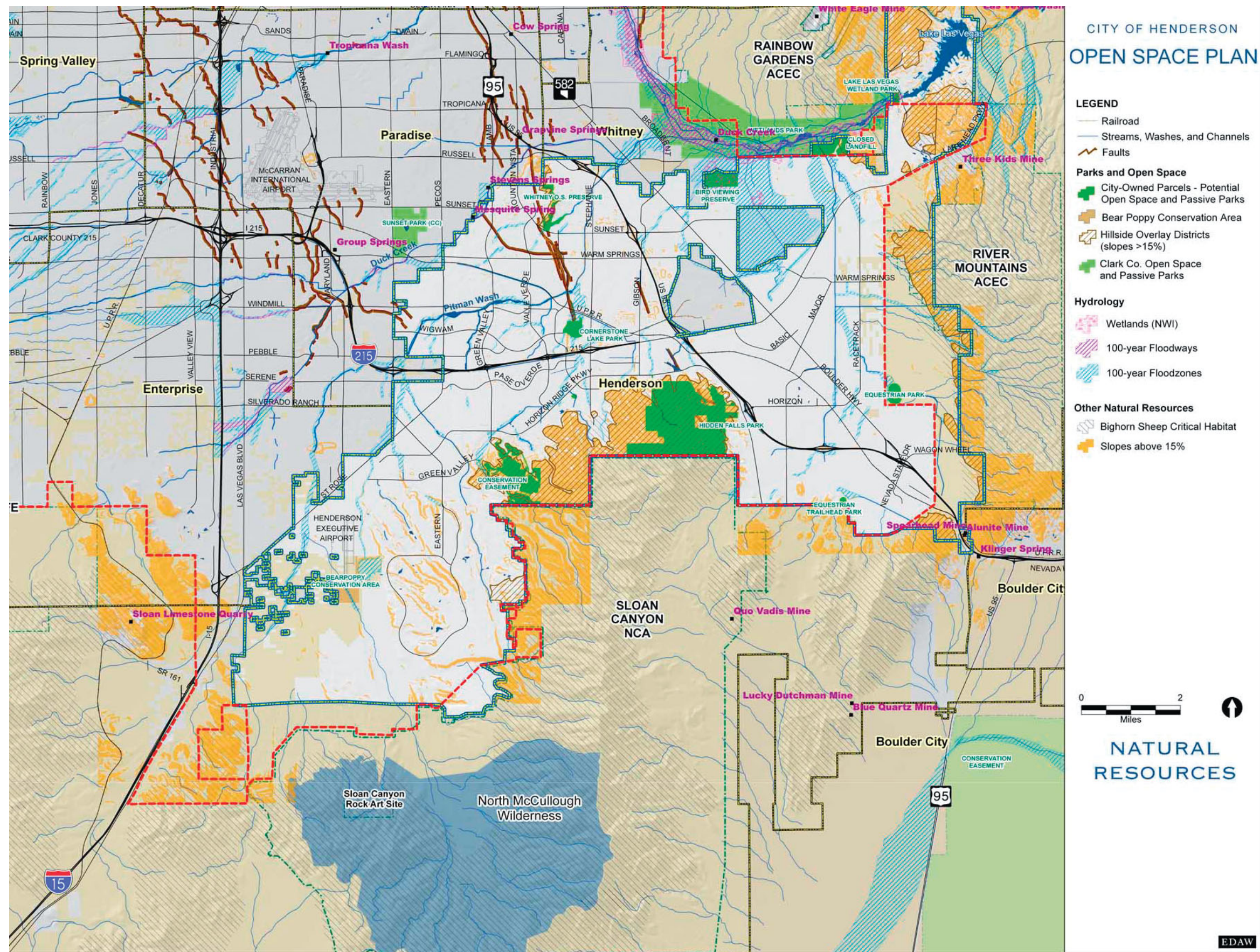


CHAPTER 2: TODAY



“If future generations are to remember us with gratitude rather than contempt, we must leave them more than the miracles of technology. We must leave them a glimpse of the world as it was in the beginning, not just after we got through with it.”

President Lyndon B. Johnson
1964



I. INTRODUCTION

This chapter describes the trends, regulatory context, and existing conditions of open space and off-street trails in the City of Henderson. It is organized into the following four sections:

- II. **Existing Conditions and Issues:** The Existing Conditions and Issues section presents a summary of resource conditions and the issues regarding open space preservation and trails development identified through the public involvement process.
- III. **Trends:** The Trends section includes recreational and population trends. This section demonstrates the demand for more complete open space and trail networks in the City.
- IV. **Planning Context:** The Planning Context section includes pertinent plans and legislation that guide open space and trails planning in the City.
- V. **Opportunities and Constraints Summary:** The Opportunities and Constraints Summary section presents suggestions for future projects and constraints which may hinder project implementation.



Steep, erosive soils, such as these at Whitney Mesa, are visibly impacted by off-road vehicle and cross-country trail use.

II. EXISTING CONDITIONS AND ISSUES

Natural Setting

The City of Henderson is situated in the Mojave Desert, the smallest of the four American deserts. The Mojave Desert lies within southwestern Utah, southern Nevada, southeastern California, and western and northwestern Arizona. It is the most arid desert in North America, averaging only two to four inches of rain annually. Elevation ranges from 1,301 feet to 3,492 feet above sea level. Landforms in the Valley are characterized by gentle desert slopes, transitioning to alluvial fans and steep hills and ridgelines. The Northern McCullough Mountains, Lake Mead, Las Vegas Wash, Whitney Mesa, the River Mountains, and numerous smaller washes are significant landmarks in the area.

Soils and their biological, chemical, and physical processes play a central role in the persistence and sustainability of ecosystems, because they link plants, animals, fungi, and bacteria together into cohesive and dynamic systems. Desert soil crusts are biologically active forming a “tough skin” that prevents water and wind erosion, while maintaining water permeability and the process of nitrogen fixation. These crusts are critical to soil fertility and plant growth and are sensitive to disturbance (e.g., off-highway vehicles or even heavy foot traffic). Desert soils are easily compacted and the effects are persistent.

The geomorphology of Henderson is characterized by areas with shifting soils, shrink-swell soils, caliche soils, fluctuating water tables, and fault lines which creates significant development challenges. As a result of the steep slopes, volcanic geology, and desert soils, impacts to hillsides are highly evident, even from distances as far as 10 miles on clear days. Hillside development, road cuts, and blasting (and resulting vibrations and dust) have been repeatedly cited by the public as issues that need to be addressed through the Open Space and Trails Plan.

Figure 2-1, the Natural Resources Map, shows areas currently designated as open space and passive parks, hillside overlay districts, the Bear Poppy Conservation Area, areas with steep slopes over 15%, and desert bighorn sheep habitat.

As Las Vegas has grown, the land has subsided. In 1935 the National Geodetic Survey established a regional first-order level network. By 1963, the downtown area had subsided as much as 3.4 feet. By 1986, it had sunk another 2.8 feet. Comparable subsidence of the Strip is 2.9 feet and North Las Vegas 5.0 feet. The greatest threat is posed by continued growth of earth fissures. These have been mapped and found to be correlated with preexisting Quaternary geologic faults. Land subsidence is projected to continue as a function of ground water withdrawals. In recent years net withdrawals have exceeded recharge by factors of 2 to 3. This can only be alleviated by reduced dependence on ground water which would increase reliance upon already over-allocated surface water (Acevedo, et. al.).

The Federal Emergency Management Area (FEMA) has identified approximately 13,000 acres in the vicinity as potential 100-year flood hazard zones as shown in Figure 2-1. These areas are primarily located within proximity to Las Vegas Wash and Duck Creek. FEMA has also identified 20 acres of flood-impacted areas near the convergence of Las Vegas Wash and Lake Las Vegas. Lake Mead is the primary drinking water source for Henderson (and the rest of the Las Vegas Valley).

The Las Vegas bearpoppy (*Arctomecon californica*) is almost entirely restricted to Clark County. The bearpoppy is listed as Critically Endangered by the State. The BLM manages approximately 102 acres of unimproved land adjacent to the Henderson Executive Airport, located within the City of Henderson. In a 1999 Memorandum of Understanding between the BLM and Clark County, the 102-acre BLM Parcel was set aside for a minimum of 30 years for noise mitigation as part of an inter-agency Las Vegas Bearpoppy Conservation Agreement. The Memorandum of Understanding requires that the BLM will manage the 102-acre parcel as open space and that it would not

allow activities that “could have any adverse effects upon open space, conservation or natural resources or the airport safety, noise attenuation or buffer zone purposes.”

The City has annexed land designated as an Area of Critical Environmental Concern (ACEC). The River Mountains ACEC includes 11,360 acres of land extending east of the city, approximately 640 acres of the River Mountains ACEC is within the City. The River Mountains ACEC protects habitat for the Desert Bighorn Sheep (*Ovis canadensis nelsoni*). The Sloan Canyon National Conservation Area (SCNCA) is adjacent to the City’s southern boundary. The NCA was designated by Congress to preserve its primitive, undeveloped qualities. The City of Henderson Bird Viewing Preserve includes reclaimed water treatment facilities that provide nesting and feeding habitat for over 200 bird species.

Bighorn sheep, Nevada’s state animal, are native to the mountain range with a current population of approximately 250 animals. The herd in the Northern McCullough Range is one of the most important in Nevada and is used as a “source” population. In an effort to increase declining populations, sheep are moved from this herd to other areas of Nevada with limited number of sheep. The Nevada Department of Wildlife maintains several water developments in



Some sensitive ridgelines are protected through the Hillside Development Ordinance.

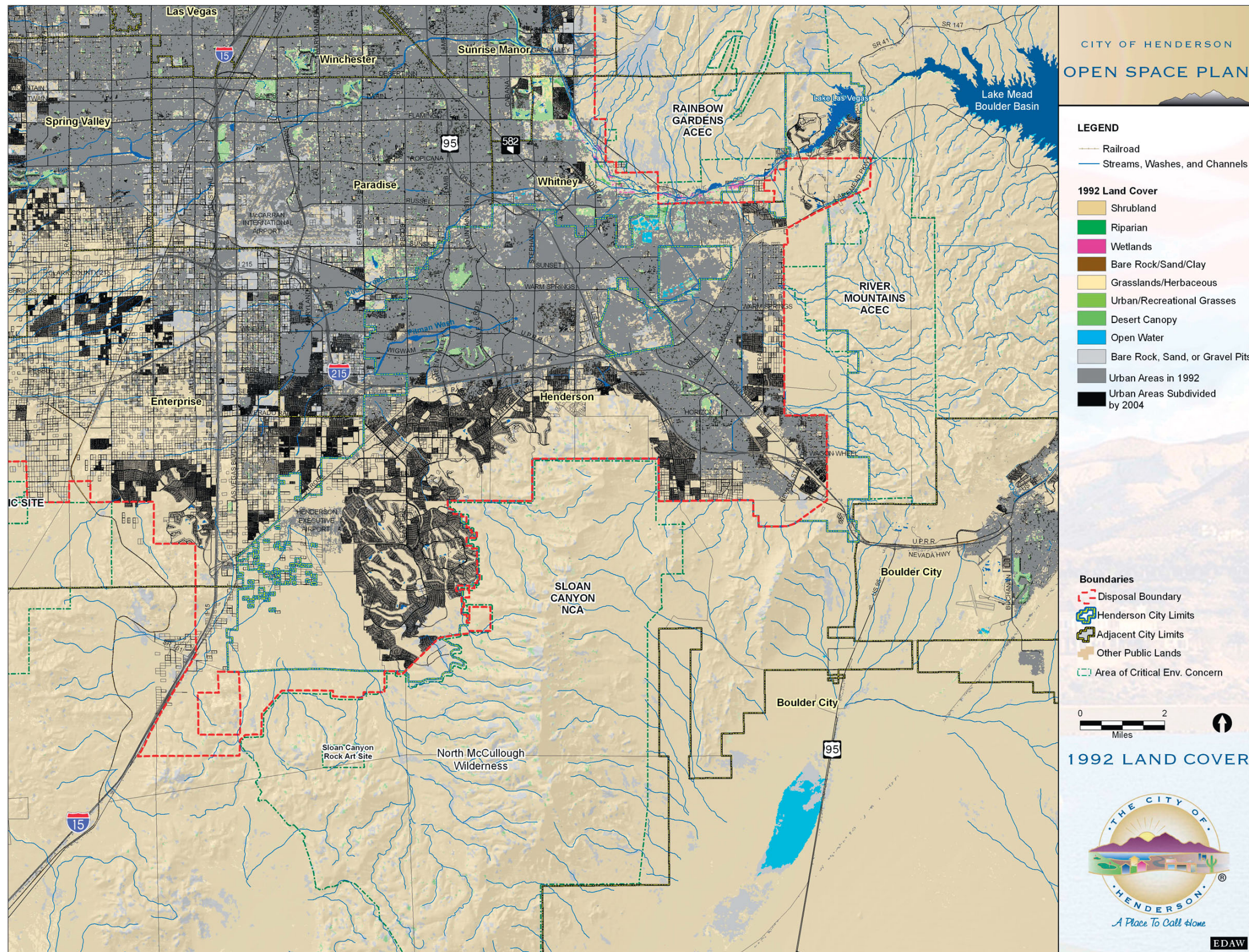


Figure 2-2. Land Use and Land Cover Map. 1992 urban uses in grey; 2005 urban uses in black.

and around the Sloan Canyon NCA which are critical to sustaining the herd. Historically, the sheep were able to migrate to nearby mountain ranges and springs when water sources became dry; migration is no longer possible due to highways and increasing automobile traffic which prevents migration. Besides bighorn sheep, a variety of wildlife utilize the developments including birds, bees, foxes and coyotes.

Significant growth in Henderson and throughout the Las Vegas Valley has adversely affected air quality. The Environmental Protection Agency has declared the Las Vegas Valley to be in serious non-attainment for PM10 and carbon dioxide (CO2) in the Valley. PM10, particulate matter with a diameter of 10 microns or less, is produced by wind-blown dust from vacant land, construction activity, and unpaved roads and parking lots. PM10 is known to cause and aggravate respiratory problems, impair visibility, affect natural systems through accumulation of deposits, and cause aesthetic damage. In addition, the Valley is also in non-attainment status for ozone, which is known to cause respiratory system problems, aggravate existing health conditions such as asthma, and interfere with the ability of plants to produce and store food. Ozone is produced through vehicle exhaust, industrial emissions, chemical solvents, as well as natural sources.

Lastly, illegal dumping, or the unauthorized disposal of solid waste including garbage, motor oil, dirt and rocks, yard waste, tires, and sewage, continues throughout the Las Vegas Valley to be a significant problem especially near urban areas. Construction and demolition sites often use adjacent public lands as a staging area as neighborhoods are built, and public land remains impacted or littered after the project has been completed. Target shooting also takes place with City limits and on adjacent public land, often discouraging public recreational use of these resources.

Plant and Wildlife Resources

Henderson is home to very unique plant and animal species that have evolved to survive harsh conditions. The low rainfall rates coupled with high evaporation rates and the unpredictability of precipitation has been a powerful selective force for plant and wildlife adaptations to aridity. Most plant species in deserts are annual plants, which elude the dry season in a seed highly resistant to desiccation. According to the Desert Conservation Program (Desert Wash News-letter), eighty percent of the Mojave's annuals are unique to this region and found nowhere else in the world. The most characteristic plant of the Mojave, the creosote bush, is so adapted to dry conditions that it can maintain photosynthetic activity when its tissues have lost almost half their normal water content. Major washes, such as Las Vegas Wash, contain riparian species including Cottonwood and Willow, as well as invasive, non-native species including Tamarisk, Arundo, and Tall Whitetop. Figure 2-2 shows the major land use and land cover types, based on best available data (1992).

As the Valley has grown, wildlife habitats have been converted to other uses and habitat that remains near urban areas has become increasingly fragmented. Table 2-1 lists species of concern that exist or likely exist in or around the City of Henderson, however this is not an exhaustive list. Species of particular concern are covered by the Clark County Multi-Species Habitat Conservation Plan (MSHCP), the continued loss of their habitats increases the likelihood of local extinctions and complicates restoration efforts elsewhere in the region.

Common Name	Scientific Name
Desert bighorn sheep	<i>Ovis canadensis nelsoni</i>
Burrowing owl	<i>Athene cucularia</i>
Desert pocket mouse	<i>Perognathus penicillatus</i>
Las Vegas bearpoppy	<i>Arctomecon californica</i>
Desert tortoise (Mojave Desert pop.)	<i>Gopherus agassizii</i>
Big free-tailed bat	<i>Nyctinomops macrotis</i>
White-margined beardtongue	<i>Penstemon albomarginatus</i>
Yellow twotone beardtongue	<i>Penstemon bicolor ssp. bicolor</i>
Rosy twotone beardtongue	<i>Penstemon bicolor ssp. roseus</i>

Table 2-1. Species of Concern within the City of Henderson



Riparian areas provide cover and nesting habitat for several bird species.

