

# Chapter 16: Action Plan

## BACKGROUND AND INTENT

*A key aspect of any plan is how it is carried out after it is adopted. The Action Plan states how the city may best accomplish the objectives outlined in this Master Plan. This section recommends a variety of actions to implement the Plan's objectives. It also explains the Plan Amendment Process.*

## ACTIONS

To achieve the Plan's objectives, it is necessary to identify the types of actions that will be required, determine the responsible party or parties, and determine the priority and timing of the actions so the city is able to allocate necessary resources. The Action Plan Matrix located at the end of this chapter categorizes each of the strategies according to the type of action that each will take to implement and lists the relative priority of actions. The necessary actions are: Regulatory Reform, Policy Decisions, and Programs. Each of these categories is briefly described below.

### *Regulatory Reform*

The city's development regulations will need to be consistent with the goals and policies of the Master Plan for it to be realized. The city may need to revise the development regulations and standards in some instances to achieve these goals and policies. For example, the Plan recommends the adoption of Infill Development Design Guidelines, to address contextual issues of infill and redevelopment within neighborhoods. The city will need to revise the Land Development Regulations with new standards for such development. Generally, revisions to the Land Development Regulations should occur soon after adoption of the Plan.

### *Policy Decisions*

The Plan identifies a number of actions that will be carried out during day-to-day policy decisions made by city planning staff, Planning Commission, and City Council. The City Council will continually make decisions regarding development proposals and plan amendments. The Plan serves to guide such policy decisions that will occur throughout the life of the Plan.

### Programs

The Master Plan establishes a foundation for new programs to carry out the goals of the Plan. For example, some strategies involve participating in planning efforts with other jurisdictions, such as ongoing efforts of the Southern Nevada Regional Planning Coalition. Special area studies may be necessary to accomplish other goals and policies, such as redevelopment activities for the Uptown Area. Other policies may require the initiation of other planning efforts, such as the policy that supports establishment of a Cultural Resources Commission. Programs have varying levels of priority, depending on the issues involved. Consequently, the city will initiate Programs at different timing intervals.

### Amendments

Amendments to this Master Plan shall be in accordance with the requirements of the Nevada Revised Statutes (NRS 278.210 and 278.220), which state that the Planning Commission shall:

- achieve a resolution of not less than two-thirds of the total membership to adopt any amendment, extension, or addition to the Master Plan;
- hold at least one public hearing before adopting the Master Plan or any part thereof;
- not amend the land use plan of the Master Plan more than four times in a calendar year; and
- file an attested copy of any part, amendment, extension of or addition to the Master Plan certified to the governing body of the city.

No change in or addition to the Master Plan or any part thereof, as adopted by the Planning Commission, may be made by the governing body in adopting the same until the proposed change or addition has been referred to the planning commission for a report and an attested copy of the report has been filed with the city.

## ACTION PLAN MATRIX

The Action Plan Matrix, below, provides a detailed list of the actions needed to implement the Plan, by category. The matrix indicates the type of actions that will be required to implement the policies, and the priority of the actions to be initiated. City staff and planning officials will need to update this matrix on an annual basis, or as necessary, to keep the responsibilities and actions current.

The “**Action**” column lists three possible categories of actions:

**R – Regulatory**, requiring amendments to the city’s development regulations. **PD – Policy Decisions**, to be implemented during day-to-day policy decisions by staff, Planning Commission, and City

Council. **PR – Programs**, to be implemented by new or ongoing programs needed to carry out the goals of the Plan.

The “**Priority**” column lists four possible time frames for implementing actions: **(1) - Immediate Priority**, to be implemented with adoption of the Plan or soon thereafter. **(2) - High Priority**, to be initiated as soon as possible and completed within one to two years after Plan adoption. **(3) - Moderate Priority**, to be completed within three to five years after Plan adoption. **(O) - Ongoing**, are actions that occur continually.

Strategy/Action	Type of Action	Priority
<b>GROWTH MANAGEMENT (CHAPTER 3)</b>		
Continue to manage the rate and amount of growth through the Controlled Growth Management Plan and Land Management Plan process	PD	O
Evaluate Priority Land Sales applications to ensure that they are consistent with the goals and policies of the Master Plan	PD	O
<b>LAND USE (CHAPTER 4)</b>		
Utilize the land use category descriptions and Future Land Use map during the review of development applications	PD	O
<b>PUBLIC FACILITIES (CHAPTER 5)</b>		
Revise, as needed, the standards for the definition of Adequate Urban Facilities and Services (level-of-service standards for public facilities and services).	PD	O
Require that all development must have services available or planned for and funded that meet adopted standards.	R	2
Explore the use of impact fees to help share the cost of providing public facilities and services with developers.	PR	2
Revise city plans and standards as appropriate to comply with future standards adopted at a regional level.	R	2
<b>PARKS AND RECREATION (CHAPTER 6)</b>		
Continue ongoing coordination with Clark County, Henderson, Las Vegas, and federal agency partners on the extension of the River Mountains Loop Trail and other regional trail opportunities.	PR	O
Pursue funding opportunities for future regional trail programs.	PR	O
Consider opportunities to develop additional pedestrian and bicycle linkages between neighborhoods and community destinations.	PR	O
Review and amend parks and recreation standards to meet future adopted policies of the RPC.	R	2
<b>NATURAL RESOURCE CONSERVATION (CHAPTER 7)</b>		
Continue to participate with regional partners (municipalities and federal agencies) on regional sustainability issues such as air and water quality, protection of floodways and wildlife habitat, and recreational opportunities.	PD, PR	O
Continue to coordinate with Clark County and other regional agencies to ensure that the city remains in compliance with all federal air quality standards, including carbon monoxide, ozone, PM10, and PM2.5.	PD, PR	O
Review and amend natural resource conservation related policies and standards	R	O

Strategy/Action	Type of Action	Priority
as necessary to meet future adopted policies of the RPC.		
When the Multiple Species Habitat Conservation Plan is amended to include riparian species, the city shall amend its plans accordingly.	R	O
Explore opportunities to reduce vehicular pollution by promoting transit and other travel alternatives.	PD	O
Continue to expand the use of environmentally friendly landscape principles in its parks and median plantings through the use of native and xeric plant materials and the design and installation of water conserving irrigation systems.	PD, PR	O
Work with the Regional Flood Control District to ensure that future development projects provide multi-purpose flood control systems.	P	O
Ensure that existing recreational access to city-owned lands surrounding the urbanized areas of the city are maintained as growth occurs in the city's planned development areas.	P	O
<b>REGIONAL COORDINATION (CHAPTER 8)</b>		
Continue to coordinate land use, transportation, and environmental policies with other governmental agencies within the region through participation in the Southern Nevada Regional Planning Coalition.	PR	O
<b>TRANSPORTATION AND MOBILITY (CHAPTER 9)</b>		
Continue to participate in the Club Ride Program and continue to monitor the long-term need for and viability of a limited service local bus system.	PR	O
Continue to coordinate with the Regional Transportation Commission to explore opportunities to increase the frequency and type of bus service to Boulder City.	PR	O
Continue to coordinate with NDOT in the alignment and design of the US Highway 93 bypass project.	PR	O
Implement the policies and recommendations contained in the Boulder City Municipal Airport Master Plan.	PR	O
<b>HOUSING AND NEIGHBORHOODS (CHAPTER 10)</b>		
Consider developing Infill Development Design Guidelines or Standards, to address contextual issues, including massing, scale, and setbacks.	R	2
<b>HISTORIC PRESERVATION (CHAPTER 11)</b>		
Appoint a Cultural Resources Commission (CRC) as authorized within the City Code to act in an advisory capacity to the Planning Commission and City Council on matters pertaining to historic preservation.	PR	2
Work with CRC to develop design guidelines for application within the city's Historic Overlay District. Design Guidelines should address exterior design	PR/R	2

Strategy/Action	Type of Action	Priority
elements and characteristics such as building materials, massing, scale, ornamental features, and other design characteristics.		
Work with residents of historic neighborhoods not eligible for protection under the Historic Overlay District to address ongoing maintenance of existing housing stock and to preserve key neighborhood characteristics.	PR	O
<b>URBAN DESIGN (CHAPTER 12)</b>		
Consider developing Historic Landscape Guidelines to protect the city’s historic landscapes.	R	3
Consider establishing an incentive program for tree replacement in historic residential neighborhoods in conjunction with the efforts of the city’s Urban Forester and Conservation Specialist.	PR	2
Consider developing Landscape Guidelines for new development to promote creative landscape techniques and to provide examples of plant materials and plantings that are appropriate for Boulder City’s climate.	R	2
Continue to implement plans and programs for Urban Design improvements throughout the community.	PR	O
<b>ARTS AND CULTURE (CHAPTER 13)</b>		
Encourage the integration of arts and culture into the city’s economic development activities.	PR	O
Coordinate with the Boulder City Arts Council and the Art Guild to address improvements to existing art and cultural facilities and plan for future needs.	PR	O
Work with appropriate groups to encourage the appreciation and support of arts and culture in the community.	PR	O
<b>ECONOMIC DEVELOPMENT (CHAPTER 14)</b>		
Continue to foster communication and coordination between local businesses and the city to encourage business retention and promote economic development.	PR/PD	O
Continue to work with the Chamber of Commerce and other groups to promote and strengthen Boulder City as a destination for the region and out-of-state visitors.	PR	O
Continue to implement the goals of the Redevelopment Plan as a means of encouraging infill and redevelopment in targeted areas of the community.	PR/PD	O
Implement the policies and recommendations contained in the Boulder City Municipal Airport Master Plan.	PR/R	O
Work with Federal Agency representatives to encourage retention of agency offices and facilities in the city.	PD	O

Strategy/Action	Type of Action	Priority
Continue to promote home-based occupations and “cottage” industries	PD/R	O
Continue to work with community organizations to promote continued economic health and quality of life for Boulder City residents.	PD	O
<b>Special Planning Areas (Chapter 15)</b>		
<b>OLD AIRPORT SUBAREA</b>		
Consider developing an overall master plan for the area that would define specific land uses, densities, civic infrastructure, and related elements.	PD	2
Ensure that development of individual development parcels are consistent with future master planning efforts and the Special Planning Area Policies contained in this Master Plan.	PD	O
Remove impediments to the implementation of the Special Planning Area Policies contained within this Master Plan by amending relevant sections of the city’s development code.	R	1
<b>DOWNTOWN CORE</b>		
Continue to encourage redevelopment of underutilized properties within the downtown and to encourage a variety of uses and activities.	PD	O
Develop a parking strategy for downtown to address short and long-term parking needs.	R/PR	1
Continue to encourage public and private efforts for revitalization and preservation in the downtown.	PD	O
Continue to employ and work with a Business Development Advocate to represent the needs of the business community and serve as a liaison between the two groups.	PD/PR	O
<b>HIGHWAY 93 CORRIDOR-WEST (UPTOWN)</b>		
Work with business and property owners to develop a unified plan and “vision” for the Corridor that addresses future land use patterns, safety, access management, signage, architectural continuity, and related elements as identified in the Master Plan.	PD/R	2
Prior to adoption of the above plan, ensure that individual development proposals are consistent with the Corridor specific policies outlined in the Master Plan.	PD	O
<b>BOOTLEG CANYON SPECIAL PLANNING AREA</b>		
Monitor opportunities for future development of complementary uses in the Bootleg Canyon Special Planning Area and ensure plans are in compliance with the goals and policies of the Master Plan.	PD	O

**16-8 ACTION PLAN**

Strategy/Action	Type of Action	Priority
<b>ELDORADO VALLEY</b>		
Continue to monitor effects of recreational uses and energy production facilities on air quality.	PD	O
Monitor recreational activities to minimize conflicts between uses and minimize environmental impacts.	PD	O
Evaluate future development proposals for potential negative impacts on views.	PD	O

# Appendix I: Inventory Maps

## INVENTORY MAPS

### Introduction

An inventory and assessment of existing conditions within Boulder City was prepared during the early stages of the planning process. The following maps are a result of that effort and are intended to serve as a basic reference for a variety of items related to the day-to-day use and application of the Master Plan, including: existing land use and ownership patterns. In order to remain effective, the maps should ideally be updated on an annual basis.

### Existing Land Use

Existing land uses within Boulder City were inventoried to assess existing land use mix, availability, and distribution. The resulting map identifies a variety of residential, commercial, industrial, and public land uses. A break down of each land use type within the city is provided in the table below.

TABLE I-1: SUMMARY OF EXISTING LAND USES WITHIN BOULDER CITY

	Existing Acres	% Total
<b>RESIDENTIAL</b>		
Single Family Residential	1,110	0.86
Multi Family Residential	159	0.12
Mobile Home Residential	194	0.15
<i>Total:</i>	1,463	1.13
<b>COMMERCIAL, OFFICE, AND EMPLOYMENT</b>		
Commercial	109	0.08
Industrial	921	0.71
<i>Total:</i>	1,030	0.79
<b>PARKS, RECREATION, AND VACANT LANDS</b>		
Parks and Recreation	1,663	1.28
Vacant	37,122	28.62
Open Lands (Conservation Easement)	84,695	65.31
<i>Total:</i>	123,480	95.21
<b>OTHER</b>		
Public/Quasi-Public	1,161	0.90
Right-of-Way	2,552	1.97
<i>Total:</i>	3,713	2.87
<b>TOTAL:</b>	129,686	100

### *Generalized Ownership*

The Generalized Ownership map illustrates ownership patterns within and adjacent to Boulder City limits. Major landholders include the City of Boulder City which encompasses the city's many parks and facilities, the Bureau of Reclamation, and the Bureau of Land Management. The table below illustrates the breakdown of public vs. private land ownership within Boulder City as of 2003.

**TABLE I-2: SUMMARY OF PROPERTY OWNERSHIP WITHIN BOULDER CITY**

	Acres	% Total
<b>OWNER</b>		
Private	1,948	1.50
City of Boulder City	124,928	96.33
Bureau of Reclamation	28	0.02
National Park Service	17	0.01
State of Nevada	129	0.10
Other Public Entity	84	0.07
Rights of Way (various owners)	2,552	1.97
<b>TOTAL:</b>	<b>129,686</b>	<b>100</b>

# Appendix II: Physical Characteristics

## BIOTIC ENVIRONMENT<sup>1</sup>

Three vegetative communities are found in the Planning Area and include: creosote bush, salt bush and desert riparian.

### *Creosote Bush Community*

The creosote bush community is found in the Planning Area at elevations ranging from 1,840 to 3,634 feet. Topography is flat to slightly inclined and includes gently roiling slopes and desert valley floors. The entire Planning Area, with the exception of shallow depressions and the washes discharging from the sewage lagoons, has a creosote bush biotic community.

The dominant plant species are the creosote bush and burro bush which commonly coexist. Both species are easily recognized, as the creosote bush often glistens due to a coating of oily resin, while the burro bush during the hot summer months turns an ashy-white and the plant appears to be dead. Cacti common to the creosote bush community include the prickly pear, cholla and the barrel cactus. Yuccas, especially the Mojave yucca, are common.

The herbaceous makeup of the creosote bush community is comprised of composites, mustards and legumes. Numbers of individuals and species composition varies annually, being highly dependent upon precipitation amounts and timing.

The animal species are adapted to a dry, hot, desert setting. Amphibians are less common and when found are usually in close proximity to a more humid environment taking the form of a perennial stream or pond. Effluent disposal washes from the sewage lagoons present such an environment. Reptiles are quite common to the Planning Area and both lizards and snakes are numerous. The more abundant species of lizards include the side-blotched lizard, western whiptail lizard, desert horned lizard, desert iguana, desert spiny lizard and the leopard lizard. Indigenous snakes are the gopher snake, coachwhip, glossy snake and speckled rattlesnake.

The desert tortoise is also found in the Planning Area, but at lower density levels than lizards and snakes. Common bird species inhabiting the Planning Area include the Gambel's quail, horned lark, raven, cactus wren, rock wren, Le Conte's thrasher and black throated sparrow. Several species of mammals are associated with the creosote bush community. Species of bats commonly seen include the

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<sup>1</sup> The discussion of the biotic environment in the Planning Area has been adapted from a publication entitled "Facilities Plan for Upgrading and Expansion of Boulder City's Wastewater Management Facilities", prepared by Montgomery Engineers of Nevada, Las Vegas, Nevada (May 1980).

California leaf-nosed bat, California myotis, western pipistrelle, Townsend's big-eared bat and pallid bat. Rodents seen include the white-tailed antelope squirrel, round-tailed ground squirrel, desert Kangaroo rat, long-tailed pocket mouse, little pocket mouse and cactus mouse. The desert wood rat and the southern grasshopper mouse are also seen, but are not numerous. Two species of rabbit, the black-tailed jack rabbit and the desert cotton tail, are indigenous to the Planning Area, and commonly inhabit all of the vegetative communities. The black-tailed jack rabbit is especially common at lower elevations. Carnivores which feed upon the rodent and rabbit populations include the coyote, kit fox, badger and the bobcat. Herbivores such as the mule deer and burro are rarely seen in the Planning Area, while the big horn sheep is quite common in the Hemenway Valley.

### *Saltbush Community*

The saltbush community, interspersed amongst the creosote bush community, is found occupying areas having poorly drained soils, large desert playas and small localized depressions. Soils characteristically are saline, silty loams, which tend to restrict plant varieties to halophytic species. The community is dominated by the chenopodiaceae family, which are salt loving herbaceous plants. Common species include the red molly and hop-sage. Where subsurface water is present, mesquite may be seen. The animals inhabiting the saltbush community are for the most part common to the neighboring creosote bush community. Species composition and numbers are reduced due to the saline nature of the environment.

### *Desert Riparian Community*

The desert riparian community is found bordering drainage culverts, effluent disposal channels and desert washes. Soils generally are silty to sandy in texture. Vegetation common to the community includes cheese weed, snake weed, bladder sage and golden weed. Areas where surface water is more abundant are lined with mesquite, cat claw, desert willow, and salt cedar. Herbaceous vegetation is similar to that found in adjacent communities, as are the vertebrate animals.

However, several small mammals and reptiles reach their greatest abundance here due to more abundant cover and food. Carnivores, such as the bobcat, coyote and fox, obtain much of their food along the washes due to the increased rodent population. One species, the sidewinder rattlesnake, is quite common to the community, as it is largely restricted to sandy areas.

### *The Desert Tortoise*

The desert tortoise (*Gopherus Agassizii*) can be found in all three vegetative communities in the Planning Area. This slow moving animal is vulnerable to a number of threats to the long-term survival of the species. The major problem that may affect the tortoise in parts or all of its range include loss or degradation of habitat due to use by off-road vehicles, desert training maneuvers, various kinds of mineral extraction activities, grazing by cattle and sheep, and agricultural and residential development; "taking" (kill, collection) of individuals; excessive predation by other species, especially ravens; and fragmentation of habitat that can result from any of these factors. More recently an unknown respiratory disease has been found in wild animals in a number of locations through much of the tortoise range. This apparently fatal disease is believed to be spreading in the wild population, threatening to reach epidemic proportions.

In reaction to the habitat loss and the rapid decline in numbers of tortoises brought about by the disease, the U. S. Fish and Wildlife Service (USFWS) declared the tortoise as endangered in an emergency listing on August 4, 1989. In a final rulemaking by the USFWS on April 2, 1990, the tortoise was listed as threatened. Under the provisions of the Endangered Species Act, the desert tortoise

receives the full protection given to any listed species. This protection includes a prohibition on "taking", which includes harming, killing, or harassing desert tortoises or removing them from the wild. The "taking" prohibition applies to activities by public agencies, private enterprises or individuals. In 1995, Boulder City purchased over 100,000 acres of the former Eldorado Valley Transfer Area from the Colorado River Commission and set aside 85,000 acres for a Desert Tortoise Preserve. In addition to establishing a Desert Tortoise Preserve, the city complies with the terms of the Clark County Multiple Species Habitat Conservation Plan and its corresponding implementation agreement, which has been approved and adopted by the Board of County Commissioners.

## TOPOGRAPHY

The topography of the Planning Area varies from gradual slopes of about three to four percent to mountainous terrain with grades of 50 percent or more. Elevations range from slightly lower than 1,874 feet in the southwest corner of the Planning Area to 3,634 feet atop Red Mountain. The developed portion of the Planning Area has an average elevation of 2,500 feet above mean sea level. In general, the relatively flat and moderately sloping land is adaptable to almost any type of land use.

## GEOLOGY

The Planning Area is located on a drainage divide connecting the River and Eldorado Mountains which separates the drainage basins of Eldorado Valley and Hemenway Valley. The original Boulder City townsite overlooks an alluvial apron which constitutes the northern limits of Eldorado Valley. Bedrock comprising the River Mountains, which lie at the northwest corner of the Planning Area, is mainly volcanic in origin and ranges from rhyolitic to basaltic in composition. Subsequent to formation during the Tertiary and Cretaceous Periods, the volcanics forming the River Mountains were cut by dikes and small intrusive bodies, then later faulted. Along the southern flank of the mountains, the gypsiferous Muddy Creek Formation overlies the Tertiary and Cretaceous volcanics and it in turn is overlain by alluvium.

The Eldorado Mountains, which lie within the east portion of the Planning Area, are Precambrian in age, and are composed predominantly of rocks having a plutonic origin, as they consist primarily of granite and quartzose rock, similar to that composing the Eldorado Mountains to the east. The areas in the south and west portions of the Planning Area, and the lower portions of Hemenway Wash, consist of unconsolidated erosional sediments derived from the River and Eldorado Mountains.

### Seismicity

The U. S. Geological Survey has determined the seismic risk of all areas of the United States. Seismic risk zones, based on historical data, range from zero, where no damage from seismic activity has occurred, to four, which are areas adjacent to major fault systems and subject to major damage from seismic activity. The Planning Area is situated in Seismic Risk Zone 2, where moderate damage is expected from seismic activity. The Planning Area is seismically active, and numerous low magnitude earthquakes have been recorded. The primary cause of these earthquakes is believed to have been the filling of Lake Mead and subsequent fluctuations in its level.<sup>2</sup>

Faulting is prevalent in the perimeter mountain ranges with a few faults underlying the Planning Area. The potential for structural damage is more significant in high-rise structures. The Uniform Building

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<sup>2</sup> Reconnaissance Analysis of Quaternary Faulting in the Hoover Dam/Lake Mead Area, Nevada - Arizona, prepared by Larry Anderson of the Bureau of Reclamation, November 1986.

Code includes expanded treatment of earthquake design factors and assures adequate consideration of the Planning Area's specific seismic hazards relative to individual projects. The overall seismic hazard presents no growth or planning constraints.

**Hydrology**

The Planning Area is situated on a drainage divide separating the Hemenway Wash from Eldorado Valley. Hemenway Wash drains into Lake Mead and therefore is part of the Colorado River drainage basin. Drainage in the Eldorado Valley is internal to a dry lake located in the northwest portion of the valley. The flood potential in the Planning Area is highest from December through March when storm frequency is greatest.

**Water Resources**

Three major water resources are available to the Planning Area: untreated and treated water from Southern Nevada Water Authority (Colorado River); untreated water from the Bureau of Reclamation line; and treated effluent from the Waste Water Treatment Plant. The only source of potable water is the Colorado River supply. The estimated amount available from these sources in 2003 is listed below:

**TABLE II-1: BOULDER CITY WATER RESOURCES**

Type	Acre feet per year
Treated Water	9,500
Untreated Water	3,500
Effluent	1,000
<i>Total:</i>	14,000

Source: Boulder City Public Works Department, 2003.

**Soils**

Soils differ because of climate, elevation, slope, vegetation and nature of the parent rock. Generally, soils in the Planning Area are light yellowish-brown, gravelly, loamy, fine sands formed in mixed alluvium derived dominantly from rocks composing the surrounding mountains. Available water capacity is low and permeability is rapid. Desert pavement is observed in those areas susceptible to wind erosion; caliche is present in many areas having a high calcium carbonate concentration in the profile.

# Appendix III: Socioeconomic Characteristics

## INTRODUCTION

The purpose of this document is to provide an overview of population, housing, and economic characteristics of Boulder City. The first section of this document provides background information on existing and historic trends for Nevada, Clark County and Boulder City. Much of the data for this section was derived from the 1990 and 2000 United States Census of Population, the Residential Development Summary Report prepared by Boulder City Planning Staff, and the 1991 Boulder City Master Plan. The second section of this document includes a set of population projections for Clark County and Boulder City.

## EXISTING TRENDS AND CONDITIONS

### Population

The tables below show population trends for the State of Nevada, Clark County, and Boulder City. An analysis of past growth trends indicates that Clark County and the State of Nevada have historically experienced much higher growth rates than Boulder City. Over the past decade, from 1990 to the year 2000, Clark County's population increased by more than 60 percent, an average annual rate of 5.6 percent (note: all annual growth rates presented in this document are calculated as compound rates, not as simple percentages). During that same time period, Boulder City's population increased by just 19 percent, an annual growth rate of 1.76 percent. Over the past 20 years, Boulder City's growth rate has been declining (from a 2.7% annual rate in the 1980's to a 1.76% rate during the 1990's). This is primarily due to the fact that the city owns the vast majority of the vacant land within its boundaries. Other influencing factors are a growth control ordinance adopted by the city's voters in 1979, and a charter amendment adopted in 1997 that prohibits the sale of most city land over an acre without prior approval of the voters.

