriocentra</i>	AMER	Asteraceae	P	SSu	N
<i>Amphipappus fremontii</i>	AMFR2	Asteraceae	P	S	N
<i>Anisocoma acaulis</i>	ANAC	Asteraceae	A	FH	N
<i>Antheropeas lanosum</i>	ANLA7	Asteraceae	A	FH	N
<i>Antheropeas wallacei</i>	ANWA	Asteraceae	A	FH	N
<i>Artemisia ludoviciana</i>	ARLU	Asteraceae	P	FHSu	I
<i>Atrichoseris platyphylla</i>	ATPL	Asteraceae	A	FH	N
<i>Baccharis brachyphylla</i>	BABR	Asteraceae	P	SSu	N
<i>Baileya multiradiata</i>	BAMU	Asteraceae	ABP	FH	N
<i>Baileya pleniradiata</i>	BAPL3	Asteraceae	ABP	FH	N
<i>Bebbia juncea</i> var. <i>aspera</i>	BEJUA	Asteraceae	P	SSu	N



Scientific Name	USDA Code	Family	Duration	Habit	Origin
Brickellia arguta	BRAR2	Asteraceae	P	SSu	N
Brickellia atractyloides	BRAT	Asteraceae	P	SSu	N
Brickellia desertorum	BRDE3	Asteraceae	P	SSu	N
Calycoseris wrightii	CAWR	Asteraceae	A	FH	N
Chaenactis carphoclinia	CHCA	Asteraceae	A	FH	N
Chaenactis fremontii	CHFR	Asteraceae	A	FH	N
Chaenactis macrantha	CHMA	Asteraceae	A	FH	N
Chaenactis stevioides	CHST	Asteraceae	A	FH	N
Chondrilla juncea	CHJU	Asteraceae	P	FH	I
Cirsium mohavense	CIMO	Asteraceae	ABP	FH	N
Cirsium neomexicanum	CINE	Asteraceae	BP	FH	N
Dicoria canescens	DICA4	Asteraceae	A	FH	N
Encelia farinosa	ENFA	Asteraceae	P	SSu	N
Encelia virginensis	ENVI	Asteraceae	P	S	N
Ericameria nauseosa	ERNA10	Asteraceae	P	SSu	N
Ericameria paniculata	ERPA29	Asteraceae	P	S	N
Erigeron divergens	ERD14	Asteraceae	B	FH	N
Geraea canescens	GECA2	Asteraceae	A	FH	N
Glyptopleura marginata	GLMA2	Asteraceae	A	FH	N
Gutierrezia microcephala	GUMI	Asteraceae	P	SSu	N
Gutierrezia sarothrae	GUSA2	Asteraceae	P	FHSSu	N
Hymenoclea salsola	HYSA	Asteraceae	P	Su	N
Lactuca serriola	LASE	Asteraceae	AB	FH	I
Logfia californica	LOCA19	Asteraceae	A	FH	N
Logfia depressa	LODE9	Asteraceae	A	FH	N
Machaeranthera arida	MAAR5	Asteraceae	A	FH	N
Machaeranthera pinnatifida	MAPI	Asteraceae	P	FHSu	N
Malacothrix coulteri	MACO3	Asteraceae	A	FH	N
Malacothrix glabrata	MAGL3	Asteraceae	A	FH	N
Malacothrix sonchoides	MASO	Asteraceae	A	FH	N
Monoptilon bellidiforme	MOBE	Asteraceae	A	FH	N
Pectis papposa	PEPA2	Asteraceae	A	FH	N
Picrothamnus desertorum	PIDE4	Asteraceae	P	SSu	N
Porophyllum gracile	POGR5	Asteraceae	P	Su	N
Prenanthes exigua	PREX	Asteraceae	P	FH	N
Psathyrotes annua	PSAN	Asteraceae	AP	FH	N
Psathyrotes ramosissima	PSRA	Asteraceae	AP	FHSu	N
Psilostrophe cooperi	PSCO2	Asteraceae	P	FHSu	N
Rafinesquia neomexicana	RANE	Asteraceae	A	FH	N
Senecio flaccidus	SEFL3	Asteraceae	P	FHSu	N
Stephanomeria exigua	STEX	Asteraceae	ABP	FH	N
Stephanomeria pauciflora	STPA4	Asteraceae	P	FHSu	N
Stylocline micropoides	STMI2	Asteraceae	A	FH	N
Tetradymia axillaris	TEAX	Asteraceae	P	SSu	N
Thymophylla pentachaeta	THPE4	Asteraceae	P	FHSu	N