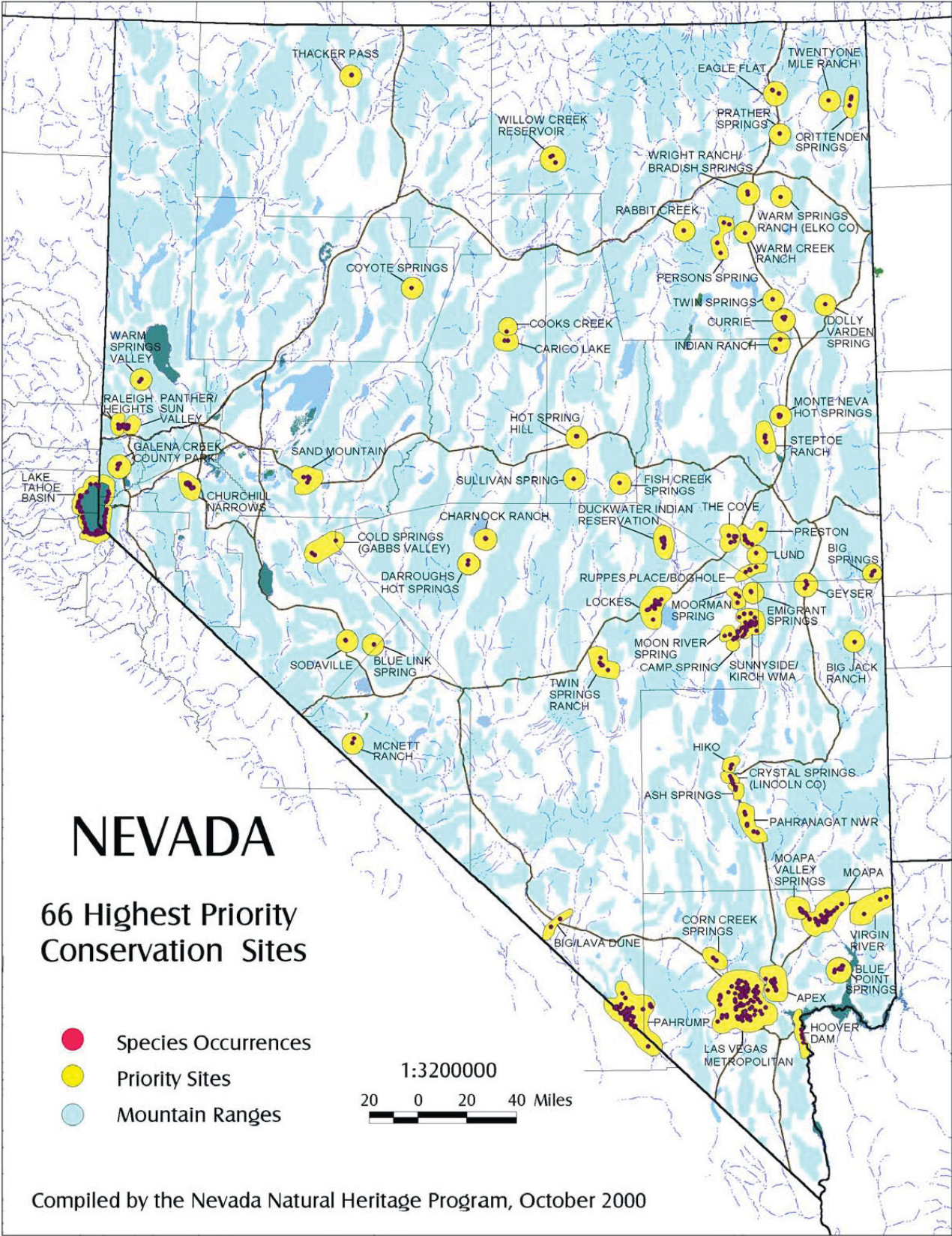
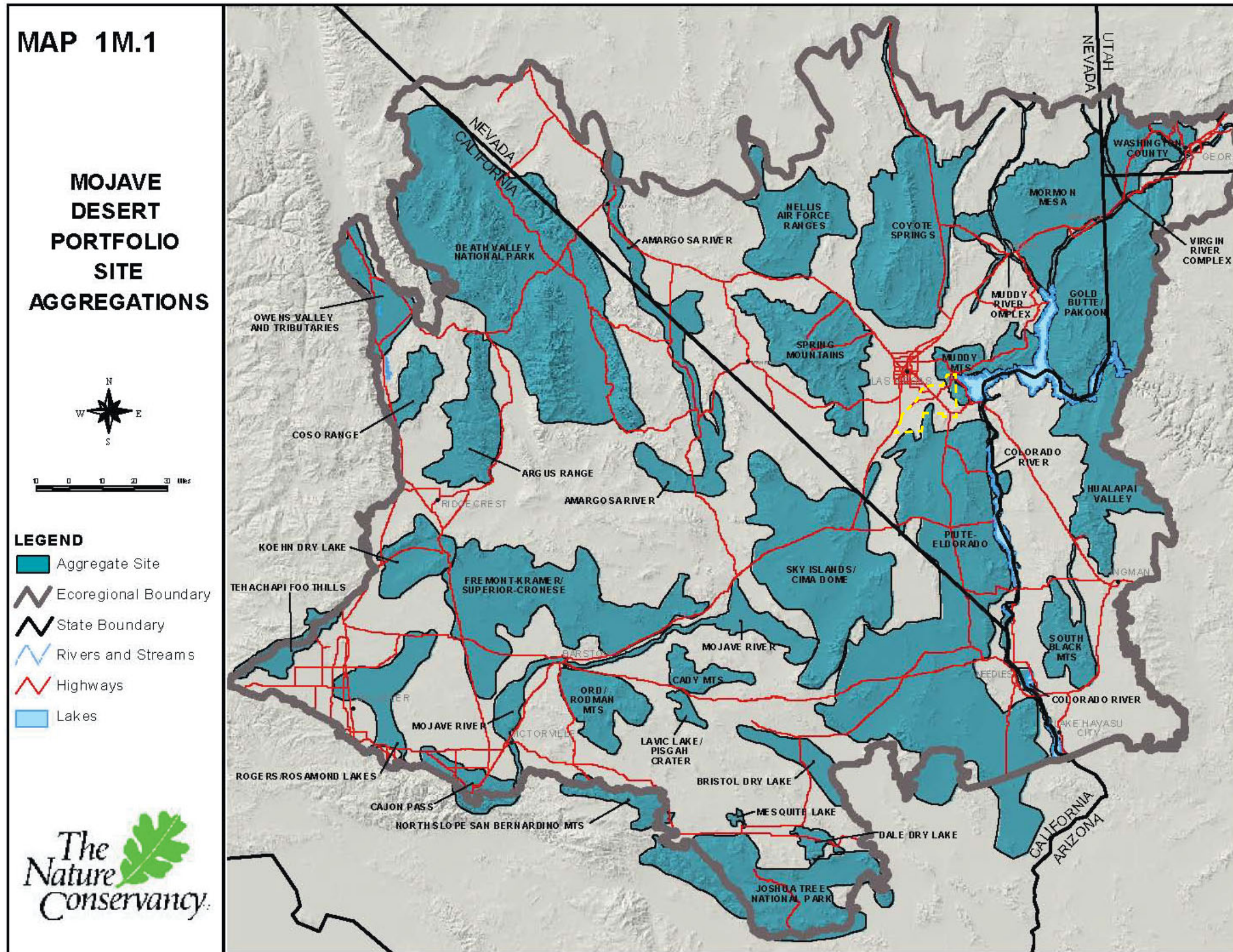


Figure 2-3. Highest Priority Conservation Sites, Nevada Natural Heritage Program



As a result of habitat loss and fragmentation, several studies have prioritized areas in and around Henderson to direct conservation efforts, namely the Nevada Natural Heritage Program (Figure 2-3), The Nature Conservancy Mojave Desert Ecoregion-based Conservation Targets (Figure 2-4), the Desert Conservation Program (through the MSHCP), and the Clark County Environmentally Sensitive Land Project. Most of these studies considered the relative rarity and distribution of targets across the ecoregion, identified target species and communities, set viability guidelines, and developed conservation goals for each target species. Information from each of these studies was used to identify priority conservation sites for the Open Space and Trails Plan. Clark County's MSHCP and Environmentally Sensitive Lands Report have the most bearing on conservation efforts in Henderson, and are described on the following pages.

Figure 2-4. The Nature Conservancy Mojave Desert Ecoregional Portfolio

Multi-Species Habitat Conservation Plan

The MSHCP divides Clark County into four basic conservation management categories (Figure 2-5):

- Intensively Managed Areas (IMAs)
- Less Intensively Managed Areas (LIMAs)
- Multiple Use Managed Areas (MUMAs)
- Unmanaged Areas (UMAs).

Most of the City of Henderson falls within an Unmanaged Area. BLM land surrounding Henderson is part of the Multiple Use Managed Areas and Intensively Managed Areas. Since the MSHCP requires that there is “no net unmitigated loss of habitat,” lands compromised through development in the MUMAs and UMAs are recovered in the IMAs and LIMAs. These areas pertain to Federal lands only; there are no restrictions for development on private lands regardless of their MSHCP management category.

As a result of the MSHCP and the permitted “take” of TES species, conservation efforts (including protecting critical lands) are focused on the IMAs and LIMAs beyond the disposal area boundary. Some critics report that due to this decision, any remaining habitat values and conservation efforts within urban and developing areas are essentially “written off.” Funds available through BLM land auctions have supported several wildlife and vegetation projects, but none of these projects have occurred within the disposal boundary or the City of Henderson.

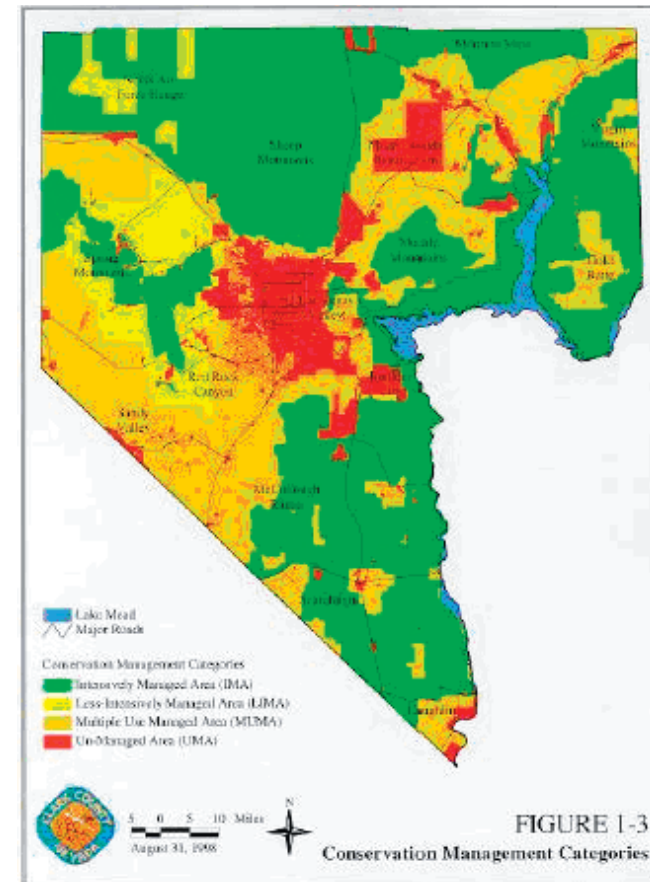


Figure 2-5. Multi-species Habitat Conservation Plan

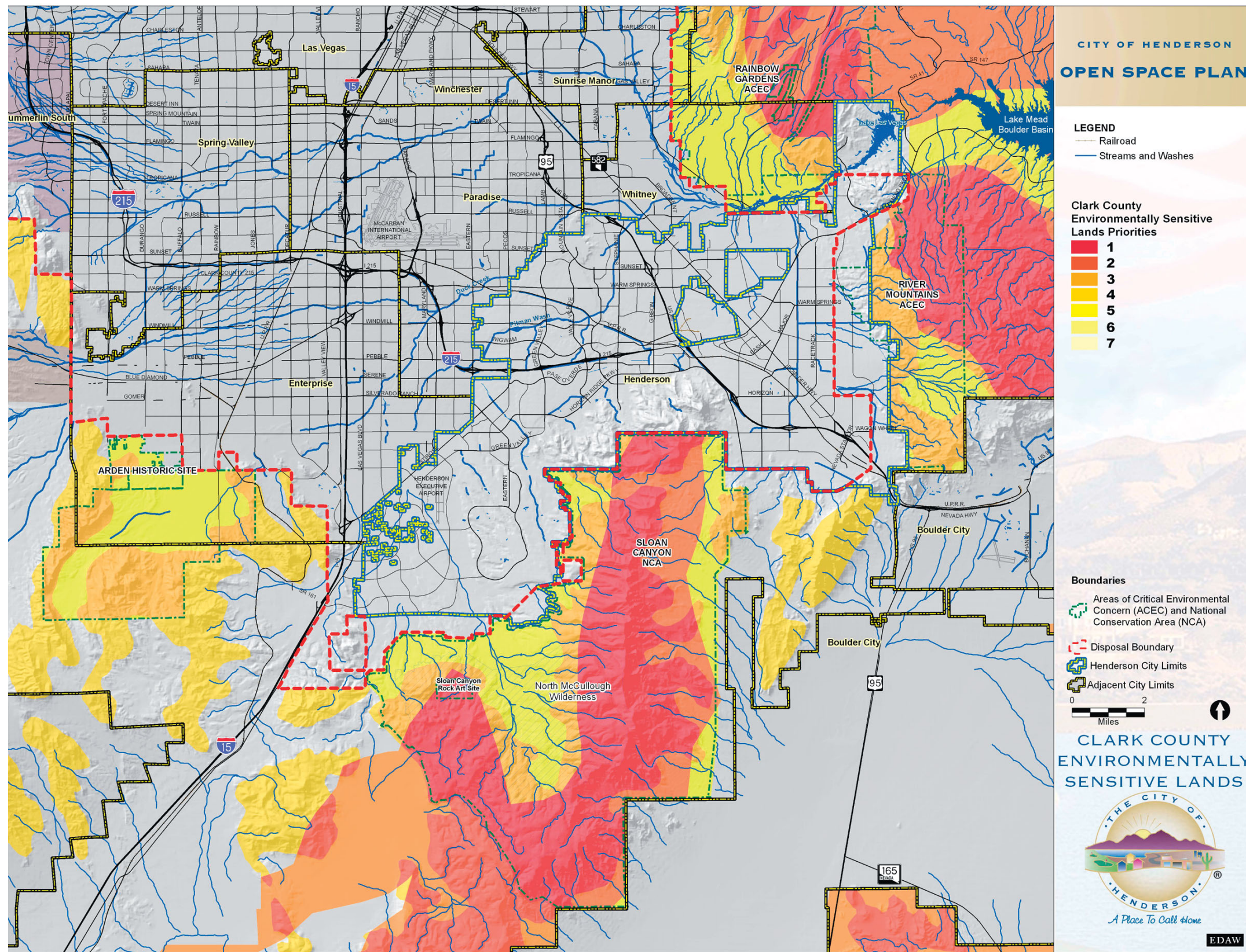


Figure 2-6. Clark County Environmentally Sensitive Lands Adjacent to Henderson

Clark County Environmentally Sensitive Lands Advisory Committee Report

In 2002, the Clark County Board of County Commissioners established the Environmentally Sensitive Lands Advisory Committee and directed staff to establish criteria, priorities, and strategies to address environmentally sensitive lands in Clark County - outside of the disposal area boundary. The Committee developed seven priority levels to prioritize Environmentally Sensitive Lands, shown in Figure 2-6. The seven levels represented a composite value ranking of: biodiversity, aesthetics, administrative areas specifically designated for environmental and recreational purposes, and cultural and historic areas.

While it is important to note that prioritized lands were not mapped in the City of Henderson, the ranking still displays the pattern and proximity of sensitive lands adjacent to the City: obviously Black Mountain, the northwestern range of the McCullough Mountains near I-15, and the River Mountains contain many sensitive resources. As the City expands, ESL priority lands should be considered in land use analyses. It may be advantageous to replicate components of the study methodology to prioritize sensitive lands within the City of Henderson.

The resulting report contained a number of recommendations; the relevant concepts are listed below:

- The County should generally oppose the transfer of current ESLs out of public ownership unless equal or greater protection of those areas can be provided, or the effects mitigated.
- ESL areas should be incorporated into land use plans as they are updated.
- Consideration of whether to include edge conditions and transitional land uses for ESL areas should be specifically included in all land use plan updates.
- Clark County should explore an expanded local government role in protecting and managing ESL areas where appropriate.
- Open space programs may be an important potential implementation mechanism for ESL protection.

Public Lands

As shown in Figure 2-7, Public Lands Map, the City of Henderson is fortunate to be surrounded on three sides by public lands: Rainbow Gardens ACEC (BLM) and Wetlands Park (Clark County) to the north; River Mountains ACEC (BLM), Bureau of Reclamation lands, and Lake Mead National Recreational Areas (NPS) to the east, and Sloan Canyon NCA to the south. The public lands, combined with the steep topography, form a natural edge to the City's future form.

The Southern Nevada Public Lands Management Act (SNPLMA) and the 2002 Land Act established the 2002 Las Vegas Valley Bureau of Land Management Land Disposal Boundary (shown as a dashed red line on Figure 2-7) and a Joint Selection process for auctioning public land. Through the Joint Selection process, the City nominates lands within the 2002 Land Disposal Boundary that will be auctioned and has control over the rate at which lands are sold to developers. Through this process, there is an opportunity for the City to initiate right-of-way and Recreation and Public Purpose (R&PP) applications to secure open space and trail corridors in advance of the auction process.

Clark County and the BLM maintain a policy that public lands outside of the BLM disposal boundary should remain in public ownership and be managed as open space recreational areas. This provides an excellent opportunity for the City of Henderson to leverage public land resources by providing access and ensuring protection of these lands for the benefit of City residents without being responsible for their management.

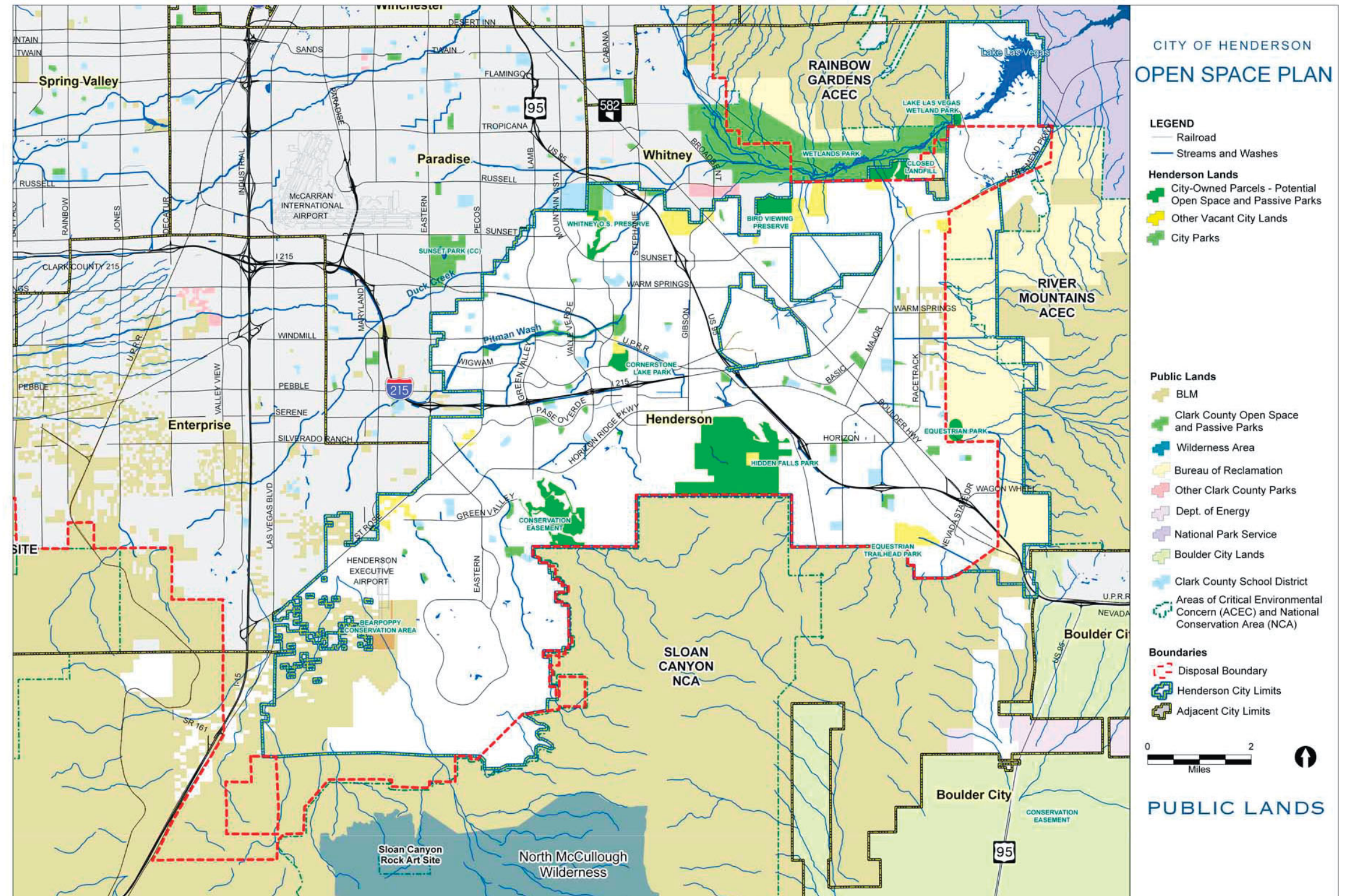


Figure 2-7 Public Lands Map. The dashed line represents the 2002 Las Vegas Valley Bureau of Land Management Disposal Boundary. Lands within the boundary can be maintained by the City to be sold in order to accommodate growth.