TABLE III-1: NEVADA POPULATION TRENDS

Year	Population	Increase	Total % Increase	Annual % Increase
1980	800,000	--	--	--
1990	1,201,833	401,833	50%	4.2%
2000	1,998,257	796,424	66%	5.2%

Source: U.S. Census of Population, 2000; 1991 Boulder City Master Plan; Clarion Associates

TABLE III-2: CLARK COUNTY POPULATION TRENDS

Year	Population	Increase	Total % Increase	Annual % Increase
1980	463,087	--	--	--
1990	741,459	278,372	60%	4.8%
2000	1,375,765	634,306	86%	5.6%

Source: U.S. Census of Population, 2000; 1991 Boulder City Master Plan; Clarion Associates

TABLE III-3: BOULDER CITY POPULATION TRENDS

Year	Population	Increase	Total % Increase	Annual % Increase
1980	9,590	--	--	--
1990	12,567	2,977	31%	2.7%
2000	14,966	2,399	19%	1.76%

Source: U.S. Census of Population, 2000; 1991 Boulder City Master Plan; Clarion Associates

### Population Characteristics

The following tables present the population by age distribution for Clark County and Boulder City for the period from 1980 to 2000. Data provided includes male, female, and total figures for five age groups: the under 5 or preschool group, the 5 through 19 school age population, the 20 through 44 young worker classes, the 45 through 64 mature worker segment, and the persons that are 65 years of age and over.

Over the last 20 years the age distribution for Clark County has stayed relatively constant. However, in Boulder City, there have been steady declines in the first three age cohorts (under 5, 5-19, and 20-44), and steady increases in the last two age cohorts (45-64 and 65+). With more than half of the population falling within the last two age cohorts (45-64 and 65+) in 2000, the trend seems to be pointing toward the development of a more mature population in Boulder City. Both statewide and in Clark County, school age population has increased slightly over the past 10 years as a percentage of total population (from 19 to 21%), while in Boulder City it has decreased (from 20% to 19%). In 2000, the percentage of Boulder City’s population falling in the 65+ cohort (24%) was more than double the percentage in Clark County as a whole (11%). The largest percentage of Clark County’s population falls within the 20-44 age cohort (39% in 2000, while in Boulder City, the largest segment of the population fell into the 45-64 age cohort (29%). In 2000, the median ages for Clark County and Boulder City were 35 years and 47 years respectively.

TABLE III-4: CLARK COUNTY POPULATION AGE DISTRIBUTION

AGE GROUP	1980		1990		2000	
	NUMBER	%	NUMBER	%	NUMBER	%
Under 5	33,568	7%	56,165	8%	103,301	8%
5-19	111,291	24%	143,485	19%	282,035	21%
20-44	191,131	41%	310,533	42%	536,347	39%
45-64	91,971	20%	153,590	21%	307,183	22%
65+	35,110	8%	77,686	10%	146,899	11%
Total	463,071	100%	741,459	100%	1,375,765	100%

Source: U.S. Census of Population, 2000; 1991 Boulder City Master Plan; Clarion Associates

TABLE III-5: BOULDER CITY POPULATION AGE DISTRIBUTION

AGE GROUP	1980		1990		2000	
	NUMBER	%	NUMBER	%	NUMBER	%
Under 5	524	5%	566	5%	573	4%
5-19	2,248	23%	2,512	20%	2,774	19%
20-44	2,786	29%	3,429	27%	3,683	25%
45-64	2,448	26%	3,264	26%	4,386	29%
65+	1,584	17%	2,796	22%	3,550	24%
Total	9,590	100%	12,567	100%	14,966	100%

Source: U.S. Census of Population, 2000; 1991 Boulder City Master Plan; Clarion Associates

### Housing Characteristics

Tables 6 and 7 below provide data regarding housing unit type and age for Boulder City and Clark County for 1990 and 2000. Numbers indicate there has been little change in housing stock mix over the past ten years in either Boulder City or Clark County. The highest percentage and majority of housing units in both 1990 and 2000 are of the 1-unit, detached/attached type (65% for Boulder City and 58% for Clark County in 2000). Notable however, is Boulder City's significantly higher percentage of Mobile Home Dwellings, which at 18% of the total is over three times that of Clark County's 5.9%. In addition, Boulder City maintains a low percentage of higher density dwellings in the 10 to 19-unit category and the 20 or more unit category, at less than 4% of its total versus nearly 18% of the total in Clark County. This trend does seem to be shifting slightly, as Boulder City has seen a slight increase in the 2 to 4 unit, 5 to 9 unit, and 20 or more unit categories since 1990, 0.2%, 0.3%, and 0.7% respectively.

Boulder City maintains a slightly older housing stock than that of Clark County. The majority of structures in Boulder City are between thirteen and thirty-two years old (52%), while the majority of structures in Clark County are between ten and twelve years old (48%).

**III-4 SOCIOECONOMIC CHARACTERISTICS**
**TABLE III-6: BOULDER CITY HOUSING UNIT: TYPE AND AGE**

	1990		2000	
TOTAL HOUSING UNITS	5,390		6,979	
UNITS IN STRUCTURE	NUMBER	%	NUMBER	%
1-unit, detached/attached	3,337	61.9	4,541	65.1
2 to 4 units	435	8.0	577	8.2
5 to 9 units	185	3.4	255	3.7
10 to 19 units	108	2.0	108	1.5
20 or more units	83	1.5	153	2.2
Mobile Home	1,157	21.5	1,274	18.3
Boat, RV, van, etc.	84	1.5	71	1.0
YEAR STRUCTURE BUILT				
1990 to March 2000	-	-	1,619	23.2
1970 to 1989	-	-	3,603	51.6
1940 to 1969	-	-	1,195	17.1
1939 or earlier	-	-	562	8.1

Source: U.S. Census of Population and Housing, 1990 and 2000

**TABLE III-7: CLARK COUNTY HOUSING UNIT TYPE AND AGE**

	1990		2000	
TOTAL HOUSING UNITS	317,188		559,799	
UNITS IN STRUCTURE	NUMBER	%	NUMBER	%
1-unit, detached/attached	155,741	49.1	321,801	57.5
2 to 4 units	34,438	10.9	53,266	9.5
5 to 9 units	28,246	8.9	51,944	9.3
10 to 19 units	25,880	8.2	36,018	6.4
20 or more units	40,327	12.7	62,183	11.1
Mobile Home	29,695	9.4	32,962	5.9
Boat, RV, van, etc.	2,861	0.90	1,625	0.3
YEAR STRUCTURE BUILT				
1990 to March 2000	-	-	270,450	48.3
1970 to 1989	-	-	211,747	37.8
1940 to 1969	-	-	74,866	13.4
1939 or earlier	-	-	2,736	0.49

Source: U.S. Census of Population and Housing, 1990 and 2000

## Housing Value

Tables 8 and 9 provide a comparison of housing values over the last ten years for Boulder City and Clark County. Over the past ten years the value of housing has steadily increased in both Boulder City and Clark County. This shift in trends has been most dramatic in Boulder City, with a significant increase in the percentage of housing units in Boulder City that are valued at greater than \$150,000 (nearly 70% of the total in the year 2000). In addition, the median home price in Boulder City for 2000 exceeded that of Clark County and Nevada by around \$30,000 (\$172,000 in Boulder City, \$139,000 in Clark County, and \$142,000 in Nevada).

**TABLE III-8: BOULDER CITY HOUSING VALUE**

	1990		2000	
	NUMBER	%	NUMBER	%
Specified Owner-occupied Housing Units	2,612	100	3,549	100
Less than \$50,000	38	1.5	6	0.2
\$50,000 to \$99,999	765	29.3	201	5.7
\$100,000 to \$149,999	1,072	41.0	887	25.0
\$150,000 to \$199,999	381	14.6	1,264	35.6
\$200,000 to \$299,999	207	7.9	597	16.8
\$300,000 to \$499,000*	149	5.7	432	12.2
\$500,000 or more	-	-	162	4.6
Median (dollars)	\$120,800		\$172,500	

\*Note: Highest value bracket from 1990 Census for Boulder City was \$300,000 or more.

**TABLE III-9: CLARK COUNTY HOUSING VALUE**

	1990		2000	
	NUMBER	%	NUMBER	%
Specified Owner-occupied Housing Units	117,059	100	254,708	100
Less than \$50,000	4,769	4.1	1,899	0.7
\$50,000 to \$99,999	64,614	55.2	38,699	15.2
\$100,000 to \$149,999	31,097	26.6	111,370	43.7
\$150,000 to \$199,999	8,761	7.5	56,100	22.0
\$200,000 to \$299,999	5,033	4.3	30,633	12.0
\$300,000 to \$499,000*	1,987	1.7	11,650	4.6
\$500,000 or more	798	0.68	4,357	1.7
Median (dollars)	\$92,700		\$139,500	

Source (Tables 8 and 9): U.S. Census of Population and Housing, 1990 and 2000

### Household Characteristics

Tables 10-12 provide data regarding household size for Nevada, Clark County, and Boulder City. In both Nevada and Clark County, household size has remained fairly constant over the past twenty years. In contrast, Boulder City’s household size has been slowly declining (from 2.59 persons per household in 1980 to 2.3 persons per household in 2000). This trend is consistent with population trends provided that indicate Boulder City is shifting towards an older population.

TABLE III-10: HOUSEHOLD SIZE - NEVADA

	1980	1990	2000
Total Population in Household	778,317	1,777,633	1,964,582
Occupied Housing Units	304,327	466,297	751,165
Persons Per Household	2.59	2.53	2.62

Source: U.S. Census of Population and Housing, 2000; 1991 Boulder City Master Plan.

TABLE III-11: HOUSEHOLD SIZE - CLARK COUNTY

	1980	1990	2000
Total Population in Household	458,430	729,567	1,356,350
Occupied Housing Units	173,891	287,025	512,253
Persons Per Household	2.64	2.54	2.65

Source: U.S. Census of Population and Housing, 2000; 1991 Boulder City Master Plan.

TABLE III-12: HOUSEHOLD SIZE - BOULDER CITY

	1980	1990	2000
Total Population in Household	9,412	12,260	14,716
Occupied Housing Units	3,634	4,998	6,385
Persons Per Household	2.59	2.45	2.3

Source: U.S. Census of Population and Housing, 2000; 1991 Boulder City Master Plan.

### Household Income

Table 13 provides data regarding median household income for Nevada, Clark County, and Boulder City. 1999 values indicate that the difference in median household income for Nevada and Clark County were minimal (\$35), while median income for Boulder City was approximately \$5,907 higher than both the County and statewide averages.

TABLE III-13: MEDIAN HOUSEHOLD INCOME

Location	1980	1989	1999
Nevada	\$22,227	\$31,011	\$44,581
Clark County	\$21,327	\$30,746	\$44,616
Boulder City	\$22,934	\$34,255	\$50,523

Source: U.S. Census of Population, 1990 and 2000; 1991 Boulder City Master Plan.

## EMPLOYMENT

### Labor Force Employment

Table 14 provides data regarding Labor Force Employment for Clark County. Employment in Clark County has increased dramatically in the 20-year time frame, consistent with significant growth seen in the region during the same time. The County's unemployment rate has remained fairly steady since 1990, following a more than 2% decrease between 1980 and 1990.

TABLE III-14: LABOR FORCE EMPLOYMENT: CLARK COUNTY

Year	Employment	Unemployment Rate
1980	218,900	7%
1990	368,900	4.7%
2000	637,339	4.5%

Source: 1991 Boulder City Master Plan, Nevada Employment Security Department

### Employment and Industry

Table 15 provides data regarding industry and employment sectors in Boulder City. The largest segment of employment in Boulder City is the Services segment at approximately 26%; however, this segment has decreased by 15% since 1990, with much of the difference being absorbed by Retail Trade, which increased from 1.5% in 1990 to nearly 11% in 2000. The construction sector also increased slightly, likely in response to the rapid growth in the county during the past 10 years.

TABLE III-15: EMPLOYMENT AND INDUSTRY: BOULDER CITY

Industry	Persons Employed in 1990		Persons Employed in 2000	
		%		%
Mining	25	0.5	20	0.3
Construction	485	9.3	832	13.2
Manufacturing	362	6.9	323	5.1
Transportation, Communication, Utilities	389	7.4	320	5.1
Wholesale Trade	111	2.1	147	2.3
Retail Trade	785	1.5	671	10.6
Finance, Insurance, Real Estate	383	7.3	354	5.6
Services	2,148	41.0	1,619	25.7
Other	547	24	2,021	32.1
Total Employed Persons 16 years and over	5,235	76.0	6,307	67.9

Source: 1991 Boulder City Master Plan, U.S. Census Bureau, 1990 and 2000.

## POPULATION FORECASTS

### Clark County

Table 16 provides a population forecast to the year 2020 for Clark County in five-year increments. According to The Center for Business and Economic Research at the University of Nevada-Las Vegas, Clark County is projected to reach a population of nearly 2.2 million by 2020, an increase of 28% over 2000 numbers. Population growth remains robust over the forecast period, with Clark County continuing to be one of the fastest growing metropolitan in the United States. The rates of growth are projected, however, to decline over the next 20 years, although southern Nevada will grow at a faster rate than the nation. This reflects the stronger economic and demographic trends toward the southwest. In-migration will continue to be a major demographic trend.

TABLE III-16: CLARK COUNTY POPULATION FORECASTS

Year	Population	Increase	% Increase
2000	1,375,765	--	--
2005	1,720,000	345,000	25%
2010	1,894,000	174,000	10%
2015	2,041,000	147,000	8%
2020	2,176,000	135,000	7%

Source: U.S. Census of Population, 2000; The Center for Business and Economic Research, University of Nevada Las Vegas, 2000.

### Boulder City

In order to estimate the projected population for Boulder City, three scenarios were developed (see Table 17 below). The first scenario assumes that the growth rate of 1.76% (see Table 3) that has been experienced in Boulder City over the past 10 years would continue. It also assumes that the City would not release any additional land for development, thus the city would in essence reach “buildout” once the supply of existing building lots and privately owned vacant land had been exhausted.<sup>3</sup>

The second scenario also assumes that the growth rate of 1.76% experienced in Boulder City over the past 10 years would continue, but that additional land would be released by the city (subject to voter approval) to accommodate this demand.

The third scenario assumes that the growth rate of the city would essentially be determined by the maximum allotments provided for in the city’s Controlled Growth Management Plan. Essentially, this scenario assumes that 120 new dwellings are constructed in the city each year, in accordance with the Controlled Growth Management Plan, and that additional land would be released by the city (subject to voter approval) to accommodate this demand.

<sup>3</sup> For purposes of this analysis, City Staff have estimated that (as of June 30, 2002) there are a total of 447 existing vacant building lots in the City, and approximately 96 acres of privately-owned vacant land that could be developed, with a capacity for approximately 217 additional building lots, for a total of 664 dwelling units. Based on an average household size of 2.3 persons, we are estimating that the capacity of these areas could accommodate an additional 1,527 persons (664 x 2.3 = 1,527). However, it should be noted that not all of the building lots or vacant land might be available for development.

TABLE III-17: BOULDER CITY POPULATION PROJECTIONS

Year	Scenario 1 1.76 % Annually/ Land Supply Constrained		Scenario 2 1.76 % Annually/ Land Supply Unconstrained		Scenario 3 120 Dwellings Annually/ Land Supply Unconstrained	
	Population	Change	Population	Change	Population	Change
2000	14,966	--	14,966	--	14,966	--
2005	16,332	1,366	16,332	1,366	16,346	1,380
2010	16,493	161	17,822	1,490	17,726	1,380
2015	16,493	0	19,449	1,627	19,106	1,380
2020	16,493	0	21,224	1,775	20,486	1,380

Source: U.S. Census of Population, 2000; Clarion Associates 2002

Based on those increases, it is estimated that the population of Boulder City could range between approximately 16,500 persons (a total increase of 1,366 persons or 9% higher than today's population) to 21,000 persons (an increase of 6,200 persons or 42% higher than today's population). Under Scenario 1, the city would essentially run out of land for additional dwelling units before 2005. It is also important to note that Scenario 2, which represents a continuation of the average growth rate experienced in the city over the past 10 years, would exceed the maximum amount of development that could occur under the requirements of the city's Controlled Growth Management Plan.<sup>4</sup> This indicates that in an unconstrained environment with regard to land supply, the city's growth rate will continue to decline due to the effects of the Controlled Growth Management Plan. Scenario 3, which has been developed to illustrate the maximum amount of development that could occur under the requirements of the Controlled Growth Management Plan, projects that the city would experience an annual average (compounded) growth rate of 1.58% over the 20 year period from 2000 to 2020.

It should be noted that the primary purpose of preparing these forecasts is to frame the land use and growth policy issues to be addressed in the Master Plan update. It is anticipated that this will be a subject of considerable discussion as we develop and review land use alternatives. Some of the issues that may need to be addressed are listed below.

- Under Scenarios 2 and 3, the city would need to release additional land (subject to voter approval) in the near future to accommodate residential growth. What are the implications of not releasing additional land?
- Is there a population level beyond which the city does not want to grow?
- What are the fiscal implications to the city of capping its growth, in terms of demand for future public facilities, infrastructure, and "quality of life" improvements?

<sup>4</sup> The average growth rate in Boulder City between 1990 and 2000 is a result of factors other than just the growth control ordinance. Fully 20% of the housing units constructed during that time were exempted from the provisions of the growth control ordinance as a result of a legal settlement in 1979. All such exemptions have since been exhausted and will not factor into future growth. Further, population totals established by the US Census also include persons that do not live in typical households (nursing homes, long-term hotel occupants, RV's, etc.) that are not regulated by the growth control ordinance.

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# Appendix IV: Community Facilities and Services

## PUBLIC SAFETY

### *Fire Protection*

The Boulder City Fire Department is composed of salaried and reserve forces. The mission of the Department is to provide fire prevention, fire suppression, hazardous materials management and emergency medical services to the citizens and visitors of Boulder City.

Providing essential fire protection to the community involves the provision of fire safety and prevention programs; maintaining and testing fire fighting equipment; inspection of structures for code violations; and reviewing all new commercial buildings and operations to ensure adequate fire safety measures have been provided. In addition, all new developments are analyzed to assure that fire protection can be effectively provided.

The Fire Department operates out of one fire station which has the response personnel, apparatus and Administrative offices located at 1101 Elm Street. The following personnel operate out of the station:

TABLE IV-1: FIRE DEPARTMENT PERSONNEL

Administrative Personnel	Line Personnel
Fire Chief	Captain (3)
Deputy Fire Chief	Engineer (3)
EMS Coordinator	Paramedic/Firefighter (7)
	Firefighter (2)
	Reserves/Paid on Call (24)

Source: City of Boulder City, 2003.

The Insurance Services Offices (I.S.O.) has given the Boulder City Fire Department a Class 2 Rating. The Fire Prevention Bureau provides for the administration and enforcement of the 1997 Edition of the Uniform Fire Code of Boulder City. There are mutual aid contracts in place with the surrounding departments; Las Vegas, Clark County, and Henderson Fire Departments, as well as Federal Agencies; such as the National Park Service, Bureau of Land Management, and Nellis Air Force Base. Emergency medical care is provided at the Advanced Life Support level/paramedic level of care.

Planning for future fire protection and services for Boulder City involves consideration of response time, water flow potential for fighting fires and the construction and equipping of facilities to meet growth within the community. The provision of essential service depends upon response time from the station to the emergency and the location of high risk and value areas.

### Police Department

The Boulder City Police Department is responsible for law enforcement and community policing in Boulder City and is located at 1005 Arizona Street in a building that was renovated in 1989. Offices of the Police Department include investigations, communications, crime prevention, patrol, reserves, and animal control. The Boulder City Police Department is composed of salaried and reserve forces. Reserve Officers give over 12,000 hours a year to the Police Department, enabling more Police Officers to be available on the street and to the community. Reserve officers are comprised of citizens with a varied background, many with a desire to enter a career in law enforcement and some with only an interest in serving the community. Reserve officers volunteer their time as they perform a variety of tasks within the Police Department.

In the year 2002, the Boulder City Police Department took approximately 2,028 reports, ranging from structure burglaries, larcenies, vehicle burglary, domestic violence, battery, fraud, suspicious fires, DUI, etc.

## EDUCATION

### Primary and Secondary Education

Clark County School District is responsible for the provision of school facilities in Boulder City. The city’s school facilities include two elementary schools, one junior high school, and one high school. The following table shows school enrollment trends from 1980 to 2003. In recent years, enrollments have been decreasing and Clark County School District does not anticipate the need for any additional schools in Boulder City in the near future.

TABLE IV-2: BOULDER CITY SCHOOL ENROLLMENT

	1980	1985	1990	1995	2000	2003
Elementary	853	811	925	1022	993	940
Junior High School*	-	507	576	631	617	633
High School	1232	742	750	703	729	763
<i>Total:</i>	2085	2060	2251	2356	2339	2336

\*The junior high school and high school were combined in Boulder City until the completion of the Elton Garrett Junior High School in 1979.

Source: Clark County School District, 2003.

### Clark County Community College

From its main (Cheyenne) campus in North Las Vegas, its major satellite campus in Henderson, its smaller Boulder City campus, and more than 70 other locations, Clark County Community College offers a wide variety of achievement and educational-occupational courses designed to lead to a certificate or an associate degree in more than 60 subjects. Clark County Community College has an active university

transfer program, particularly with UNLV, so that students can transfer Clark County Community College credits to other institutions of higher learning.

Clark County Community College is an open-door college offering the first two years of a baccalaureate degree plus more than 50 different career programs of one and two year lengths. Course offerings include accounting, automotive technology, banking and finance, business management, real estate, data processing, computer science, graphic arts, drafting technology, electronic technology, dental hygiene, casino management, ornamental horticulture, child development, welding, word processing, solar technology, fire science technology, hotel technology, respiratory therapy, office administration, legal assistants, licensed practical nurse, and bookkeeping.

## HOSPITAL FACILITIES

Hospital facilities for the community are provided by the Boulder City Hospital, located on Adams Boulevard east of Buchanan Boulevard. The hospital was originally built at Arizona and "I" Streets, in 1931 by Six Companies, Incorporated, to treat patients injured while working on the construction of Hoover Dam. With completion of construction work on Hoover Dam, Six Companies transferred ownership of the hospital to the Federal Government.

In 1954 the Federal Government transferred ownership of the hospital to Boulder City Hospital, Incorporated, a charitable and non-profit hospital corporation formed by representatives of various benevolent and fraternal organizations, most of them national in character, located in Boulder City. The hospital was moved to its present location in 1973. In 1993 and 1994 Boulder City Hospital built additions to the Long-Term Care Unit for a total of 47 beds, and expanded the emergency room and operating room services.

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# Appendix V: Public Utilities

## WATER SYSTEM

### *Introduction*

The water supply to Boulder City is currently both untreated water and potable water from the Southern Nevada Water System (SNWS), untreated water from U.S. Bureau of Reclamation (USBR), and partial reuse of sewage effluent. The city currently delivers water to residential and commercial customers, and municipal uses that include the city's two golf courses. Untreated (raw) water is used only for irrigation purposes. Due to lack of City facilities, some irrigation needs, such as the Municipal Golf Course, are currently met from the potable water supply.

### *Water Storage System*

The city's water system presently has six water storage facilities with a combined storage of 31.5 million gallons. Water storage is provided at an elevation high enough to allow use of the stored water by gravity flow. This is so the water will be available under emergency conditions such as power outages and also so that pumping can be done at night when power curtailment is in effect through the day.

The East Water Tank, a two-million-gallon steel water tank, and the original Black Mountain ten-million-gallon reservoir store irrigation water.

The West Tank is a two-million gallon steel water tank with a high-water elevation of 2669. Water is provided to this tank by SNWS and also by our pump station at the Twin-five Reservoir. This tank provides service to the uptown area, Lakeview, and Claremont Heights and was built in 1935.

The new Black Mountain Reservoir is an underground five-million-gallon concrete reservoir built and put into service in 2002. Its primary function is to provide added storage for both the 2669 pressure zone and for added storage during power curtailments. Water can be supplied to the reservoir from the pump station at the Twin-Five Reservoir or the SNWA pump station.

Hemenway Reservoir is an above-ground 2.5-million-gallon steel reservoir. It was constructed in 1983. This reservoir serves the 2320 zone to the North of Ville Drive. The SNWS provides service to this facility through a rate-of-control valve.

The Twin-Five Reservoir is an underground concrete reservoir built in 1970. This reservoir holds ten million gallons of water. Water for this reservoir is provided by the SNWS. This reservoir provides water to a small area on the North side of town and the area South of Adams Boulevard.

### *Water Distribution System*

To maintain adequate pressure within the city, the water distribution system is divided into six pressure zones. Water pressure to a consumer's residence or business should not be either too high or too low.

Low pressure makes lawn watering difficult and may cause annoying flow reductions when one water-using appliance is turned on while another is operating. High water pressure may cause water lines to leak; may cause damage to water-using appliances; and may result in wasted water and increased sewerage flows. Pressure zones also allow for adequate fire flow in case of emergency.

The 2669 pressure zone serves the Central Business District, the Townsite, as well as many parks and industrial areas in the community. Approximately half of the entire water demand is contained in this zone and service pressure ranges from 40 pounds per square inch to 115 pounds per square inch. This zone, through two pressure-reducing stations located in the Hemenway Valley, also provides a portion of the supply to several pressure zones in that valley. The Hemenway Reservoir serves several zones, and also provides water to the Hacienda Casino.