Scientific Name	USDA Code	Family	Duration	Habit	Origin
<i>Uropappus lindleyi</i>	URLI5	Asteraceae	A	FH	N
<i>Viguiera parishii</i>	VIPA14	Asteraceae	P	SSu	N
<i>Xylorhiza tortifolia</i>	XYTO2	Asteraceae	P	FHSu	N
<i>Chilopsis linearis</i>	CHLI2	Bignoniaceae	P	ST	N
<i>Amsinckia menziesii</i>	AMME	Boraginaceae	A	FH	N
<i>Amsinckia tessellata</i>	AMTE3	Boraginaceae	A	FH	N
<i>Cryptantha angustifolia</i>	CRAN4	Boraginaceae	A	FH	N
<i>Cryptantha barbigerata</i>	CRBA5	Boraginaceae	A	FH	N
<i>Cryptantha circumscissa</i>	CRCI2	Boraginaceae	A	FH	N
<i>Cryptantha confertiflora</i>	CRCO12	Boraginaceae	P	FHSu	N
<i>Cryptantha decipiens</i>	CRDE	Boraginaceae	A	FH	N
<i>Cryptantha dumetorum</i>	CRDU	Boraginaceae	A	FH	N
<i>Cryptantha gracilis</i>	CRGR3	Boraginaceae	A	FH	N
<i>Cryptantha holoptera</i>	CRHO3	Boraginaceae	AP	FH	N
<i>Cryptantha maritima</i>	CRMA7	Boraginaceae	A	FH	N
<i>Cryptantha micrantha</i>	CRMI	Boraginaceae	A	FH	N
<i>Cryptantha nevadensis</i>	CRNE2	Boraginaceae	A	FH	N
<i>Cryptantha pterocarya</i>	CRPT	Boraginaceae	A	FH	N
<i>Cryptantha recurvata</i>	CRRE5	Boraginaceae	A	FH	N
<i>Cryptantha sp.</i>	CRYPT	Boraginaceae	-	-	N
<i>Cryptantha utahensis</i>	CRUT	Boraginaceae	A	FH	N
<i>Cryptantha virginensis</i>	CRVI5	Boraginaceae	BP	FH	N
<i>Lappula occidentalis</i>	LAOC3	Boraginaceae	AB	FH	N
<i>Pectocarya heterocarpa</i>	PEHE	Boraginaceae	A	FH	N
<i>Pectocarya penicillata</i>	PEPE26	Boraginaceae	A	FH	N
<i>Pectocarya platycarpa</i>	PEPL	Boraginaceae	A	FH	N
<i>Pectocarya recurvata</i>	PERE	Boraginaceae	A	FH	N
<i>Pectocarya setosa</i>	PESE	Boraginaceae	A	FH	N
<i>Plagiobothrys jonesii</i>	PLJO	Boraginaceae	A	FH	N
<i>Tiquilia canescens</i>	TICA3	Boraginaceae	P	Su	N
<i>Tiquilia plicata</i>	TIPL2	Boraginaceae	P	FHSu	N
<i>Arabis pulchra</i>	ARPU2	Brassicaceae	P	FHSu	N
<i>Brassica juncea</i>	BRJU	Brassicaceae	AP	FH	I
<i>Brassica nigra</i>	BRNI	Brassicaceae	A	FH	I
<i>Brassica tournefortii</i>	BRTO	Brassicaceae	A	FH	I
<i>Chorispora tenella</i>	CHTE2	Brassicaceae	A	FH	I
<i>Descurainia pinnata</i>	DEPI	Brassicaceae	ABP	FH	N
<i>Descurainia sophia</i>	DESO2	Brassicaceae	AB	FH	I
<i>Dithyrea californica</i>	DICA7	Brassicaceae	A	FH	N
<i>Draba cuneifolia</i>	DRCU	Brassicaceae	A	FH	N
<i>Guillenia lasiophylla</i>	GULA4	Brassicaceae	A	FH	N
<i>Lepidium dictyotum</i>	LEDI2	Brassicaceae	A	FH	N
<i>Lepidium fremontii</i> var. <i>fremontii</i>	LEFRF	Brassicaceae	P	SSu	N
<i>Lepidium lasiocarpum</i>	LELA	Brassicaceae	AB	FH	N
<i>Lesquerella tenella</i>	LETE3	Brassicaceae	A	FH	N



Scientific Name	USDA Code	Family	Duration	Habit	Origin
<i>Malcolmia africana</i>	MAAF	Brassicaceae	A	FH	I
<i>Sisymbrium altissimum</i>	SIAL2	Brassicaceae	AB	FH	I
<i>Sisymbrium irio</i>	SIIR	Brassicaceae	A	FH	I
<i>Sisymbrium orientale</i>	SIOR4	Brassicaceae	A	FH	I
<i>Stanleya pinnata</i>	STPI	Brassicaceae	P	FHSu	N
<i>Streptanthella longirostris</i>	STLO4	Brassicaceae	AB	FH	N
<i>Thysanocarpus</i>	THCU	Brassicaceae	A	FH	N
<i>Buddleja utahensis</i>	BUUT	Buddlejaceae	P	SSu	N
<i>Cylindropuntia acanthocarpa</i>	CYAC8	Cactaceae	P	S	N
<i>Cylindropuntia bigelovii</i>	CYBI9	Cactaceae	P	SSu	N
<i>Cylindropuntia echinocarpa</i>	CYEC3	Cactaceae	P	S	N
<i>Cylindropuntia ramosissima</i>	CYRA9	Cactaceae	P	S	N
<i>Echinocactus polycephalus</i> var. <i>polycephalus</i>	ECPOP	Cactaceae	P	S	N
<i>Echinocereus triglochidiatus</i>	ECTR	Cactaceae	P	S	N
<i>Echinocereus engelmannii</i>	ECEN	Cactaceae	P	S	N
<i>Ferocactus cylindraceus</i>	FECY	Cactaceae	P	S	N
<i>Grusonia parishii</i>	GRPA11	Cactaceae	P	S	N
<i>Mammillaria tetrancistra</i>	MATE4	Cactaceae	P	S	N
<i>Opuntia basilaris</i> var. <i>basilaris</i>	OPBAB2	Cactaceae	P	ST	N
<i>Opuntia phaeacantha</i>	OPPH	Cactaceae	P	S	N
<i>Opuntia polyacantha</i>	OPPO	Cactaceae	P	S	N
<i>Sclerocactus johnsonii</i>	SCJO	Cactaceae	P	S	N
<i>Nemacladus glanduliferus</i> var. <i>orientalis</i>	NEGLO	Campanulaceae	A	FH	N
<i>Nemacladus sigmoideus</i>	NESI	Campanulaceae	A	FH	N
<i>Mortonia utahensis</i>	MOUT	Celastraceae	P	S	N
<i>Atriplex argentea</i>	ATAR2	Chenopodiaceae	AP	FH	N
<i>Atriplex canescens</i>	ATCA2	Chenopodiaceae	P	S	N
<i>Atriplex confertifolia</i>	ATCO	Chenopodiaceae	P	SSu	N
<i>Atriplex elegans</i>	ATEL	Chenopodiaceae	AP	FH	N
<i>Atriplex hymenelytra</i>	ATHY	Chenopodiaceae	P	S	N
<i>Atriplex polycarpa</i>	ATPO	Chenopodiaceae	P	S	N
<i>Chenopodium berlandieri</i>	CHBE4	Chenopodiaceae	A	FH	N
<i>Chenopodium incanum</i>	CHIN2	Chenopodiaceae	A	FH	N
<i>Chenopodium</i> sp.	CHENO	Chenopodiaceae	-	-	-
<i>Grayia spinosa</i>	GRSP	Chenopodiaceae	P	SSu	N
<i>Halogeton glomeratus</i>	HAGL	Chenopodiaceae	A	FH	I
<i>Krascheninnikovia lanata</i>	KRLA2	Chenopodiaceae	P	SSu	N
<i>Monolepis nuttalliana</i>	MONU	Chenopodiaceae	A	FH	N
<i>Salsola paulsenii</i>	SAPA8	Chenopodiaceae	A	FH	I
<i>Salsola tragus</i>	SATR12	Chenopodiaceae	A	FH	I
<i>Suaeda moquinii</i>	SUMO	Chenopodiaceae	P	FHSSu	N
<i>Cuscuta californica</i>	CUCA	Cuscutaceae	P	FHV	N
<i>Cuscuta</i> sp.	CUSCU	Cuscutaceae	-	-	-