Existing City Open Space

The City of Henderson owns approximately 322 parcels of land for a total of 4,746.19 acres. Approximately 72% of the parcels owned by the City of Henderson are for flood control, municipal uses, or open space. The planning team reviewed the City's inventory of lands and determined that approximately 2,350 acres could be considered as open space as defined in Chapter 1 (Table 2.2). However, most of these lands have no formal agreement on their protection; that is, they are subject to disposal or transformation in order to achieve other objectives. Other areas will require extensive restoration in order to achieve a naturally-appearing condition.

Name	Acres	Protected	Funded	Public Access	Location	Comments
Black Mountain	1,377	Small portions have been deeded as open space	N	N	Black Mountain	The City owns 1,377 acres of vacant land on the sides and summit of Black Mountain adjacent to the NCA. Portions of this land were dedicated to the City as "open space" by neighboring developments.
Bird Viewing Preserve	142	Y	Y	Y	North of Water Treatment Facility	This protected Preserve is home to thousands of migratory waterfowl as well as numerous resident desert birds. It contains nine ponds available for birding, surrounded by both paved and dirt paths.
Whitney Mesa Nature Preserve	5	Y	Y	Access provided following design and construction	Near Galleria Drive and Patrick Lane	The Whitney Mesa Nature Preserve is an environmentally sensitive area that is home to historic and cultural resources, wildlife habitat, and natural springs. It was formally protected through the receipt of SNPLMA funds in 2004. The Preserve would include environmental educational opportunities and a network of nearly one mile of recreational biking and hiking trails currently under design and construction.
Whitney Mesa Open Space	35	Y	N	N	Near Galleria Drive and Patrick Lane	As part of a 2005 land exchange and rezoning, an open space network with interpretive trail was zoned north-south along the top and bottom of Whitney Mesa.
Hidden Falls	60	Y	Y	Access provided following design and construction	West of Horizon Ridge Parkway	Construction is underway for this 60-acre park including both neighborhood and community park amenities and open space qualities. Both passive and active recreational opportunities will be provided, although the site has been heavily disturbed by past activities. The park can provide access to Sloan Canyon NCA and non-motorized access is available via the Amargosa Trail.
Equestrian Basin Horse Park and Trailhead	140	Y	Y	Y	Equestrian Dr. & Magic Way	This new park features a figure-eight loop equestrian trail and a second trail on top of and alongside a 20-foot wide flood control berm. Parking and lawn area is provided. The park sits on Bureau of Reclamation lands through easements held by the City.
Cornerstone Park	~30	Park Master Plan in process	Y	Access provided following design and construction		As part of a multi-use detention basin, this park will support multiple uses and feature a 20-acre lake fed by groundwater following its restoration from gravel mining activities. The park will connect to several planned trails such as the UPRR and the existing Pittman Wash Trail. Restoration of portions of this site would provide both active and passive recreational and hiking opportunities as well as wildlife habitat.
Lake Las Vegas Wetland Park	24.9	Y	N	Access provided following design and construction	Mouth of Lake Las Vegas above Lake Las Vegas Parkway	Interpretive pathways and wetland restoration are planned adjacent to the Clark County Wetlands Park.
Pitman Wash	~95.9	Y	Y	Y	Near Windmill from Pecos to Arroyo Grande	This semi-natural flood control channel is the focus of Project GREEN, whose purpose is to protect and restore one of the few remaining large areas of natural habitat in the Green Valley area. The project has three goals: 1) Remove the existing tamarisk and replace it with various other native species of plants, 2) Re-establish the native riparian habitat, 3) Create a recreational trail for the community to enjoy the natural surroundings.
Canyons Conservation Easement	408	Legal transaction in process	N	N	SW of Green Valley and Horizon Ridge Parkway	Deed to conservation easement pending agreement between partners. No public access as land remains private.
Vineyard Conservation Easement	29	Legal transaction in process	N	N	Railroad Pass adjacent to Vineyard Subdivision	Potential Conservation Easement. No public access as land remains private.
Lake Las Vegas Conservation Easement	TBD	Y	Y	N	Lake Las Vegas	Conservation easement dedicated to City in an effort to protect adjacent hillsides. No public access as land remains private.
Total Acres	~2,350					

Table 2-2. City Open Space Lands

Existing City Trails

As described in the planning context section, the Master Bicycle and Trails Plan provides a basis for implementing an on-street and off-street system and is enforced through the entitlement process. In determining what constituted a “trail” for the Open Space and Trails Plan, the planning team began with the facility types named in the Master Bicycle and Trails Plan, which are:

- Shared Use Paths and Routes
- Bike Routes
- Bike Lanes
- Rec Trail/Bike Routes
- Shared Use Paths
- Shared Use Paths and Lanes
- Recreational Trails
- Rec Trail/Bike Lanes.

The planning team used the off-street facility types (Shared Use Paths and Recreational Trails) as a basis for creating a future trail system, although many existing shared use paths do not meet the specific definitions of what constitutes a “trail” as found in Chapter 1. A new classification system for the City’s trails is discussed in Chapter 3.

As of July 2005 and as detailed in Table 2.2A, Henderson has constructed 25.9 miles of trails and shared use paths. The majority of these trails have been completed since 1999 when SNPLMA funding became available. An additional 38.9 miles are currently funded or under construction. This leaves 130.4 miles of trails proposed in the Master Bicycle and Trails Plan that are not funded or under construction.

Other Trail Issues

The predominant issue for most users, and an obstacle for continued use of the City’s trails is the lack of overall connectivity. Although many segments have been completed, often trail users are forced to travel along road shoulders, through parking lots, or sidewalks in order to reach their destination.

PRIMARY TRAIL NAME	Miles Completed	Miles Funded / Under Construction (2-5-year horizon)	Miles Proposed for next 20 years	Total Miles	Percent Complete	Jurisdiction
AMARGOSA TRAIL	2.6	4.8	0.1	7.5	35%	Henderson
ANTHEM EAST TRAIL		6.6		6.6	0%	Henderson
ANTHEM WEST TRAIL			2.2	2.2	0%	Henderson
ARROYO GRANDE BL			2.3	2.3	0%	Henderson
BMIC TRAIL			3.0	3.0	0%	Henderson
BOULDER HWY		4.8	3.5	8.3	0%	Henderson
BURKHOLDER BL		3.8	4.0	7.8	0%	Henderson
C-1 CH			4.4	4.4	0%	Henderson
CACTUS WREN TRAIL		0.6		0.6	0%	Henderson
CORONADO CENTER DR			0.8	0.8	0%	Henderson
DUCK CREEK AR			1.7	1.7	0%	Clark County
EQUESTRIAN TRAIL	1.6			1.6	100%	Henderson
FOCUS TRAIL			2.9	2.9	0%	Henderson
FOOTHILLS TRAIL			2.4	2.4	0%	Henderson
GALLERIA DR			1.2	1.2	0%	Henderson
HENDERSON-JACKSON TRAIL	0.5		0.5	1.0	49%	Henderson
HOOVER-BASIC	1.1		1.4	2.5	45%	Henderson
I 215 TRAIL	0.8		4.1	4.9	16%	Henderson
JEFFREYS ST			0.6	0.6	0%	Henderson / Clark Co
LAKE MEAD DR	1.2		8.3	9.4	12%	Henderson
MARYLAND			3.2	3.2	0%	Henderson
McCULLOUGH HILLS TR		6.5		6.5	0%	Henderson
MEAD-DECATOR			2.9	2.9	0%	Henderson / Clark Co
MT LOOP TRAIL			3.3	3.3	0%	Henderson / Clark Co
NEVADA STATE COLLEGE TRAIL			3.4	3.4	0%	Henderson
OFFSTREET FACILITIES			3.4	1.4	0%	Henderson / Clark Co
PARADISE HILLS DR			0.7	0.7	0%	Henderson
PITTMAN AR	2.9		2.0	4.9	60%	Henderson / Clark Co
RAIL TRAIL			13.1	13.1	0%	Henderson
RAINBOW GARDENS ACCESS TRAIL			2.0	2.0	0%	Henderson
RIVER MT LOOP TRAIL	8.5	0.1	1.6	10.2	84%	Henderson
SEVEN HILLS TRAIL	3.1		0.8	3.9	79%	Henderson
SLOAN LOOP TRAIL			12.5	12.5	0%	Henderson
ST ROSE PK		4.5		4.5	0%	Henderson
SUNSET RD			6.1	6.1	0%	Henderson
UPPR HEND SPUR		0.9		0.9	0%	Henderson
US 95			9.7	9.7	0%	Henderson / Clark Co
WEST HENDERSON TRAIL			4.2	4.2	0%	Henderson
WHITNEY MESA BASE TRAIL			3.4	3.4	0%	Henderson
WHITNEY MESA RIM TRAIL			1.2	1.2	0%	Henderson
TOTAL	22.3	32.5	117.0	169.8	13%	

Table 2-2A. Trails Status Summary

A second issue is the increasing limited public access to public lands. As private lands adjacent to Bureau of Land Management, Bureau of Reclamation, and Clark County Wetlands Park lands are developed, traditional access to these lands has become limited. Publicly accessible trailheads, signage, and public education regarding available access points needs to be developed in order to limit trespassing of private property. Perhaps more importantly, new development should maintain traditional points of public access.

Third, the desert environment easily lends itself to cross-country trail use (or “social” or “spider-web” trails) which, if uncontrolled, can destroy native vegetation and lead to erosion. Specifically, the BLM is concerned about private and spider web trails entering the Sloan Canyon NCA at undesignated points. Controlled access along trails and proposed roads is especially important in West Henderson north of the entrance to the Sloan Canyon Rock Art Site. Homeowner associations have also created trails, such as the Cityview Trail, which is inaccessible to the public.

Lastly, user conflicts often occur along trails where equestrians and hikers meet off-road vehicle users. Vehicular activities on trails range from casual use on weekends to highly organized and competitive off-road racing. The high speeds and noise of off-road vehicles can spook horses and injure riders as well as children hiking on trails.



Motorcyclist on River Mountains Loop Trail

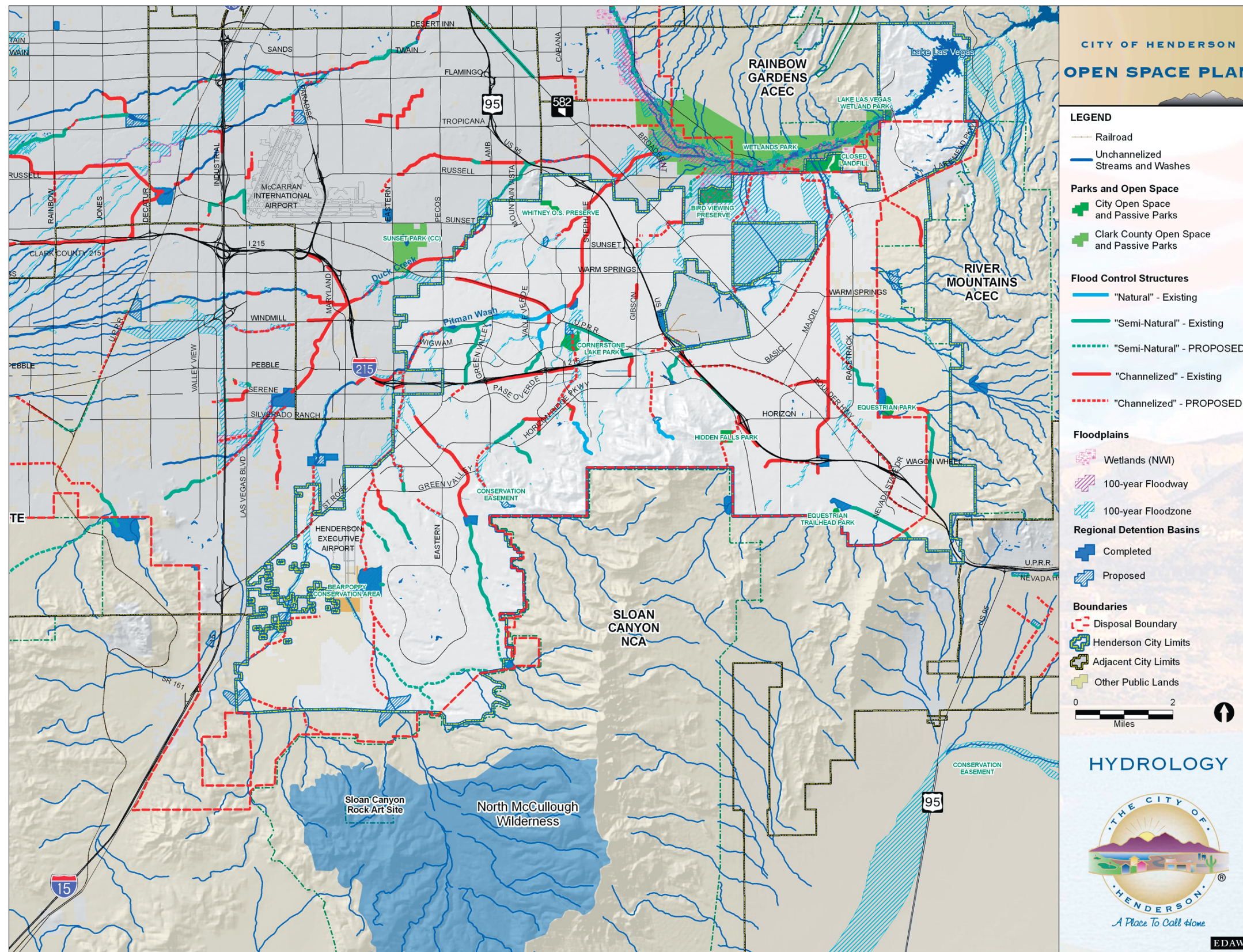


Figure 2-9. Hydrology of the City of Henderson

Storm Drainage Inventory/Issues

The Clark County Regional Flood Control District (CCRFCD) distributes maintenance and capital improvement funds for flood control facilities according to the CCRFCD master plan. Designs produced by entities or consultants must comply with the Hydrologic Criteria and Drainage Design Manual, available at: www.regionalflood.org. The master plan and EIS (also available online) provide details on proposed projects in the Henderson area. Typically, the CCRFCD purchases the land where the improvement will take place and dedicates it to the entity (in this case, the City of Henderson) following construction.

The Hydrology Map (Figure 2-9), derived from the Clark County Regional Flood Control District Master Plan, illustrates how pervasive storm drainage improvements are within the community. It illustrates how channelization (red line) is the most frequent solution to storm drainage improvements, a design solution that often results in a single purpose project that doesn't realize other potential community benefits. Drainage channels provide connectivity through the entire community, therefore, they are a logical and natural corridor for trails. Fifty-three miles of regional flood control channel have been constructed within the City limits to date, and over 40 additional miles are proposed to be constructed within the current City in the next 20 years (2002 Clark County Regional Flood Control District Master Plan).

Aesthetics

In contrast to streets, trails and other public improvements, aesthetic treatment requirements for flood control facilities have not yet been developed by the City or County. As a result, most drainage channels lack landscaping or other design treatments to soften the utilitarian appearance of the concrete channel and barren right-of-way. In some instances, developers have provided trails, landscaping, and other aesthetic amenities beyond current requirements.

These aesthetic treatment requirements and alternative channel designs may best be examined through a community participation process. There are no current policies that require public involvement in the design of storm drainage improvements. Public input received typically follows partial design. As a result, alternative design approaches are usually not presented or fully considered. Further, the City's development review process is not geared to a consideration of alternative drainage channel design and no policy guidance is provided to encourage a consideration of alternatives. Neighborhoods adjacent to Pittman Wash have formed Project GREEN and have been involved in volunteer planning and design decisions for future improvements. As a result, over 2.9 miles of trails adjacent to the Pittman Wash have been developed and an additional 2.1 miles are planned.

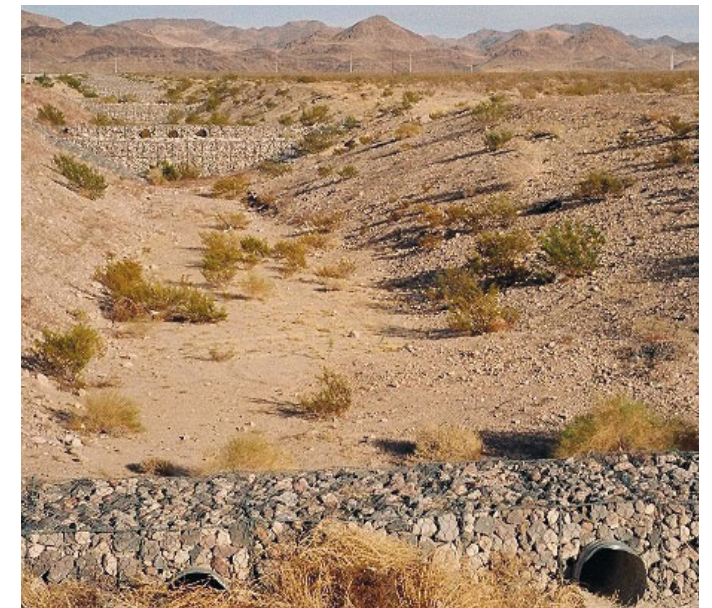
Natural Channels and Floodplains

Due to the rapid pace of growth and funding limitations, the CCRFCD implements the least expensive capital and maintenance cost alternative. In treatments with normal to high flows, concrete-lined channels are typically the preferred method. However, in most cases, storm drainage channel improvements are designed with a minimum width and no provision for a trail or walkway. Drainage crossings and culverts under streets are most often designed only to accommodate storm flows and it is costly to retrofit these structures to accommodate recreational experiences.

In many cases, a constricted channel design is not a response to the capital and maintenance costs, but is instead a direct response to adjacent or upstream land uses within the floodplain. There are no floodplain development regulations at the City, County, or

State level that limit development within the floodplain once approved drainage improvements properly mitigate the flood hazard. Development can also occur directly in the floodway (the channel) until the point where material raises the 100-year flood elevation beyond one-half foot. These land use policies combined with the high price of useable land creates an incentive for property owners to develop the greatest area possible, regardless of proximity to a wash. As a result, storm flows are concentrated in a narrower channel, which are prone to failure without structural reinforcement. Also, because washes and arroyos are intermittent streams they are not regulated by the U.S. Army Corps of Engineers, and landowners have the right to modify, channelize, or culvert them as desired unless wetlands are present.