The 2569 serves residential development in the Hemenway Valley and residential and golf course development south of Adams Boulevard. This zone provides a majority of the storage and supply for the remaining four pressure zones.

The Eldorado Energy Zone receives water from the 2569 zone through a pressure-reducing station on U.S.95.

Regulation of flow between the various pressure zones is accomplished through the use of 16 pressure reducing stations.

### *Water Supply System*

The city's total source of water supply is from Lake Mead on the Colorado River. The supply is provided via three independent transmission systems. The Lake Mead supply is obtained from the U. S. Bureau of Reclamation (USBR) Water System for untreated use, and the Southern Nevada Water System (SNWS) for potable and untreated water.

Water provided through the Bureau of Reclamation system is supplied to the east Water Tank. This system was initially constructed during the time Hoover Dam was being constructed and was enlarged in 1949.

The "Boulder City Act of 1958" provides that the USBR Water Supply System from Lake Mead to the city-owned tanks will be operated and maintained by the USBR with a maximum delivery rate of 3,650 gallons per minute or 5.26 million gallons per day. Following the "Boulder City Act of 1958," the city agreed to receive a ten year decreasing term financial subsidy while in exchange be under obligation for the total maintenance and operational expenses associated with the USBR system. Under the terms of the agreement, the financial subsidy to the city was discontinued as of October, 1989, which resulted in the city being obligated for all future maintenance and operation expenses of the USBR System.

The Boulder City Act of 1958 authorizes the United States Government to provide Colorado River water to Boulder City water storage tanks by means of facilities provided by the government at a rate not to exceed 3,650 gallons per minute (5,887 acre feet per year). This right, under the Act, to Colorado River water predates and is of a higher priority than Boulder City's entitlement to Colorado River Water from the SNWS.

The City Council, after reviewing water entitlements available to meet future supply requirements, adopted a policy to retain the facilities provided by the United States Government for untreated water supply. However, the city can receive this water entitlement through the SNWS.

The SNWS provides the city's total potable water supply. The water transmission system from the Alfred Merritt Smith Treatment Facility to the Boulder City reservoirs consists of approximately 38,300 linear feet of 30-inch and 1,850 linear feet of 27-inch transmission mains, together with four pumping stations connected in series along the Boulder City lateral route.

While the design capacity of the system is 19.51 million gallons per day (MGD), the water deliveries could be curtailed to 12 hours due to the power cost. Water still can be delivered the other 12 hours, but at significantly higher power cost. Without paying the higher cost for power, the rated capacity is only 9.75 MGD.

In 2002 the SNWA and City completed a second water supply system to the City. The system includes a pump station at the River Mountain Treatment Plant in Henderson, approximately 8 miles of 30" concrete pipe, and a new reservoir. The untreated water is delivered to the existing 10MG Black Mountain Reservoir (reservoir was converted to untreated water). The new 5MG reservoir built by the project is now used on the potable water system.

The new system has a rated capacity of 10-MGD, but can deliver up to 20MGD. If necessary this system could be converted to potable water delivery within a few days.

Due to its age (50+ years) and reliability, the Bureau of Reclamation system may be taken out of service in the future.

## POWER SYSTEM

The City of Boulder City owns and operates its own Municipal Electrical Distribution System. Presently, this system serves approximately 6,600 residential and 880 commercial customers. A 69,000-volt transmission system, including one transmission substation, supplies two 4,160-volt substations and four 12,470-volt distribution substations. In 1970, City Council mandated that all future electrical distribution construction be underground. Since that time, the city's distribution system has more than doubled in size with almost all of the new construction being underground.

The city's municipal utility status means that it is classified as a preference customer by the U. S. Department of Energy, and therefore entitled to priority rights to inexpensive federally-generated hydroelectric power. Because of this, Boulder City's residents have been able to enjoy some of the lowest power rates in the country. The amount of this power available to the city is limited, however, and the population growth experienced over the last several years has brought the city to a time at which it is no longer able to satisfy its capacity and energy requirements with just this resource.

### *Existing Resources*

The city receives the bulk of its power through an allocation from Hoover Dam. Twenty megawatts and 80,000,000 KWH of this allocation come directly from the Western Area Power Administration, while an additional 8.5 MW and 17,870,400 KWH comes through the State Colorado River Commission (CRC). Because the Hoover resource is not considered a "firm" resource, the exact quantities of capacity and energy change on a regular basis, depending upon river flows or operational constraints at the dam. The city also receives a capacity and energy allocation from the Salt Lake City Area Integrated Projects

(SLCA/IP), formerly CRSP, through the CRC. Currently the SLCA/IP amounts are as follows: Summer season capacity - 5.5 MW, Winter season capacity - 6.9 MW, yearly energy 23,222,447 KWH. This brings the total hydro energy allocation to 121,092,847 KWH, assuming river flows are normal and operational problems do not arise. During times of below-normal water flows, these quantities are reduced accordingly.

On November 1, 1989, the city entered into a Supplemental Power Agreement with Nevada Power Company. This is a 30-year agreement that provides capacity and energy to the city on an as-needed basis at a very attractive rate. Power supplied under this rate is accounted for after the fact, meaning that the city is billed only for what it uses. This is a very good arrangement for the city especially in light of the problems associated with scheduling the hydro resources around the operation of the dams.

### *Future Growth Impact*

Assuming the present growth pattern continues, there should be sufficient capacity and energy available to satisfy the city's needs. There were some months during recent years when the city had to make purchases of non-hydro power under the supplemental agreement, and it is expected that this will continue to be the case in most future peak summer and winter months as well.

Under the lease agreement that the City has with the Eldorado Energy Project, Boulder City has the option to purchase up to 10 megawatts of capacity with energy from that project. At the present time, the cost of this resource is quite high in comparison with other options available to the city. Its price is estimated to escalate from approximately \$40/mwh today to around \$70/mwh in 2018. The advantage of this resource is that it is a known quantity that will always be there when and if the city needs it.

As the City continues to grow, and as the electric power supply industry becomes more unsettled, it is becoming increasingly apparent that securing future power supply alternatives needs to become a high priority. Prudent planning would dictate that the City begin considering the possibility of securing long-term power-supply arrangements with one or more other outside agencies. This could include ownership interests in various power plant projects.

The City has enjoyed very reasonable wholesale power costs for the last several years. This is not expected to last, however, and the city should expect to begin paying higher prices in the next few years. Environmental mitigation measures are going to have their effect on the price the City pays for its hydropower. Also, the ever-increasing load growth nationwide has essentially dried up the surplus power market. These two factors will combine to drive up the price that is paid for wholesale power. Fortunately, the limited growth as well as the large hydro base will help to insure that the City's rates continue to remain among the lowest in the southwest.

### *Physical Plant*

The transmission and distribution system is physically capable of handling the projected growth. The City is fortunate to be geographically located next to Mead Substation. This very large Transmission Substation, owned by the Western Area Power Administration, is one of the largest and most significant substations in the area, and has ties to most of the major power producers in the Southwest. The City's transmission on Buchanan Boulevard serves as a heavy transmission tie into Mead Substation. Heavy feeder ties between all of the City's distribution substations as well as full transformer redundancy in the substations, assures a high level of reliability in times of emergency. Circuits and substations are continuously monitored by a SCADA system which helps to identify and prevent potential problems that

may be developing. Ongoing improvements and additions such as these are helping to insure that any new developments will not adversely impact the electrical system and its ability to serve new growth.

## SEWERAGE SYSTEM

### *Introduction*

The Wastewater Treatment Facility is located south of the Boulder City Municipal Airport. The original plant was built in 1963 and upgraded in 1985. The upgrade was done with EPA participation to provide for growth in the community and to meet EPA discharge requirements.

The Boulder City Wastewater Treatment Plant is an aeration basin/facultative lagoon system with percolation dispersal. It serves the community of Boulder City and is designed for an average flow of 1.8 million gallons per day.

### *Wastewater Processing*

Domestic sewage enters the Boulder City Wastewater Treatment Facility through two 18-inch interceptors. These two flows are combined in a manhole and discharged to the headworks of the facility. Flow from the manhole enters the headworks for preliminary treatment. A comminutor in the headworks shreds the large solids before the wastewater passes to the downstream processes. A parallel bypass channel with a manually-cleaned bar screen is provided in the event the influent flow exceeds the hydraulic capacity of the comminutor. From the comminutor, the wastewater enters a reinforced concrete diversion structure with a straight edge weir to divide the flow to two aeration basins. Slide gates are provided to divert flow to either basin.

The two 2.4 acre aeration basins are rectangular, short detention time systems, at which both physical and biological processes are active. The primary physical property is gravity separation whereby the heavier matter, sludge, settles to the bottom of the lagoon. Mixing in the aeration basins is provided by floating low speed surface aerators which transfer oxygen to the wastewater from the atmosphere and provide for a fairly equal distribution of dissolved oxygen in the basins. The aeration basins allow the readily degraded organics to be stabilized before the flow passes into the facultative lagoons. The aeration basins are dewatered periodically and the settled sludge is pumped out for disposal offsite.

The two facultative lagoons are rectangular in shape and occupy 11 acres each. These lagoons have a long detention time to allow for more complete oxidation of the organic material in the wastewater to such stable end products as water, methane, and carbon dioxide. In the lagoons, organisms oxidize the organic materials in both the upper aerobic zone and the lower anoxic zone. The major result of this oxidation is the reduction of suspended solids and BOD in the wastewater. The facultative lagoons also act as polishing ponds and serve the purpose of removing additional settleable solids from the wastewater. Duckweed was added to the lower facultative lagoon in the mid-1990's to improve wastewater quality.

From the facultative lagoons, wastewater flows into the chlorine contact channel for disinfection. The disinfection system represents the final stage of wastewater treatment prior to disposal. The system utilizes liquid chlorine to reduce fecal coliform count to the required limit for desert discharge.

The disinfected wastewater flow is monitored by a parshall flume to obtain an accurate and continuous record of wastewater flow as required in the discharge permit. After the parshall flume, the effluent is divided into two streams at the flow splitting box for discharge at the two desert discharge channels. The city currently sells 30-50% of the discharged wastewater to sand and gravel production plants.

The sewage collection system consists of approximately 65 miles of gravity sewer pipe and 2.5 miles of forced main. The sewer pipe includes the gravity sewer piping which ranges in size from six to eighteen inches in diameter and forced mains from six inches to twelve inches in diameter. The collection system is divided into four main drainage areas. These include the Hemenway Valley which, after collection, is pumped to the top of the drainage area by a series of four pumping stations; the Georgia Avenue interceptor which collects the area east of Buchanan; the Buchanan Boulevard Interceptor which collects the area immediately adjacent to Buchanan; and the Highway interceptor, which picks up the area north of the Highway. Currently the Hemenway Forced Main connects to the Buchanan interceptor.

Sewer lift stations one through three were constructed in 1965-66, and emergency storage was provided in 1985. Each lift station receives sewage flow by gravity from the surrounding area and in addition the stations operate in series, pumping sewage to the next station uphill. Lift Station Four was added in 1970 to allow for growth in the area. Lift Station Five on Garnet Place was built in 1978. It was designed as a temporary facility and was replaced with a gravity sewer in the early 1990's.

### *Future Expansion*

Using the figure of 100 gallons of sewage per capita, per day, the Wastewater Treatment Plant, with a design capacity of 1.81 mgd will be able to accommodate a population of 18,100. The plant was built with expansion in mind, and can be upgraded without much alteration of existing facilities. Plans for expansion and a new treatment process began in 2002 with construction projected from 2004.

## SOLID WASTE DISPOSAL

### *General*

Solid waste is garbage, refuse, and other discarded solid materials, including solid waste materials from industrial, commercial and agricultural operations, and from community activities. Solid waste management is the collection, storage, treatment, utilization, and processing for final disposal of solid waste.

Sanitary landfilling is the method of solid waste disposal for Boulder City, and is an engineered method of dispersing of solid wastes on land by spreading them in thin layers, compacting them to the smallest practical volume and applying cover material in a manner that minimizes environmental hazards.

The handling of solid wastes is an expensive community service. However, it becomes even more expensive when not properly planned and executed. Improper disposal of solid wastes can be a factor in transmission of disease, create such nuisances as smoke and odor, and contribute to air and water pollution, as well as despoil the land. Care has been taken in the selection of the local landfill taking into consideration of such items as geology, topography, cover material, accessibility, haul distance, zoning, drainage and future land use. The landfill is sited on a 40-acre parcel southeast of the developed area of the city.

Boulder Disposal, Inc., is under contract with the city for solid waste disposal and is controlled by City Code and ordinances as passed by the City Council. In addition to collection within the corporate limits, Boulder Disposal, Inc., serves the National Park Service and other organizations which may request service.

### *Projection*

Future solid waste disposal planning must take into consideration residential and business increases, land development and state of the art improvements. The present site is planned to be used well into the 21st Century.

### *Recycling Program*

Boulder Recycling is operated by the City of Boulder City and by Boulder Disposal. As of April 2003, both a Buy Back Center and a Curbside Recycling program were in operation. The Buy Back Center is located at the landfill, and offers cash for aluminum cans, glass bottles and jars, newspapers, cardboard, food cans and plastic bottles. The Curbside Recycling program allows residents to recycle the above named products by separating them and allowing Boulder Disposal to collect them. Benefits of waste reduction and reuse include preserving natural resources, reducing pollution, and extending the life of the landfill.

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# Appendix VI: Recommended Plant Materials

## INTRODUCTION

To provide additional guidance in support of the goals and policies contained in Chapter 12, Urban Design; the following trees and shrubs have been identified for their suitability for use as landscape materials in Boulder City's desert climate. The plants have been identified based upon their drought tolerance, ability to withstand large extremes in temperature, or because they are native to the Mojave Desert and/or have proven successful in landscape applications in the area.

### *A List of Trees for Boulder City*

Acacia anvera MULGA TREE  
Acacia constricta WHITE THORN ACACIA  
Acacia greggii CAT-CLAW ACACIA  
Acacia shaffneri TWISTED ACACIA  
Acacia smallii SWEET ACACIA  
Albizia julibrisen SILK MIMOSA TREE  
Celtis occidentalis WESTERN HACKBERRY  
Celtis reticulata NETLEAF HACKBERRY  
Cercocarpus floridum BLUE PALO VERDE  
Cercocarpus microphyllum FOOTHILLS PALO VERDE  
Chilopsis linearis DESERT WILLOW  
Chitalpa tashketensis CHITALPA  
Eucalyptus formanii FORMAN'S EUCALYPTUS  
Fraxinus oxycarpa 'Raywood' RAYWOOD ASH  
Fraxinus velutina ARIZONA ASH  
Fraxinus velutina 'Rio Grande' FAN-TEX ASH  
Fraxinus velutina 'Glabra' MODESTO ASH  
Gleditsia triacanthos 'Moraine' MORAINES HONEY LOCUST  
Gleditsia triacanthos 'Shademaster' SHADEMASTER HONEY LOCUST  
Koeleria paniculata GOLDENRAIN TREE  
Laurus nobilis BAY TREE  
Leucaena retusa GOLDEN BALL LEAD TREE  
Olea europaea 'Swan Hill' SWAN HILL OLIVE  
Parkinsonia aculeata MEXICAN PALO VERDE  
Pinus edulis MONTELEONE PINE  
Pinus halepensis ALEPPO PINE

Pinus pinea STONE PINE  
 Pinus roxburghii CHIR PINE  
 Pinus thunbergiana JAPANESE BLACK PINE  
 Pistacia atlantica ATLAS MOUNTAIN PISTACHE  
 Pistacia chinensis CHINESE PISTACHE  
 Pistacia vera PITACHIO NUT  
 Podocarpus macrophyllum YEW PINE  
 Prosopis alba ARGENTINE MESQUITE  
 Prosopis alba 'Colorado' COLORADO MESQUITE  
 Prosopis chilensis CHILEAN MESQUITE  
 Prosopis-landulosa 'Glandulosa' TEXAS HONEY MESQUITE  
 Prosopis glandulosa 'Toreyana' WESTERN HONEY MESQUITE  
 Prosopis pubescens SCREWBEAN MESQUITE  
 Prosopis velutina VELVET MESQUITE  
 Punica -ranatum POMEGRANATE  
 Pyrus kawakamii EVERGREEN PEAR  
 Quercus buckleyi 'Red Rock' RED ROCK OAK  
 Quercus emoryii EMORY OAK  
 Quercus fusiformis ESCARPMENT LIVE OAK  
 Quercus ilex HOLLY OAK  
 Quercus lobata VALLEY OAK  
 Quercus muhlenbergia CHINQUAPIN OAK  
 Quercus rubra RED OAK  
 Quercus virginiana LIVE OAK  
 Quercus v.'Heritage' HERITAGE LIVE OAK  
 Thuja occidentalis ARBORVITAE  
 Ulmus parvifolia LACEBARK ELM  
 Vitex agnus-castus CHASTE TREE  
 Zizyphus jujuba CHINESE JUJUBE

### *A List of Shrubs for Boulder City*

Abelia grandiflora 'Edward Goucher' GLOSSY ABELIA  
 Anisacanthus thurberi DESERT HONEYSUCKLE\*  
 Anisacanthus quadrifidus wrightii MEXICAN FLAME\*  
 Anisodonteia hypomandrum PINK DESERT HIBISCUS  
 Arbutus unedo 'Compacta' STRAWBERRY BUSH  
 Artemisia friaida WORMWOOD  
 Artemisia tridentata BIG SAGEBRUSH  
 Atriplex canescens FOUR-WENGED SALTBUSH  
 Atriplex lentiformis QUAIL BUSH  
 Baccharis sarothroides DESERT BROOM  
 Buddleia davidii BUTTERFLY BUSH  
 Buddleia marrubifolia WOOLY BUTTERFLY BUSH  
 Buxus microphylla 'Japonica' JAPANESE BOXWOOD  
 Caesalpinia gilliesii YELLOW BIRD OF PARADISE  
 Caesalpinia 'mexicana' MEXICAN BIRD OF PARADISE\*

Caesalpinia pulcherrima RED BIRD OF PARADISE\*  
Calliandra californica BAJA FAIRY DUSTER  
Calliandra eriophylla FAIRY DUSTER  
Cassia artemisioides FEATHERY CASSIA  
Cassia nemophila DESERT CASSIA  
Cassia phyllodenia SILVER LEAF CASSIA\*  
Cassia wislizenii SHRUBBY CASSIA  
Cercis occidentalis WESTERN REDBUD  
Cercocarpus ledifolius CURL-LEAF MOUNTAIN MAHOGANY  
Cercocarpus montanus ALDERLEAF MOUNTAIN MAHOGANY  
Cistus purpureus PURPLE ROCKROSE  
Convolvulus eneorum BUSH MORNING GLORY  
Cordia boissieri TEXAS OLIVE  
Cordia parvifolia LITTLE-LEAF CORDIA\*  
Cotoneaster parneyi RED CLUSTERBERRY  
Cowania stansburiana CLIFF ROSE  
Dalea frutescens BLACK INDIGO  
Dalea pulchra, PINK INDIGO BUSH  
Dalea bicolor 'argyrea' SILVER DALEA  
Eleagnus ebbingeae EBBING'S SILVERBERRY  
Encelia farinosa BRITTLEBUSH  
Ephedra viridis MORMAN TEA  
Ericameria laricifolia TURPENTINE BUSH  
Eriogonum fasciculatum PINK BUCKWHEAT  
Euonymus japonica EVERGREEN EUONYMUS  
Euryops pectinatus 'Viridis' GREEN BUSH DAISY  
Fallugia paradoxa APACHE PLUME  
Fraxinus greggii GREGG ASH  
Hibiscus syriacus ROSE-OF-SHARON  
Juniperus species SHRUB JUNIPERS  
Justica californica CHUPAROSA\*  
Justicia spicigera MEXICAN HONEYSUCKLE\*  
Lagerstroemia indica CRAPE MYRTLE\*  
Lantana camara 'Radiation' BUSH LANATANA\*  
Larrea tridentata CREOSOTE BUSH  
Leucophyllum candidum 'Silver Cloud' SILVER CLOUD SAGE  
Leucophyllum candidum 'Thunder Cloud' THUNDERCLOUD SAGE  
Leucophyllum frutescens TEXAS RANGER  
Leucophyllum frutescens 'Compacta' COMPACT TEXAS RANGER  
Leucophyllum frutescens 'Green Cloud' GREEN CLOUD TEXAS RANGER  
Leucophyllum frutescens 'White Cloud' WHITE CLOUD TEXAS RANGER  
Leucophyllum hybrid 'Rain Cloud' RAIN CLOUD SAGE  
Leucophyllum laevigatum CHIHUAHUAN SAGE  
Leucophyllum langmaniae 'Rio Bravo' RIO BRAVO SAGE  
Leucophyllum pruinatum 'Sierra Bouquet' SIERRA BOUQUET SAGE  
Leucophyllum zygophyllum BLUE RANGER  
Ligustrum japonicum 'Texanum' TEXAS PRIVET

## VI-4 RECOMMENDED PLANT MATERIALS

Mahonia aquifolium OREGON GRAPE  
Myrtus communis 'Compacta' DWARF GREEK MYRTLE  
Nandina domestica HEAVENLY BAMBOO  
Nandina domestica 'Compacta' DWARF HEAVENLY BAMBOO  
Photina fraseri REDTIP PHOTINIA ERDE  
Pittosporum tobira MOCK ORANGE  
Platycladus orientalis 'Aureus' GOLDEN ARBORVITAE  
Punica granatum 'Nana' POMEGRANATE  
Rhapiolepis indica INDIAN HAWTHORN  
Rhus lanceolata RED-FLAME SUMAC  
Rhus ovata SUGAR BUSH  
Rhus trilobata SQUAW BUSH  
Rhus virens EVERGREEN SUMAC  
Rosmarinus officinalis ROSEMARY  
Salvia chamaedryoides MEXICAN BLUE SAGE  
Salvia clevelandii CHAPARRAL SAGE\*  
Salvia dorrii DESERT SAGE\*  
Salvia farinacea MEALY-CUP SAGE"  
Salvia leucantha MEXICAN BUSH SAGE\*  
Sophora secundiflora. MESCAL BEAN  
Tecoma stans 'Angustata' YELLOW BELLS\*  
Vauquelina californica ARIZONA ROSEWOOD  
Viburnum tinus 'Compacta' SPRING BOUQUET  
Xylosma congestum SHINY XYLOSMA

\*Cold sensitive/root hardy

# Appendix VII: Urban Design Concepts

Following is an overview of Urban Design Concepts being explored for various locations throughout the city. The illustrative drawings provided for each project are intended to serve as conceptual plans to be used to inform the city's elected and appointed officials, staff, and the community about the ideas being proposed for each site and are subject to change. As plans are reviewed and approved by the community, appropriate city boards and City Council, and funds become available, the city's Urban Designer will then use the conceptual plans to develop more detailed plans that will be used to guide their implementation through the Community Development Department and Public Works Department.

## Gateways

### BOULDER CITY PARKWAY

#### PROJECT DESCRIPTION

- Landscape enhancements to line both sides of Highway 93 as it approaches Boulder City. Extensive plantings and signage will provide year-round interest and a distinctive image for the community.

#### STATUS/ANTICIPATED TIMING: 1-3 YEARS

- Streetscape plans are drawn and an encroachment permit has been granted to the city by NDOT. Work is pending resolution of the bypass corridor for Route 93 south of the city proper.
- When the decision that the bypass is indeed being constructed south of the city is made, this will be the first priority project for the greening of the city.

### DAMTOWN ROAD

#### PROJECT DESCRIPTION

Conceptual Plan for the enhancement and rejuvenation of the Uptown/Highway 93 Corridor as a tourist and resident market. Proposed enhancements include:

- The State Railway Museum for Southern Nevada will anchor



the east end of the district with an operating historic railroad.

- Development of three platted streets to link Nevada Highway to a new access road behind existing businesses paralleling the railroad tracks, easing congestion and improving circulation
- Enhanced commercial uses along the south side of the highway

#### STATUS/ANTICIPATED TIMING: 3-6 YEARS

- Diversion of truck traffic since 9.11.01 has calmed the traffic of Highway 93 appreciably. If the Southern Bypass project goes ahead, planning for redevelopment of the Highway Market can commence.
- With plans showing the increased development potential possible through enhanced circulation, it is anticipated that economic enterprise will cause the redevelopment of under-utilized parcels.

### OLD TOWN ENTRY

#### PROJECT DESCRIPTION

From Buchanan Boulevard to Wyoming Street, the former Nevada Highway (now called Nevada Way) has a cross-section of varying but excessive width. As anticipated in the 1998 Urban Design Element, one of the easiest things that can be done to enhance the arrival experience for Old Town is to relocate the curbs to the edges of the travelway except where parking or turning bays are required. The resulting parkway of 8'-22' could then be devoted to plantings.

#### STATUS/ANTICIPATED TIMING: 1-3 YEARS

Recent discussions offer hope that the narrowing of Nevada Way is possible as a part of redevelopment activities anticipated in the autumn of 2004.