Scientific Name	USDA Code	Family	Duration	Habit	Origin
<i>Ephedra aspera</i>	EPAS	Ephedraceae	P	SSu	N
<i>Ephedra nevadensis</i>	EPNE	Ephedraceae	P	SSu	N
<i>Ephedra torreyana</i>	EPTO	Ephedraceae	P	SSu	N
<i>Ephedra viridis</i>	EPVI	Ephedraceae	P	S	N
<i>Argythamnia neomexicana</i>	ARNE2	Euphorbiaceae	AP	FH	N
<i>Chamaesyce abramsiana</i>	CHAB2	Euphorbiaceae	A	FH	N
<i>Chamaesyce albomarginata</i>	CHAL11	Euphorbiaceae	P	FH	N
<i>Chamaesyce arizonica</i>	CHAR18	Euphorbiaceae	P	FH	N
<i>Chamaesyce micromera</i>	CHMI7	Euphorbiaceae	A	FH	N
<i>Chamaesyce polycarpa</i>	CHPO12	Euphorbiaceae	AP	FH	N
<i>Chamaesyce setiloba</i>	CHSE8	Euphorbiaceae	A	FH	N
<i>Croton californicus</i>	CRCA5	Euphorbiaceae	P	FHSu	N
<i>Tragia ramosa</i>	TRRA5	Euphorbiaceae	P	FHSSuV	N
<i>Astragalus layneae</i>	ASLA8	Fabaceae	P	FH	N
<i>Astragalus lentiginosus</i>	ASLE8	Fabaceae	ABP	FHSSu	N
<i>Astragalus nuttallianus</i>	ASNU4	Fabaceae	AP	FH	N
<i>Astragalus sabulonum</i>	ASSA2	Fabaceae	AP	FH	N
<i>Astragalus tephrodes</i>	ASTE8	Fabaceae	P	FH	N
<i>Dalea mollis</i>	DAMO	Fabaceae	A	FHSu	N
<i>Dalea mollissima</i>	DAMO2	Fabaceae	AP	FH	N
<i>Hoffmannseggia glauca</i>	HOGL2	Fabaceae	P	FHSu	N
<i>Lotus strigosus</i>	LOST4	Fabaceae	A	FH	N
<i>Lupinus agardhianus</i>	LUAG	Fabaceae	A	FH	N
<i>Lupinus flavoculatus</i>	LUFL	Fabaceae	A	FH	N
<i>Lupinus shockleyi</i>	LUSH	Fabaceae	A	FH	N
<i>Prosopis glandulosa</i>	PRGL2	Fabaceae	P	ST	N
<i>Psorothamnus fremontii</i>	PSFR	Fabaceae	P	S	N
<i>Psorothamnus polydenius</i>	PSPO	Fabaceae	P	S	N
<i>Senegalia greggii</i>	SEGR4	Fabaceae	P	ST	N
<i>Senna armata</i>	SEAR8	Fabaceae	P	S	N
<i>Erodium cicutarium</i>	ERCI6	Geraniaceae	AB	FH	I
<i>Erodium texanum</i>	ERTE13	Geraniaceae	AB	FH	N
<i>Eucrypta micrantha</i>	EUMI2	Hydrophyllaceae	A	FH	N
<i>Nama demissum</i>	NADE	Hydrophyllaceae	A	FH	N
<i>Nama pusillum</i>	NAPU	Hydrophyllaceae	A	FH	N
<i>Phacelia ivesiana</i>	PHIV	Hydrophyllaceae	A	FH	N
<i>Phacelia crenulata</i>	PHCR	Hydrophyllaceae	A	FH	N
<i>Phacelia fremontii</i>	PHFR2	Hydrophyllaceae	A	FH	N
<i>Phacelia neglecta</i>	PHNE	Hydrophyllaceae	A	FH	N
<i>Phacelia palmeri</i>	PHPA13	Hydrophyllaceae	A	FH	N
<i>Phacelia pulchella</i>	PHPU	Hydrophyllaceae	A	FH	N
<i>Phacelia rotundifolia</i>	PHRO2	Hydrophyllaceae	A	FH	N
<i>Phacelia vallis-mortae</i>	PHVA2	Hydrophyllaceae	A	FH	N
<i>Krameria erecta</i>	KRER	Krameriaceae	P	SSu	N
<i>Krameria grayi</i>	KRGR	Krameriaceae	P	SSu	N