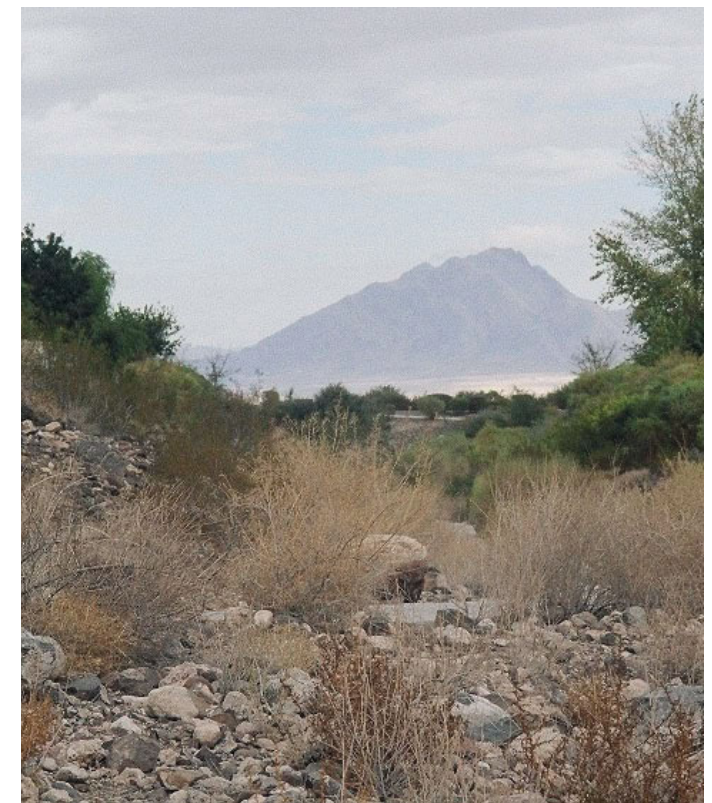
Section 704-705 of the Hydrologic Criteria and Drainage Design Manual contains design sections



Visually subordinate drop-structures near Racetrack.



A remnant wash between Warm Springs and Sunset provides for off-street trail connectivity.

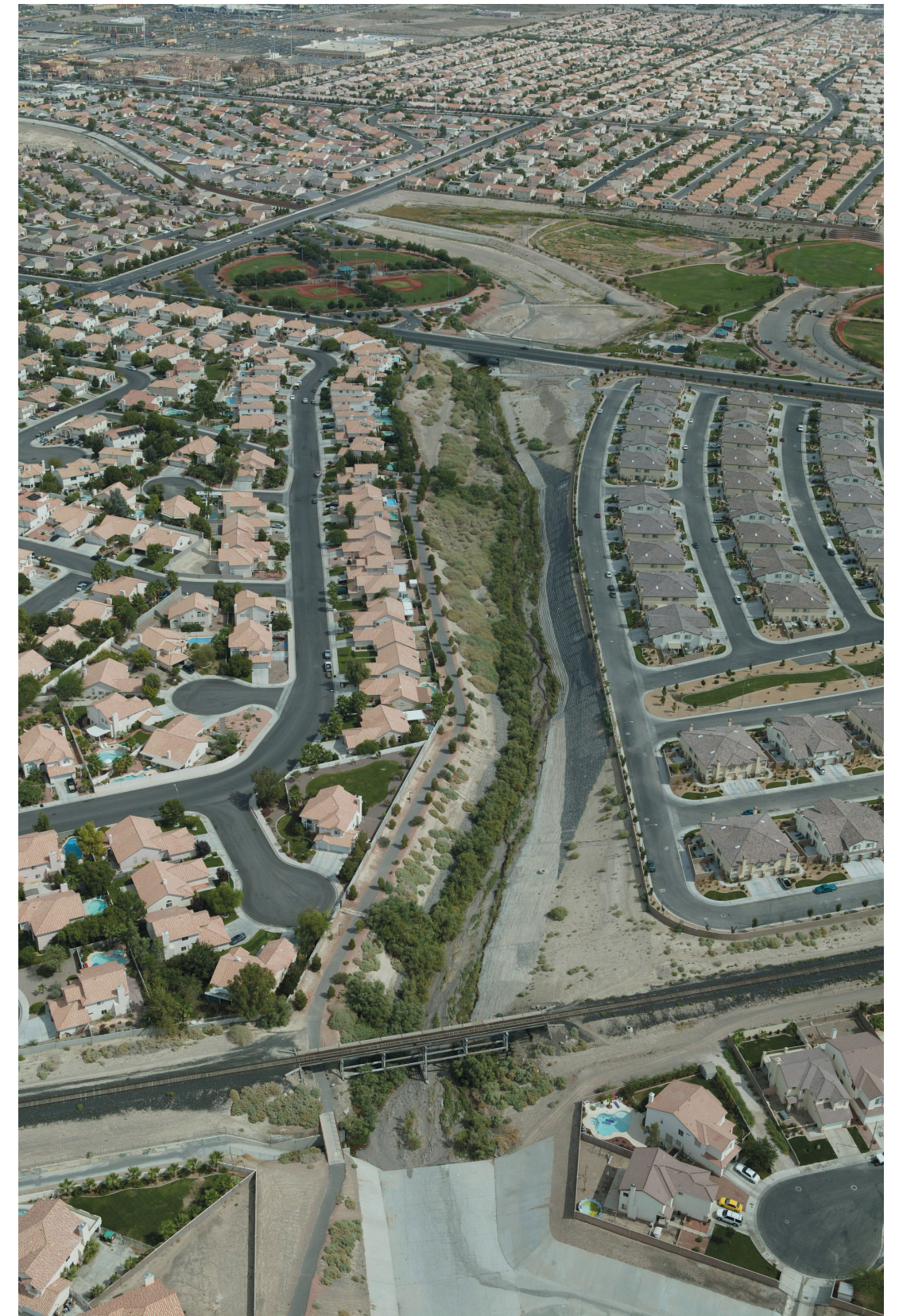


Natural wash in a Cornerstone neighborhood.

and standards for natural channels. The selection of a natural channel design is generally dependent on the value of developable land versus the cost to remove the said land from a floodplain. The costs for the removal depend on the rate of flow, slope, alignment and depth of the channel as well as material and fill costs for construction of the encroachment. The design sections in Section 704-705 vary from no encroachment to the level of encroachment at which point an improved channel (unlined or lined) becomes more economical.

Despite these disincentives, several notable projects have maintained semi-natural washes that have become an asset the community, such as Henderson's Project GREEN at Pittman Wash or Pueblo Park in the City of Las Vegas. Barriers to replicating these successful projects, such as Project GREEN or Pueblo Park include:

- An assurance that flows stay within the channel.
- Long-term operations and maintenance requirements.
- Real-estate costs (avg. \$150,000-300,000 per acre).
- Size and nature of upstream watershed and flood control structures.



Aerial photos of Pittman Wash showing the contrast between concrete-lined channels and soft-surfaced channels.

Naturally-appearing flood control structures are more likely to be considered if:

- They are led by the developer.
- Funds are available to compensate for the difference in least expensive capital and maintenance cost alternative.
- Locations and treatments are proposed with sufficient advance notice.
- Locations downstream of ditches or detention basins that divert or sufficiently decrease channel flows. Such is the case with Pueblo Park in Las Vegas, which essentially retained the landscape feature but diverted most flows upstream.

Clark County Regional Flood Control District Multi-Use Policies

Existing and planned flood control facilities hold significant potential for recreational corridors. The CCRFCD has a policy encouraging recreational uses within flood control facilities, which was adopted during 2001 prior to other regional trails planning efforts. However, the policy is limited by state statute to construct the most cost effective solution for flood control facilities and does not provide funding for joint use facilities. The following are excerpts from this policy:

- In rapidly growing urban areas the creative use and identification of open space opportunities is important. In many cases linear and block flood control facilities can provide opportunities for trails, parks, environmental preserves and many other recreational uses.
- Encourage early planning to identify and take advantage of multiple use opportunities afforded by flood control facilities included on the master plan. Master plans, designs, and capital improvement programs will be made available to entity planning personnel for their use.
- Improve the protection of life and property for existing and future residents from the impacts of flooding inasmuch as multiple uses do not contribute to that mission.
- Restrict the use of CCRFCD funds to implementation of the facilities included on the flood control master plan. CCRFCD funding is not available for the installation, operation, maintenance or rehabilitation of recreation or other non-drainage related facilities located in or with flood control structures.

With these policies in mind, certain considerations can be made during facility planning and design to better accommodate multiple uses. If a flood control

facility is to incorporate multiple uses, then the following policy statements must be met:

- Public safety and the proper functioning of the drainage facilities are of the highest concern and cannot be compromised by other uses.
- Flood control facilities must be clearly signed to identify them as areas subject to flooding, and as areas that should not be used during rainfall or floods.
- The establishment of wetlands, passive vegetation zones, or other desirable habitat will require coordination with and approval by appropriate local, State and Federal agencies, as well as the development of a workable habitat management plan that allows for the periodic maintenance of the drainage facilities.
- The use of channel bottoms for recreational uses should be avoided.
- As a condition of the Clark County Regional Flood Control District's acceptance of multi-use plans, the entities will indemnify and hold the District harmless from damages resulting from the use of flood control facilities for recreational activities. The entity that constructed and owns the right-of-way wherein the access is located typically carries liability.

Local agencies do have the ability to include additional local requirements and policies within the Hydrological Criteria and Drainage Design Manual, which establishes design standards for all facilities. Through this mechanism, local agencies can broaden the established regional policies and standards to meet expanded community goals.

City of Henderson Flood Control Facilities

Like other local jurisdictions nationwide, the City of Henderson currently relies on policies established by CCRFCD to guide decisions related to flood control facility design. Since Nevada state statutes only allows the most cost effective solution to be funded with CCRFCD monies, local agencies are responsible for supplementing CCRFCD funds with additional monies for alternate designs. The City has been successful in providing some joint-use facilities through funding sources outside of the CCRFCD (i.e. public-private partnerships and the SNPLMA Special Account).

Multi-Use Opportunities

Good examples of multi-use detention facilities include Desert Breeze, Lower Las Vegas Wash Detention Basin, and Tropicana Detention Basin (by McCarran Airport). Two detention basins in



35-acre Mission Hills Detention Basin in southeast Henderson.

Henderson (Anthem and Arroyo Grande Park) were designed to include multi-uses but have experienced higher than expected maintenance costs and other problems. The CCRFCD does not fund, maintain, or repair any multi-use facilities associated with flood structures, with the exception of debris clean-up. Flood Control District suggestions for multi-use opportunities include:

- In general, passive recreation zones, picnic areas, soccer fields and ball fields may be suitable uses for the lower elevated tiers located above the 10-year pool.
- Tot lots, play areas and court games should be located in the higher elevated tiers located above the 25-year pool.
- Parking areas, rest rooms, concession stands, habitable structures, and swimming pools must be located outside of the 100-year pool elevation.
- Picnic tables, benches, trash receptacles and other amenities located in flood control facilities must be securely fastened in place.
- Most channels have maintenance roads (typically 12-15' width) on one or both sides that may be suitable for pedestrian and biking access. Public Works can identify where access roads are located. A pedestrian separation device separating the channel from the road is required (typically a 6' chain link fence). The pedestrian separation device must be designed and installed in a manner that does not impair normal operations and maintenance activities, or emergency response and rescue activities.

In summary, City and County flood control efforts have been highly effective in constructing flood control facilities to lessen flood impacts to life, health, and property since the creation of the Clark County Regional Flood Control District in 1985. As the Valley's flood control efforts mature, many people have begun calling for greater emphasis on the contribution of flood control facilities to community character, recreation use, and environmental quality. For example, comments provided during a series of four open

houses related to the City of Henderson Open Space and Trails Plan were supportive of joint-use flood control facilities. In comparing the mission statements and programs of City and County flood control efforts to other programs in the southwest, it is evident that Las Vegas Valley programs are more limited in their scope (see Table 2-3). As a result, funds for beautification, multi-use, and natural channel protection are often unavailable through City, County or State means.

	Maricopa County Regional Flood Control District	Pima County Regional Flood Control District	Clark County Regional Flood Control District
Mission	"The District's vision is for the residents of Maricopa County and future generations to have the maximum level of protection from the effects of flooding through fiscally responsible flood control actions and multi-use facilities that complement and enhance the beauty of our desert environment. "	"Pima County Flood Control District is a regional agency whose mission is to protect the health, safety, and welfare of Pima County residents by providing comprehensive flood protection programs and floodplain management services. These services emphasize fiscal responsibility, protection of natural resources, and a balanced approach to managing regional watercourses, floodplains, and stormwater resources. "	"To Improve the protection of life and property for existing residents, future residents, and visitors from the impacts of flooding." The Clark County Regional Flood Control District mission is established by Nevada state statute.
Multi-Use	Yes, built into the mission. Also, "The District's vision is for the residents of Maricopa County and future generations to have the maximum level of protection from the effects of flooding through fiscally responsible flood control actions and multi-use facilities. "	Yes, built into the mission.	"Encourage early planning to identify and take advantage of multiple use opportunities afforded by flood control facilities included on the master plan. Master plans, designs, and capital improvement programs will be made available to entity planning personnel for their use." While this policy encourages multiple use facilities, state statute does not permit the funding of designs that are not of the lowest capital cost.
Funding Practices	Funds available for multi-purpose projects. For example, on Rio Verde Flood Control Project – "The project will be funded jointly by the District and the City of Peoria. By constructing the trails and implementing landscape improvements in conjunction with the channel improvements, both agencies will be able to maximize public funds."	Joint projects are the norm. The districts funding measure integrates flood control, recreation, and other project benefits. "For the purpose of acquiring, constructing, expanding and improving the flood control facilities of the County, including bank stabilization, channels, drainage ways, dikes, levees and other flood control improvements and river parks and related facilities."	"CCRFD Funding is not available for the installation, operation, maintenance or rehabilitation of recreation or other non-drainage related facilities located in or with flood control structures." Typically, CCRFD implements the least expensive capital and maintenance cost alternative.
Floodprone Land Acquisition Program	Yes, focus on voluntary purchase of homes built in the floodplain.	Yes, takes a proactive approach to acquire open space in floodprone areas.	No
Natural Channel Protection	"The District provides regional protection while identifying unique characteristics and natural habitat that should be preserved..."	Yes. "To encourage the preservation of natural washes and enhance the riverine environment."	No
Aesthetics or Natural Appearance Guidelines	Yes, adopted policy since 1992. "The District constructs facilities that will "fit in" to the community, provide recreation and environmental benefits, and be an amenity for many years to come."	Yes. Vision statement also states that developed facilities should "complement and enhance the beauty of our desert environment."	No
Other Key Policies	"The District is working to preserve natural floodplain characteristics in upstream areas and to discourage development in vulnerable areas."	Has a water resources and riparian habitat management program and assists in implementing the Sonoran Desert Conservation Plan.	--

Table 2-3. Summary of Key Policies on Flood Control/Storm Drainage

III. TRENDS

Conservation and Recreational Trends

Demand for open space, trails, and nature-based recreation is growing at a phenomenal rate nationwide. Locally, City residents have indicated that local parks and recreation facilities and programs are important to defining their quality of life. Three recent surveys in particular illustrate the importance of open space, trails, and recreation opportunities within the State and City, as discussed below.

State and City Demands for Open Space

Nevada's 2003 Statewide Comprehensive Outdoor Recreation Plan Assessment and Policy Plan

The citizens of Nevada are eager to improve the quality and quantity of outdoor recreation opportunities in order to meet the needs of the current population, future populations, and the state's many visitors. Nevada's growing population is placing an increased demand on recreation resources and recreation suppliers at all levels, statewide. New resources need to be identified, acquired, and developed. Eighty-four percent of the respondents to the 2001 citizen's survey on outdoor recreation conducted by the Nevada Division of State Parks said that they participated in an outdoor recreation activity in the year 2000 (DeLoney2001). This statistic coupled with the phenomenal population growth of 6,600 per month from 1990-2000 substantiates that new recreational resources need to be identified. Conservatively, an estimated 5,500 (6,600 x 84%) new recreationists moved into Nevada every month, or 660,000 over the ten year period.

Parks and Recreation Department Survey Highlights (2000)

The City of Henderson Department of Parks and Recreation conducted a citizen survey in 2000 to help determine needs, use levels, and priorities for parks

"Outdoor recreation currently exceeds carrying capacity at most recreational areas in proximity to urban areas. There is a public need for additional recreational sites closer to urban centers where use is greatest."

(Nevada's 2003 Statewide Comprehensive Outdoor Recreation Plan – Assessment and Policy Plan)

and recreation planning. Of the 1,000 households surveyed, 83% indicated that they had visited a City park during the past year and nearly 50% of households utilize City recreation facilities more than once per month. More than 80% of respondents indicated that the park or facility that they use most often is located within the City. However, 39% of respondents stated that there are not enough trails, parks or open space within walking distance of home; that parks and recreation facilities are not close enough to home to encourage frequent use was among the top reasons offered for not regularly using City parks and trails. "Preserving the environment and protecting open space" was the second most important goal for the City's Parks and Recreation Department according to 41% of the respondents. Neighborhood parks (46%) and walking and biking trails (38%) were the two most common choices of passive recreation for households. It is, therefore, no surprise that respondents indicated that the most important new parks and recreation facilities in the City include adding trails (29%), small neighborhood parks for general use (29%), and additional open space areas (16%). Likewise, the top three choices for improvements to existing parks and recreation facilities included developing loop trails in parks, connecting existing parks with trails, and adding more bike paths/trails.

The survey includes a "National Benchmarking" section comparing Henderson's response to the responses from communities across the nation. Survey responses and ratings for usage of parks and recreation facilities and programs are considerably higher in Henderson than the national averages. Henderson has the highest percentage of households using parks of any nationally benchmarked community.

Approximately 83% of households indicated that they had visited a City park during the past year; whereas, the national average of households visiting a park over the past year was 72%. Henderson also had the highest overall participation in recreational programs. Of responding households, 51% had a household member participate in a program over the past year. This is the highest rating overall, and is nearly twice the national average of 28%.

City of Henderson Community Assessment Survey (2004)

Some of the primary objectives of the 2004 Community Assessment Survey was to examine residents' perceptions of their quality of life, the relative importance of various items on quality of life, and assess residents' sense of community. In total, 1,000 adult residents in the City of Henderson were surveyed regarding City recreational services.

According to the survey, 87% of respondents indicated that "preserving open space" was somewhat important or greater to them, and 93% stated that

"increasing the # of trails and walking paths" was somewhat important or greater. Citizens were less satisfied with the city's preservation of open space than they were with other recreational services such as "Maintaining parks and recreation facilities" and "Providing recreation programs for youth". "Preserving open space," was rated as both high in importance and low in satisfaction; it was the only City service that fell into the High Importance-Low Satisfaction quadrant of the Importance-Satisfaction matrix. Compared to public satisfaction with the other recreation services, respondents were not as satisfied with the job the City was doing to increase trails and paths and preserve open space as they were with other recreational programs (Figure 2-10). Respondents with a "high" sense of community also rated recreation services as more important than respondents with medium or low sense of community, indicating that recreational opportunities may be beneficial to fostering a sense of community.