### INTERSECTION OF NEVADA WAY AND WYOMING STREET

#### PROJECT DESCRIPTION

Long-term observation of the intersection of Nevada Way and Wyoming Street shows that reconfiguration of that intersection is important to the ultimate health of the business district and to the safe movement of residents. A design has been prepared which significantly calms traffic at the intersection while increasing parking in the vicinity. Through redevelopment efforts this change can convert a traffic problem into the threshold of the Old Town Business District.

#### STATUS/ANTICIPATED TIMING: 1-3 YEARS

### Historic District

#### OLD TOWN STREETScape

#### PROJECT DESCRIPTION

Renovation and enhancement of the Old Town Streetscape has established a consistent urban design character, calmed traffic, increased parking for downtown businesses, and improved pedestrian circulation and safety. Since 1998, when Streetscape was installed, six storefronts have introduced porticoes, further establishing a coherent theme for Old Town. Streetscape elements include:

- Pedestrian nodes and enhanced pedestrian crosswalks



- Street trees
- Historic pedestrian-scale lampposts
- Bollards imprinted with the art of Hoover Dam
- Return of diagonal parking to Nevada Way

#### STATUS/ANTICIPATED TIMING: 1-3 YEARS

- The Boulder Dam Hotel landscape was recently renovated consistent with the historic hotel and its new mixed-use character, including the museum and its first static display, an old trolley bucket that saw service in the construction of the dam.
- Studies for the renovation of Hotel Plazas North and South are underway with a committee of adjacent landowners. A strong consensus exists on the need to bring the enthusiasm of Streetscape to Arizona Street.
- Plans are in preparation to extend the amenities of Streetscape along Arizona tying the Credit Union Plaza to the Old Town Business District.
- The introduction of a Commemorative Garden in Escalante Plazas North and South will serve to strengthen the attraction of Old Town while revealing the significant history of Boulder City.

### COMMEMORATIVE GARDEN

#### PROJECT DESCRIPTION

Plans are evolving for the development of a garden centered in the two Escalante Plazas immediately west of City Hall and the Police Station. The open parks that lie on the axis of the town plan designed by Saco DeBoer seem to be an excellent place to tell the important story of Boulder City:

- An axial fountain narrow in the Moorish way would speak of water in the desert.
- A town plat cast in the lawn would reveal Boulder City's innovative beginning.
- A picture wall to the southwest in the north plaza would detail the town and the dam's construction, including President Roosevelt's famous speech.
- Allees of trees would line each side of the north plaza providing shaded walkways for pleasure and for Art in the Park.
- A life-size, bronze sculpture of FDR standing at the podium giving the famous speech would address Arizona Street.
- Arizona Street itself would be narrowed to accommodate only the two traffic lanes and the bus stop.
- The south plaza would hold thirteen 31er's gazing at a high-scaler.
- A monument bearing a plaque commemorative of President Hoover would recognize his work in siting Hoover Dam.
- A second commemorative plaque would tell the story of Padre Escalante's early passage through the Eldorado Valley.
- A picnic area and play facilities would complete the gardens.



#### STATUS/ANTICIPATED TIMING: 1-3 YEARS



## GEORGIA AVENUE STREETScape

### PROJECT DESCRIPTION

Georgia Avenue between Adams Boulevard and Mendota Drive will be planned for streetscape development including parkway plantings on the sides of the travel way and medians (where not present).

STATUS/ANTICIPATED TIMING: 1-3 YEARS

## Institutional Landscapes

### CITY HALL LANDSCAPE RENOVATION

#### PROJECT DESCRIPTION

The plan for renovation of the City Hall Campus includes:

- Foundation plantings to limit water use and mowing time while maintaining the character of the traditional lawn.
- Addition of deciduous trees to screen west face of City Hall from solar exposure and to reduce energy consumption.
- Conversion of the alley between City hall and the auditorium to a pocket park.
- Addition of a small solarium at the northeast corner of the building.
- Addition of three off-street parking spaces to serve drive-up/walk-up utility payment window to eliminate need to back out into Arizona Street.



STATUS/ANTICIPATED TIMING: 3-6 YEARS

### VETERANS MEMORIAL PARK

#### PROJECT DESCRIPTION

The seventy-acre community park at the base of Buchanan Boulevard began with a ballfield and a parking lot. Through a series of designs, it has evolved into a jewel of a park recognized throughout Nevada as an example of community spirit and design. Park uses depend from Commons Drive which serves to carry park traffic and parking as the spine of the park. Its present uses include:

- Four ballfields and associated parking
- A BMX bicycle track concessionaire
- Two skate board/bike parks
- Restrooms
- A splash park
- A desert demonstration garden
- A model boat pond



- A fishing pond
- Two regulation soccer fields
- Four ponds for the raising of Colorado River endangered fish
- Picnic facilities
- A Veterans Memorial dedicated 11.11.03

Additional developments include:

- Scouting Campground, Workshop and Education Center
- A group picnicking area
- A joint use park center building serving the park and the scouts
- A small amphitheater for scouting and sports use
- A community picnic area
- A dog park

STATUS/ANTICIPATED TIMING: 3-6 YEARS

### ABC PARK LANDSCAPE ENHANCEMENTS

#### PROJECT DESCRIPTION

Adams Boulevard Community (ABC) Park has developed from the site formerly operated by the State as a Children's Home. Through redevelopment since the site's transfer to city ownership a number of amenities have been provided to this central area of the community:

- A park administration office
- An extensive arts center
- A youth center
- A weight room
- A gymnasium
- A boys and girls club
- A new 24,000 SF library with associated 1000 seat amphitheater and parking
- Extensive landscaping

Future developments include additional landscaping, an exercise trail, computer center and refined parking.

STATUS/ANTICIPATED TIMING: 3-6 YEARS



### VISITOR CENTER GARDEN



#### PROJECT DESCRIPTION

Plans are prepared to convert a barren rest stop into a Welcome Garden for the State of Nevada. The facility is administered by the Las Vegas Visitors and Convention Authority and at their request the City of Boulder City prepared a major desert demonstration garden design. Its implementation would introduce visitors to the complexity of the Mojave Desert, provide opportunities to acquire Nevada-made merchandise, as well as travel literature and respite from the highway. Development will be keyed to the reconfigured use of the Hoover Dam-Boulder City landscape once the new bridge and bypass are better understood.

STATUS/ANTICIPATED TIMING: 3-6 YEARS

### DESERT DEMONSTRATION GARDEN

#### PROJECT DESCRIPTION

A four-acre desert demonstration garden is underway in Veterans Memorial Park, incorporating 700 Mojave specimen plantings rescued from the widening of Route 95 in Searchlight, Nevada. Featuring over 700 lineal feet of dry-set stone wall, the garden will promote the use of native and water-wise plants for use in Boulder City's harsh desert climate. The plantings will be drawn from desert in North America and from around the globe showing what can survive in the Mojave. Identification tags will be provided along with literature useful to visitors wishing to incorporate such species in their home landscapes.

STATUS/ANTICIPATED TIMING: 1-3 YEARS

### ***BOOTLEG CANYON RECREATION AREA***

Refer to Appendix VIII for the Bootleg Canyon Recreation Area Master Plan, adopted by the Planning Commission on April 16, 2008 and the City Council on May 13, 2008.



### ***HORSE CORRAL GREENING PLAN***

#### **PROJECT DESCRIPTION**

A plan is currently under implementation to introduce more than 1000 trees into the Horse Corrals area to create a more unified appearance and to provide more shade. As the plan sees implementation enthusiasm builds for establishing the corrals as an enterprise in the city including hayrides and more frequent rodeos.

**STATUS/ANTICIPATED TIMING: 1-6 YEARS**

### ***WEDDING GARDEN***

#### **PROJECT DESCRIPTION**

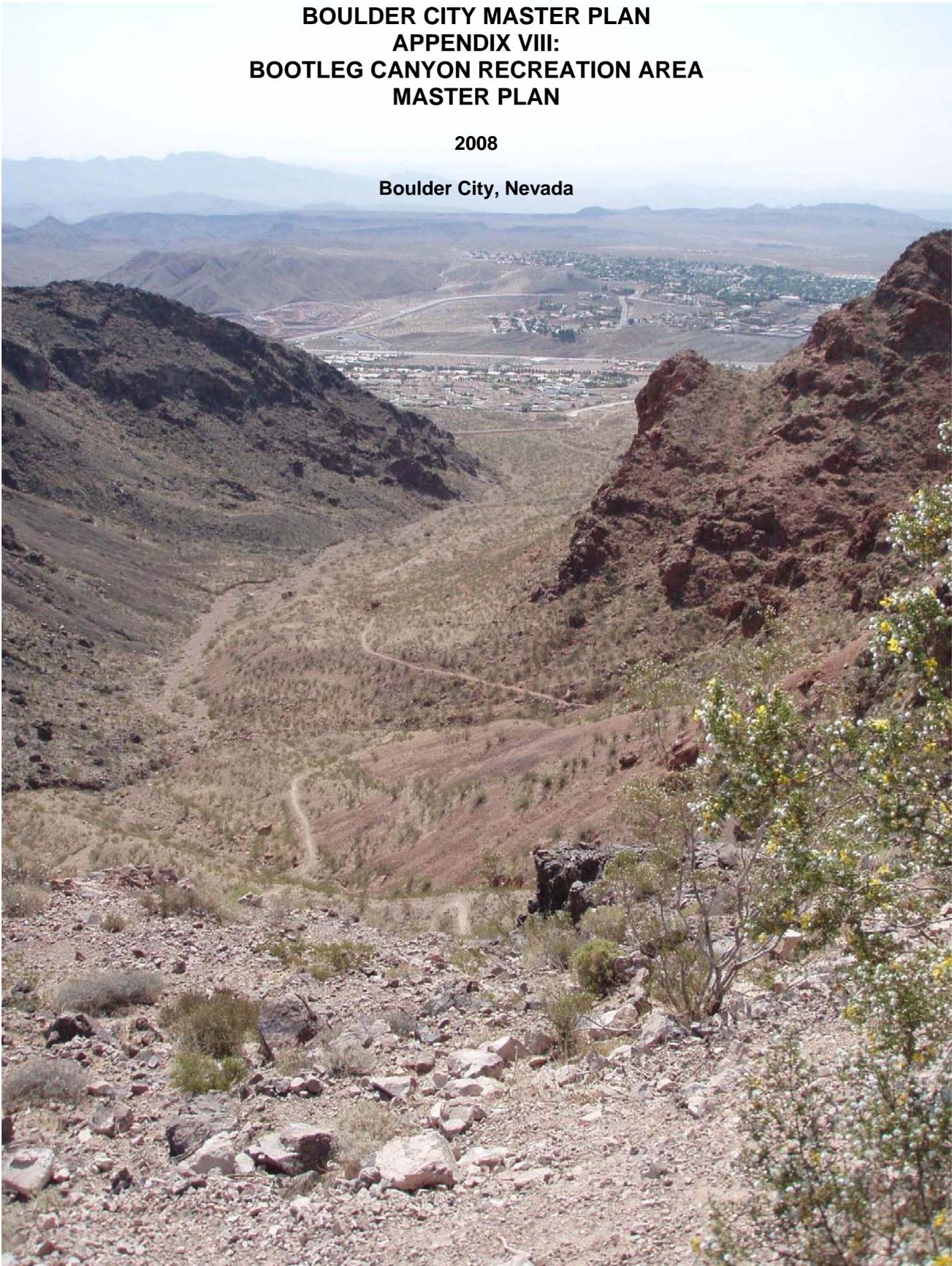
Plans for the incorporation of an intimate garden space east of the Boulder Creek Golf Course Clubhouse have been drawn to allow the development of a garden for weddings. The garden will be situated to maximize views of the Golf Course, Eldorado Valley and the distant mountains

**STATUS/ANTICIPATED TIMING: 3-6 YEARS**

**BOULDER CITY MASTER PLAN  
APPENDIX VIII:  
BOOTLEG CANYON RECREATION AREA  
MASTER PLAN**

**2008**

**Boulder City, Nevada**



## **Acknowledgements**

### **City Council**

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### **City of Boulder City Administration and Staff**

Vicki G. Mayes, City Manager  
Roger C. Hall, Director of Parks and Recreation  
Patricia W. Cooper, Administrative Supervisor

### **Parks and Recreation Commission**

Harold Begley, Chairman  
Vincent Abila  
Scott Kahler, Vice-Chairman and Chairman of Bootleg Canyon Master Plan Sub-Committee  
Carol Lelles  
Sharon Mills  
Darryl Molisee  
Mary Ann Wainwright

### **Planning Commission**

Jim Giannosa, Chairman  
Karen Knisley, Vice Chairman  
Brad Benson  
Cokie Booth  
Paul Matuska  
Charles Peterson  
John Schleppegrell

### **Interested Stakeholders**

City of Boulder City  
U. S. Department of the Interior, National Park Service  
Nevada Division of Wildlife  
Bike Businesses  
Bikers  
Hikers  
Boulder City Citizens  
International Mountain Bike Association  
FAA Facility (City Communications Contracts)  
U. S. Department of the Interior, Bureau of Land Management  
Clark County  
City of Henderson  
U. S. Department of the Interior, Bureau of Reclamation

Special thanks to former Parks and Recreation Commission members who also contributed to this effort: Pamela Adams, Tom Casey, Ben Eckstein and Carol Gaydos

# Table of Contents

Part One - Introduction	5
Executive Summary	5
Planning Area Boundaries	6
Vision Statement	7
Mission Statement	7
Purpose and Scope of the Plan	7
How the Plan was Developed	7
Part Two - Existing Conditions and Opportunities	9
History	9
Natural Environment	9
Geology	9
Hydrology	9
Vegetation	9
Wildlife	10
Existing Recreation	10
Hiking	10
Mountain Biking	10
ATV Use	10
Cultural and Archaeological Resources	10
Existing Facilities	10
Bootleg Canyon Park	10
FAA Facility	11
Sand and Gravel Quarry	11
Surrounding Land Uses	11
Part Three – Management Recommendations	12
Part Four – Goals, Objectives and Strategies	14
Goal 1: Promote Long-Term Sustainability of Resources	14
Goal 2: Manage Recreation to Protect Natural Resources and Enhance Visitor Experiences	14
Goal 3: Improve Interpretive and Educational Opportunities and Engage the Community in a Cooperative Stewardship Program	16
Goal 4: Work with Neighbors to Maintain Natural Functions	18
Goal 5: Improve the Safety of Bootleg Canyon Recreation Area	18
Goal 6: Improve Core Management and Maintenance	19
Goal 7: Enhance Recreation Area Funding and Staffing	20
Part Five - Implementation of the Master Plan	22
Implementation Plan	22
Educational Opportunities	22
Signage	22
Environmental Considerations	22
Recreational Trails	22
Hiking	22
Mountain Biking	23
Other Trails	23
Other Recreational Opportunities	23
No-Trace Aerial Trails	23
Management, Maintenance and Funding	23
Goal 1: Promote Long Term Sustainability of Resources	25

Goal 2: Manage Recreation to Protect Natural Resources and Enhance Visitor Experiences	26
Goal 3: Improve Interpretive and Educational Opportunities and Engage the Community in a Cooperative Stewardship Program	27
Goal 4: Work with Neighbors to Maintain Natural Functions	28
Goal 5: Improve the Safety of Bootleg Canyon Recreation Area	29
Goal 6: Improve Core Management and Maintenance	29
Goal 7: Enhance Recreation Area Funding and Staffing	30
City References	32
Additional References	32
Abbreviations	32

Maps, 11" x 17":

Subarea Boundary

Trailhead

River Mountain Hiking Trail

Caldera

Saddle

# Part One - Introduction

## *Executive Summary*

The Bootleg Canyon Recreation Area (BCRA) has been informally used by various different and diverse groups for generations. The Native Americans have been documented in this area for thousands of years; Spanish, Mexican and American explorers passed nearby. During the Great Depression, it was used by squatters, bootleggers and other nefarious people as a place of refuge. In 1937 to 1938, the Civilian Conservation Corps (CCC) built trails in the River Mountains as a public works project to improve recreational opportunities surrounding the Lake Mead National Recreation Area.

As Boulder City grew, the canyon became a place for shooting, off-road driving, hiking and for throwing parties. The Federal Aviation Administration (FAA) and various other agencies and businesses have radar installations and other telecommunication facilities located at the top of Red Mountain, thus requiring a road to the top for maintenance purposes. A viewing area is located on the saddle between Red Mountain and Black Mountain Overlook. This viewing area provides astounding views of Las Vegas, Lake Mead and Boulder City. Through the years, various individuals and groups have contributed to the maintenance of these trails and viewing areas without any direct supervision or direction from the City of Boulder City.

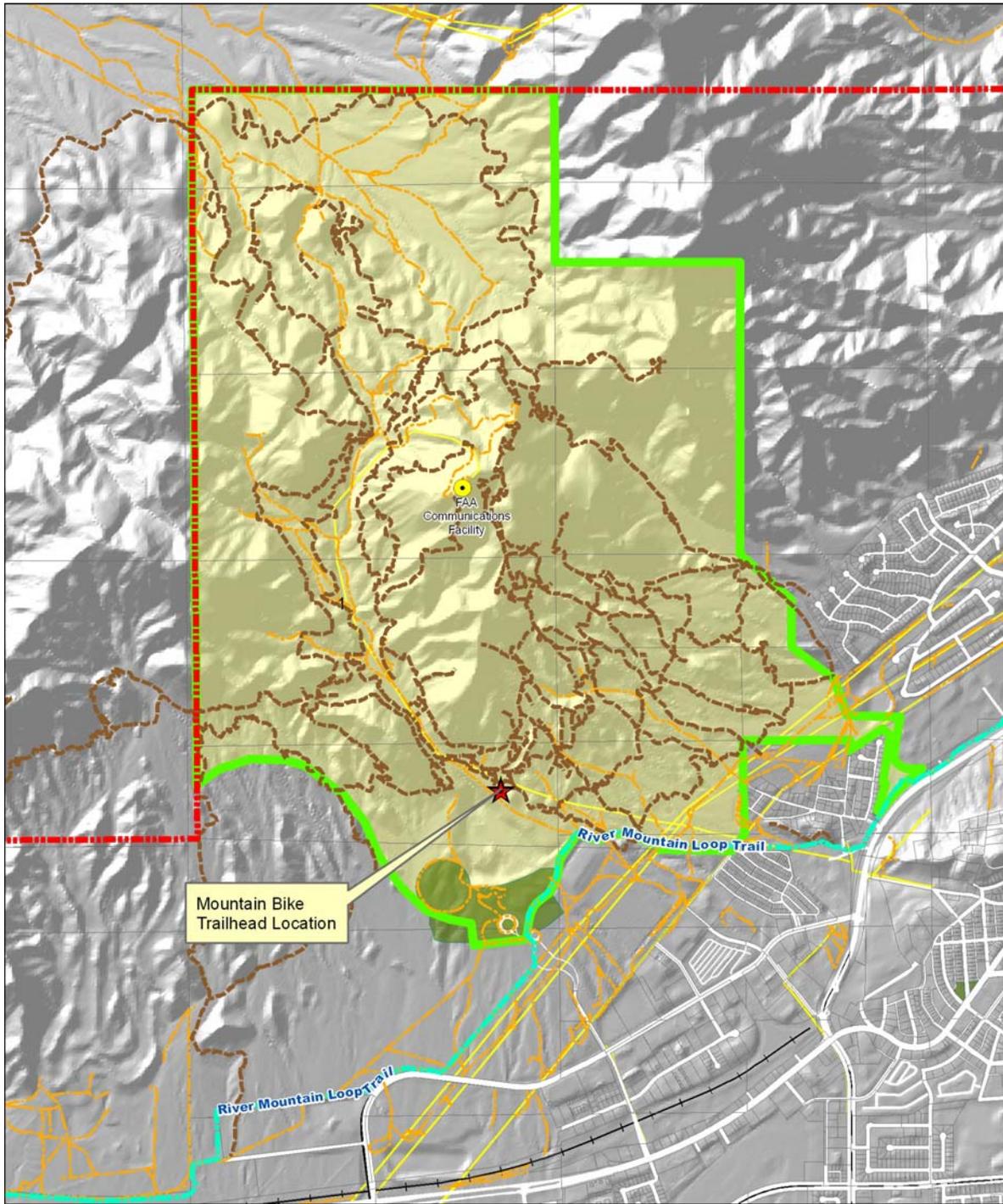
During the 1990's, the sport of mountain biking realized a boom in popularity and was accepted as an additional recreational use in Bootleg Canyon. The Canyon was acknowledged by the City as a recreation area in 2001. The City of Boulder City hired a trails coordinator to protect the area and to maintain the trails for hiking and mountain biking. New trails were built specifically for the sport of mountain biking and to accommodate hikers as well.

In recent years, it became apparent that the various recreational uses within the BCRA needed to be identified and addressed to promote a harmonious and compatible recreation area, in conjunction with efforts to preserve the beauty of the natural landscape and the habitat of local wildlife. In late 2005, the Boulder City Parks and Recreation Commission formed the Bootleg Canyon Sub-committee to draft a recreation area master plan that would consider all elements of recreational and environmental activities, with the goal that such activities could complement each other rather than conflict with each other.

This Sub-committee included the participation of key stakeholders which included various public entities and agencies, businesses and the general public. Over the course of a year, the sub-committee developed and refined the plan, its goals and recommended policies. The resulting work of the sub-committee developed the vision that the BCRA is an important open-space asset to Boulder City, with the mission to ensure the long-term protection of the recreation area's natural resources as a top priority. The purpose and scope of the plan were designed to help guide the City of Boulder City to make decisions for both the short and long term use and development of the recreation area.

The Bootleg Canyon Recreation Area Master Plan has been developed to provide for outdoor recreation for the citizens of and visitors to the City of Boulder City, to provide for environmental and wildlife education, to preserve the cultural and archaeological resources of the canyon and to provide for the necessary utility and infrastructure needs for the surrounding area. The Plan also considers the surrounding land uses controlled by outside interests so we can be a "good neighbor" to those land managers.

# Planning Area Boundaries



## Boulder City, Nevada

Bootleg Canyon  
Master Plan Sub Area  
Location Map



Map Created by:  
Brok Armantrout  
Director, Community Development Department  
City of Boulder City, Nevada  
April 16, 2008

## ***Vision Statement***

The Bootleg Canyon Recreation Area is an important open space asset for Boulder City's residents and visitors. The City should manage this area to protect its natural resources while providing environmentally sustainable recreation and educational opportunities.

## ***Mission Statement***

The mission of the City for the Bootleg Canyon Recreation Area is to ensure the long-term protection of its natural and cultural resources while providing for environmentally sustainable recreational and educational opportunities.

The Bootleg Canyon Recreation Area Mission statement guides both day-to-day and long-term decisions. It has several focus points:

- Protect natural and cultural resources,
- Provide environmentally sustainable recreation,
- Manage visitor use and impact, and
- Provide educational opportunities.

## ***Purpose and Scope of the Plan***

The purpose of this plan is to help guide both short and long-term decision making by recognizing and balancing competing goals and defining strategies for management of the BCRA. Walking, hiking, running and biking are just some of the recreational opportunities available in the BCRA. The goal of this Plan is to balance these needs with the need to reduce user conflicts, minimize liability and maximize safety for all users.

- In a world that is increasingly human dominated, the plan for the BCRA I attempts to balance and integrate the activities of nature and people.
- The natural wonders of the BCRA should be maintained as a place of recreation, inspiration and for the educational benefit of the community.
- Managing the BCRA is a shared responsibility. The City should inform and engage the community in the challenges of setting policy and managing the recreation area.
- The City should identify maintenance and staff funding needs and research outside funding sources.

The scope of this plan is limited to the boundaries of the Bootleg Canyon Recreation Area as depicted on the map(s) herein. The plan is an effort to provide for the use of best management practices in the development of the BCRA, and to promote the educational opportunities that exist and sustain the natural environment. This plan is intended to be updated periodically as resource issues and visitor conflicts emerge.

## ***How the Plan was Developed***

A Sub-committee of the Parks and Recreation Commission was formed to develop the Bootleg Canyon Recreation Area Master Plan. The process involved 11 members of the Parks and Recreation Commission as well as citizens from the City of Boulder City, Henderson and Las Vegas. Governmental agencies with jurisdiction over or administrative interests in the land surrounding the BCRA also participated with the Sub-committee. They include: the U.S. Bureau of Land Management, the Lake Mead National Recreation Area (U.S. National Park Service), the City of Henderson, the Nevada Department of Wildlife, the United States

Bureau of Reclamation, the International Mountain Bike Association and several bicycle related businesses from Boulder City and Henderson. The United States Geological Survey Office participated as a technical science advisor.

The Sub-committee also referenced materials related to the area presented with the Council packet of September 11, 2001 (although not discussed at that meeting), and the City's 2000 Strategic Plan and 2003 Master Plan. Also considered were letters from the various interest groups and an informal survey provided with the utility bills to Boulder City's residents in January of 2006.



## **Part Two - Existing Conditions and Opportunities**

### ***History***

Historically, there was little management of the Bootleg Canyon area. It has only been within the last decade, with the establishment of the mountain bike trail system and resulting increase in visitors, that a management structure has been established. The City established restrictions on motor vehicle use and camping, and shooting ordinances were then enforced.