Scientific Name	USDA Code	Family	Duration	Habit	Origin
<i>Hyptis emoryi</i>	HYEM	Lamiaceae	P	S	N
<i>Salazaria mexicana</i>	SAME	Lamiaceae	P	S	N
<i>Salvia columbariae</i>	SACO6	Lamiaceae	A	FH	N
<i>Salvia dorrii</i>	SADO4	Lamiaceae	P	SSu	N
<i>Androstephium breviflorum</i>	ANBR4	Liliaceae	P	FH	N
<i>Calochortus flexuosus</i>	CAFL	Liliaceae	P	FHV	N
<i>Eucnide urens</i>	EUUR	Loasaceae	P	Su	N
<i>Mentzelia affinis</i>	MEAF2	Loasaceae	A	FH	N
<i>Mentzelia albicaulis</i>	MEAL6	Loasaceae	A	FH	N
<i>Mentzelia involucrata</i>	MEIN5	Loasaceae	A	FH	N
<i>Mentzelia multiflora</i>	MEMU3	Loasaceae	BP	FH	N
<i>Mentzelia obscura</i>	MEOB3	Loasaceae	A	FH	N
<i>Mentzelia oreophila</i>	MEOR3	Loasaceae	BP	FHSu	N
<i>Mentzelia pterosperma</i>	MEPT	Loasaceae	BP	FH	N
<i>Mentzelia tricuspis</i>	METR2	Loasaceae	A	FH	N
<i>Petalonyx nitidus</i>	PENI	Loasaceae	P	SSu	N
<i>Petalonyx parryi</i>	PEPA13	Loasaceae	P	SSu	N
<i>Malva sp.</i>	MALVA	Malvaceae	-	-	I
<i>Sphaeralcea ambigua</i>	SPAM2	Malvaceae	P	FHSu	N
<i>Abronia villosa</i>	ABVI	Nyctaginaceae	A	FH	N
<i>Allionia incarnata</i>	ALIN	Nyctaginaceae	AP	FH	N
<i>Boerhavia coccinea</i>	BOCO	Nyctaginaceae	P	FH	N
<i>Boerhavia erecta</i>	BOER	Nyctaginaceae	AP	FH	N
<i>Boerhavia wrightii</i>	BOWR	Nyctaginaceae	A	FH	N
<i>Mirabilis laevis</i>	MILA6	Nyctaginaceae	P	FHSu	N
<i>Mirabilis multiflora</i>	MIMU	Nyctaginaceae	P	FHSu	N
<i>Selinocarpus nevadensis</i>	SENE5	Nyctaginaceae	P	FHSu	N
<i>Menodora spinescens</i>	MESP2	Oleaceae	P	S	N
<i>Camissonia boothii</i>	CABO7	Onagraceae	A	FH	N
<i>Camissonia brevipes</i>	CABR23	Onagraceae	A	FH	N
<i>Camissonia chamaenerioides</i>	CACH12	Onagraceae	A	FH	N
<i>Camissonia claviformis</i>	CACL4	Onagraceae	A	FH	N
<i>Camissonia refracta</i>	CARE2	Onagraceae	A	FH	N
<i>Camissonia walkeri</i>	CAWA3	Onagraceae	AP	FH	N
<i>Oenothera albicaulis</i>	OEAL	Onagraceae	A	FH	N
<i>Oenothera caespitosa</i>	OECA10	Onagraceae	P	FHSu	N
<i>Oenothera deltoides</i>	OEDE2	Onagraceae	AP	FH	N
<i>Oenothera primiveris</i>	OEPR	Onagraceae	A	FH	N
<i>Oenothera suffrutescens</i> (formerly <i>Gaura coccinea</i>)	OESU3	Onagraceae	P	FHSu	N
<i>Castilleja angustifolia</i>	CAAN7	Orobanchaceae	P	FH	N
<i>Orobanche cooperi</i>	ORCO4	Orobanchaceae	A	FH	N
<i>Argemone munita</i>	ARMU	Papaveraceae	AP	FH	N
<i>Eschscholzia californica</i>	ESCA2	Papaveraceae	AP	FH	N
<i>Eschscholzia glyptosperma</i>	ESGL	Papaveraceae	A	FH	N



Scientific Name	USDA Code	Family	Duration	Habit	Origin
Eschscholzia minutiflora	ESMI	Papaveraceae	A	FH	N
Plantago ovata	PLOV	Plantaginaceae	A	FH	N
Plantago patagonica	PLPA2	Plantaginaceae	A	FH	N
Achnatherum hymenoides	ACHY	Poaceae	P	G	N
Achnatherum speciosum	ACSP12	Poaceae	P	G	N
Aristida purpurea	ARPU9	Poaceae	AP	G	N
Arundo donax	ARDO4	Poaceae	P	GSSu	I
Avena barbata	AVBA	Poaceae	A	G	I
Bouteloua aristidoides	BOAR	Poaceae	A	G	N
Bouteloua barbata	BOBA2	Poaceae	A	G	N
Bromus arizonicus	BRAR4	Poaceae	A	G	N
Bromus berteroi	BRBE6	Poaceae	A	G	I
Bromus rubens	BRRU2	Poaceae	A	G	I
Bromus tectorum	BRTE	Poaceae	A	G	I
Dasyochloa pulchella	DAPU7	Poaceae	P	G	N
Elymus elymoides	ELEL5	Poaceae	P	G	N
Heteropogon contortus	HECO10	Poaceae	P	G	N
Hordeum murinum	HOMU	Poaceae	A	G	I
Muhlenbergia porteri	MUPO2	Poaceae	P	G	N
Munroa squarrosa	MUSQ3	Poaceae	A	G	N
Phalaris sp.	PHALA2	Poaceae	-	-	-
Pleuraphis rigida	PLRI3	Poaceae	P	G	N
Poa bigelovii	POBI	Poaceae	A	G	N
Poa secunda	POSE	Poaceae	P	G	N
Polypogon monspeliensis	POMO5	Poaceae	A	G	I
Schismus arabicus	SCAR	Poaceae	A	G	I
Schismus barbatus	SCBA	Poaceae	A	G	I
Sporobolus cryptandrus	SPCR	Poaceae	P	G	N
Tridens muticus	TRMU	Poaceae	P	G	N
Vulpia octoflora	VUOC	Poaceae	A	G	N
Aliciella hutchinsifolia	ALHU6	Polemoniaceae	A	FH	N
Aliciella latifolia (formerly Gilia latifolia)	ALLA13	Polemoniaceae	A	FH	N
Aliciella nyensis	ALNY2	Polemoniaceae	A	FH	N
Eriastrum diffusum	ERDI2	Polemoniaceae	A	FH	N
Eriastrum eremicum	ERER2	Polemoniaceae	A	FH	N
Eriastrum sparsiflorum	ERSP3	Polemoniaceae	A	FH	N
Gilia inconspicua	GIIN2	Polemoniaceae	A	FH	N
Gilia scopulorum	GISC	Polemoniaceae	A	FH	N
Gilia stellata	GIST	Polemoniaceae	A	FH	N
Ipomopsis polycladon	IPPO2	Polemoniaceae	A	FH	N
Langloisia setosissima (spotted flrs.)	LASE3	Polemoniaceae	A	FH	N
Langloisia setosissima ssp. Setosissima (purple flrs.)	LASES	Polemoniaceae	A	FH	N
Linanthus bigelovii	LIBI2	Polemoniaceae	A	FH	N