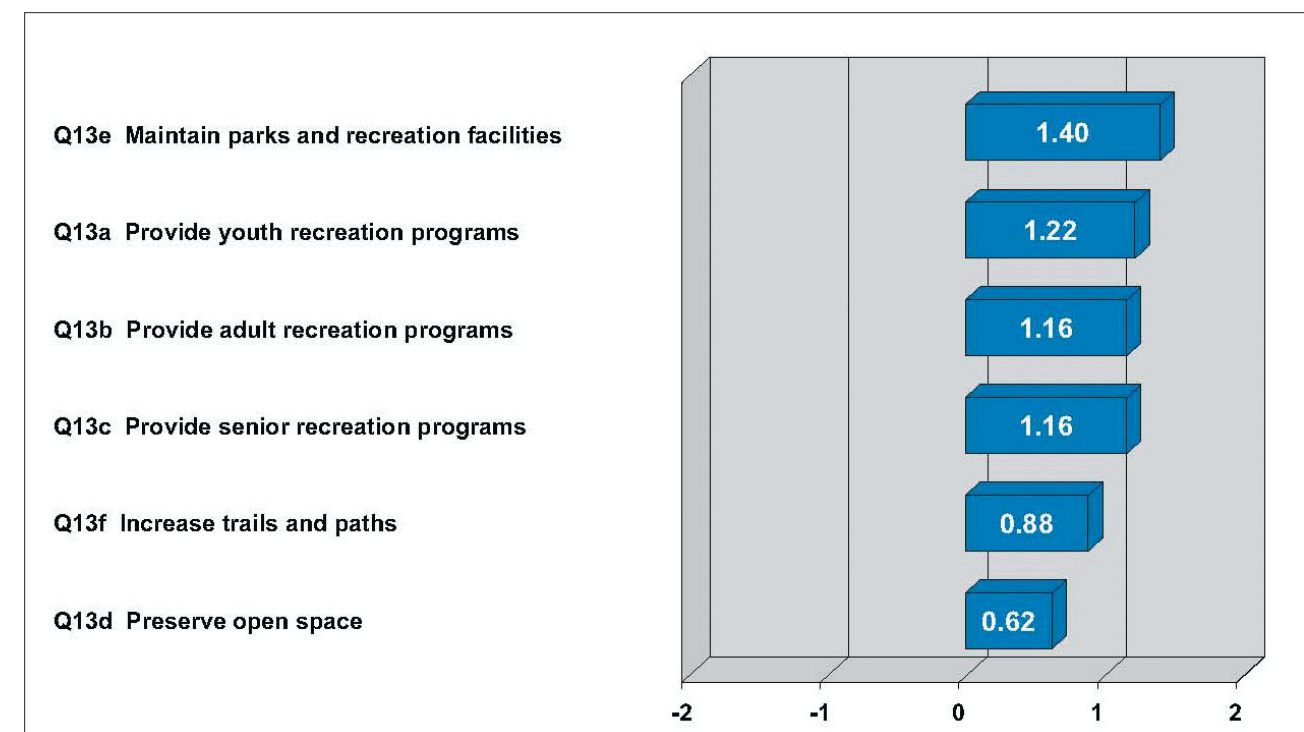


Figure 2-10. Public Satisfaction with Recreational Services
Source: 2004 Community Assessment Survey

Economic Implications of Open Space
First hand experience and recent studies on the economic effect of open spaces have thoroughly demonstrated that investments in trails and open space protection does not “cost” but “pays.”¹ First, it is clear that residents will pay a premium to live in close proximity to open space lands and greenbelts.² As home prices increase, homebuyers have begun to expect more than simply three bedrooms and a two-car garage; they expect to be part of an active, well-connected community. In fact, studies show that homebuyers identify nearby open space and trails as a top feature when choosing a home.³ Nearby open space increases property values which generates higher taxes; the resulting increase in taxes more than pays for the open space acquisition in only a short amount of time.⁴

Second, open space enhances the quality of life for businesses and residents, and thus the desirability, image, and marketability of the community as a whole. Cities such as Denver, Colorado; Albuquerque, New Mexico; Scottsdale, Arizona; and Portland, Oregon have found that public investment in parks, open

space, and trails has been a major driver in economic revitalization and private investment. Businesses clearly prefer communities that can offer a high quality of life, including an abundance of open space, nearby recreation, and pedestrian-friendly neighborhoods, to their employees. Owners of small companies ranked recreation opportunities, parks, and open space areas as the highest priority in choosing a new location for their business.^{5, 6, 7, 8}

Lastly, open space conservation decreases the fiscal costs associated with growth. Said simply, building on floodplains, washes, wetlands, steep slopes, faults, and critical habitats requires extensive coordination, detailed engineering, and costly mitigation, which translates to greater demands on a City’s budget – and ultimately the taxpayers. Studies have shown that, over time, communities with open space areas and denser growth patterns actually have reduced property taxes. Lower property taxes in the long-term are the result of less development requiring fewer roads, schools, sewer and water infrastructure, and other municipal services.

Community Comparisons and Trends

Peer City Comparisons
As part of the visioning process, the planning team reviewed “Peer Cities” to place Henderson within a national context and to determine trends, planning strategies, and other attributes that might serve as ideas for the City to consider. Table 2-4 presents a comparison of open space and trail systems in cities considered to be “peer communities” to Henderson. Consideration was given to other communities that demonstrated characteristics similar to the City of Henderson, such as:

- Similar size
- Rapid growth
- Arid or semi-arid environment
- Adjacency to large tracts of federal or state public land.

Innovative programs or policies from several communities were also reviewed, including Scottsdale, Arizona; Albuquerque, New Mexico; and Colorado Springs, Colorado, as summarized below. Appendix A provides additional detail on implementation tools from these communities as they relate to the strategies presented in Chapter 4.

Community	Population	% Change in Population (1990 to 2000)	Acres of Municipal Open Space	Acres per 1,000 Population	Miles of Trails	Miles of Trail/ 1,000 Pop.
Peoria, AZ	129,632	111.8%	1,800	13.9	12	0.09
Henderson, NV	220,236	169.4%	2,308 ¹	9.8	25.8 (off-street only)	0.12
Scottsdale, AZ	222,600	55.8%	11,363	51	200 miles of non-paved trails outside the Sonoran Desert Preserve, 62 miles of paved multi-use, and 15 miles of designated hiking trails w/in Preserve.	1.25
Colorado Springs, CO	377,006	27.5%	11,130	29.5	88 miles of designated hiking trails, 99.3 miles of urban multi-use trails.	0.50
Albuquerque, NM	471,856	15.9%	28,282	57.2	100 miles paved multi-use; 22 miles unpaved multi-use	0.26

Table 2-4. Peer Cities Comparison
¹See Table 2-2 for open space property inventory

¹ Economic Benefits of Open Space. The Trust for Public Land.
² Peter Pollack, “Confronting Sprawl in Boulder: Benefits and Pitfalls,” LandLines, (Cambridge, MA: Lincoln Institute of Land Policy, January 1998).
³ Garvin and Berens, Urban Parks and Open Space, 27. (American LIVES, Inc. 1996 survey). See also June Fletcher, “Home Buyers are Shunning Developers’ Pricey Extras,” Wall Street Journal (November 21, 1997), B16. (Market Perspectives Inc. 1997 survey) and Homebuyers Survey Update, October 1998. (American LIVES, Inc. 1998 survey).
⁴ Mark Correll, et al. “The Effects of Greenbelts on Residential Property Values: Some Findings on the Political Economy of Open Space,” Land Economics, May 1978. Cited in “Economic Impacts Protecting Rivers, Trails, and Greenway Corridors,” 3rd Edition, National Park Service, 1992, 1-3.
⁵ National Park Service, Rivers, Trails and Conservation Assistance Program, “Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors,” 4th ed. (Washington, DC: National Park Service, 1995), 7-3.
⁶ John L. Crompton, Lisa L. Love, and Thomas A. More, “An Empirical Study of the Role of Recreation, Parks and Open Space in Companies’ (Re) Location Decisions,” Journal of Park and Recreation Administration (1997), 37-58.
⁷ The President’s Commission on Americans Outdoors, Americans Outdoors: The Legacy, The Challenge, The Report of the President’s Commission (Washington, DC: Island Press, 1987), 24.
⁸ Phyllis Myers, GreenSense, Vol.3, No.1 (Washington, DC: Phyllis Myers and Trust for Public Land, Spring 1997), 1.

Scottsdale, Arizona

Vision

The growing need for public open space and recreational amenities are a key focus for the City of Scottsdale, Arizona. The city is actively pursuing opportunities to acquire new open spaces, including retrofitting existing parks and facilities to accommodate the recreational needs of the future. Land developers often participate in the provision of public parks where new population bases are created as a result of their development plan. Currently, the city's open space and park system includes approximately 15,000 acres of developed and undeveloped areas. The vision is to create a 36,460 acre Sonoran Desert Preserve, with 125 miles of trails. Outside of the Preserve, 350 miles of primary, secondary, and neighborhood trails as well as 21 trailheads providing access into the Sonoran Preserve areas are planned. Additionally, the city plans to acquire 16,000 acres of adjacent state land (school land). Open space lands purchases and a community-wide trails system are funded through a series of voter-approved bond funds.

Innovative Programs and Policies

The Environmentally Sensitive Lands Ordinance (ESLO) is a set of zoning regulations adopted by the City Council to guide development throughout the desert and mountain areas of northern Scottsdale. The intent and purpose of the ESLO is to identify and protect environmentally sensitive lands in the City and to promote public health and safety by controlling

development on these lands. The ordinance requires that a percentage of each property be permanently preserved as Natural Area Open Space and that specific environmental features be protected, including vegetation, washes, mountain ridges and peaks, to assure appropriate development. Application of the ESLO has resulted in the preservation of over 9,000 acres of Sonoran Desert open space.

Scottsdale has implemented a number of other programs designed to protect the natural features attributed to its Sonoran Desert location. One key component is a series of the Sensitive Design Principles. The Principles address such issues as:

- Building, signage, and site design;
- Site layout;
- Relationship to and protection of the natural landscape;
- Encouraging the use of alternative modes;
- Pedestrian amenities;
- Sustainable building practices; and
- Water conservation.

The Sensitive Design Program also outlines Scenic Corridor Design Guidelines. Applicable to key portions of six major roadways within Scottsdale, the Guidelines provide a mechanism to encourage the protection of the natural setting along these highly visible areas of the community.

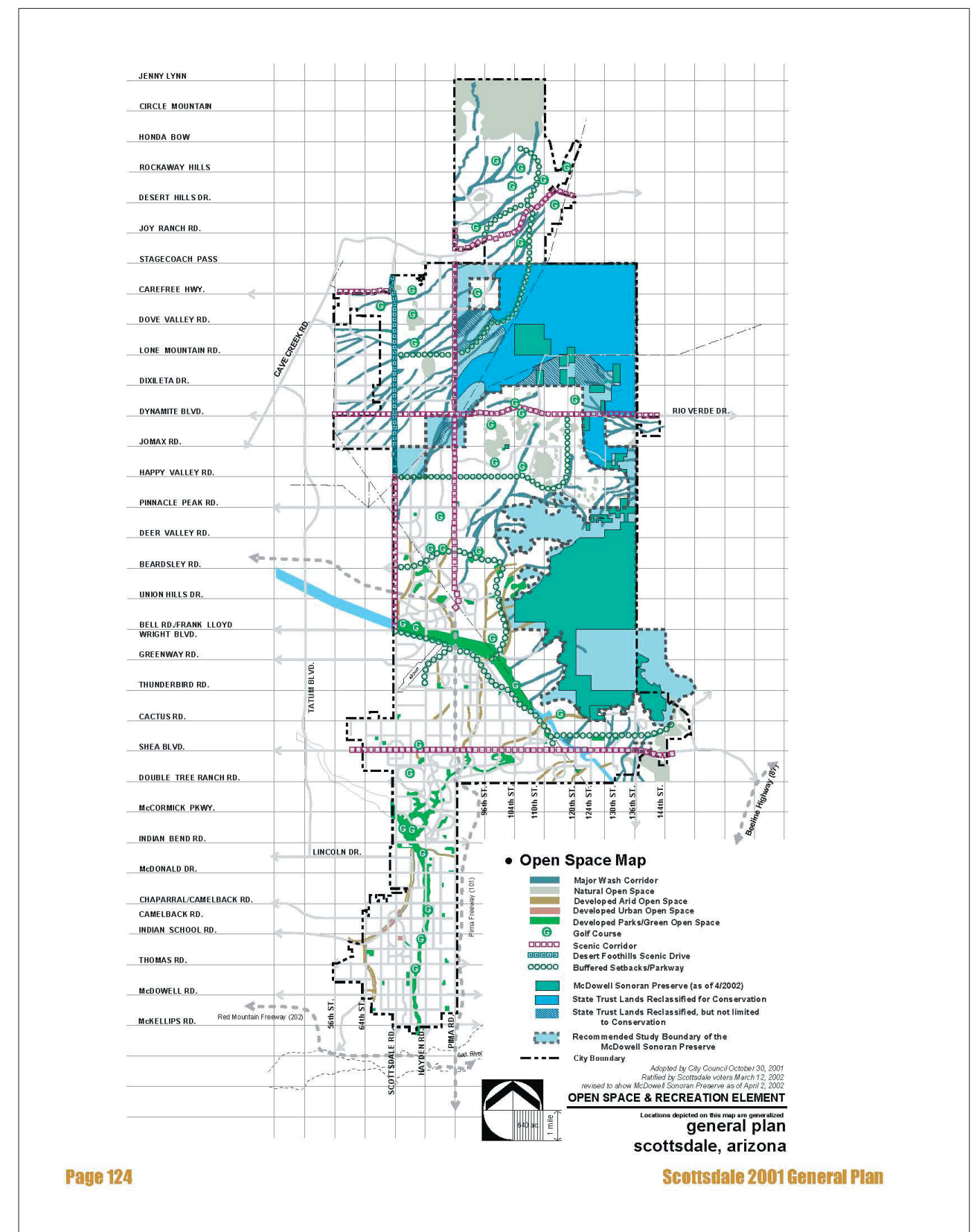


Figure 2-11. Open Space Map for Scottsdale, Arizona

Colorado Springs, Colorado

Vision

The Colorado Springs Parks, Recreation and Trails Master Plan defines policies and projects for the next 10 years that will provide a balanced system of conveniently located parks, interconnected urban trails, and multi-purpose recreational facilities. The Master Plan is based on an inventory of existing conditions as well as an analysis of community needs, including valuable direction provided by Colorado Springs residents through survey responses and comments made in a series of public workshops and other forums. In total, the urban trail system could include approximately 180 miles of trails by the year 2010 compared with the current approximate 65 miles of trails.

Innovative Programs and Policies

In 1997, voters in the City of Colorado Springs approved the creation of a sales and use tax increase of one tenth of one percent (0.10%) dedicated to conservation of open space and development of parks and trails through the Trails, Open Space, and Parks program (TOPS). TOPS seeks to acquire, develop, and preserve trails, parks and open space in order to create a legacy for future generations in the region. The language of the ordinance approved by the voters provides that a minimum of 60% of the available funding be directed to open space protection and a maximum of 20% to trails and a maximum of 20% to parks projects. The ordinance also provides that a citizens committee be established to advise the City Council on expenditure of available funding.

One of the goals of TOPS is to educate the public in preserving open spaces and improving parks and trails. TOPS open space projects conserve land on grasslands, bluffs and mesas, foothills, stream corridors and riparian areas. Colorado Springs is adjacent to National Forest, State Park, county, and other protected lands. Protecting open space areas within the city will help to connect the community with the surrounding protected lands.

Successes of the TOPS program include:

- The TOPS Program has provided \$6,195,500 for 41 trail projects.
- Over the next 20 years, the City has planned for the development of approximately 153 miles of additional trails.
- Through creative partnerships, TOPS funds have leveraged an additional \$1,963,700 in the form of trail grants and donations.
- TOPS Program has funded \$6,311,950 for 19 park projects.
- TOPS funds have been used to leverage \$2,414,050 from parks grants and donations.
- TOPS Program has funded \$36,118,746 for 8 open space projects.
- TOPS funds have been used to leverage over \$24.4 million matching funds in the form of open space grants and donations.
- Open space acres preserved through TOPS partnership and acquisition (since 1997) totals 4,013 acres.

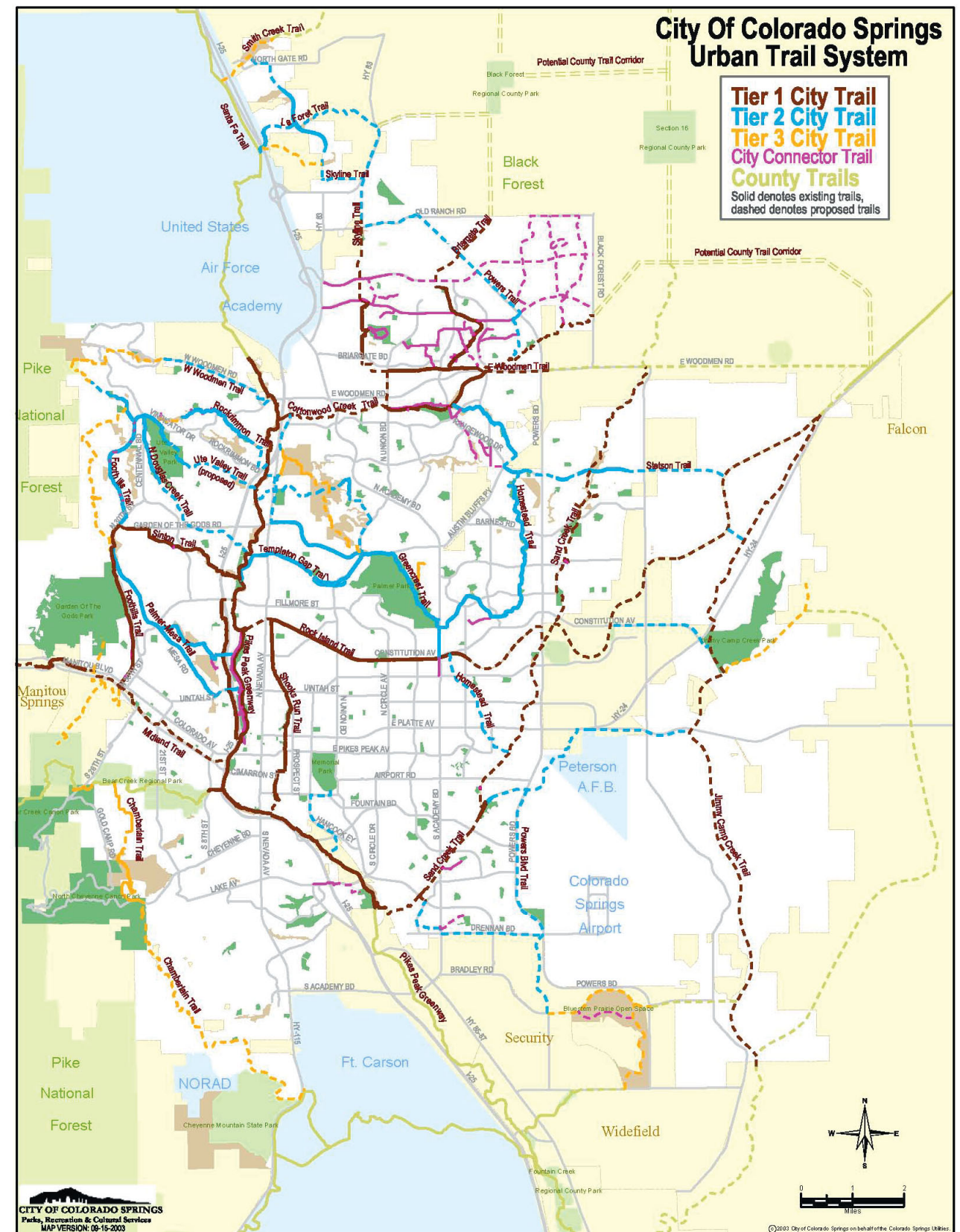


Figure 2-12. City of Colorado Springs Urban Trail System

Albuquerque, New Mexico

Vision

Albuquerque has established a permanent fund for open space protection which provides much of the support for management and some land restoration. The city council's Quality of Life Tax has generated funds for the purchase and protection of many acres of open space and the enhancement of existing facilities. Open Space acquisitions have been accomplished largely through funding with General Obligation Bonds, gross receipts taxes, and federal grants. Their 5-year goal is to acquire 40,000 acres.