Since the adoption of the city's Strategic Plan in 2000, the Parks and Recreation Commission has recommended that a 2,400 acre area in the vicinity of Bootleg Canyon be dedicated as a city park. On August 27, 2002 the City Council designated a much smaller area (not including the majority of trails) as a park, now known as Bootleg Canyon Park. Since 2000, the City has constructed a mountain bike trailhead, restroom building with showers and a parking lot near the mouth of Bootleg Canyon. A \$2 million grant was also obtained from the Southern Nevada Public Lands Management Act (SNPLMA) to construct a desert garden, which was completed in 2007. Preliminary plans for the park also included the possibility of a cultural arts center to be located in and around the Bootleg Canyon Detention Basin.

### ***Natural Environment***

#### **Geology**

The BCRA is located in the River Mountain Range that is volcanic in origin and ranges from rhyolitic to basaltic in composition. The southern edge of the River Mountains is the gypsiferous Muddy Creek Formation which overlies the Tertiary and Cretaceous volcanics which is, in turn, overlain by alluvium deposits of unconsolidated erosion sediments at wash openings.

#### **Hydrology**

The BCRA is located on a drainage divide separating Hemenway Wash, to the southeast; Eldorado Valley, to the south; and the River Mountain Caldera located to the north. Hemenway Wash and the River Mountain Caldera drain to the Colorado River. Drainage into the Eldorado Valley is internal to a dry lake bed. Flood potential in the BCRA is greatest from December through March and during the summer monsoon season in July and August.

#### **Vegetation**

The dominant vegetation type in the BCRA is the Mojave creosote bush-bursage shrubland association. Other plant species include: burro bush, broom bush, cheese weed, snake weed, bladder sage, smoketree, cat-claw acacia, golden weed, globe mallows, buckwheat, desert willow, prickly pear cactus, cholla cactus, beavertail cactus, and the barrel cactus.

## **Wildlife**

The several species of animals found in the BCRA include: side-blotched lizard, western whiptail lizard, desert horned lizard, desert iguana, desert spiny lizard, leopard lizard, gopher snake, coachwhip, glossy snake, speckled rattlesnake, sidewinder rattlesnake, desert tortoise, bighorn sheep, Gambel's quail, horned lark, raven, cactus wren, rock wren, Le Conte's thrasher, black throated sparrow, California leaf-nosed bat, California myotis, western pipistrelle, Townsend's big-eared bat, pallid bat, white-tailed antelope squirrel, round-tailed ground squirrel, desert Kangaroo rat, long-tailed pocket mouse, little pocket mouse, cactus mouse, desert wood rat, southern grasshopper mouse, black-tailed jack rabbit, desert cotton tail rabbit, coyote, kit fox, badger and bobcat .

## ***Existing Recreation***

### **Hiking**

Hiking is allowed on the River Mountain Hiking Trail leading up from the trailhead parking area to both the summits on Black Mountain Overlook and Red Mountain. Most hiking takes place on the 3+ miles of historic CCC trails built in 1938.

### **Mountain Biking**

Mountain biking is allowed on the trails leading down from the top of Red Mountain to the Bootleg Canyon mouth, along the front of Red Mountain and to the north into the River Mountain Caldera..At this time City management has determined that no new trails should be built. It is estimated that there already are 31 miles of trails for mountain biking.

### **ATV Use**

All Terrain Vehicle (ATV) and other off-road use is allowed only on the dirt roads leading into Bootleg Canyon, through the canyon and into the River Mountain Caldera located to the north of the BCRA.

## ***Cultural and Archaeological Resources***

Native American Indians have used this area for thousands of years for shelter and hunting grounds as they migrated around southern Nevada. A century ago the Canyon was used for mining gold and during the depression era, it was inhabited by squatters for shelter and bootleggers to make their illegal product away from and out of sight of law enforcement. After the construction of Hoover Dam, the Civilian Conservation Corps (CCC) built the River Mountain Trail to the top of Red Mountain and Black Mountain Overlook.

## ***Existing Facilities***

### **Bootleg Canyon Park**

This is a botanical preserve that includes a Mojave Desert Garden. It contains walking and resting areas and complements the BCRA with a mountain bike village area as well as extra parking and exhibit space. The park, as designated by the City Council on August 27, 2002, is located to the south and west of the Bootleg Canyon Trailhead. The previous Master Plan adopted in 2003 for the City included three possible future

scenarios for this area in addition to the Park itself: an outdoor amphitheater or performing arts venue, a spa or resort facility, or an educational or research facility. This amendment to the Plan for the BCRA retains these features as possible future uses.

### **FAA Facility**

The FAA and other telecommunications facilities located at the top of Red Mountain are reached by the road leading into Bootleg Canyon. The VORTAC facility, the combination of commercial VHF Omni-directional Radio Range and military Tactical Air Navigation, is the large “dish” looking structure at the top of the mountain. It is used in conjunction with other VOR facilities for the navigation of all types of aircraft by using radio signals as locators. Global Positioning Systems (GPS), augmented with various other electronic navigational systems are the expected to supplement to this navigational tool although this will take place in the distant future. The VORTAC is an essential communications facility used by Air Traffic Control and McCarran International Airport to ensure a safe approach and departure for all aircraft in the region.

### **Sand and Gravel Quarry**

The City of Boulder City has a monthly contract with the sand and gravel operations at the entrance of Bootleg Canyon. As part of the agreement with the City, the sand and gravel pit will be excavated in a way that creates a flood control detention basin.

### ***Surrounding Land Uses***

The land surrounding most of the BCRA is controlled by other entities. The land to the south and east is controlled by Boulder City; to the west is the Bureau of Land Management’s Area of Critical Environmental Concern (ACEC); to the north is the River Mountain Caldera controlled by Clark County; and further to the east is the United States Department of the Interior, National Park Service-Lake Mead National Recreation Area. Currently, the only land with uncontrolled use is in the River Mountain Caldera located within Clark County. The BLM will be conducting their research and writing a plan for the ACEC area within the next decade.

## Part Three – Management Recommendations

This portion of the document outlines general recommendations for the management of the Bootleg Canyon Recreation Area (BCRA), whereas more specific recommendations are noted in parts four and five of this document.

Through sound resource knowledge, careful facility development, and educational awareness, Boulder City staff should work with citizenry to achieve the Mission of the City for the BCRA. The successful implementation of the goals herein for the BCRA is dependent on the goodwill and assistance of both local residents and out-of-town visitors. It is understood that all residents and visitors are capable of adapting to changing conditions in the Bootleg Canyon Recreation Area and are willing to learn new ways of interacting with and caring for this resource. The following goals will help guide the management of the BCRA in the future.

The Bootleg Canyon Recreation Area constitutes a semi-developed recreation site. It consists of hiking and biking trails along with a maintenance road to the top of Red Mountain for various radar and radio installations. Within the trail area, new trails or facilities should not be provided; instead, the existing resources and facilities should be enhanced and refurbished. It is understood that facilities within the BCRA will be expanded as the need arises and budgets permit.

A key goal of management is to promote the long-term sustainability of recreational experiences and facilities by:

- Promoting long term sustainability through sound recreational management.
- Ensuring that the impact of use does not degrade the integrity and diversity of natural and cultural resources, detract from the quality of the recreation experience, or overwhelm the capacity of facilities to provide acceptable levels of service.
- Encouraging the use of the BCRA through various recreational opportunities.

A key foundation concept for park management is ecosystem management, which provides an approach to sustaining desired landscape conditions, natural system functions, the diversity of native species and wildlife, and the quality of various recreational experiences. The goals are to:

- Protect and restore natural conditions and processes vital to the health of the BCRA's eco-system.
- Articulate and consider the needs of the entire ecosystem, including the land, plants and animals within the ecosystem, and the people who seek the habitat for recreation.
- Maintain and upgrade existing facilities.
- Adapt management practices using the best resource management concepts known through experience and research to achieve the best natural resource and visitor recreational experiences.

Management activities should support the day-to-day, high-quality provision of other essential services such as public outreach, resource planning and monitoring, volunteer management and safety training. It is recommended that a high priority be placed upon providing core services that include:

- Public safety,
- Facility maintenance and essential visitor services,
- Resource protection, planning and monitoring,
- Environmental education and public outreach,
- Visitor services and volunteer training and management,
- Various recreational uses (such as hiking, biking, aerial trail, etc., as noted herein).

The City should seek out and use the best resource management and visitor use management concepts and ideas available. Resource management and recreation area maintenance are aimed at preventing problems by solving challenges efficiently and effectively, and respecting natural and facility life cycles. The City aims to learn from experience and research to adapt management practices accordingly. The City should seek to balance competing community needs and desires by:

- Allocate recreational opportunities fairly among competing uses,
- Basing decision making on an inclusive and open decision making process,
- Being proactive in problem solving, through prevention, analyzing existing and emerging opportunities, and planning for natural and facility life cycles,
- Influencing recreational use to protect the quality of recreational opportunities,
- Minimizing conflicts between the different types of users,
- Managing the resources to minimize safety risks.

When managing visitor use, the City should pursue opportunities for providing education that encourages the public to develop personal responsibility, helping users develop the capacity for change, and that engages the public in the mission of the recreation area, . The City should seek to build community partnerships to:

- Foster stewardship through environmental education.
- Engage the public in the development of personal responsibility for the health of this natural resource.

The City should pursue a “good neighbor” policy by:

- Preventing or mitigating adverse visitor use impacts or adverse results of management policy affecting land managers of adjacent property.
- Coordinating planning and resource management activities of proximal private and public landowners.



## **Part Four – Goals, Objectives and Strategies**

The following goals, objectives and strategies are designed to meet the mission and vision for the Bootleg Canyon Recreation Area. Each of the goals responds to one or more of the objectives established by the Sub-committee and the issues and directions identified in the public meetings. The strategies then provide for a plan of action with regard to the goals and objectives.

### ***Goal 1: Promote Long-Term Sustainability of Resources***

#### ***Objective***

*Maintain and enhance the quality of the natural environment and habitat of the BCRA by maintaining the area's remoteness and primitive character.*

#### ***Strategies***

This Plan recommends the adoption of policies which would protect the following resources. Further professional studies may be required to determine the best methods for achieving the desired protection of these resources.

##### ***Cultural Resources***

- Protect archeological, historical and visual resources.

##### ***Geological and Soil Resources***

- Prevent unnaturally high levels of erosion and protect soils.

##### ***Vegetation Resources***

- Protect native species and rare, threatened or sensitive plant communities and populations.
- Protect and attempt to maintain natural levels of biodiversity.
- Prevent insofar as possible the inadvertent introduction of invasive weed species.

##### ***Water and Air Resources***

- Protect existing watersheds.
- Protect air quality.
- Minimize artificial lighting that will degrade the natural experience.

##### ***Wildlife Resources***

- Protect native habitat diversity and integrity.
- Consult with the various wildlife agencies to improve wildlife habitat.
- Minimize habitat fragmentation via roads and trails.
- Protect wildlife migration corridors.
- Control urban "predators".
- Manage wildlife-human conflicts and educate visitors on key aspects of wildlife in the BCRA in order to reduce conflicts.

### ***Goal 2: Manage Recreation to Protect Natural Resources and Enhance Visitor Experiences***

#### ***Objective***

*Provide a range of recreational opportunities and develop facilities that meet user needs and are compatible with the long term sustainability of the natural communities.*

### **Strategies**

The Bootleg Canyon Recreation Area is a major regional and national recreation destination. As such, the area fills several recreational niches such as:

- A major draw for mountain bikers who want to experience rigorous mountain biking and to appreciate the recreation areas tremendous natural and scenic qualities.
- A recreation area heavily used by residents and visitors who run, hike, bike and walk frequently.

Managing for visitor use is a principal component of the mission of the BCRA. Increases in the popularity and importance of outdoor recreation, encouragement of competitive events on the bike trail systems and completion of the Bootleg Canyon Park have resulted in increased visitation to the BCRA and puts pressure on the natural resources. BCRA management should seek to channel and influence recreational use and to protect the quality of recreational opportunities.

The facilities and recreational opportunities in the BCRA will likely evolve as funds become available. Existing trails and facilities could be enhanced and refurbished to improve the visitor experience and to protect natural values. The areas of highest concentrated use are associated with ease of access and developed facilities such as the Canyon mouth and the River Mountain Trailhead.

Visitor uses should be minimum impact and compatible with maintaining important natural functions. Increased pressures warrant the implementation of the following strategies:

This Plan recommends the adoption of policies which would:

#### ***Monitor Recreational Use***

- Establish baseline recreation use data to determine type of use, user destination, size of group, trip duration and frequency, user residence and travel to park.
- Re-survey recreation users periodically.
- Monitor recreation trends and provide proactive policies to deal with changes in outdoor recreation.
- Monitor resources to determine impacts, and change or develop new recreation policies or new management activities as needed.

#### ***Provide Appropriate Recreation Use in Appropriate Locations***

- Continue current recreation in the Park with enhancement of high-use areas (such as trail hardening) to better accommodate current and projected sustainable levels of use.
- Improve and expand recreational facilities when consistent with natural resource values.
- Provide recreational opportunities for people of all abilities. Implement a philosophy similar to the USDA Forest Service's program of "Challenge Levels" in which some trails are more accessible than others.
- Prohibit domestic animals within certain areas of the BCRA, in order to protect the migration and habitat area of the desert bighorn sheep.
- Prohibit motorized off-highway vehicle use throughout the BCRA.
- Prohibit mountain bikes on the entire length of the historic River Mountain Trail. The River Mountain trail is defined as the trail from the River Mountain trailhead to summit of Black Mountain Overlook except for the short shared biking/hiking reach in the saddle between Red Mountain and Black Mountain overlooks.

- Except by special permit, the hours of operation shall be from 5 am to 10 pm.
- If possible, provide shuttle service on high-use days (e.g. weekends, special events, etc.).
- Restrict shuttle vehicle/trailer size to ensure safety at the upper parking area.
- As for all City parks, camping anywhere in the BCRA is prohibited, except under special event permits in which camping in designated areas will be allowed.
- Possibly establish a campground only after the completion of a comprehensive life cycle cost-benefit analysis.
- Explore the opportunity for cooperative mountain bike trail connections to and from surrounding destinations, only if a link can be provided without detrimental effect to the Park's natural resources or surrounding land uses.

### ***Manage Trail Systems***

- Develop and maintain trails, compatible recreation opportunities and public facilities consistent with sustaining natural resources.
- Apply sound ecological planning and design principals to the construction and maintenance of trails to control erosion and visibility factors.
- Relocate trails as needed to decrease maintenance and increase hiker/biker comfort and associated allegiance to staying on the trail.
- Conduct a full inventory of all designated and social trails in the park, and determine appropriate trail closures and mitigation measures to direct users to stay on designated trails.
- Management of all trails and trail work within the BCRA to be supervised by the City staff and trailmaster.
- Coordinate with educational programs to teach users the importance of staying on designated trails.
- Offer a range of different trail experience to appeal to the diversity of trail users and to foster staying on the trail.
- Minimize trail user conflicts by striking a balance among competing recreational user needs.

### ***Improve Public Access***

- Provide clear directions to BCRA facilities and trails to direct users to areas that are appropriate for their use.
- Create better visual signage in complex locations.
- Improve existing trailheads to provide local access points and reduce congestion.

### ***Rehabilitate Impacted Areas***

This Plan recommends the adoption of policies which would:

- Implement trail surface hardening where appropriate to accommodate high levels of use.
- Close social trails and reclaim damaged areas with native plant materials.
- Correct erosion problems through either closures or the installation of appropriate erosion control devices.
- Use temporary and permanent closures to restore severely impacted areas.

## ***Goal 3: Improve Interpretive and Educational Opportunities and Engage the Community in a Cooperative Stewardship Program***

### ***Objective 1***

*Promote an awareness of the natural, historic, and cultural value of the River Mountains and build an understanding of human interactions with nature.*

### **Objective 2**

*Promote public involvement in the long term management of the BCRA by providing diverse communication opportunities and maintaining a responsive attitude towards visitor concerns.*

### **Strategies**

The Bootleg Canyon Recreation Area is a unique natural resource located close to a fast growing major metropolitan area with a university, local schools and local and federal agencies dedicated to environmental education. There are many opportunities to involve citizens to learn about the resources in the BCRA. By fostering an appreciation of the BCRA and facilitating environmental education it can be the most important management tool for resource protection. By implementing an effective educational outreach program, the natural resources of the BCRA can be promoted to both potential and existing users.

This Plan recommends the adoption of policies which would:

#### ***Provide Educational and Outreach Opportunities***

- Inspire visitors to appreciate the unique natural feature of the River Mountains and their place in it and encourage individuals to become stewards of natural resources.
- Work with federal and university partners to promote, provide and fund educational programs within the area.
- Conduct outreach programs with local schools and work with instructors to develop a curriculum that will result in better stewardship of the BCRA.
- Work with our federal partners to expand interpretive signing and educational opportunities.
- Encourage creative use of the BCRA by outside organizations.

#### ***Provide Interpretive Materials***

- Provide maps, brochures and interpretive materials that describe the natural, historic and cultural settings, and the hiking and biking trails with their difficulty rating.
- Use the BCRA website for dissemination of all educational information that addresses the wide range of users within the BCRA.
- Develop signage at trailheads to inform visitors of unique conditions that may exist, the difficulty of the trail and the connectivity with regional trail systems.
- Expand the stay-on-designated trails program by emphasizing the “Leave no Trace” and “Tread Lightly” programs

#### ***Provide Stewardship Opportunities and Programs***

- Consider every citizen to be a potential steward of the BCRA and identify ways that citizens can be engaged in stewardship activities.
- Continue and improve on volunteer opportunities within the BCRA by training staff in volunteer management and coordination.



## **Goal 4: Work with Neighbors to Maintain Natural Functions**

### **Objective**

*Promote harmonious and integrated land management and connectivity of uses with surrounding Boulder City property and local and federal land managers.*

### **Strategies**

The boundaries of the Bootleg Canyon Recreation Area are a result of historic opportunities and land ownership patterns that bear little relationship to ecological functions. If the natural functions of operating in the BCRA are to be maintained, Boulder City will need to work with, educate and encourage its neighbors to maintain important functions. The City should continue to work with its public and private neighbors in a cooperative and collaborative fashion to achieve mutual objectives. As identified through this planning process, the public and private landowners surrounding the BCRA share many common objectives. These should be used as a basis for developing a cooperative management system. The BCRA has many potential partners in this effort which include nonprofit land conservation groups, City programs, federal agencies and private landowners who appreciate and enjoy the BCRA.

There are many ways that the City can achieve its objectives of protecting natural systems while providing recreational and educational opportunities within the BCRA. The Boulder City Parks and Recreation Department has worked diligently to ensure that policies, regulations and management strategies provide as seamless a boundary as possible.

This Plan recommends the adoption of policies which would:

- **Consider future use and growth on the borders of the River Mountain area**
- Work with other agencies to monitor adjacent development and impacts on recreational needs and natural resources within the recreation area.
- Cost-share arrangements could be explored to carry out mutually beneficial management projects.

## **Goal 5: Improve the Safety of Bootleg Canyon Recreation Area**

### **Objective**

*Promote visitor safety and resource management goals through effective public education, law enforcement and emergency services.*

### **Strategies**

The terrain, local weather patterns, wildlife populations, recreational activities and the proximity to a major tourist destination all contribute to public safety concerns in the BCRA. Many of these safety issues are so unpredictable and inherently unmanageable that there is little likelihood of removing all safety concerns. Even though the BCRA is “hike and ride at your own risk,” the City should strive to provide levels of public safety appropriate to the setting.

This Plan recommends the adoption of policies which would:

#### ***Continue Proactive Approach to Public Information and User Education***

- Develop integrated public information programs to inform users about potential hazards, appropriate uses, and rules and regulations.
- Continue or increase level of staff services to directly contact visitors within the BCRA.
- Provide signage to inform users of the technical difficulty of the downhill trails.

#### ***Continue Coordinated Approach to Public Safety***

- Continue close cooperation with the City of Boulder City Parks and Recreation Department and the Boulder City Police and Fire Departments.
- Continue Extensive Law Enforcement, First Aid, and Search and Rescue Training.
- Continue coordination with Boulder City Hospital.

#### ***Continue Enforcement Efforts***

- Use the Boulder City Parks and Recreation Department Park Rules and Regulations (Ord. 972).
- Continue operating under the current laws of the Boulder City Police Department.

## ***Goal 6: Improve Core Management and Maintenance***

### ***Objective 1***

*Ensure that capital improvements are compatible with the environment, require minimal maintenance and are designed to minimize environmental impacts.*

### ***Objective 2***

*Develop a management strategy for operations and maintenance that evaluates existing infrastructure for long-term sustainability and provides for the optimization of operations and maintenance services.*

### **Strategies**

This Plan recommends the adoption of policies which would:

#### ***Provide Core Bootleg Canyon Maintenance Services***

- Develop a complete asset management inventory with detailed data for each asset.
- Maintain and repair buildings and structures in accordance with an asset management plan.
- Maintain and repair access roads, gates and signs as needed.
- Landscape to stabilize disturbed areas, reestablish vegetation and eliminate invasive weeds.

- Construct and maintain access routes to facilities and possibly move the access gate down the mountain.
- Maintain access to facilities for persons with disabilities in accordance with the federal ADA laws.
- Install and repair picnic tables, shelters, restrooms and other facilities.
- Build and repair fences, handrails, ramps, decks and other facilities.
- Repair vandalism of buildings, structures, fences, signs and trails.
- Utilize wildlife-proof trash cans to better manage wildlife and trash issues.
- Provide wildlife related structures as needed and approved by wildlife managers.
- Remove trash and service restrooms on a regular basis or as needed.
- Construct structures to manage drainage for irrigation and erosion control.

## **Goal 7: Enhance Recreation Area Funding and Staffing**

### **Objective**

*To provide the necessary staffing and funding to carry out the mission of the Bootleg Canyon Recreation Area.*

### **Strategies**

The ability of the BCRA to carry out the ambitious management program identified in this plan requires an increase in funding. Current funding is not sufficient to meet the needs identified in this plan for trail maintenance, public outreach, land management and safety issues.

This Plan recommends the adoption of policies which would:

#### ***Increase Funding***

- Identify specific budgets required to implement the plan and locate sources of additional funding for annual research and monitoring needs.
- Continue to identify and implement cost saving methods in the BCRA.
- Identify additional federal funds as needed to complete the outreach programs, such as through the Transportation Equity Act for the 21<sup>st</sup> century (TEA21) and the National Trails System Act of 1968.
- Explore potential for private and nonprofit support for specific BCRA projects.
- Explore additional low impact – high profit uses within the BCRA.

#### ***Improve Staffing***

- Continue to provide training opportunities so staff can maintain and enhance recreational opportunities and natural resources.
- Identify any additional staffing needs for operations and maintenance.
- Utilize seasonal and contractual labor whenever possible to complete special research and projects.
- Utilize trained volunteers supervised by Trailmaster to accomplish management goals.
- Provide diverse opportunities for the general public and other agencies to contribute to BCRA management.



## **Part Five - Implementation of the Master Plan**

### ***Implementation Plan***

This chapter provides an overview of issues and concerns as guidance for the recommended management and development of the BCRA.

### ***Educational Opportunities***

Integral to the BCRA Master Plan is the educational opportunities to teach both young and old of the natural beauty of the BCRA and the surrounding area. From Bootleg Canyon Park, into the Canyon, to the top of the mountain and into the surrounding landscape, there is an opportunity for education about the abundant foliage, geology and wildlife of the area. Educational brochures, displays and presentations should be created so that the populace can be informed of the unique conditions within the BCRA.

### ***Signage***

Standardized signage should be developed and used within the BCRA. Individual signs should indicate the appropriate usage of the trail route, direction of trail (if needed), and the level of difficulty for each trail. Signs should be placed at all major trailheads where there is a variance of difficulty and should be located where they will be clearly visible and will not create a hazard. Trail location and regulations signage should also be posted at the Bootleg Canyon Trailhead/Restroom Area showing the location of trails, difficulty rating for each trail, a brief description of the trail/difficulty rating and trail distance, if possible.

### ***Environmental Considerations***

The environment of the BCRA should be kept as pristine as possible while also allowing for recreational activities. In addition to preserving the physical environment, measures are needed to maintain and enhance the area's wildlife population. The bighorn sheep population is an especially important wildlife concern to Boulder City and to the Federal and State governments' wildlife specialists, since the area contains a crucial corridor for the sheep to migrate between the River Mountains and the McCullough Ranges.

Due to the aggressive nature of invasive weeds and plants, they should not be introduced into the area. New plantings must be of native species and materials to reduce this possibility. Since this may also be hard to control with visitor use and the disruption of the desert floor, constant vigil is needed to counter their growth.

### ***Recreational Trails***

#### **Hiking**

The hiking trails built by the CCC are a significant cultural heritage and an integral and important part of the BCRA. Estimated at just 10% of all trails in the Bootleg Canyon area, the River Mountain Hiking Trail represents the ideal for the hiker: solitude. The River Mountain Hiking Trail should be maintained for hiking only. The reasons for this are two-fold: the first is to maintain the historic character of the trail itself; and the second is to separate the hikers from the bikers to maintain the solitude of hiking. This will also increase the safety level for hikers by maintaining a single use trail with less trail wear. The hiking only part of the CCC Trail begins at the River Mountain Trailhead parking lot and proceeds to the east to the summit of the Black Mountain overlook. Another portion

of the original CCC trail extends to the west to the VORTAC, and bikes are also allowed on this part of the trail.