Scientific Name	USDA Code	Family	Duration	Habit	Origin
<i>Linanthus demissus</i>	LIDE2	Polemoniaceae	A	FH	N
<i>Linanthus filiformis</i> (formerly <i>Gilia filiformis</i>)	LIFI3	Polemoniaceae	A	FH	N
<i>Linanthus jonesii</i>	LIJO	Polemoniaceae	A	FH	N
<i>Linanthus pungens</i>	LIPU11	Polemoniaceae	P	FHSu	N
<i>Loeseliastrum matthewsii</i>	LOMA10	Polemoniaceae	A	FH	N
<i>Loeseliastrum schottii</i>	LOSC6	Polemoniaceae	A	FH	N
<i>Chorizanthe brevicornu</i>	CHBR	Polygonaceae	A	FH	N
<i>Chorizanthe corrugata</i>	CHCO6	Polygonaceae	A	FH	N
<i>Chorizanthe rigida</i>	CHRI	Polygonaceae	A	FH	N
<i>Eriogonum deflexum</i>	ERDE6	Polygonaceae	A	FH	N
<i>Eriogonum fasciculatum</i>	ERFA2	Polygonaceae	P	SSu	N
<i>Eriogonum inflatum</i>	ERIN4	Polygonaceae	AP	FH	N
<i>Eriogonum insigne</i>	ERIN10	Polygonaceae	A	FH	N
<i>Eriogonum maculatum</i>	ERMA2	Polygonaceae	A	FH	N
<i>Eriogonum nidularium</i>	ERNI4	Polygonaceae	A	FH	N
<i>Eriogonum pusillum</i>	ERPU6	Polygonaceae	A	FH	N
<i>Eriogonum reniforme</i>	ERRE3	Polygonaceae	A	FH	N
<i>Eriogonum thomasii</i>	ERTH	Polygonaceae	A	FH	N
<i>Eriogonum trichopes</i>	ERTR8	Polygonaceae	A	FH	N
<i>Oxytheca perfoliata</i>	OXPE2	Polygonaceae	A	FH	N
<i>Pterostegia drymarioides</i>	PTDR	Polygonaceae	A	FH	N
<i>Rumex hymenosepalus</i>	RUHY	Polygonaceae	P	FH	N
<i>Cheilanthes parryi</i>	CHPA4	Pteridaceae	P	FH	N
<i>Anemone tuberosa</i>	ANTU	Ranunculaceae	P	FH	N
<i>Delphinium parishii</i>	DEPA	Ranunculaceae	P	FH	N
<i>Oligomeris linifolia</i>	OLLI	Resedaceae	A	FH	N
<i>Coleogyne ramosissima</i>	CORA	Rosaceae	P	S	N
<i>Fallugia paradoxa</i>	FAPA	Rosaceae	P	S	N
<i>Prunus fasciculata</i>	PRFA	Rosaceae	P	S	N
<i>Galium proliferum</i>	GAPR	Rubiaceae	A	FH	N
<i>Galium stellatum</i>	GAST	Rubiaceae	P	FHSu	N
<i>Thamnosma montana</i>	THMO	Rutaceae	P	Su	N
<i>Mimulus bigelovii</i>	MIBI6	Scrophulariaceae	A	FH	N
<i>Mimulus parryi</i>	MIPA4	Scrophulariaceae	A	FH	N
<i>Mimulus rubellus</i>	MIRU	Scrophulariaceae	A	FH	N
<i>Mohavea brevipflora</i>	MOBR	Scrophulariaceae	A	FH	N
<i>Neogaerrhinum filipes</i>	NEFI	Scrophulariaceae	A	FH	N
<i>Neogaerrhinum filipes</i>	NEFI	Scrophulariaceae	A	FHV	N
<i>Penstemon bicolor</i> ssp. <i>roseus</i>	PEBIR	Scrophulariaceae	P	FH	N
<i>Datura wrightii</i>	DAWR2	Solanaceae	AP	FHSu	N
<i>Lycium andersonii</i>	LYAN	Solanaceae	P	S	N
<i>Lycium cooperi</i>	LYCO2	Solanaceae	P	S	N
<i>Lycium pallidum</i>	LYPA	Solanaceae	P	S	N
<i>Nicotiana attenuata</i>	NIAT	Solanaceae	A	FH	N



Scientific Name	USDA Code	Family	Duration	Habit	Origin
<i>Nicotiana obtusifolia</i>	NIOB	Solanaceae	ABP	FHSu	N
<i>Physalis crassifolia</i>	PHCR4	Solanaceae	AP	FHSu	N
<i>Quincula lobata</i>	QULO2	Solanaceae	P	FH	N
<i>Tamarix ramosissima</i>	TARA	Tamaricaceae	P	ST	I
<i>Parietaria hespera</i>	PAHE5	Utricaceae	AP	FH	N
<i>Glandularia gooddingii</i>	GLGO	Verbenaceae	P	FH	N
<i>Phoradendron californicum</i>	PHCA8	Viscaceae	P	SSu	N
<i>Kallstroemia californica</i>	KACA	Zygophyllaceae	A	FH	N
<i>Larrea tridentata</i>	LATR2	Zygophyllaceae	P	S	N



THIS PAGE INTENTIONALLY LEFT BLANK



Appendix E

Contact Information for Management, Safety, and Services



THIS PAGE INTENTIONALLY LEFT BLANK



Contacts

Property Management, Safety, and Services

Agency	Phone Number	Purpose
Desert Conservation Program	702-455-3536	Property and Easement – Management
Boulder City Community Development Department	702-293-9282	Property and Easement – Management
Bureau of Land Management	702-515-5000	Utility Corridors – Management
Boulder City Fire Department	911	Fire – Emergency
		Medical – Emergency
	702-293-9228	Fire Station
Boulder City Police Department	911	Law Enforcement – Emergency
	311	Law Enforcement – Non-emergency
	702-293-9224	Police Station
Nevada Highway Patrol	911	Traffic – Emergency
	702-486-4100	Southern Command
Nevada Department of Transportation	775-888-7689	Highway Tortoise Fences – Maintenance
Bureau of Land Management / National Park Service	702-631-2350	Wildland Fire – Emergency
	702-515-5300	Interagency Communications Center – Non-emergency
	702-293-8932	Law Enforcement – Emergency
	702-293-8998	Law Enforcement – Non-emergency



THIS PAGE INTENTIONALLY LEFT BLANK

Appendix F

Management Actions and Effectiveness Measures



THIS PAGE INTENTIONALLY LEFT BLANK



MANAGEMENT ACTIONS AND EFFECTIVENESS MEASURES

The primary purpose of a management plan is to provide guidance for selecting management actions that support or meet management objectives, and ultimately achieve management goals. The management actions for the BCCE have been identified from day-to-day management operations, as well as other actions necessary to meet the objectives and goals for managing the BCCE.

The following table includes the management objectives (noted as 1.0, 2.0, etc.) and the management actions (1.1, 1.2, 2.1, 2.2, etc.) related to each objective. Some management actions can fulfill more than one objective, and are noted in parentheses after the management action title. Management actions can be separate individual activities or be interrelated with other actions and sequential in implementation.