Innovative Programs and Policies

Open Space preservation in Albuquerque has been achieved through a combination of efforts including the completion of a Major Public Open Space Facility Plan in 1999. The purpose of the plan was to establish guidelines for implementation of the Major Public Open Space Network goals outlined in the revised 1988 Albuquerque/Bernalillo County Comprehensive Plan. The Facility Plan also established more specific planning, land use and management policies for each major open space area. The City of Albuquerque Open Space Division was established in 1984

to manage almost 30,000 acres of City-owned open space and additional lands owned by other agencies. Acquisition and management were made possible through a variety of sources, including a permanent Open Space Trust Fund, gross receipts taxes, the City's general fund, and the City's capital implementation program.

The Open Space Alliance was created as a nonprofit group of volunteers (currently more than 500 members) that works with the City of Albuquerque Open Space Division to increase awareness of open space lands, promote conservation, acquisition and stewardship of open space lands, and assist in providing financial support for open space programs. Some of their sponsored programs include Get on the Bus, National Trails Day, and an Open Space newsletter.

Figure 2-13 shows the current Albuquerque Open Space network available to tourists and residents. The Open Space Master Plan, with comprehensive maps, is available by contacting the City of Albuquerque Open Space Division.

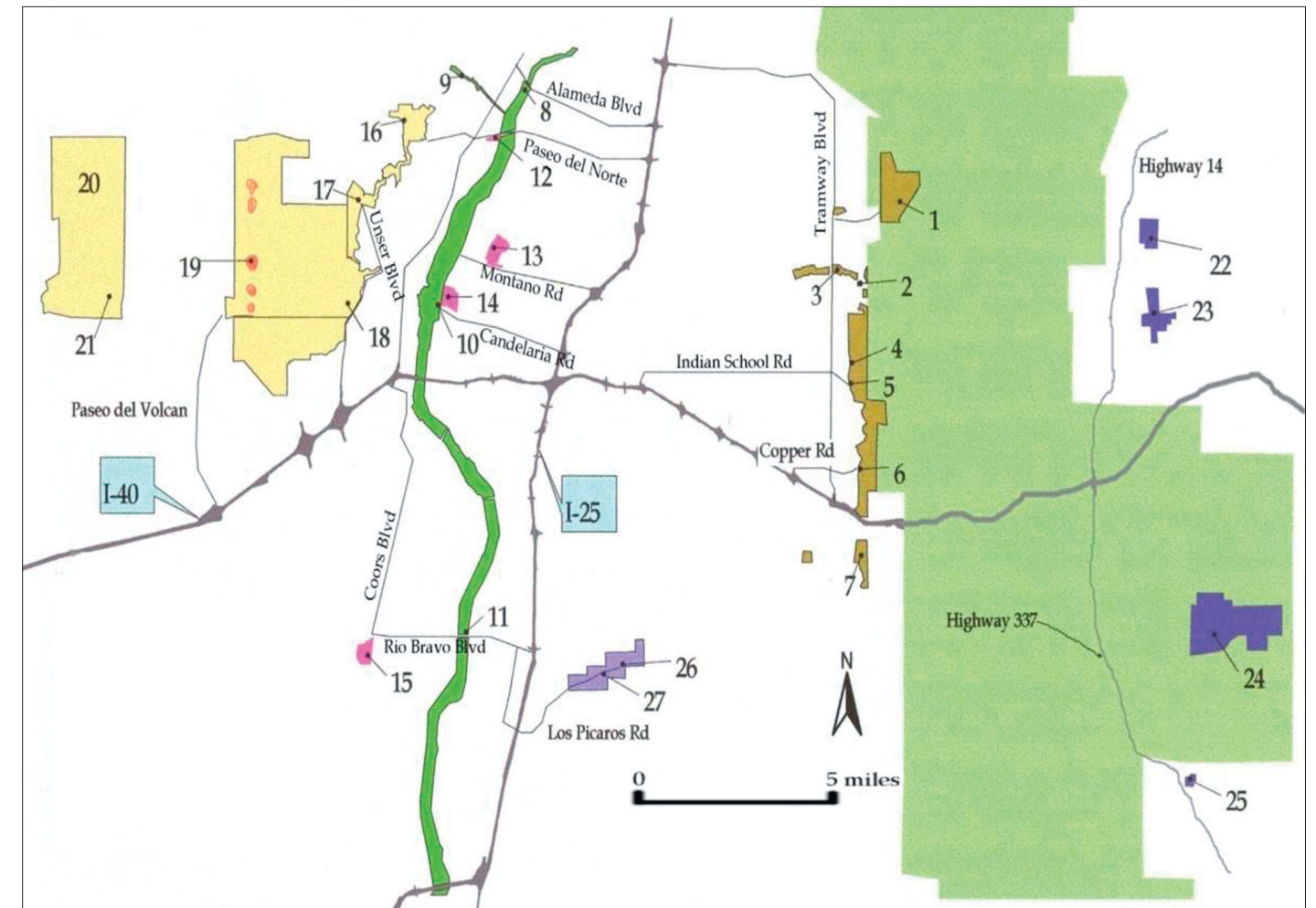


Figure 2-13. Open Space in Albuquerque, New Mexico

Population Trends

The City of Henderson is among the fastest growing cities in the nation. The population has increased more than 195% since 1990, an average of 1,000 new people per month in the last decade (Table 2-5). Over the past 10 years, Henderson has experienced more growth than in the prior 40 years combined. The City is expected to continue this tremendous growth.

The incorporated area within the City encompasses approximately 60,179 acres. Of this, more than half, or approximately 37,913 acres, remained vacant in 2003. The remaining 22,266 acres are developed for various urban uses, including recreational uses such as parks and golf courses. Approximately 2,350 acres are protected as open space as shown in Table 2-2, City Open Space Lands. Residents and City leadership have acknowledged the need to begin protecting the special places on vacant lands that make Henderson a desirable community.

Given a 2003 population of 220,236, a ratio can be calculated to estimate the rate at which these vacant lands will be converted to developed uses. A ratio of how many acres of land each additional thousand people will require can be estimated by dividing the

amount of developed land (22,266 acres) by the current population expressed in thousands (220). The resulting ratio is 101 acres per each additional one-thousand people added to the City’s population if the current development patterns continue into the future. This ratio is applied to the estimated population increase for the City in Table 2-6.

The City currently provides approximately 10.6 acres of protected open space per thousand population. If the community desired nothing more than to maintain this ratio, the City would have to add 2,759 acres of additional open space by the year 2030. If a more ambitious goal were identified, such as the average of the four “peer” communities shown in Table 2-4, which is 38 acres, this requirement would increase to 15,966 additional acres by the year 2030.

Similarly, based on the number of miles of trails that exist as of July 2005, the City provides approximately 0.12 miles of trails per thousand persons. If this ratio were maintained, the City would have to add 31 miles of trails by the year 2020. If a more ambitious goal were identified, such as the average of the four “peer” communities shown in Table 2-4, which is 0.53 miles per thousand persons, the City would need to build 138 miles of trail by the year 2020.

Year	Population	Population Increase	Percent Increase
1950	5,717	--	--
1960	12,525	6,808	119.1%
1970	16,400	3,875	30.9%
1980	23,276	6,876	41.9%
1990	64,942	41,666	179.0%
2000	175,406	110,464	170.1%

Table 2-5. Population: April 1, 1950 – 2000. Source: City of Henderson Economic and Demographic Overview, 2005.

Year	Population	Total additional land developed after 2003 (acres)	Remaining vacant land (acres)
2003	220,236	--	37,913
2005	246,222	2,625	35,288
2010	313,302	9,400	28,513
2020	417,443	19,918	17,995
2030	482,020	26,440	11,473

Table 2-6. Population and Vacant Land Projections. Source: City of Henderson Economic and Demographic Overview, 2005.

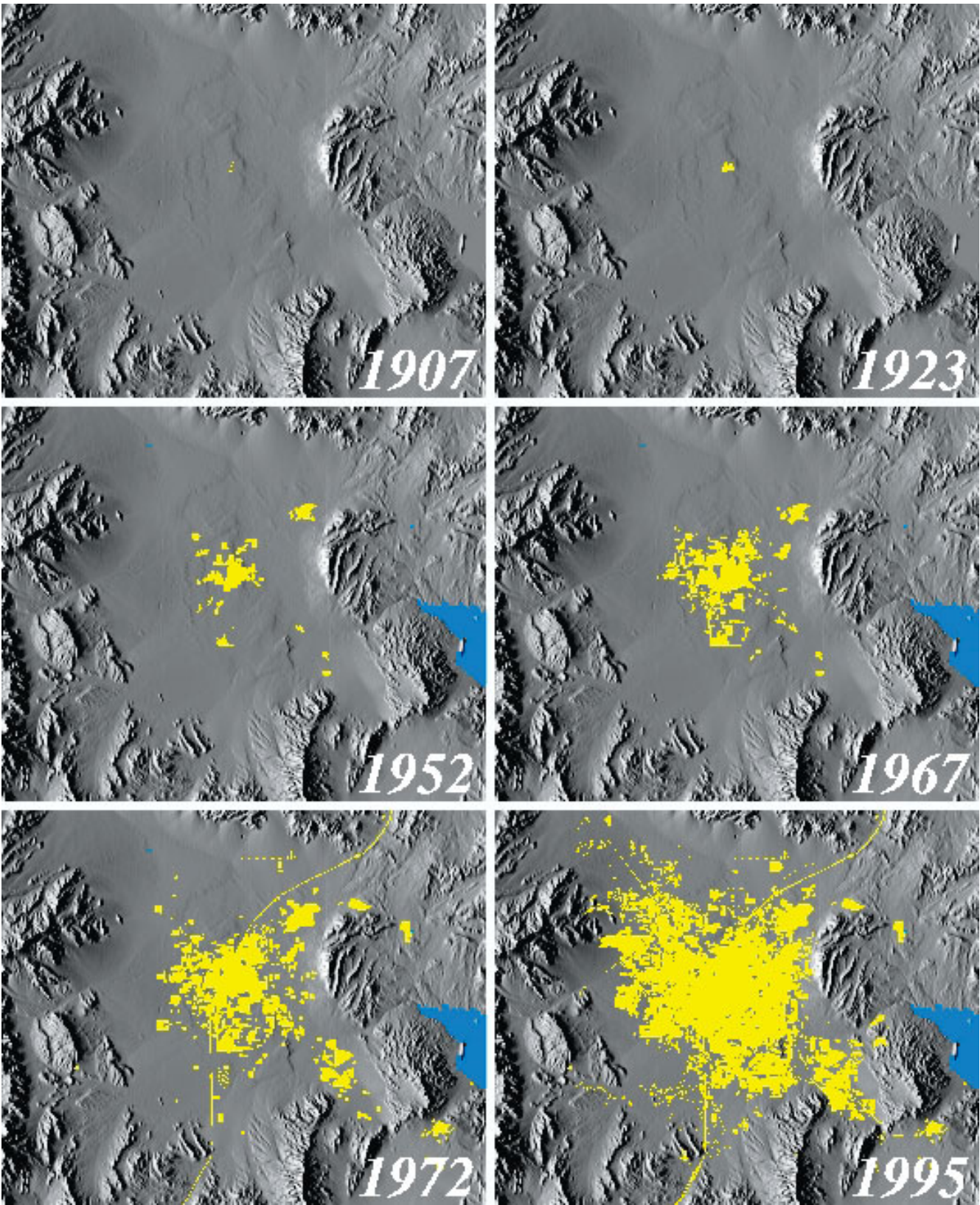


Figure 2-14. The USGS’s built-up land data layer for Las Vegas provides a dramatic illustration of the spatial patterns and rates of change resulting from urban growth, 1907-1995 (Acevedo, et. al)

IV. PLANNING CONTEXT

The following table presents a synopsis of legislation and land use plans applicable to the City's open space and trails planning process. The most relevant plans and legislation are described in detail below.

Regional Plans

Southern Nevada Public Land Management Act (SNPLMA) of 1998

The SNPLMA has had major impacts in Southern Nevada on land availability and in providing additional funds for local, state, and federal facilities and services. The purpose of this Act is to provide for the orderly disposal of certain Federal lands in Clark County, Nevada, and to provide for the acquisition of environmentally sensitive lands in the State of Nevada. Moneys from the auction of BLM land within the Disposal Boundary must fund the following types of projects:

- The acquisition of environmentally sensitive land in the State of Nevada in accordance with priority given to lands located within Clark County.
- Capital improvements at the Lake Mead National Recreation Area, the Desert National Wildlife Refuge, the Red Rock Canyon National Conservation Area and other areas administered by the Bureau of Land Management in Clark County, and the Spring Mountains National Recreation Area.
- Development of a multi-species habitat conservation plan in Clark County, Nevada.
- Development of parks, trails, and natural areas in Clark County, Nevada, pursuant to a cooperative agreement with a unit of local government or regional government entity.
- Conservation initiatives on Federal lands in Clark County.
- Reimbursement of costs incurred by the local offices of the Bureau of Land Management in arranging sales or exchanges under this Act.

The SNPLMA gives local governments in the Las Vegas Valley first choice of the land in the Disposal Area for public purposes, such as parks, schools, police and fire stations. Land proposed for public recreation-related purposes are assessed at no cost in the auction process, while land obtained for other public purposes are leased for \$2/acre or sold for \$10/acre. In most cases, private non-profit organizations pay one-half of the fair market value. Any entity or individual may nominate a property for acquisition.

Sloan Canyon National Conservation Area

The Clark County Conservation of Public Land and Natural Resources Act of 2002 designated several wilderness areas including the North McCullough Wilderness, created the Sloan Canyon NCA, and amended the SNPLMA to allow up to 10% of moneys available to be used for conservation initiatives on Federal land in Clark County. The enabling legislation prescribed an emphasis on preservation and primitive uses at Sloan Canyon NCA as opposed to that of developed recreation opportunities at Red Rocks NCA west of Las Vegas. As there are few existing facilities and designated trail alignments, and the Sloan Canyon NCA receives relatively little use as a whole, the Resource Management Plan assigns Management Emphasis Areas (MEAs) for equestrian, trail, and HOV uses instead of specific alignments. A Visitors Center is proposed at the northwest entrance to Sloan Canyon, and may include restaurant, library, and research and interpretive facilities. Access to the Sloan Canyon Rock Art Site will most likely be limited to guided tours.

The BLM is currently reviewing public comments on the Draft RMP and will release a Final Resource Management Plan/Environmental Impact Statement in 2005 (see <http://www.sloancanyon.org/>). This draft will include specific locations of trailheads and the Visitor's Center which should be incorporated into this plan.

Planning Level	Related Land Use Plans and Legislation	Date
Federal	Transportation Equity Act for the 21 st Century	1998
	Clark County Conservation of Public Land and Natural Resources Act	2002
State	State of Nevada Revised Statutes (regarding bicycles and pedestrians)	2003
	State of Nevada Statewide Bicycle Plan	--
Region	Southern Nevada Public Land Management Act (SNPLMA)	1998
	Sloan Canyon NCA Draft Resource Management Plan	2005
	Southern Nevada Regional Planning Coalition (SNRPC) Policy Plan	2001
	Regional Transportation Commission (RTC) Plan Update and Off-street Alternative Mode Study	2001 and 2004
	SNRPC Regional Trails Plan	2001
County	Clark County Multiple Species Habitat Conservation Plan	2000
	Clark County Environmentally Sensitive Lands Report	2002
	Clark County Flood Control District Master Plan Update	2002
	Clark County Comprehensive Plan	--
	Clark County Wetlands Park Trail Corridor and Design Guidelines	2002
Local/City	City of Henderson Comprehensive Plan	Update in process
	City of Henderson Parks and Recreation Department Five Year Plan	2000-2005
	Master Streets and Highways Plan	1991, rev. 2005
	Master Bicycle and Trails Plan Map	
	Henderson Development Code	--
	South Enterprise/West Henderson Land Use and Transportation Plan	2000

Table 2-7. Regulatory Context

Southern Nevada Regional Planning Coalition (SNRPC) Policy Plan (2001)
The Southern Nevada Regional Policy Plan addresses issues associated with rapid growth and improvements that can be made to upgrade the quality of life and allow for continued economic progress. It is intended to help guide local government leaders, businesses, and the Nevada Legislature in their efforts to maintain a strong economy while preserving and improving the quality of life and character of the Southern Nevada Region. The SNRPC Policy Plan serves to coordinate local plans within a regional framework. The SNRPC determines whether a local plan is in substantial conformance with the regional plan by commenting and negotiating with local municipalities.

In addition, the City of Henderson entered into an Agreement Regarding Conformity of City of Henderson Plan with the Southern Nevada Regional Policy Plan on November 21, 2002. The Agreement summarizes the ways in which the City is currently acting in furtherance of the Plan and sets out the actions that the City agrees to take to achieve and further conformity with the Regional Policy Plan. Per the Agreement, the City has agreed to work with the RPC and other local jurisdictions to facilitate the following efforts related to open space and trails planning:

- Creation of a regional trail plan with a regional funding base.
- Development of a standard definition of parks and open space.
- Encouragement of a change in BLM funding criteria for the Southern Nevada Public Lands Management Act Special Account to address areas with the most significant parks and open space needs.
- Development of model uniform standards for sensitive lands protection.

The City also agreed to the following additional steps related to open space and trails to further conformance with the Policy Plan:

- The City will work to complete a Master Trails Plan and an Open Space Master Plan.
- The City will consider amendments to its plans and land use regulations to protect historic public access to public lands.
- The City will identify locations of major environmentally sensitive areas, and will make efforts to develop policies and practices such as setback requirements to protect such areas.
- The City will work to improve communications among various departments responsible for flood control facility design and park and recreation planning to encourage multiple use of flood facilities.
- The City will consider revisions to its land use regulations to address the use of flood control facilities and utility corridors for trails and other related uses.

Regional Transportation Commission
Off-Street Alternative Mode Study
The Bicycle/Pedestrian Element (BPE) of the Regional Transportation Plan provides guidance for the long term development of bicycle and pedestrian facilities in Clark County. The BPE addresses a broad range of improvements to encourage bicycling and walking as viable alternatives to the automobile.