### **Mountain Biking**

The mountain biking trails are the centerpiece of the BCRA. With approximately 31 miles of trails in place now, the City does not expect a need for new trails in the near future. The trails should be maintained to the standards of the International Mountain Bicycling Association (IMBA). The demand for facilities will increase with time and increased visitor use. New facilities may need to be built in the future to accommodate these increased demands.

### **Other Trails**

Along the base of the mountain are trails and dirt roads used by bikers, hikers, walkers and runners. Since some of these roads are also utility corridors, they will be maintained as such. This means that they must remain open to all uses allowed within the BCRA and for utility vehicle access.

The River Mountains Loop Trail mostly exists outside the boundaries of the BCRA, and will be extended from Railroad Pass to Veterans' Memorial Drive connecting it to the Lake Mead Trail portion. The extension of this trail is being constructed by Clark County and it is expected to be completed in 2008 or 2009. Although the trail is at the southern edge of the BCRA, the maintenance costs of the trail within Boulder City's boundaries will be the responsibility of the City. Although domestic animals (including horses) are permitted on the River Mountains Loop Trail, such animals should generally not be permitted in certain areas elsewhere within the BCRA in order to protect the migration and habitat area of the desert bighorn sheep.

## ***Other Recreational Opportunities***

### **No-Trace Aerial Trails**

The Boulder City Council on April 24, 2007 adopted Resolution 4978, accepting the proposal and awarding Greenheart Conservation Company, LTD, the contract for development and operation of an aerial trail system in Bootleg Canyon. This "No-Trace Aerial Trail" or zipline is to be installed over the Red Mountain biking portion of the BCRA. It is expected that any business located within the BCRA will abide by the recommendations of this Plan. Further, it is anticipated that a portion of the City's income from the lease of this land could ideally be utilized to fund some of the proposals in this Plan.

## ***Management, Maintenance and Funding***

Crucial to the BCRA is its management, maintenance and funding. It is expected that the City's Department of Parks and Recreation will oversee all management of the BCRA. An adoptive management approach will allow for corrections and adaptations to the specific challenges within the BCRA. This means that management will evolve with the needs of the recreation area, implementing practices and procedures that will maintain the long-term viability of the BCRA.

Due to the BCRA's size and unique opportunities, it would be in the best interests of the City to maintain a manager position and trail crew in addition to the trailmaster position, when funds become available. This position would manage the funding, education, events and

maintenance of the BCRA, leaving the trailmaster to maintain the trails and supervise all the trail work. The BCRA will need a manager that can attend to the policies of this management plan addressing the multitude of issues that face the BCRA. To achieve this goal and that of a return on the City's investment, a manager would be needed to oversee operations of the BCRA and work to bring in more revenue generating activities. The revenue producing aspect of the BCRA brings the potential for the City and for the business community to produce an income that has the capability to grow to be a substantial revenue stream. The educational aspect of the plan gives the City an opportunity to create a premiere attraction highlighting the area's unique natural features and helps to build a relationship to the area from within the community.

It is essential that the management of the BCRA be proactive in:

- 1) Safeguarding the canyon's natural resources;
- 2) Promoting and administering special recreational events;
- 3) Researching new and on-going recreational opportunities;
- 4) Establishing a return on the investment from the BCRA to maintain self funding;
- 5) Creating and maintaining the multi-faceted educational aspect of this plan; and
- 6) Minimizing conflicts between user classes.

Maintenance is needed on the road to the top of the mountain, the hiking and biking trails, as well as any facilities such as the restroom. Maintaining the road is an important safety concern and needed for the operation of some mountain bike trails and the infrastructure on Red Mountain. Trails must also be in good condition to maintain the best safety precautions possible. All facilities need to be maintained to help prolong their life expectancy, thus saving money in the long-term.

A reliable funding source will be needed to support the BCRA perpetually. There are various options available to the City to maintain a funding source. They include: Federal Government TEA-21 funding (which is usually required to be used for alternative transportation facilities rather than off-street trails, which may limit the use of this funding source); the Southern Nevada Public Lands Management Act (SNPLMA); public and private grants; user fees; increased special events and their related fees; or a non-profit "Friends of the Canyon" group. Question 1 was a landmark environmental initiative passed by Nevada voters in 2002 and was designed to benefit, protect, and preserve Nevada's natural resources. The funds generated through bond sales approved by the Nevada State Legislature can be used to build and support recreational facilities, including trails.



The following proposed action steps are related to the goals and objectives outlined in Part 4 of this Plan:

### **Goal 1: Promote Long Term Sustainability of Resources**

#### **Objective**

*Maintain and enhance the quality of the natural environment and habitat of the BCRA by maintaining the area's remoteness and primitive character.*

**Action 1:** An inventory is needed of archeological, historical and visual resources to establish a baseline. It would be best to involve the historian from the Boulder Dam Museum to ensure the correct history of the Canyon, use the local college resources for locating any archeological sites and use photographs for documentation of the visual resources.

**Action 2:** Any archeological or historical resources should be marked and protected from encroachment and/or vandalism. If possible, signs and other informational material should be made available for the educational aspect of this Plan.

**Action 3:** Bike trails should be built to the design specifications accepted by the International Mountain Bicycling Association (IMBA) and constantly maintained by a trained trail crew and Trailmaster.

**Action 4:** Design specifications accepted by the International Mountain Bicycling Association (IMBA) should be used for the rehabilitation of any impacted area.

**Action 5:** Unneeded trails should be closed using barriers, if necessary, and they should be re-vegetated with native plants with the help of State and/or Federal agencies.

**Action 6:** A procedure should be created to inspect all of the trails on a timely basis, to ensure any erosion is addressed immediately to reduce erosion damage.

**Action 7:** In conjunction with State and Federal land managers, all rare, threatened or sensitive plant communities should be identified for a baseline inventory.

**Action 8:** Any rare, threatened or sensitive plant community should be marked and protected from encroachment and/or vandalism. If possible, signs and other informational material shall be made available.

**Action 9:** With direction from State and Federal land managers, invasive weed species should be controlled through their integrated weed management programs.

**Action 10:** The Parks and Recreation Commission should review any alteration of any trail, road or facility and make a recommendation to the Director of Parks and Recreation as to the compatibility with this plan. Construction should be done by trained trail crew.

**Action 11:** State and Federal land managers should be consulted regularly on the wildlife population and the best practices to protect native habitat and wildlife migration routes.

**Action 12:** State and Federal land managers should be consulted for wildlife information for the educational aspect of this Plan.

<b>Measurement</b>	<b>Recommended Timeframe</b>
Use historical data along with modern equipment to establish a baseline and to document the use of resources to maintain the area's character.	One (1) Year, On-going
Update data which should include maps, photos, GPS coordinates, etc. on at least an annual basis.	One (1) Year, On-going
Conduct post bike race review of operations and terrain impact areas to improve conditions on follow-up events.	After Every Event
Consult with State and Federal land managers on vegetation and wildlife habitat and educational information on at least an annual basis.	One (1) Year, On-going

## ***Goal 2: Manage Recreation to Protect Natural Resources and Enhance Visitor Experiences***

### ***Objective***

*Provide a range of recreational opportunities and develop facilities that meet user needs and are compatible with the long term sustainability of the natural communities.*

**Action 1:** Recreation use data should be acquired through various means to determine the various components of a user profile to establish a baseline user profile.

**Action 2:** User profile data should be updated regularly to track any socio-economic changes or trends to help guide management.

**Action 3:** Impacts to resources and recreation trends should be monitored to develop policies that proactively deal with any possible changes in outdoor recreation that would affect the BCRA.

**Action 4:** Policies and management strategies should be developed that allow for changes in recreation activities within the BCRA.

**Action 5:** The recreation area should be monitored to maintain the infrastructure to ensure that current and projected recreation uses and opportunities and expected visitor levels are met.

**Action 6:** Domestic animals should be prohibited within certain areas of the BCRA, in order to protect the migration and habitat area of the desert bighorn sheep.

**Action 7:** All off-road use should be prohibited within the BCRA.

**Action 8:** Mountain bikes should be prohibited on the historic River Mountain Trail, including the Black Mountain overlook.

**Action 9:** Policies and procedures to standardize special event permits should be developed that would include but not be limited to matters such as: hours of operation, shuttle service and size, camping and fees.

**Action 10:** A feasibility study should be conducted for the possible establishment of a permanent campground within the BCRA.

**Action 11:** The City should coordinate with Local, State and Federal agencies on the possibility of establishing a trail network that interconnects with the surrounding area.

**Action 12:** A management plan should be developed that effectively deals with trail and facility maintenance, visitor use control, chain of command, and which realizes the diverse and competing recreational user needs and the recreational possibilities within the BCRA.

**Action 13:** A trails education program should be developed that can be incorporated into the overall educational program of the BCRA. If possible, signs should be made available for the educational aspect of this Plan.

**Action 14:** The City should identify needs and work with the appropriate agencies to coordinate signage and other directional requirements.

**Action 15:** Trails and trail access points should be reviewed to identify possible locations to help increase trail access and decrease traffic congestion.

<b>Measurement</b>	<b>Recommended Timeframe</b>
Establish a user and recreational use baseline informational database.	One (1) Year, On-going
Contribute user and recreational use information into database on at least a quarterly basis.	Every Three Months
Establish management policies that will enable management to reflect changing user needs.	One (1) Year, On-going
Establish management strategies that will contribute to the enforcement of these goals and actions.	One (1) Year, On-going
Establish a management plan that addresses the day-to-day operations of the BCRA.	One (1) Year, On-going
Develop an educational program for the BCRA.	One to Two (1-2) Years, On-going

***Goal 3: Improve Interpretive and Educational Opportunities and Engage the Community in a Cooperative Stewardship Program***

***Objective 1***

*Promote an awareness of the natural, historic, and cultural value of the River Mountains and build an understanding of human interactions with nature.*

***Objective 2***

*Promote public involvement in the long term management of the BCRA by providing diverse communication opportunities and maintaining a responsive attitude towards visitor concerns.*

**Action 1:** An educational and outreach program should be developed that incorporates all aspects of the BCRA. Using experts to develop this program, convert this information into

brochures, signage and educational presentations to encourage the sustainable use of the BCRA.

**Action 2:** As part of an educational and outreach program, interpretive materials should be developed using information from experts in the field and using all possible outreach methods.

**Action 3:** The need for trail and trailhead signage needs to be identified to increase the safety of users who are unfamiliar with the BCRA.

**Action 4:** Volunteer and training programs need to be developed and incorporated into the BCRA management plan.

<b>Measurement</b>	<b>Recommended Timeframe</b>
Develop an educational outreach program for the BCRA that includes all known aspects of the recreation area.	One to Two (1-2) Years, On-going
Consult with State and Federal land managers on wildlife habitat and educational information.	One (1) Year, On-going
Develop trail and trailhead signage to encourage trail compliance and to promote trail safety.	One (1) Year, On-going

***Goal 4: Work with Neighbors to Maintain Natural Functions***

***Objective***

*Promote harmonious and integrated land management and connectivity of uses with surrounding Boulder City property and local and federal land managers.*

**Action 1:** Policies, regulations and management strategies should be developed that include consultation with other agencies on surrounding land issues and possible impacts to the BCRA.

<b>Measurement</b>	<b>Recommended Timeframe</b>
Consult with State and Federal land managers on wildlife habitat and educational information on at least an annual basis.	One (1) Year, On-going



**Goal 5: Improve the Safety of Bootleg Canyon Recreation Area**

**Objective**

*Promote visitor safety and resource management goals through effective public education, law enforcement and emergency services.*

**Action 1:** Safety rules and regulations should be developed for the BCRA that can be used as public safety information onsite with maps and signage and as part of the educational aspect of this Plan.

**Action 2:** A public safety action plan should be created for the BCRA to ensure that all safety operations are conducted properly and that emergency services are properly notified in the event that emergency operations are needed.

**Action 3:** Boulder City Ordinance 972 and any applicable laws enforced by the Boulder City Police Department should be incorporated into any BCRA safety rules and regulations and/or a public safety action plan for the BCRA.

<b>Measurement</b>	<b>Recommended Timeframe</b>
Identify safety issues and develop rules and regulations to address each safety issue.	One (1) Year, On-going
Identify and develop ways to present safety policies and markings of a trail's ranking.	One (1) Year, On-going
Develop safety rules, regulations and an emergency operation/public safety plan.	One (1) Year, On-going

**Goal 6: Improve Core Management and Maintenance**

**Objective 1**

*Ensure that capital improvements are compatible with the environment, require minimal maintenance and are designed to minimize environmental impacts.*

**Objective 2**

*Develop a management strategy for operations and maintenance that evaluates existing infrastructure for long-term sustainability and provides for the optimization of operations and maintenance services.*

**Action 1:** An asset management report should be created which lists all assets located within the BCRA and which details operations and maintenance strategies for these assets.

**Action 2:** A facility and infrastructure design standard should be developed that minimizes environmental impacts and maintenance issues.

**Action 3:** Using the asset management report and the facility and infrastructure design standard, a long-term management strategy should be developed that provides for the optimization of operations and maintenance services.

<b>Measurement</b>	<b>Recommended Timeframe</b>
Detail all infrastructure assets located within the BCRA.	One to Two (1-2) Years, On-going
Develop and create a facility and infrastructure design and maintenance standards report.	One to Two (1-2) Years, On-going

### **Goal 7: Enhance Recreation Area Funding and Staffing**

#### **Objective**

*Provide the necessary staffing and funding to carry out the mission of the Bootleg Canyon Recreation Area.*

**Action 1:** Current special event fees should be reviewed to ensure that the BCRA is not underselling its resources in relation to the amount of use generated by the special events.

**Action 2:** There should be an ongoing and active search for available funding sources through Federal, State or Local governments and other grant funding resources.

**Action 3:** The possibility of creating a non-profit organization to provide additional funding for special projects within the BCRA should be researched.

**Action 4:** A budget and staffing plan should be developed to identify funding and staffing needs for operations and maintenance and for the development of the BCRA into a world-class tourist destination.

**Action 5:** Training opportunities should be identified that will enhance the recreational possibilities and maintain the natural resources within the BCRA.

**Action 6:** The possibility of user fees should be explored to offset operations and maintenance costs.

<b>Measurement</b>	<b>Recommended Timeframe</b>
Review and compare pricing schedules for special events and other high use events to	One (1) Year, On-going, After Every Event

ensure a reasonable return on the use of the BCRA.	
Research and explore new alternatives to funding issues and sources.	One (1) Year, On-going
Develop a budget and staffing plan that maximizes staff productivity while minimizing funding needs.	One (1) Year, On-going
Utilize training for volunteers to help with BCRA trails, natural resources projects and special events.	One (1) Year, On-going



## City References

Title 7, Chapter 5 of the Municipal Code (Ordinance 972, Regulation and Use of Parks, Recreation Areas and Other Public Areas) – October 1995

Boulder City Strategic Plan – November 2000

Boulder City Master Plan – December 2003 (Chapter 15, Special Planning Area Policies for Bootleg Canyon, and Appendix VII, page 8)

Bootleg Canyon Park Study, The Road to the Mountain Top (document discussed at Bootleg Canyon Subcommittee meeting – March 2006)

Bootleg Canyon Trails Map – April 2007

## Additional References

National Park Service - National Trails System

<http://www.nps.gov/nts/nrt.html>

<http://www.nps.gov/nts/memorandum2006.html>

American Trails Organization – National Recreation Trails

<http://americantrails.org/nationalrecreationtrails/>

## Abbreviations

ADA	Americans with Disabilities Act
ATV	All-Terrain Vehicle
BCRA	Bootleg Canyon Recreation Area
CCC	Civilian Conservation Corps
FAA	Federal Aviation Administration
IMBA	International Mountain Biking Association
SNPLMA	Southern Nevada Public Lands Management Act
USDA	United States Department of Agriculture
VOR	VHF Omni-directional Radio Range
VORTAC	VOR + TACAN = TACTical Air Navigation



Note:

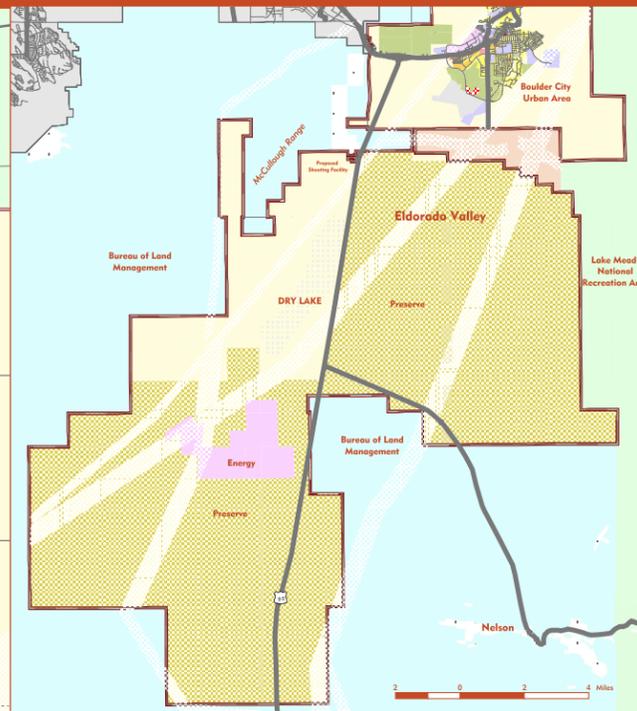
The attached Future Land Use Map is the original version from 2003, prior to amendments since then. The source file for the 2003 map was not provided to the city and we are in the process of recreating the map. When the Future Land Use Map has been correctly updated it will be inserted here.

In the interim, if there are any questions as to the correct land uses on the map, please contact the Community Development Department at 702-293-9282.

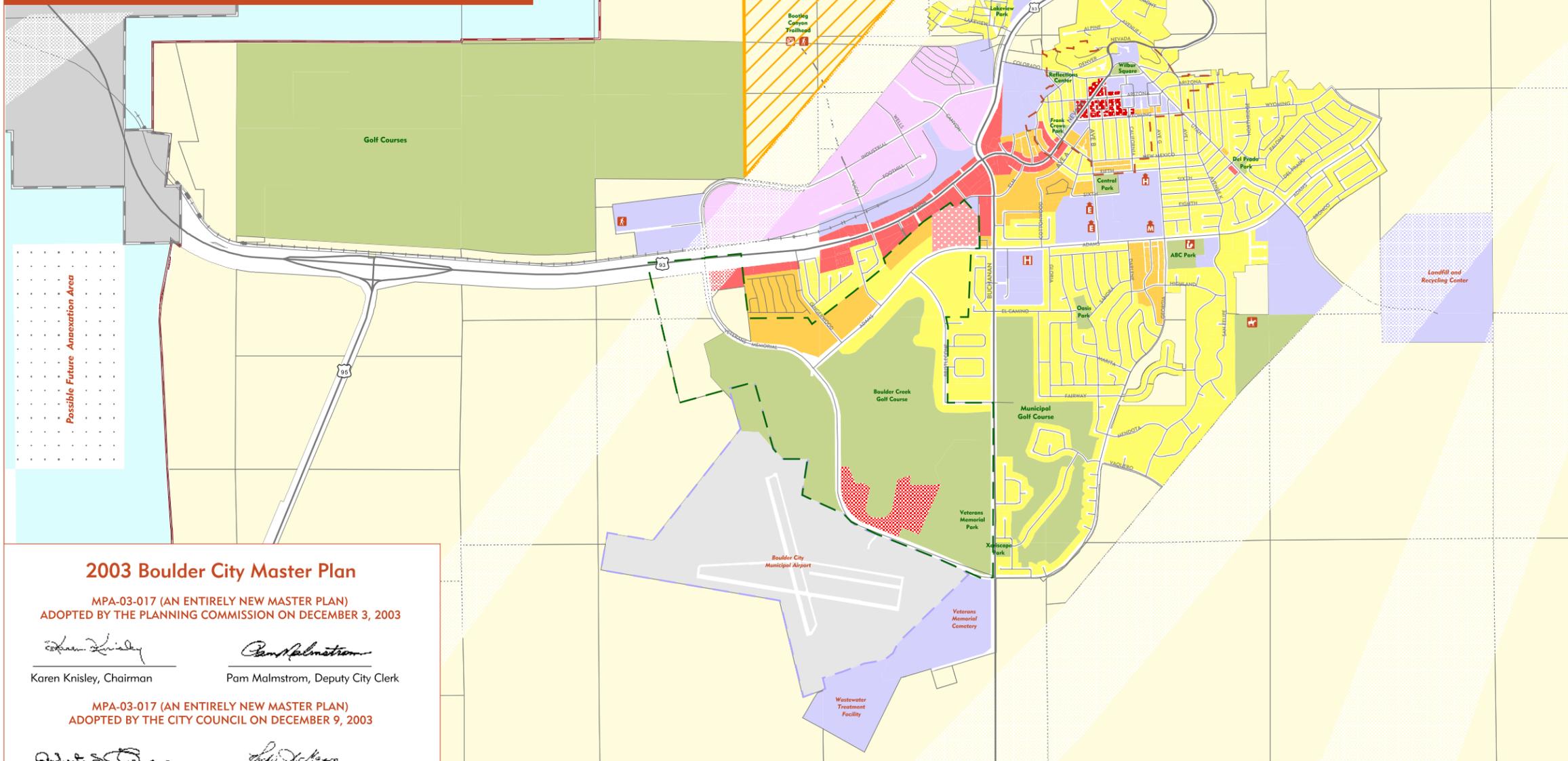
# BOULDER CITY MASTER PLAN FUTURE LAND USE MAP



**DOWNTOWN CORE**



**ELDORADO VALLEY AND CONTEXT**



## 2003 Boulder City Master Plan

MPA-03-017 (AN ENTIRELY NEW MASTER PLAN)  
ADOPTED BY THE PLANNING COMMISSION ON DECEMBER 3, 2003

*Karen Knisley*

Karen Knisley, Chairman

*Pam Malmstrom*

Pam Malmstrom, Deputy City Clerk

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*Vicki G. Mayes*

Vicki G. Mayes, City Clerk

Boulder City, Clark County, Nevada

## LEGEND

- |  |  |
|--|--|
| <b>Residential</b>                               | <b>Other</b>                           |
| Low Density Residential                          | Public/Quasi-Public                    |
| Medium Density Residential                       | Boulder City Municipal Airport         |
| <b>Commercial/Office/Employment</b>              | Bootleg Canyon Special Planning Area** |
| Central Business District                        | Private Land                           |
| Community Commercial                             | Western Area Power Authority           |
| Mixed Use-Commercial/Office                      | Power Line Easements*                  |
| Airport Area Commercial                          | City of Henderson                      |
| Manufacturing                                    | Airport Subarea Boundary**             |
| <b>Parks, Recreation, and Open Lands</b>         | Federal Historic District Boundary     |
| Parks and Recreation                             | Boulder City Limits                    |
| Open Lands                                       | Horse Corrals                          |
| Open Lands (Multi-Species Conservation Easement) | Hospital                               |
| <b>Federal Lands</b>                             | Library                                |
| National Park Service                            | Hiking/Biking Trailhead                |
| Bureau of Land Management                        | High School                            |
|  | Middle School                          |
|  | Elementary School                      |

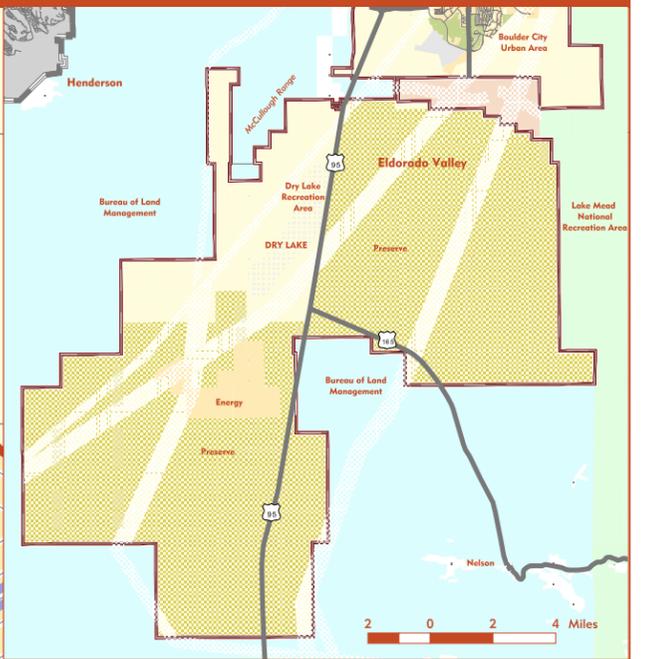
Data Sources: City of Boulder City, Clark County, Bureau of Land Management, City of Henderson, Clarion Associates  
\*Note: Power Line Easements are shown for illustrative purposes only.  
\*\*Please refer Chapter 15 of the Master Plan for additional detail and policies.