Each management action is presented in the following table by the columns that include:

- **Management Action Description:** a brief description of what the action entails and why it is important.
- **Reserve Parcel or Location:** the location in the BCCE or the particular reserve unit and reserve parcel(s) where the management action will take place.
- **Timeframe:** the year or time period in which the action will take place, such as weekly, quarterly, 2019, or one year after a previous management action is complete.
- **Lead:** the agency or entity that is responsible for implementing the management action.
- **Permit(s):** the approvals, written permissions, or permits required to initiate the management action.
- **Priority:** the importance of the action in meeting the management objectives and determines the priority for resources.
 - VH (very high): an action that is essential for meeting the management objective and requires immediate implementation to protect the resource.
 - H (high): an action that is essential for meeting the management objective and requires implementation in the near future to protect the resource.
 - M (medium): an action that is important but not essential for meeting the management objective or protecting the resource, and does not require implementation in the near future.
 - L (low): an action that is not essential to meeting the management objective or protecting the resource, and can be delayed until funding is available.
- **Cost:** an estimate of the financial cost (DCP labor, contractor labor) to complete the management action, and generally coincides with Clark County contracting and acquisition limits.
 - L (low): < \$25,000



- M (medium): \$25,000 to \$50,000
- H (high): \$50,000 to \$100,000
- VH (very high): > \$100,000
- **Effectiveness Measures:** a listing of metrics to be measured to assess the effectiveness (success) of the management action.
- **Frequency (of Effectiveness Measures):** when the effectiveness measures are reviewed, ranging from monthly to the end of a specific project.
- **Status:** current status and tracking of the management action.
- **BGO:** A list of the Biological Goals and Objectives addressed by the management action.

The management action table is a tool to guide day-to-day management activities and is intended as a working document for the DCP to update, add to, and/or change actions as conditions warrant. Each update to the table should be tracked by entering a current date in the footer of the table.



Management Action Description	Location	Timeframe	Lead	Permit(s)	Priority	Cost	Effectiveness Measures	Frequency	Status	BGO
1.0 Restore and enhance habitat for desert tortoise										
1.1 Monitor for changes in desert tortoise occupancy										
Monitor occupancy for changes over time. This can be used as effectiveness monitoring for other projects as well as a way to evaluate changes to the tortoise population.	BCCE;	ongoing	DCP, contractor	Boulder City, USFWS	H	VH	This is an effectiveness measure for other projects	Every year	To begin spring 2020	D 1.1, D 2.1
1.2 Identify and prioritize locations for habitat restoration and enhancement										
Prioritize locations for restoration and enhancement using the work completed through the occupancy sampling pilot project, the covariate work, and actions 4.1 and 5.2 of this table. Reevaluate and/or reanalyze after the work has been completed	BCCE; DCP office	To be completed again after steps 1.3 - 1.6 have been completed	DCP, contractor		H	L-M	Map of priority areas for habitat restoration and enhancement	Recurring	Planning and preliminary analysis have been completed. Full analysis is ongoing.	D 1.2, D 1.5, D 4.2
1.3 Develop restoration/enhancement plans for priority locations										
Use results from 1.2 to plan location, type, and extent of restoration/enhancement	BCCE; locations identified in 1.2	After 1.2 is completed	DCP, contractor(s)		M	M	Plans meet restoration goals and objectives, contract requirements, and are ready for implementation	Upon completion of each plan	Not started	D 1.2, D 1.5, D 4.2
1.4 Implement restoration/enhancement plans										
Prepare contract(s), schedule and implement plans	BCCE; locations selected from 1.3	After 1.3 is completed	DCP, contractor(s)	Boulder City, USFWS	M	H	Implementation meets restoration goals and objectives, contract requirements	Upon completion of each restoration project	Not started	D 1.2, D 1.5, D 4.2
1.5 Monitor and adaptively manage restoration/enhancement										
Establish success criteria and monitoring schedule; assess success of restoration/enhancement against criteria; continue/augment restoration actions to maintain investment	BCCE; locations selected from 1.4	After each restoration/enhancement project is completed	DCP		VH	L	Restoration/enhancement plantings and topographic modifications meet success criteria	2-3 weeks after initial planting; according to monitoring schedule	Not started	D 1.2, D 1.5, D 4.2
1.6 Analyze relevant landscape matrix elements and composition										
Analyzing the matrix of landscape elements, including developed areas, roads, dominant vegetation cover types, etc., both within the BCCE and the surrounding landscape will serve to achieve biological objectives D 4.1 and D 4.2. D 4.1 involves identifying critical ecological and management uncertainties and D 4.2 involves identifying critical connectivity corridors.	BCCE; surrounding landscape	Recurring	DCP, contractor		H	L	Maps of areas with ecological or management uncertainty; maps of landscape matrix to identify habitat and desert tortoise connectivity	Every 4 years	Not started	D 1.2, D 1.5, D 4.1, D 4.2
2.0 Install and maintain infrastructure that controls tortoise movement										
2.1 Inspect tortoise fences, road crossing guards, gates, and culverts for maintenance needs										
Schedule and conduct periodic inspections of infrastructure; conduct inspections when opportunities arise or in conjunction with other activities	Along US 95, SR 165; BCCE perimeter	Prior to spring (March) and fall (September) tortoise seasons, after storm events	DCP, contractor/NDF, NDOT		VH	L	Location, length, and percent of tortoise fencing, road crossing guards, gates, and culverts inspected. Number, length, and percent of fencing, protective gates, and culverts needing repair	Yearly	Ongoing	D 2.1
2.2 Conduct emergency repairs and/or schedule maintenance repairs										
DCP staff can repair minor fence damage; contact NDF to schedule maintenance/repairs	Along US 95, SR 165; BCCE perimeter	As needed	DCP, contractor/NDF		VH	L	Completion of repairs, time period between notification and repair	After inspections, when needed	Ongoing	D 2.1
2.3 Notify NDOT for highway fence repairs and culvert cleaning/maintenance										
Call NDOT point of contact to request maintenance crew; provide location and type of repair/maintenance needed	Along US 95, SR 165	Notify within 24 hours of observed damage	DCP (notify); NDOT (repairs)		VH	L	Completion of repairs, time period between notification and repair	After inspections, when needed	Ongoing	D 2.1
2.4 Identify locations for new or replacement tortoise fences, gates, and road crossing guards										
Use results from 2.1, 4.2, and 5.3 and from general observations of user activities and adjacent development to determine need to install new or replace infrastructure	Along US 95, SR 165, Eldorado Valley Drive, BCCE perimeter	Ongoing	DCP, NDOT		M	M	Locations identified	Ongoing	Ongoing	D 2.1