The Regional Transportation Committee (RTC) and the member entities recognize the need to provide a well connected and functional non-motorized network of on and off-street bicycle facilities within the metropolitan and outlying areas. Improvements to the existing non-motorized network are needed to better accommodate existing users and increase the percentage of commuters who use non-motorized modes. To better develop a viable BPE, the RTC initiated the Alternative Mode Master Transportation Plan (AMTP)

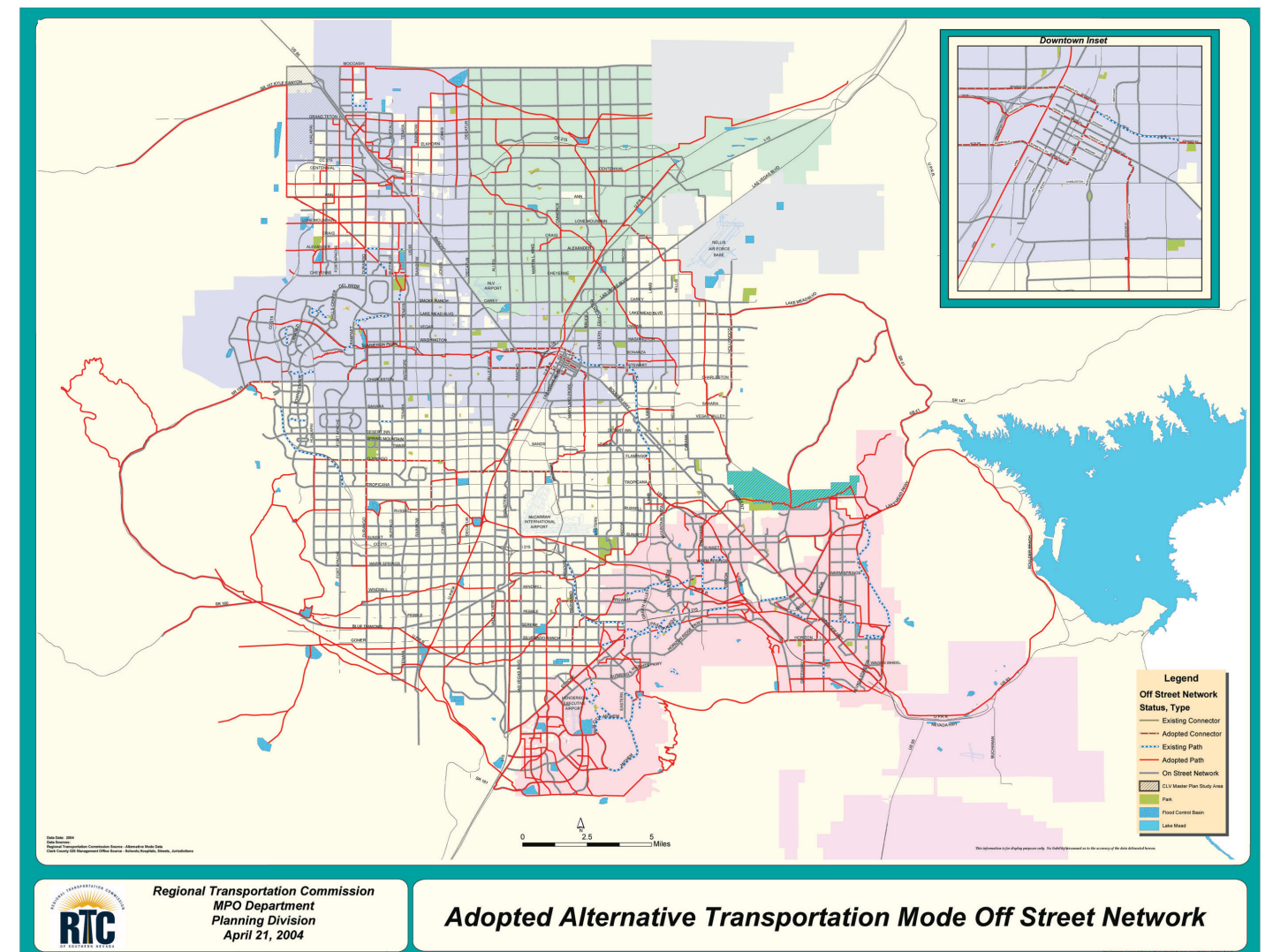


Table 2-15. RTC Off-Street Alternative Mode Map

in 2001. The goals of the AMTP include developing a comprehensive bicycle system providing convenient access to origins and destinations throughout the entire community; taking advantage of available space within existing wash, freeway, and utility corridors to provide shared use paths, open space, park activities, and equestrian trails; and providing appropriate facilities for pedestrian and bicycle travel as part of the motorized vehicle circulation system (Figure 2-15.)

County Plans

Clark County Multiple Species Habitat Conservation Plan (MSHCP)

The MSHCP (Phase I) was developed by the Public Implementation and Monitoring Committee in conjunction with Clark County to encourage proactive habitat conservation planning in Southern Nevada. The Habitat Conservation Plan supersedes an earlier plan, the Desert Conservation Plan, which focused only on the federally listed desert tortoise. This program creates the opportunity to expend funds on seventy-eight (78) species of plants and animals, including the desert tortoise. The MSHCP promises to balance environmental integrity and economic prosperity in Clark County by reducing the likelihood of future Federal listings by ensuring the well being of these species and the ecosystems in which they reside. Phase II of the MSHCP will bring coverage for riparian and aquatic species residing in and around the Muddy and Virgin Rivers.

The plan outlines 650 specific conservation measures. One of the principal conservation benefits of the MSHCP, in addition to substantial funding for conservation actions, is the Adaptive Management Process (AMP). This process provides a means for coordination of conservation actions among the land managers and resource agencies in Clark County at the ecosystem and community level. The AMP will assess the effectiveness of the Plan's conservation actions over the course of the 30-year program and provide guidance for conservation efforts.

The MSHCP and the resultant Section 10(a) Permit are designed to allow the incidental take of Covered Species within certain parameters and to reduce the likelihood of the listing of additional species located in Clark County as threatened or endangered. The key purpose of the MSHCP is to achieve a balance between long-term conservation and recovery of the diversity of habitats and native species of plants and animals and the beneficial use of land in order to promote the economy, health, wellbeing, and culture of the growing population of Clark County. Additionally, the MSHCP has been designed to provide substantial recovery and conservation benefits to species

and ecosystems in Clark County and to reduce the regulatory burden of ESA compliance for all affected participants. Refer to Figure 2-5, Multi-species Habitat Conservation Plan.

Clark County Comprehensive Plan Policies

Numerous County policies outline the management of open space in Clark County. The Clark County Comprehensive Plan contains policies relating to federal lands, conservation, trails and open space acquisition, environmental resource opportunities, development, operation and maintenance, intergovernmental coordination, and community involvement and marketing. Some of the most relevant policies are shown in the following sidebar.

The County is in the process of completing a Trails Element to the Clark County Comprehensive Plan to establish policies and provides direction relative to developing trails within unincorporated Clark County, as well as a Trails Design Manual illustrating basic design and construction standards to build trails, to accommodate trail users, and to minimize maintenance and environmental impacts. These draft documents are anticipated to be adopted in Fall 2005, and were consulted throughout the City of Henderson Open Space and Trails planning process.

RELEVANT COUNTY POLICIES

- CON 2.1 Encourage preservation of unique geologic and mineral formations for educational, scientific and other public purposes.
- CON 2.15 Ensure proper design considerations for development in areas of slopes 12% or greater.
- CON 2.16 Encourage transitional development to buffer environmentally sensitive areas from more intense uses.
- CON 2.17 Continue to use Community District 6* as a mechanism to preserve open space and conservation areas within Clark County.

*Community District 6 (CD6) is defined as an open space and conservation district. This classification identifies areas of limited development potential. The purpose of the district is to preserve areas for open space or recreational purposes and to protect public health and safety. Areas designated CD6 may have some extremely low density residential uses but should not be considered for future commercial or industrial uses. Lands having slopes of 15% or that are federally reserved area considered extensions of CD6 unless otherwise noted within the area's respective land use guide. Areas within Clark County considered sensitive are listed below with management authority and total acreage.

- CON 2.18 Continue to implement the Clark County Wetlands Park Master Plan as a mechanism to preserve open space and conservation areas within Clark County.
- CON 2.20 Encourage preservation and protection of washes and waterways.
- TOS 1.1 Identification and acquisition of trail corridors and open space should occur now to serve the future needs of the County.
- TOS 2.1 Trail facilities and open space areas should be designed and managed to enhance and protect natural resource values.
- TOS 2.2 Public lands outside of the BLM urban land disposal boundary should remain in public ownership and be managed as open space recreational areas.
- TOS 4.1 Trails and Open Space development should be accelerated and managed to ensure natural resource protection, quality recreation experiences and public safety.
- TOS 6.1 Encourage partnerships with civic and neighborhood groups to facilitate trails development.
- TOS 6.2 Promote marketing and community ownership strategies to foster community support for trails and open space development.

- Trails and Open Space (TOS), Conservation (CON).

Clark County Community Growth Initiative and Task Force

The Clark County Growth Initiative was intended to create a forum to discuss the benefits and challenges that come with being the fastest-growing community in the United States. As part of the initiative, the commissioners formed a Community Growth Task Force to study growth matters and engage in public debate. The Task Force addressed growth issues including natural resource conservation and coordination of processes among jurisdictions. As a result, the Clark County Growth Task Force Report was adopted by the Board of County Commissioners during April 2005 and includes the following notable strategies:

- Expand and encourage joint-use of public facilities in Clark County. Work with local jurisdictions to design for more accessible recreational space and resource enhancements.
- We also need to look at flood control systems and where they lend themselves to joint recreational and parks opportunities.
- Collaborate with the Regional Flood Control District to coordinate the development of appropriate flood control systems for parks and recreational opportunities.

Clark County Wetlands Park Trail Corridor and Guidelines Plan

Clark County Parks and Community Services Department prepared the Clark County Wetlands Park Trail Corridors and Guidelines Plan to establish a set of trail guidelines and corridors for the Clark County Wetlands Park (Figure 2-18). The plan provides a comprehensive trail master plan, including corridors and facilities for bicyclists, pedestrians, and equestrians. Designs detail the recommended trail width, trail right of way, maximum slopes, shoulder clearing height and width, and surface construction materials. Many of the lessons learned in implementing this plan should be applied to the City of Henderson's growing trails system.

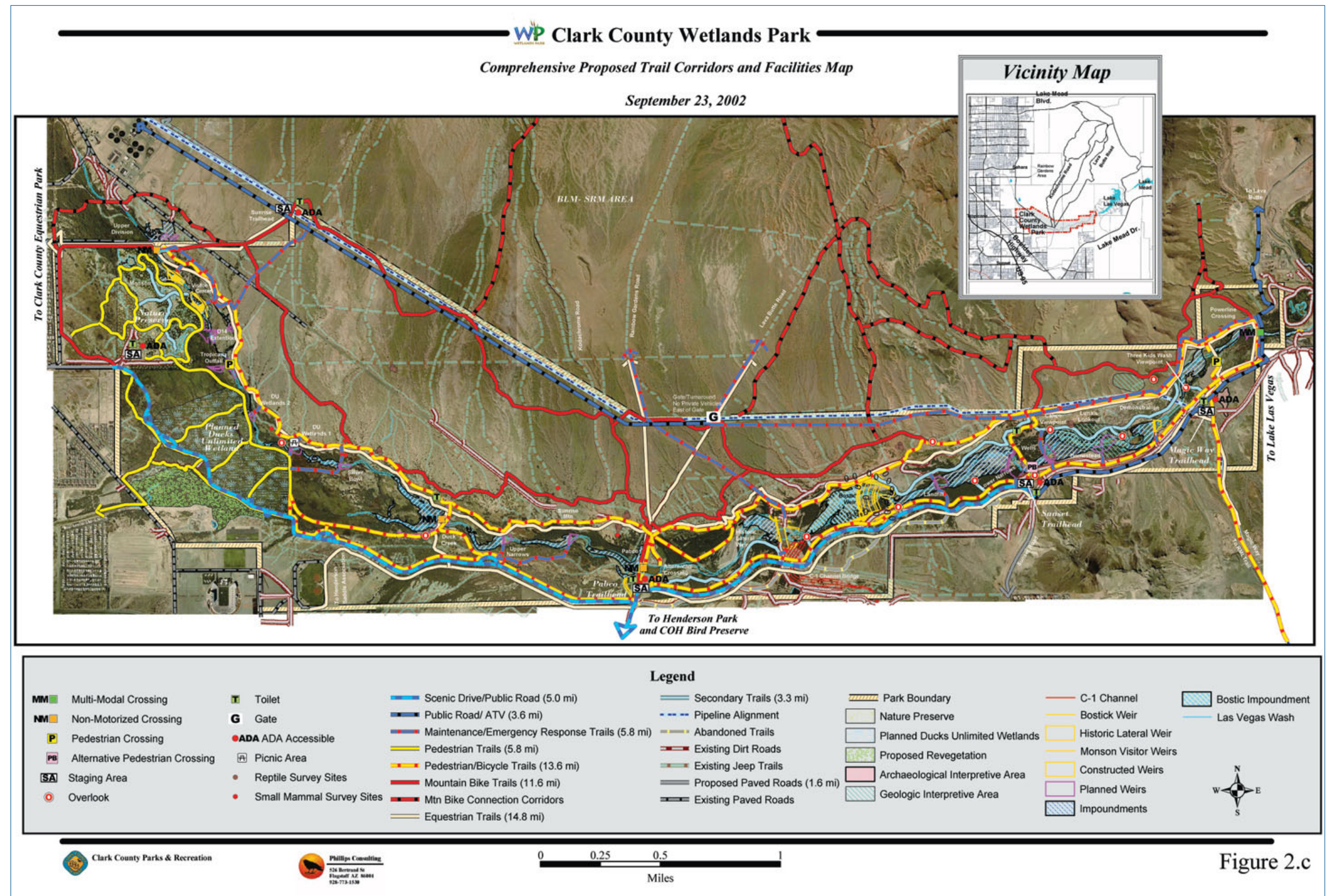


Figure 2-18. Clark County Wetlands Park Comprehensive Proposed Trail Corridors and Facilities Map

City and Local Regulations

City of Henderson Comprehensive Plan

The City of Henderson is in the process of updating its existing Comprehensive Plan scheduled for completion in Fall 2005. The Open Space Plan is an element of the city's Comprehensive Plan. The Comprehensive Plan references this plan for detailed policies and plans that will be updated periodically. The Comprehensive Plan contains some open space policies that are consistent with this plan, but at a more broad and general level. The city is updating the Comprehensive Plan in 2005; it will be complete in early 2006.

City of Henderson Parks and Recreation Department Five Year Plan (2000-2005)

The City's Comprehensive Plan provides the basic framework for the City's growth, and the Parks and Recreation Element describes in detail the planning, needs assessment, resources, and standards used to develop new facilities and programs. As an implementation plan, the Parks and Recreation Five Year Plan establishes a vision, mission, a value statement, and policy statements that identify the key short-term goals of the Department. Notable policies are listed below:

Open Space and Natural Resources

- Significant open space should be retained and preserved for future generations.
- Open space should be encouraged in developing areas in the form of greenbelts that delineate neighborhoods and create cohesive, safe neighborhoods.
- Continue to secure additional natural resources by working with various public agencies including the Bureau of Land Management and the County Flood Control District as well as local developers.
- Existing natural drainage-ways should, as much as possible, be preserved in their natural state and be designed for use as outdoor recreation facilities.

- Community and neighborhood open space should be provided for by linkage to a greater system of regional open space through the continued development of the master trails system.
- Land subject to severe environmental hazards, including geologic or hydrologic constraints or poor soils, should be preserved as open space.
- The pristine and undeveloped resources of the surrounding mountains should be preserved. Open space should be planned so that the plant materials, wildlife, geologic formations, and visual beauty are preserved.
- Views, visual corridors, and visual linkages should be preserved for the developed areas out of the surrounding mountains and open space areas.

Trails

- Focus the initial construction efforts toward linking major parts of the trail together as opposed to extending the trail system.
- Partner with other agencies including the county, state, and federal agencies as well as the Flood Control Districts to establish corridors for trail extension.
- Look for long corridors through the City, such as the railroad, to provide a linkage of the trail system.

Master Streets and Highways Plan

The Master Streets and Highways Plan was approved in August 1991 (Figure 2-19). The most recent revision was approved in February 2005. This Plan indicates the locations of all existing and planned roadways in Henderson and the associated street cross sections, including bike lane, sidewalk, and shared use path cross-sections.