# BOULDER CITY MASTER PLAN PARKS AND RECREATIONAL FACILITIES



**HEMENWAY VALLEY**

0.25 0 0.25 Miles



**ELDORADO VALLEY AND CONTEXT**

2 0 2 4 Miles

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Boulder City, Clark County, Nevada

## LEGEND

### Parks and Recreational Facilities

- Parks and Recreation
- Open and Vacant Land
- Open Lands (Conservation Easement)
- Existing Bike Lane
- Proposed Bike Lane
- Existing Bike Path
- Proposed Bike Path
- River Mountains Loop Trail (Planned)
- Hiking/Biking Trailhead
- Horse Corrals

### Federal Lands

- National Park Service
- Bureau of Land Management

### Other

- Developed Areas
- Boulder City Municipal Airport
- Western Area Power Authority
- Power Line Easements\*
- Boulder City Limits

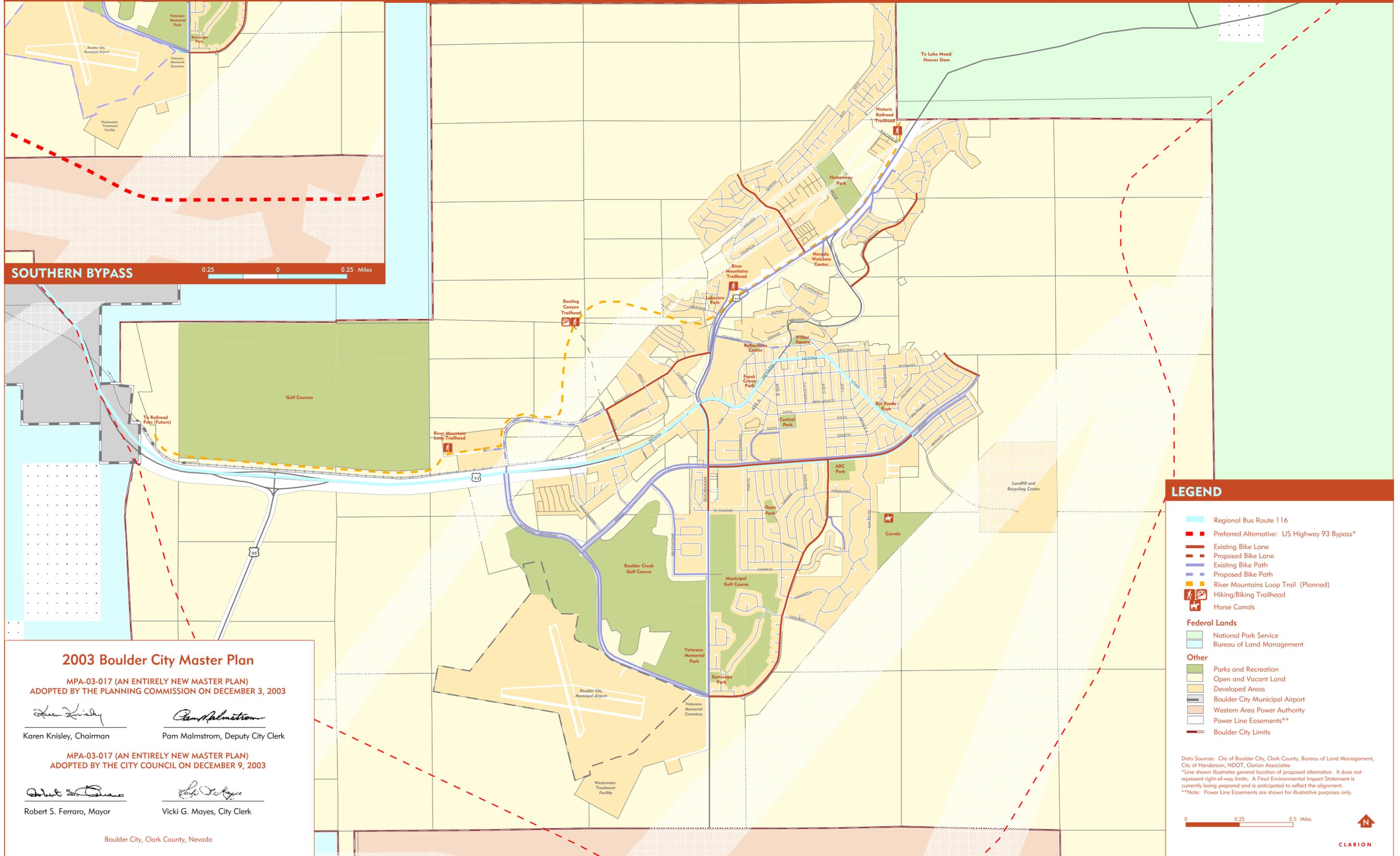
Data Sources: City of Boulder City, Clark County, Bureau of Land Management, City of Henderson, Clarion Associates  
\*Note: Power Line Easements are shown for illustrative purposes only.

0 0.25 0.5 Miles



CLARION

# BOULDER CITY MASTER PLAN MULTI-MODAL TRANSPORTATION SYSTEM



**SOUTHERN BYPASS** 0.25 0 0.25 Miles

### LEGEND

- Regional Bus Route 116
- Preferred Alternative: US Highway 93 Bypass\*
- Existing Bike Lane
- Proposed Bike Lane
- Existing Bike Path
- Proposed Bike Path
- River Mountains Loop Trail (Planned)
- Hiking/Biking Trailhead
- Horse Corrals

#### Federal Lands

- National Park Service
- Bureau of Land Management

#### Other

- Parks and Recreation
- Open and Vacant Land
- Developed Areas
- Boulder City Municipal Airport
- Western Area Power Authority
- Power Line Easements\*\*
- Boulder City Limits

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Boulder City, Clark County, Nevada

Data Sources: City of Boulder City, Clark County, Bureau of Land Management, City of Henderson, NDOT, Clarion Associates  
 \*Line shown illustrates general location of proposed alternative. It does not represent right-of-way limits. A Final Environmental Impact Statement is currently being prepared and is anticipated to reflect the alignment.  
 \*\*Note: Power Line Easements are shown for illustrative purposes only.

# BOULDER CITY MASTER PLAN URBAN DESIGN IMPROVEMENTS



**HEMENWAY VALLEY** 0.25 0 0.25 Miles

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### LEGEND

- Urban Design Improvements**
  - Existing Improvements
  - Planned Improvements
  - Improvements Underway
  - Existing Streetscape Improvements
  - Planned Streetscape Improvements
  - Community Gateway
- Parks and Recreational Facilities**
  - Parks and Recreation
  - Open and Vacant Land
  - Horse Corrals
  - Hiking/Biking Trailhead
- Federal Lands**
  - National Park Service
  - Bureau of Land Management
- Other**
  - Developed Areas
  - Boulder City Municipal Airport
  - Power Line Easements\*
  - Boulder City Limits

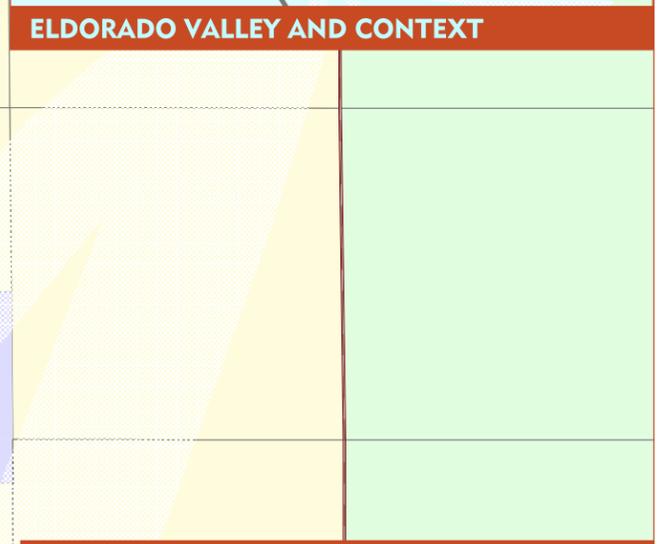
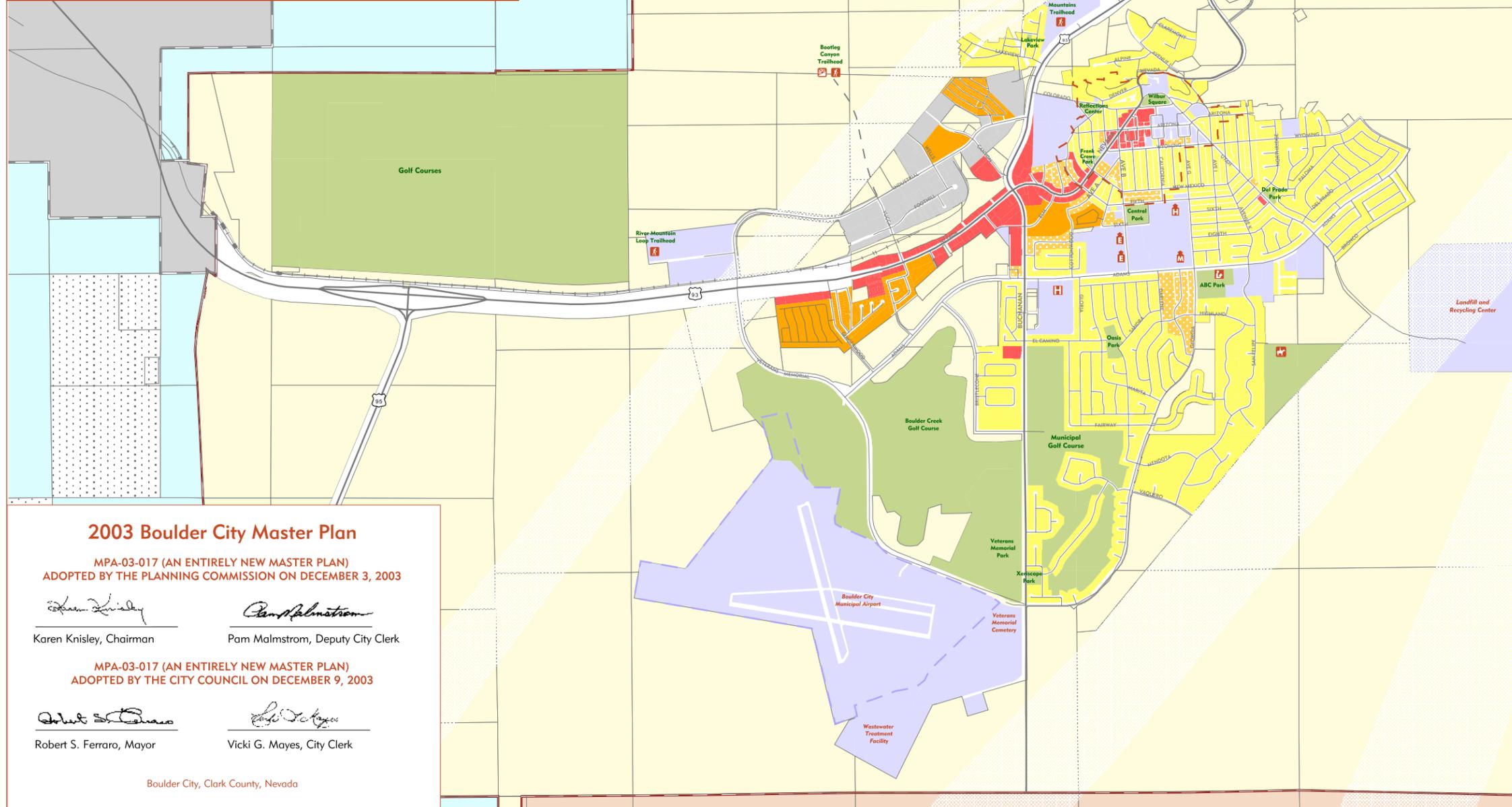
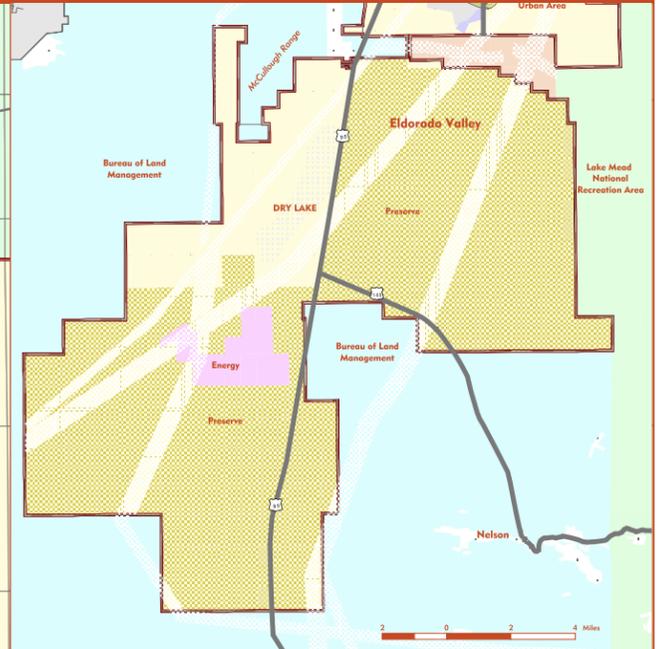
Data Sources: City of Boulder City, Clark County, Bureau of Land Management, City of Henderson, Clarion Associates  
\*Note: Power Line Easements are shown for illustrative purposes only.

0 0.25 0.5 Miles



CLARION

# BOULDER CITY MASTER PLAN EXISTING LAND USE



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Data Sources: City of Boulder City, Clark County, Bureau of Land Management, City of Henderson, Clarion Associates  
\*Note: Power Line Easements are shown for illustrative purposes only.

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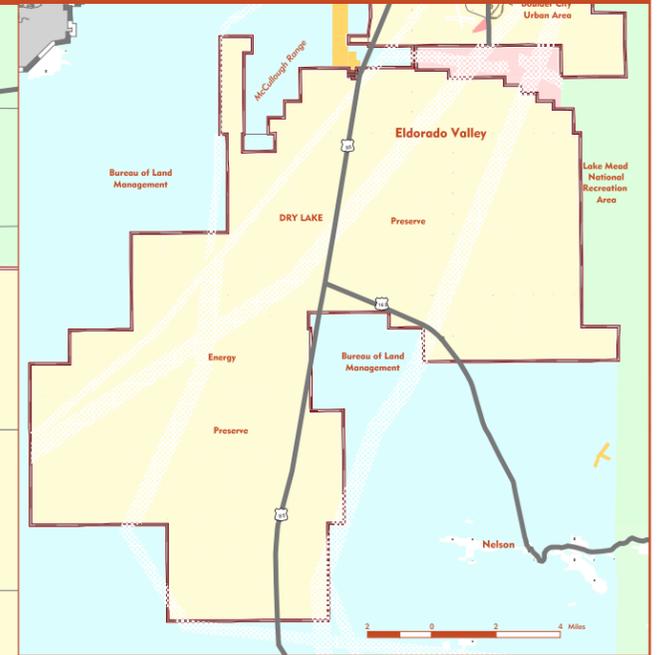
**CLARION**

# BOULDER CITY MASTER PLAN GENERALIZED OWNERSHIP



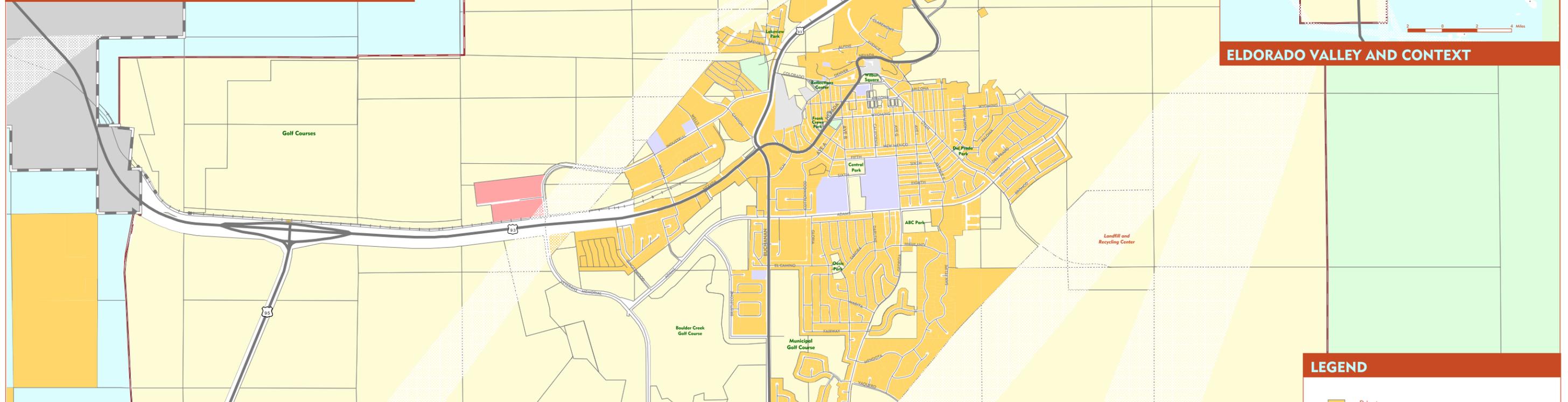
**DOWNTOWN CORE**

0 0.25 0.5 Miles



**ELDORADO VALLEY AND CONTEXT**

0 2 4 Miles



## 2003 Boulder City Master Plan

MPA-03-017 (AN ENTIRELY NEW MASTER PLAN)  
ADOPTED BY THE PLANNING COMMISSION ON DECEMBER 3, 2003

*Karen Knisley*

Karen Knisley, Chairman

*Pam Malmstrom*

Pam Malmstrom, Deputy City Clerk

MPA-03-017 (AN ENTIRELY NEW MASTER PLAN)  
ADOPTED BY THE CITY COUNCIL ON DECEMBER 9, 2003

*Robert S. Ferraro*

Robert S. Ferraro, Mayor

*Vicki G. Mayes*

Vicki G. Mayes, City Clerk

Boulder City, Clark County, Nevada

## LEGEND

- Private
- Boulder City
- Bureau of Land Management
- Bureau of Reclamation
- National Park Service
- State of Nevada
- Other Public
- Western Area Power Authority
- Boulder City Limits
- City of Henderson

Data Sources: City of Boulder City, Clark County,  
Bureau of Land Management, City of Henderson, Clarion Associates  
\*Note: Power Line Easements are shown for illustrative purposes only.

0 0.5 1 Miles



CLARION

# Boulder City, Nevada

## Bootleg Canyon Sub Area

### Master Plan

### Location Map



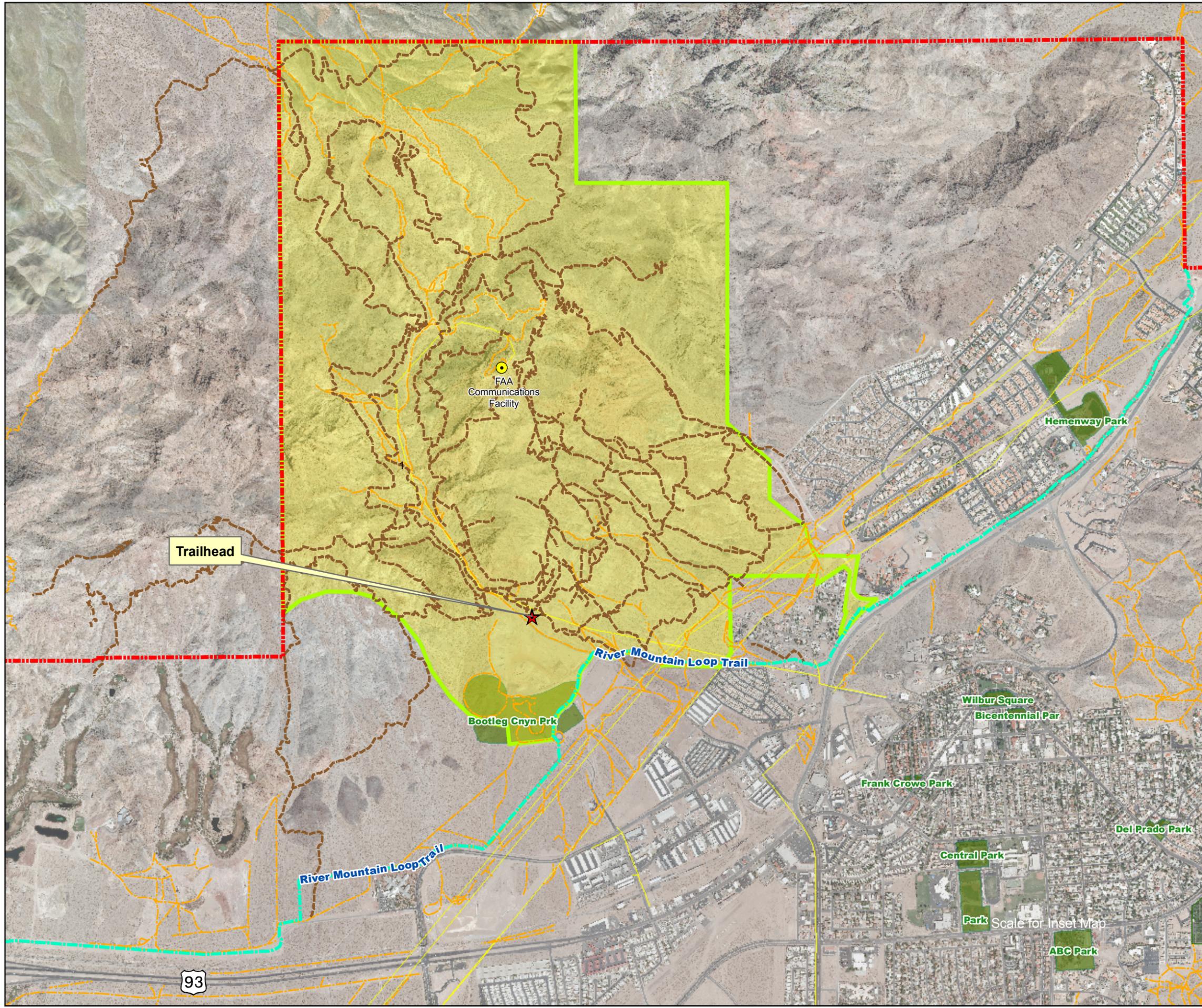
Map Created by:  
Brok Armantrout  
Director, Community Development Department  
City of Boulder City, Nevada



Revision Date: April 29, 2008  
Map Version: 2.080429



Source Data:  
Parcel Line Work: Clark County, as of August 2007  
Aerial Photography: Clark County, 2002 through 2007



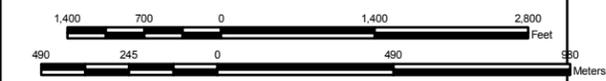
#### Legend

- River Mountain Loop Trail
- City Limits
- Mountain Bike Trailhead & Parking
- Bootleg Canyon Mountain Bike Trails
- Other Existing Dirt Trails & Roads
- Bootleg Canyon Plan Boundary
- Transmission Lines
- City Parks

# Boulder City, Nevada

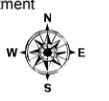
## Master Plan Map

### Bootleg Canyon Trailhead

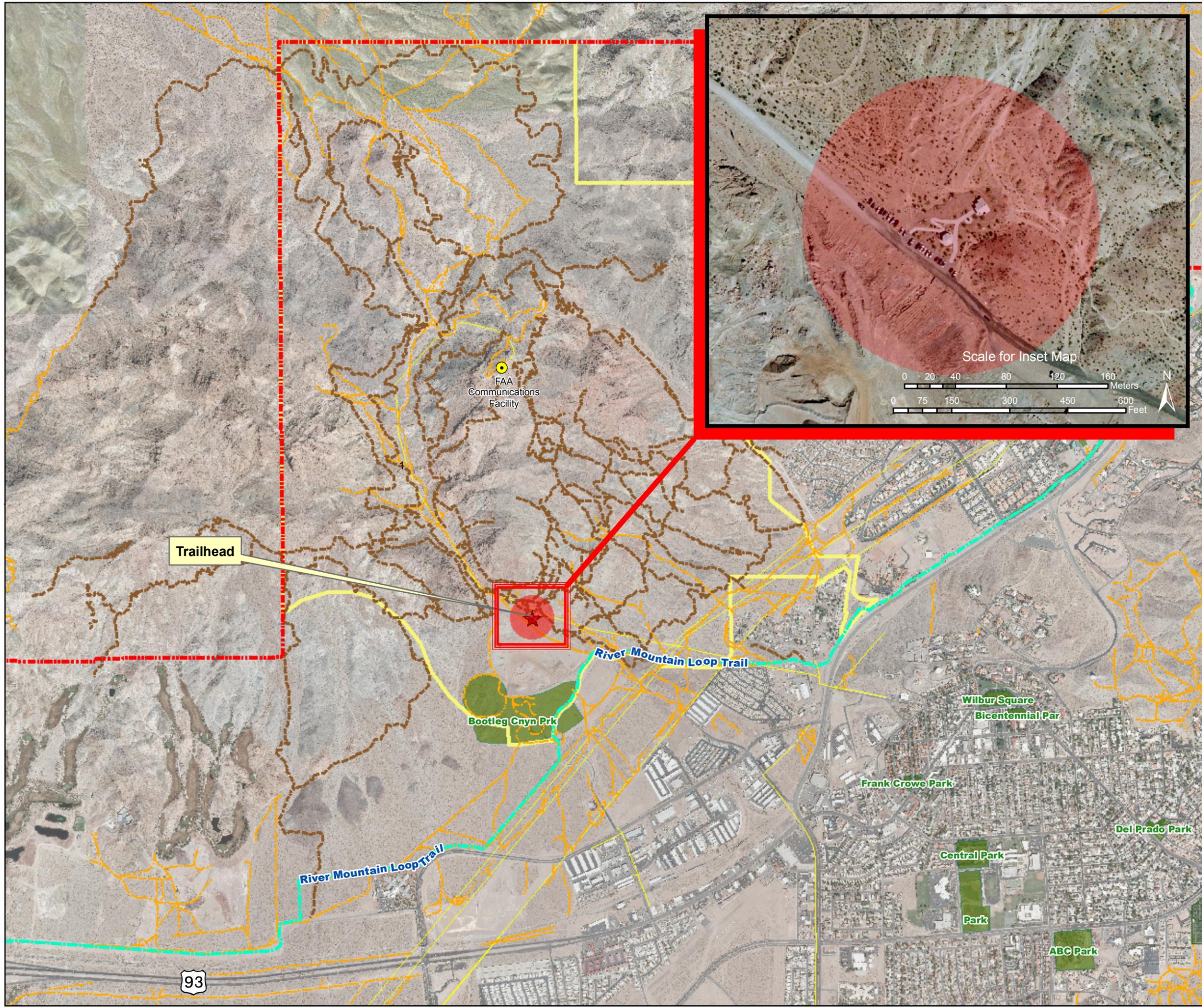


Map Created by:  
 Brok Armantrout  
 Director, Community Development Department  
 City of Boulder City, Nevada