Management Action Description	Location	Timeframe	Lead	Permit(s)	Priority	Cost	Effectiveness Measures	Frequency	Status	BGO
2.5	Install new or replace tortoise fences, road crossing guards, and gates									
Use results from 2.4; prepare scope of work and contract, complete installation	Where identified in 2.4	Within 1 year after 2.4 or identified need	DCP or NDOT	Boulder City, USFWS	M	M-H	Completion of installation, time period between notification and installation	Whenever installations are done	Ongoing	D 2.1
3.0	Manage direct stressors to desert tortoise									
3.1	Consider use of effective predator control techniques, as appropriate									
Review outcomes of predator assessment report in 2013-Boarman-1421B; evaluate recommendations, determine short- and long-term costs/benefits (effectiveness)	BCCE, where identified in 3.1	Within 1 year after 3.1	DCP		H	M-H	Techniques are practicable and feasible with measurable benefits.	After evaluation is completed	Not started	D 2.1
3.2	Develop plan to implement and monitor predator control techniques									
Based on results of 3.1, develop goals and objectives for predator reduction/control, prepare and implement plan; monitor status of meeting goals and objectives.	BCCE, where identified in 3.1	Within 1 year after 3.2, as needed	DCP, contractor	Boulder City, USFWS	H	M-VH	Predator reduction/control techniques meet goals and objectives and contract requirements are met	Incremental based on implementation schedule	Not started	D 2.1
4.0	Manage road network to support conservation and provide appropriate access for management and public use									
4.1	Determine travel patterns and usage									
Install traffic counters at different locations and at different times to evaluate travel patterns and frequency of use; use data for 5.2 law enforcement patrols	BCCE	Annually, seasonally, or as needed	DCP		H	M	Completed assessment of travel patterns and usage	After data is compiled from counters	Ongoing	D 1.2, D 1.5, D 3.2
4.2	Identify and prioritize illegal route closures									
Use results from 4.1, 5.3, and other criteria to identify roads for closure	BCCE	Ongoing	DCP	Boulder City	H	L	Prioritized road closures	Yearly or when new illegal routes are located	Ongoing	D 1.2, D 1.5, D 3.2
4.3	Post and maintain open road signs									
Review open road network, post open road markers, replace damaged or faded markers	BCCE	Quarterly	DCP	Boulder City	VH	M	Monitor to ensure all open roads are posted and in good condition	Quarterly or as needed	Ongoing	D 1.2, D 1.5, D 3.2
4.4	Maintain road closures									
Notify law enforcement, update maps/public information showing closed roads; install barriers (post and cable, boulders)	BCCE	Ongoing	DCP, contractor/NDF	Boulder City	H	L	Roads are designated as closed, closed roads are no longer used	Continually	Ongoing	D 1.2, D 1.5, D 3.2
4.5	Develop restoration plans for permanently closed roads									
Based on results of 4.4, prepare plan(s) to restore road to native habitat or hide/mask road presence; determine length of road to restore using data from 4.1 and 5.3; establish success criteria	BCCE	Within 1 year after road is closed	DCP		H	M	Plans are completed with goals and objectives for restoration and with all components needed for implementation	When restoration plans are completed	In Progress	D 1.2, D 1.5, D 3.2
5.0	Provide law enforcement									
5.1	Maintain patrols by Boulder City peace officers									
Maintain and renew contract in accordance with Section 5(c) of 2010 grant amendment	BCCE	2015-2017 IPB	DCP	Boulder City	VH	VH	Funding for law enforcement included in biennial budgets	Biennially	2017-2019 IPB pending	D 3.2, D 3.3
5.2	Monitor and adjust patrol schedule and locations									
Review patrol reports from peace officers; adjust patrols based on season, public contacts, infractions, and discussions with officers	BCCE	Monthly, as needed	DCP	Boulder City	H	L	Assess hours, locations, and contacts; compare to public usage	As needed	Ongoing	D 3.2, D 3.3
5.3	Monitor and enforce prohibited uses									
Review patrol reports from peace officers for number, frequency, and type of prohibited use	BCCE	Ongoing	Boulder City Police, DCP		H	L	Number and trend of prohibited uses addressed by law enforcement	Monthly	Ongoing	D 3.2, D 3.3
5.4	Evaluate officer/public contacts for opportunities to improve patrols									
Review patrol reports and discuss the type, frequency, and location of public contacts with officers; update officers on DCP ongoing activities and public outreach/education initiatives	BCCE	Monthly	DCP	Boulder City	H	L	Measures of more effective patrols: contacts, elimination or reduction of problems/issues	As needed	Ongoing	D 3.2, D 3.3



Management Action Description	Location	Timeframe	Lead	Permit(s)	Priority	Cost	Effectiveness Measures	Frequency	Status	BGO
6.0 Manage property to control invasive plant species and noxious weeds to reduce fire stress on the ecosystem										
6.1 Identify locations infested or susceptible to invasive plant species and noxious weeds										
Complete weeds assessment; record locations, identify species of concern	Primarily along roads, disturbed areas	Ongoing	DCP, contractor/NPS		H	L-M	Assess areas surveyed and areas where invasive plant species and noxious weeds were found	As needed	started	D 1.2, D 1.4
6.2 Develop plan to eradicate or reduce invasive plant species and noxious weeds										
Use results from 6.1 to prepare treatment plan(s); prioritize treatment locations; establish success criteria	As identified in 6.1	Within 1 year of 6.1	DCP, contractor/NPS		H	L	Plan(s) is completed with goals and objectives for treatment and with all components needed for implementation	When plan(s) is completed	started	D 1.2, D 1.4
6.3 Implement the plan to eradicate or reduce invasive plant species and noxious weeds										
Implement plan(s) prepared in 6.2; prepare scope of work/contract	As identified in 6.1	Within in 1 year of 6.2	DCP, contractor/NPS	Boulder City, USFWS	H	L-M	Treatment/eradication is completed and meets goals and objectives or plan and contract requirements	After treatment is completed	started	D 1.2, D 1.4
6.4 Monitor locations for recurrence of invasive plant species and noxious weeds										
Establish monitoring schedule; assess success of treatment/eradication against criteria; schedule additional treatments as needed	As identified in 6.1	After each location is treated; seasonally	DCP, contractor/NPS		H	L-M	Monitor to area and/or numbers to assess eradication or reduction; eradication success is no or minimal recurrence of species	Seasonally	started	D 1.2, D 1.4
7.0 Educate the public on allowable uses and current activities										
7.1 Identify locations and maintain database for signs and kiosks										
Create/update inventory/database of locations of existing signs and markers; review recommendations of branding/interpretive planning master plan report (2011-LGA-910C); select preferred locations for interpretive signs/kiosks	Existing and selected locations	2014	DCP	Boulder City, BLM (as needed)	H	L	Locations for signage identified and approved; inventory/database updated	Within 1 year of project completion	Started	D 1.2, D 3.2
7.2 Develop content, purchase, and install interpretive signs and kiosks										
Prepare scope of work and contract; based on results of 7.1, request right-of-way if selected location(s) is on BLM land	As identified in 7.2	2015-2017 IPB	DCP, contractor	Boulder City, BLM (as needed)	H	H-VH	Number and location, content, and installation of interpretive signs/kiosks selected. Interpretive signs/kiosks installed meeting contract requirements	At end of project	Not started	D 1.2, D 3.2
7.3 Monitor and maintain condition of all posted signs and kiosks										
Establish monitoring schedule, document condition of signs and kiosks, schedule maintenance/replacements as necessary. Install new signs at locations identified under 7.1.	As identified in 7.2	Within 6 months of 7.3, 7.4, 7.5; quarterly thereafter	DCP, contractor		H	L-M	Signs and kiosks monitored on a selected schedule, damaged signs repaired or replaced within two weeks of discovery; damaged kiosks repaired within 3 months of discovery	Ongoing	Started	D 1.2, D 3.2
7.4 Develop content, print, and distribute interpretive brochure(s)										
Prepare scope of work and contract; identify locations to distribute brochures; provide brochures to Boulder City peace officers	DCP, Boulder City, BCCE (by peace officers)	2015-2017 IPB	DCP, contractor		M	M-H	Brochures printed and meet the contract requirements, maintain distribution to users, assess where and who uses brochures	After brochures printed and distributed	Not started	D 1.2, D 3.2
7.5 Update information on BCCE webpage										
Use results from 9.1 to review, confirm accuracy, and update information on Boulder City code/ordinances, use results from 4.4 to update road information and map	BCCE	2014-2015	DCP		H	L	Information is accurate and updated	Upon completion of action	Not started	D 1.2, D 3.2
8.0 Manage allowable uses										
8.1 Monitor condition of three historic sites located on the BCCE										
Photo document condition of sites; establish schedule to monitor condition; develop plan of action if sites degrade or are vandalized	BCCE, north section	2014-2015; ongoing thereafter	DCP		M	L	Develop metrics to measure condition of historic sites	Based on monitoring schedule	Not started	D 3.2
8.2 Maintain relationships and coordinate with adjacent landowners to protect conservation values of the BCCE										
Establish schedule to communicate (formal and/or informal, as appropriate) with landowners on BCCE management actions, issues, and ongoing and pending projects	BCCE	As scheduled, as needed	DCP		H	L	Relationships with adjacent landowners is reviewed annually	Annually, at year end	Pending	D 3.1, D 3.2



Management Action Description	Location	Timeframe	Lead	Permit(s)	Priority	Cost	Effectiveness Measures	Frequency	Status	BGO
8.3 Monitor and coordinate with utility companies to minimize impacts from existing and proposed transmission corridors and facilities										
Identify representatives for utility companies on, adjacent, or crossing BCCE (request assistance from Boulder City and/or BLM, if necessary); establish schedule to communicate (formal and/or informal, as appropriate) with representatives to exchange information	BCCE	As scheduled, as needed	DCP		H	L	Coordination and success of minimizing impacts is reviewed annually	Annually, at year end	Pending	D 3.1
8.4 Review exceptions to prohibited uses (discharge of firearms) for conflicts with Boulder City Code and Ordinances and Nevada hunting regulations										
Review seasonal exception for discharge of firearms for hunting/trapping against seasonal NV hunting regulations for possible conflicts, and against Boulder City Code 7-1-3 for restricted distances; determine corrective action if conflicts exist	BCCE	2014-2015	DCP, NDOW	Boulder City	M	L	Possible conflict confirmed and resolved	After action is completed	Not started	D 1.2
8.5 Monitor location and effects of treated effluent discharge										
Establish schedule to monitor condition and location of discharge; photo document condition of discharge channel; develop plan of action if discharge channel creates nuisance and/or undesirable habitat	BCCE, north section	Quarterly, after storm event	DCP		H	L	Develop metrics to measure change in topography and vegetation	Quarterly	Not started	D 1.2
9.0 Manage prohibited uses										
91 Maintain fence and gate installed around pet cemetery										
Schedule inspections to monitor and maintain condition of fence and gate; repair and/or schedule repairs when damage is observed	BCCE, north section	Quarterly	DCP		H	L	Fence and gate maintained and repaired within a week of discovered damage	Quarterly	Ongoing	D 1.2
9.3 Monitor for burials of animal remains outside the fenced pet cemetery area										
In conjunction with 9.1, monitor for burial activity outside fenced area; identify options to safely remove and location(s) for disposal of buried remains	BCCE, north section	Quarterly	DCP	Boulder City	H	L	Record all burials outside of fenced pet cemetery within a week of discovery	Quarterly	Not started	D 1.2
9.4 Monitor known and potential locations of illegal dumping activity										
Establish schedule to regularly monitor locations of past dumping activities	BCCE	Quarterly	DCP		M	L	Location of trash and debris is known, leading to 9.5	Quarterly, as observed	Ongoing	D 1.2
9.5 Remove trash and debris from illegal dump sites										
Establish procedure and/or contract to safely remove materials from dump sites for disposal at appropriate landfill (construction debris, household trash, hazardous waste)	BCCE	Within 1-3 months of observation	DCP, contractor		M	L-M	Trend toward less trash and debris in the BCCE	Quarterly, after inspections	Ongoing/pending	D 1.2
9.6 Monitor for other prohibited uses										
In conjunction with inspections/monitoring of other actions, monitor site conditions and user activities for prohibited conduct; coordinate with Boulder City peace officers on observations and findings	BCCE	Ongoing	DCP		M	L	Trend toward less prohibited actions in the BCCE	Annually, at year end	Ongoing	D 1.2