Revision Date: April 29, 2008  
 Map Version: 2.080429



Source Data:  
 Parcel Line Work: Clark County, as of August 2007  
 Aerial Photography: Clark County, 2007 through 2007



### Legend

- River Mountain Loop Trail
- Trailhead Location
- City Limits
- Mountain Bike Trailhead & Parking
- Bootleg Canyon Mountain Bike Trails
- Other Existing Dirt Trails & Roads
- Bootleg Canyon Plan Boundary
- Transmission Lines
- City Parks

# Boulder City, Nevada

## Master Plan Map Bootleg Canyon River Mountain Hiking Trail

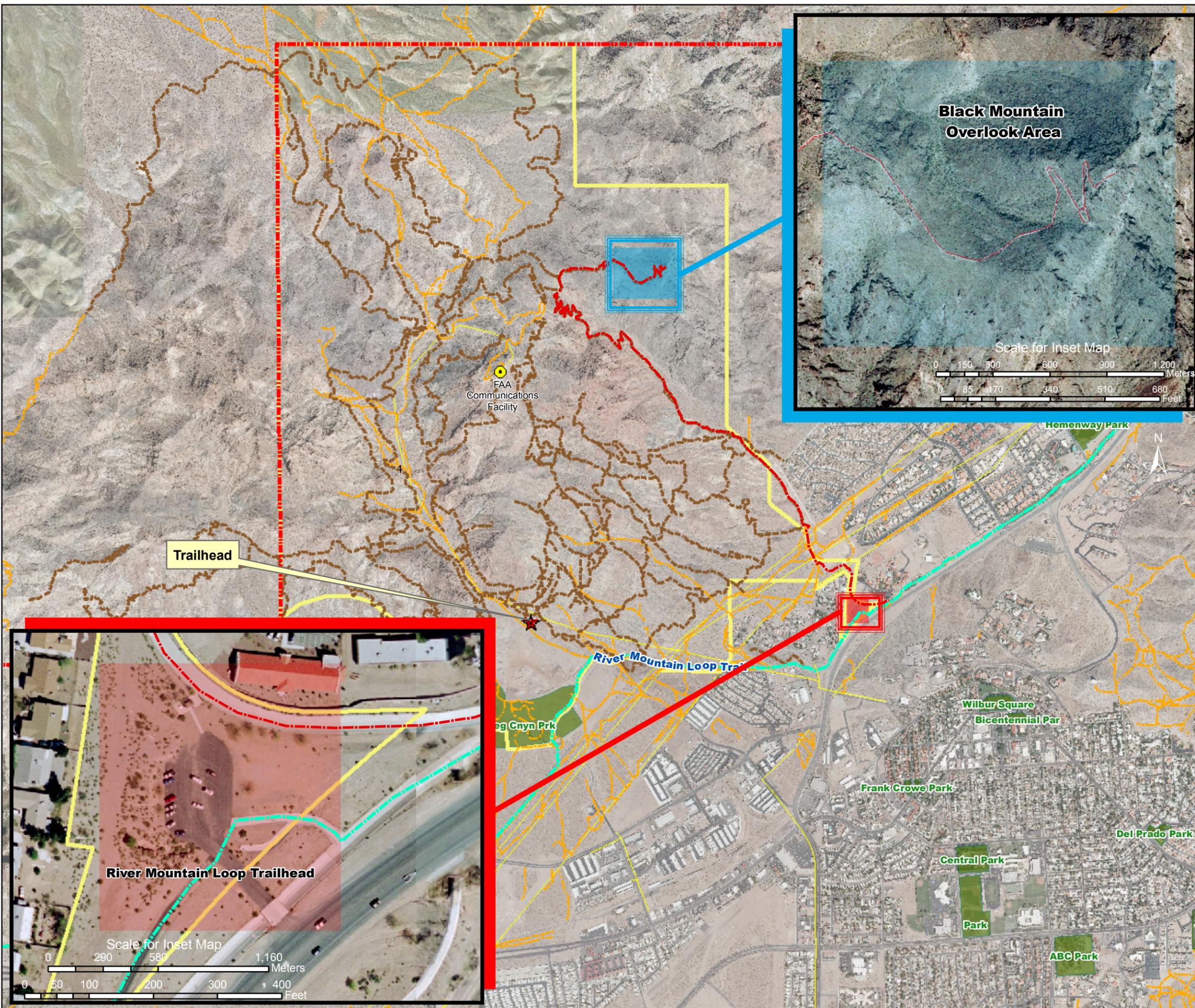


Map Created by:  
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Director, Community Development Department  
City of Boulder City, Nevada

Revision Date: April 29, 2008  
Map Version: 2.080429



Source Data:  
Parcel Line Work: Clark County, as of August 2007  
Aerial Photography: Clark County, 2002 through 2007



### Legend

- River Mountain Hiking Trail
- River Mountain Loop Trail
- City Limits
- ★ Mountain Bike Trailhead & Parking
- Bootleg Canyon Mountain Bike Trails
- Other Existing Dirt Trails & Roads
- Bootleg Canyon Plan Boundary
- Transmission Lines
- City Parks

# Boulder City, Nevada

## Master Plan Map

### Bootleg Canyon

#### "Saddle"



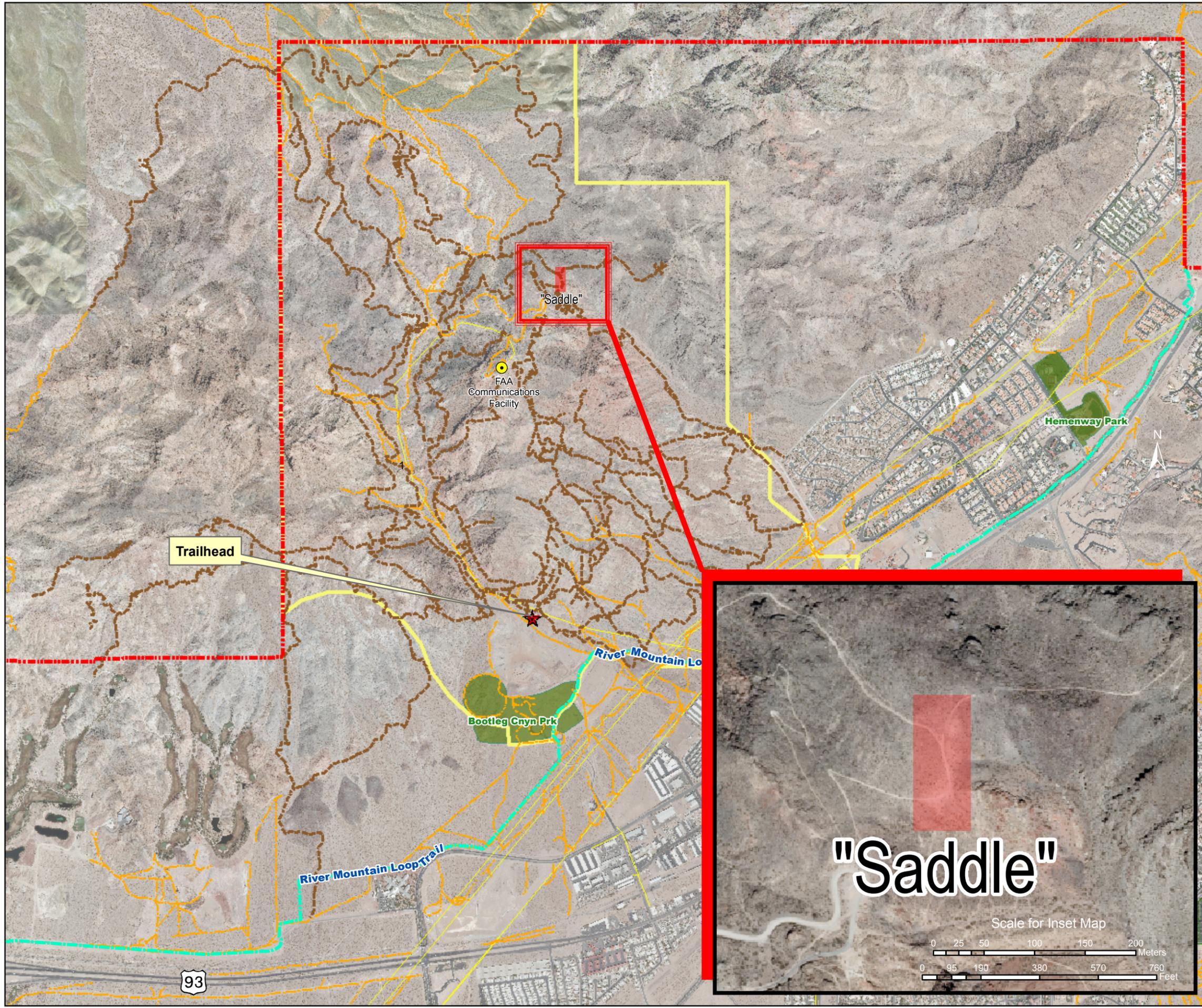
Map Created by:  
Brok Armantrout  
Director, Community Development Department  
City of Boulder City, Nevada



Revision Date: April 29, 2008  
Map Version: 2.080429



Source Data:  
Parcel Line Work: Clark County, as of August 2007  
Aerial Photography: Clark County, 2002 through 2007



### Legend

- River Mountain Loop Trail
- The "Saddle"
- City Limits
- Mountain Bike Trailhead & Parking
- Bootleg Canyon Mountain Bike Trails
- Other Existing Dirt Trails & Roads
- Bootleg Canyon Plan Boundary
- Transmission Lines
- City Parks

# Boulder City, Nevada

## Master Plan Map Bootleg Canyon "Caldera"

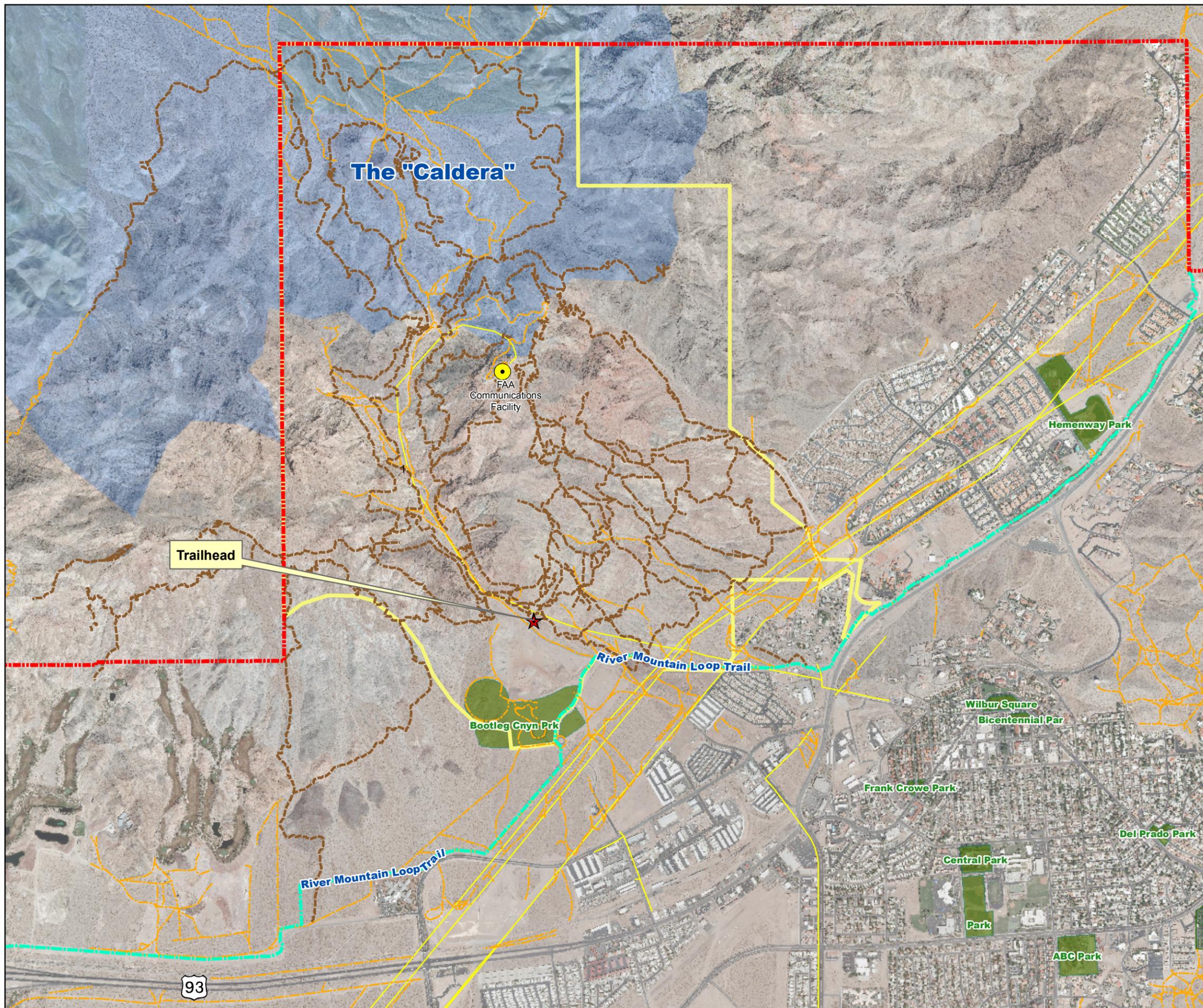


Map Created by:  
Brok Armantrout  
Director, Community Development Department  
City of Boulder City, Nevada

Revision Date: April 29, 2008  
Map Version: 2.080429

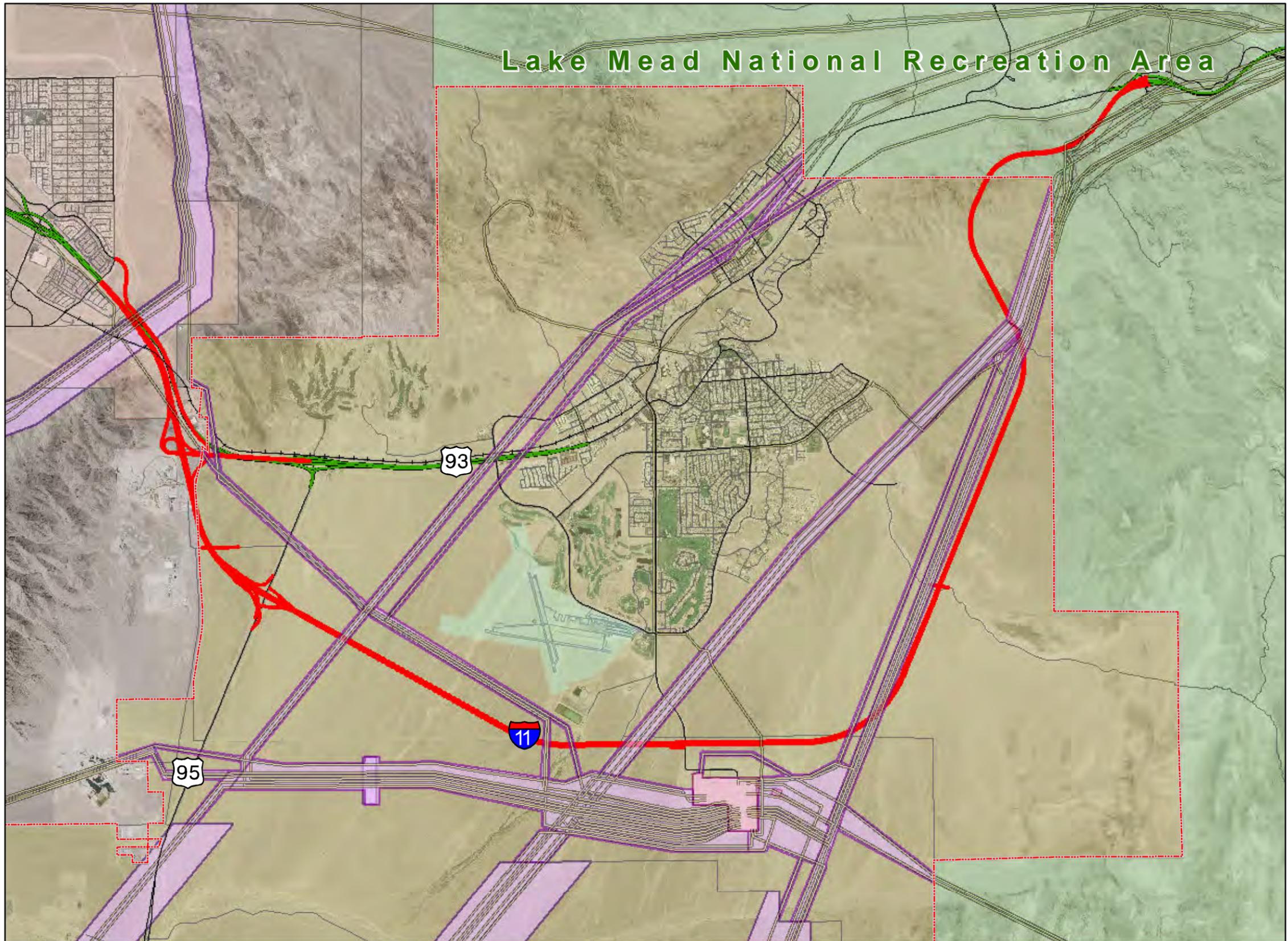


Source Data:  
Parcel Line Work: Clark County, as of August 2007  
Aerial Photography: Clark County, 2002 through 2008  
Zoning Boundaries: Boulder City Community Development Dept



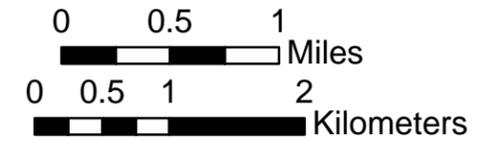
### Legend

- River Mountain Loop Trail
- FAA Communication Facility
- City Limits
- Mountain Bike Trailhead & Parking
- Bootleg Canyon Mountain Bike Trails
- Other Existing Dirt Trails & Roads
- Bootleg Canyon Plan Boundary
- Transmission Lines
- City Parks
- The "Caldera"



# Boulder City, Nevada Master Plan Map Aboveground Utility Corridor Map (Page 1 of 2)

Prepared in compliance with  
AB239, 2013 Legislative Session



## Legend

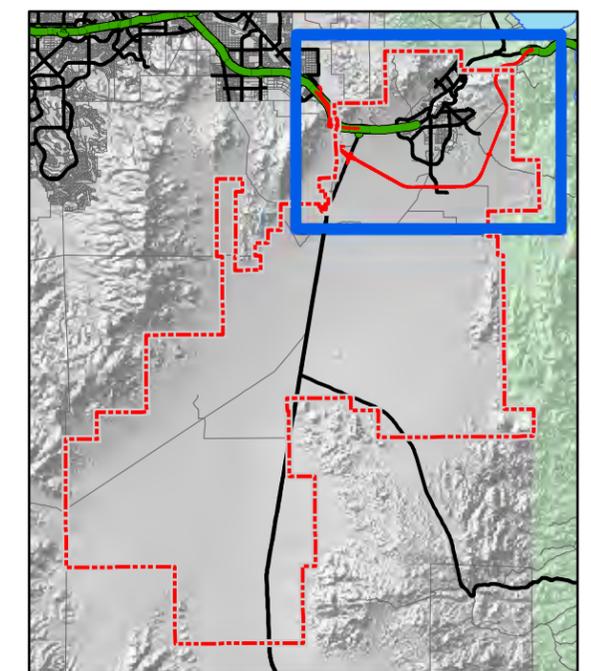
- Boulder City Limits
- Transmission Lines
- Substations
- Aboveground Utility Corridors (200kV+)

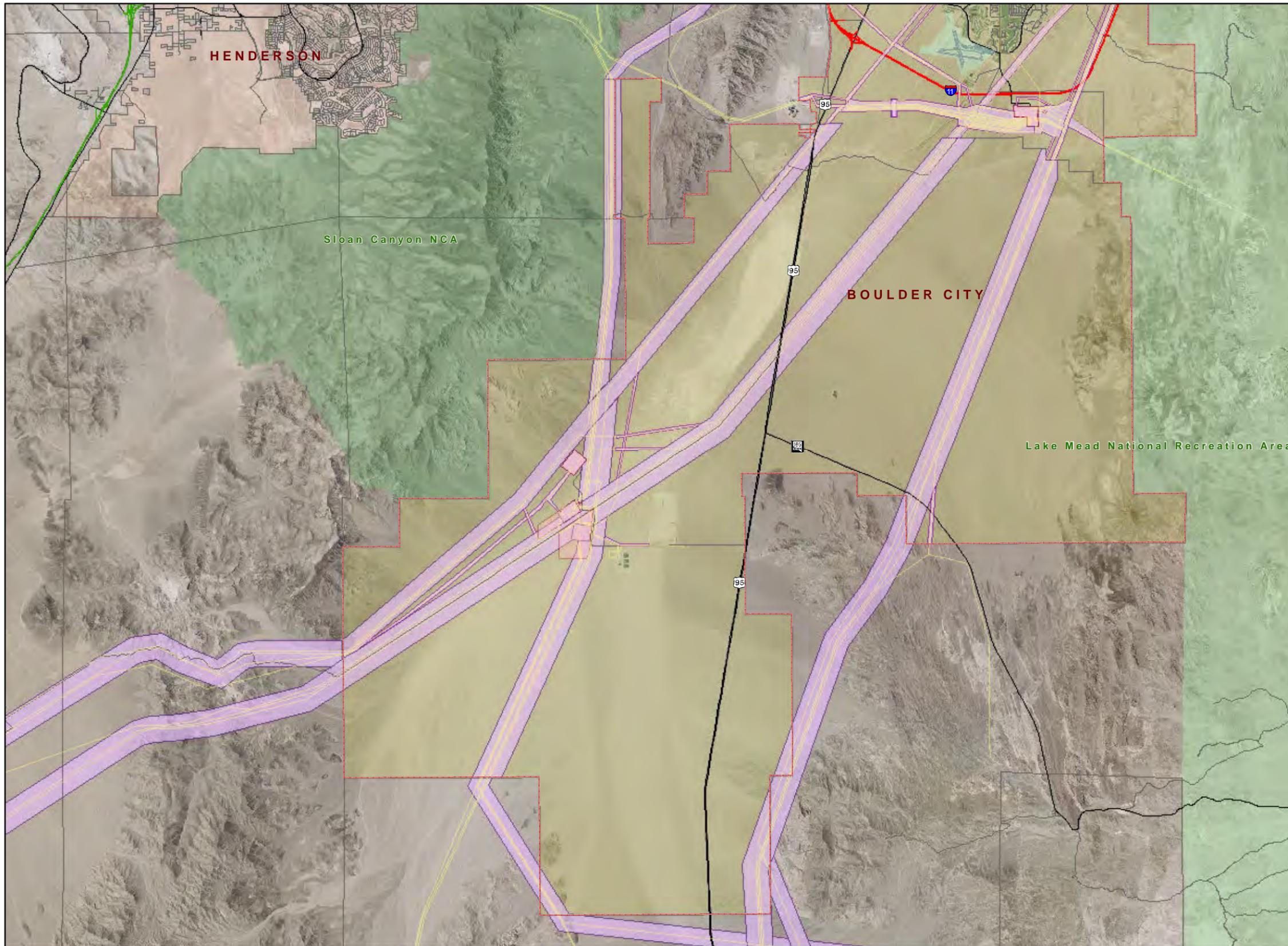


Map Created by:  
Brok Armantrout  
Director, Community Development Department  
City of Boulder City, Nevada

Revision Date: January 8, 2015  
Map Version: 1.0

Source Data:  
Aerial Photography: Clark County, 2002 through 2013





# Boulder City, Nevada Master Plan Map Aboveground Utility Corridor Map (Page 2 of 2)

Prepared in compliance with  
AB239, 2013 Legislative Session



## Legend

- Boulder City Limits
- Transmission Lines
- Substations
- Aboveground Utility Corridors (200kV+)



Map Created by:  
Brok Armantrout  
Director, Community Development Department  
City of Boulder City, Nevada

Revision Date: January 8, 2015  
Map Version: 1.0

Source Data:  
Aerial Photography: Clark County, 2002 through 2013