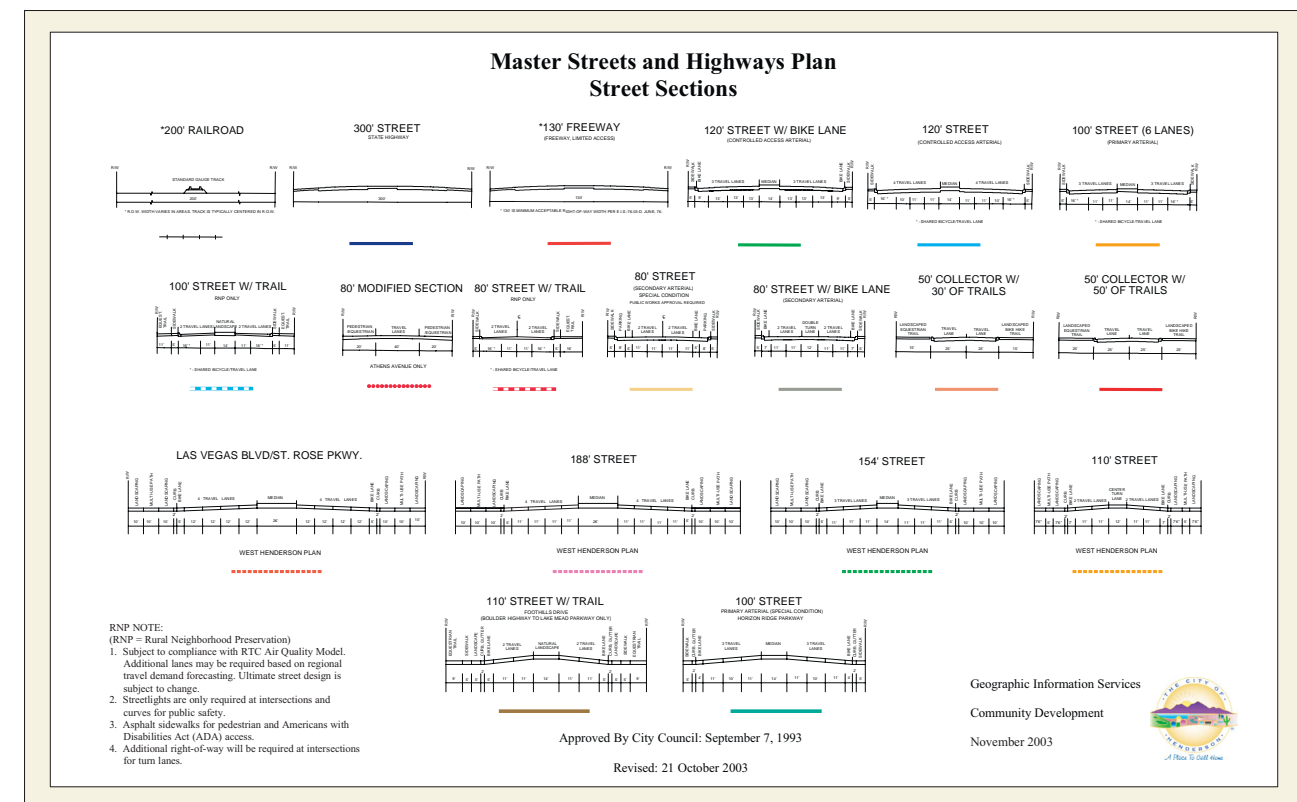
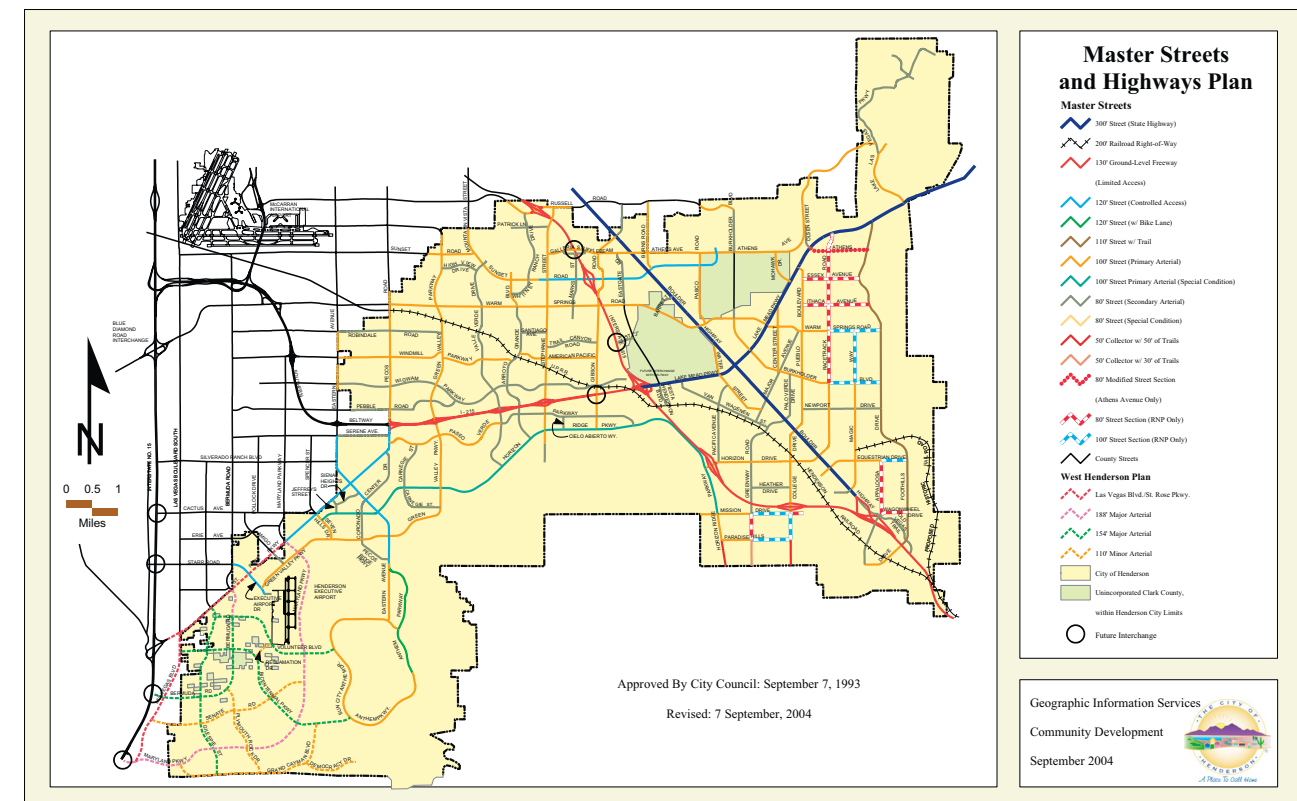


Figure 2-19. Master Streets and Highways Plan and Street Cross-Sections

Master Bicycle and Trails Plan

The City's system of shared-use paths, bike lanes, and bike routes serves both transportation and recreation purposes, and is an important asset to the community. The Master Bicycle and Trails Plan (map adopted only) was prepared in tandem with the Master Bicycle and Pedestrian Facilities Plan which was not completed (Figure 2-20). It should be noted that the plan's emphasis was on transportation and mobility rather than recreational uses. Thus, it was not intended to comprehensively address hiking, mountain biking, and equestrian facilities.

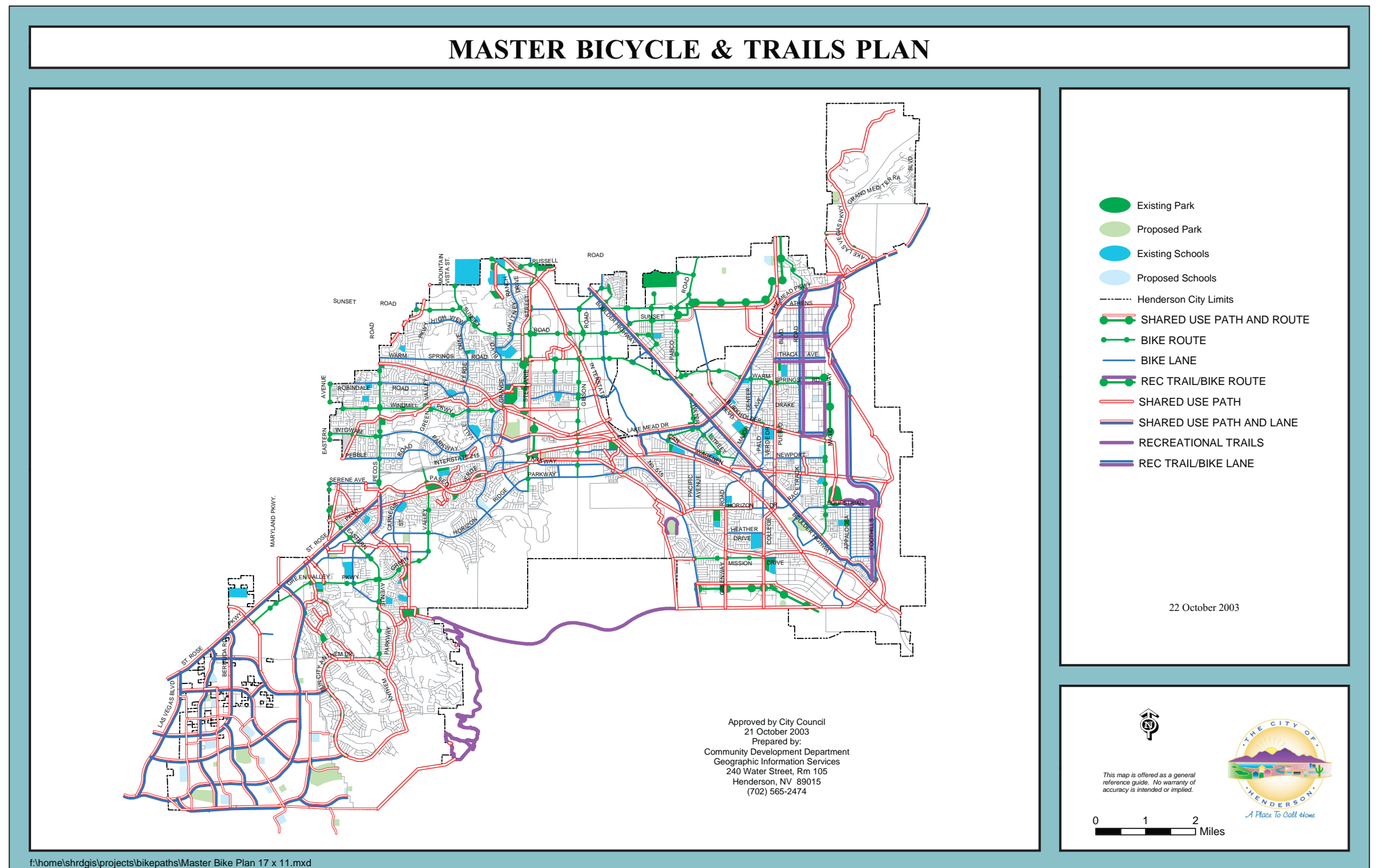


Figure 2-20. Master Bicycle and Trails Plan

Henderson Development Code

Henderson's Development Code provides two regulatory mechanisms that are available to protect sensitive lands: (1) the Sensitive Land Overlay and (2) the Hillside Overlay. Neither code is activated due to the actual existence of a natural resource, such as steep slopes. Rather the overlay district standards and geographic extents are invoked by the City Council.

1. Sensitive Land Overlay (§19.5.10)

The Henderson Development Code (the "Code") currently contains a "Sensitive Lands Overlay District," which is not currently being utilized in the City. The standards for this district supersede all other regulations applicable to the underlying land. The District regulations are invoked on a case-by-case basis by the City Council "upon its own initiative or upon the recommendation of the Planning Commission." The City Council shall designate land as "Sensitive Land" and "enumerate the significant natural and visual attributes justifying such designation and apply standards, uses and densities pursuant to the procedures set forth in this section."

2. Hillside Overlay (§19.5.9)

The Code also regulates land development to protect mountains, foothills, and mesas that exhibit steep slopes and unstable rock with a Hillside Overlay. Like the Sensitive Land Overlay, this Overlay is invoked by the City Council, Planning Commission, or by petition of property owners. If the City initiates the designation, the owner of property containing slopes of 15% or greater shall be subject to development standards contained in this section which reduces development potential as steep slopes increase. The Overlay allows for the transfer of development densities/site disturbance between lands within and outside a sensitive ridgeline setback (100' from designated ridgeline). Based on the current zoning map, certain areas have been designated through the Hillside Overlay as sensitive ridgelines and steep hillsides (Black Mountain and Whitney Mesa, for instance).

V. OPPORTUNITIES AND CONSTRAINTS SUMMARY

From the review of existing conditions and issues, the planning team held work sessions with City Council, Planning Commission, Parks and Recreation Board, Open Space Plan Advisory Committee, Technical Advisory Committee and the public to identify potential opportunities and constraints. Their comments are captured in Table 2-7 and Figure 2-21, which summarize these open space and trail opportunities and constraints. Although the opportunities and constraints are listed side-by-side, they are not meant to be paired with one another. These ideas were used in refining an Open Space and Trails Framework, which is presented in the following chapter.

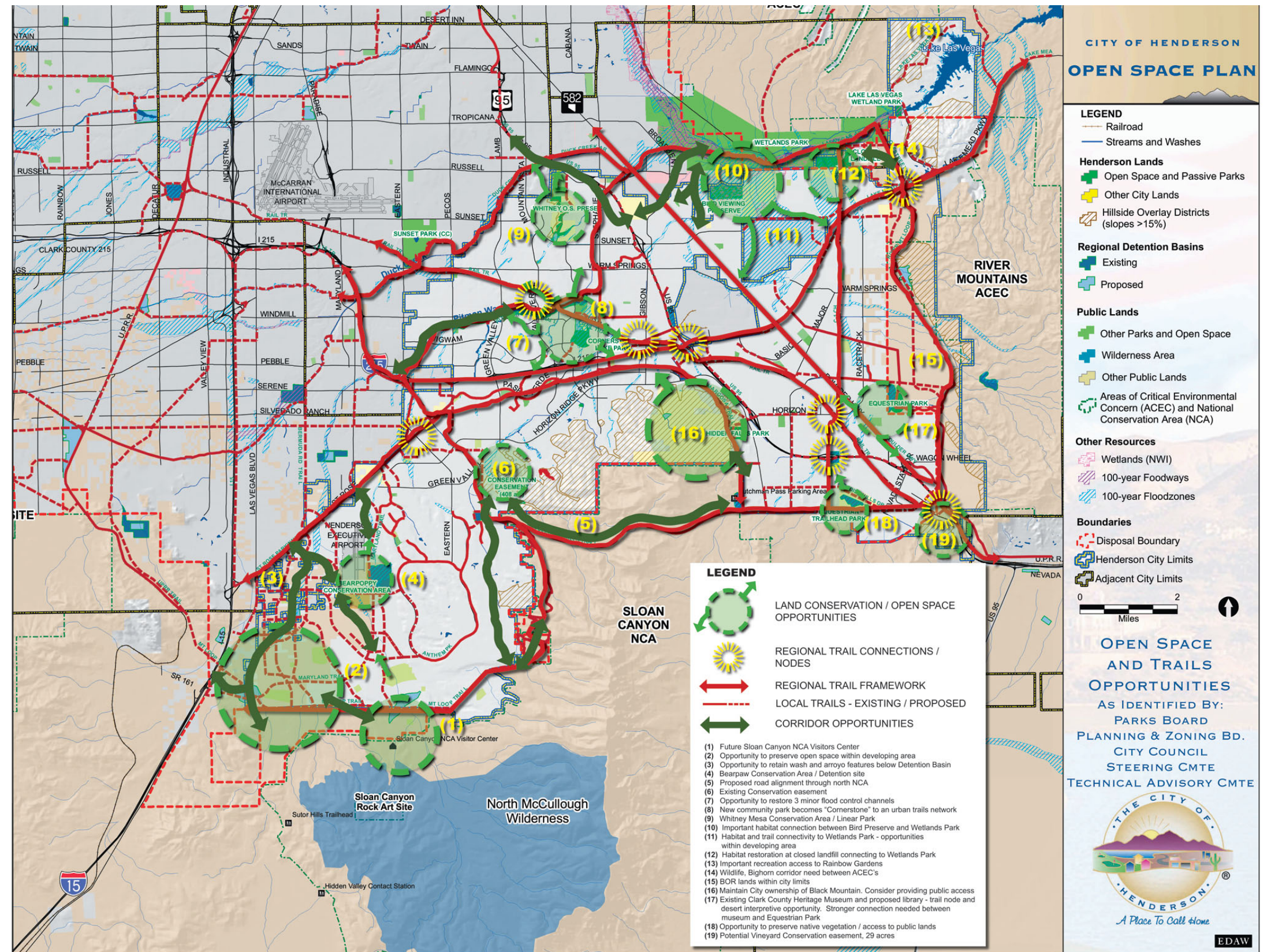


Figure 2-21. Open Space and Trails Opportunities

OPEN SPACE OPPORTUNITIES

Environmentally Sensitive Lands

Among other projects, moneys from the auction of BLM land within the Disposal Boundary can fund “the acquisition of environmentally sensitive land in the State of Nevada in accordance with priority given to lands located within Clark County.” SNPLMA funds can also be used for the development of parks, trails, and natural areas in Clark County, Nevada. When asked, “what natural ‘special places’ define Henderson?” interviewees indicated that most special places had already been compromised due to urban growth. However, some key locations were identified for consideration:

- Expanding the Bird Preserve
- Expanding the Wetlands Park to connect to neighborhoods in Henderson
- Expanding the Wetlands Park to include the old landfill and adjacent properties
- Expanding trails, facilities, and aesthetic features around the newly-acquired Hidden Falls park site.
- Creating a rural environment around the Clark County Heritage Museum on Boulder Highway
- Maintaining a more passive environment around Cornerstone Lake.
- Using Cornerstone Redevelopment Area as a recreational corridor connecting trails from I-215 to the UPRR to the High School, and finally to Pitman Wash corridor.
- Increasing connectivity for NW neighborhoods to Sunset Park along UPRR
- North-south open space and trails corridor connecting BLM lands to Mission Hills Parks through the proposed Equestrian Trailhead Park.
- Conserving lands in the Lake Las Vegas / River Mountains Loop Trail area to enhance wildlife movement, esp. Bighorn Sheep.

Conservation Easements

Conservation easements are a restriction placed on a piece of private property to protect specific resources. The easement is either voluntarily donated or sold by the landowner to another party. This type of easement can benefit both the public and the property owner because the land and its resources can be protected

and the property remains in private ownership. In addition, the property owner may be eligible for substantial tax benefits resulting from the conservation easement itself. Conservation easements are among the fastest growing methods of land preservation in the United States today

They can be used to:

- Protect natural habitat from destruction by conversion to other uses such as subdivision and development.
- Protect open space of varying kinds from development or other disturbance.
- Protect natural habitat from destruction by intensive agriculture.
- Protect water resources by limiting disturbance of lands in the watershed.
- Provide for public use and access, such as through trail easements.

Three conservation easements are in-process to protect lands with steep slopes in highly visible areas:

- 408-acre Open Space Covenant and Permanent Conservation Easement east of Anthem
- 29-acre Conservation Easement at the Vineyards (southside of Railroad Pass).
- And a private Conservation Easement at Lake Las Vegas.

Although the City and County have not utilized conservation easements extensively in the past, conservation easements can allow the City to work effectively with private land owners in a win-win situation to protect priority conservation sites.

Contaminated Lands

Some contaminated lands in the City of Henderson that are unsuitable for more intense uses may be safe to use for passive recreation, wildlife habitats, etc. These include:

- Cornerstone Park Lake
- Old Landfill
- Under-utilized, revegetated industrial lands

OPEN SPACE CONSTRAINTS

Regional-scale Conservation

Due to the high real estate costs and fragmented ownership patterns within the urban area of Henderson, limited opportunities exist for large-scale open space conservation utilizing private land. Portions of the most notable topographical landmarks (River Mountains, Rainbow Gardens, McCullough Mountains, Las Vegas Wash) are already protected by the BLM or County. The challenge will be to buffer these edges and maintain public access.

The BLM disposal process can potentially provide an excellent opportunity to designate sensitive lands prior to disposal, or transfer them to land trusts in order for sensitive lands to be protected in perpetuity.

Geographic Constraints

As a result of the MSHCP, conservation efforts are focused on Intensely Managed Areas (IMAs) and Less Intensively Managed Areas (LIMAs) beyond the disposal area boundary. As a result, there is little political or funding support for wildlife conservation within urban areas despite public values to the contrary.

Desert Vandalism

Illegal dumping, intensive off-road vehicle use, and shooting degrades the scenic integrity of the desert, leading recreationists to avoid using these areas and a de-appreciation by the public of the desert as a whole. If these activities are not controlled, as the City expands, additional lands will be compromised including those identified as priority conservation sites. For example, off-road vehicle use in the Equestrian Detention Basin may limit efforts to develop it into a trailhead.

Multi-Use Constraints

There are no dedicated funding sources that can provide for recreational or aesthetic improvements to existing flood control facilities. The CCFCD does not fund, maintain, or repair any multi-use facilities associated with flood structures, with the exception of debris clean-up. Some detention basins and channels in Henderson were designed to address multi-uses and aesthetics but have experienced higher than anticipated maintenance costs and other problems.

Procedural Constraints

Conflicting agendas and a lack of communication between agencies and within the City government complicates long-range open space planning efforts.

Private Land Conservation

Many people expressed legal and political concerns about “takings” or identifying privately owned parcels for acquisition. Due to a recent change in the Nevada State Law, a property owner can sue a municipality for an illegal taking. Rezoning can also result in a taking in certain instances. In general, however, the “hands-off private land” perception that is much greater than the legal reality. If private land conservation is not attempted (i.e., collaboratively educating and working with private landowners to conserve their sensitive lands), it will become even more important that public land remains public as few other opportunities will exist.

Open Space Dedications

While the “turn-key” and parks dedication requirements have been very effective in acquiring recreational facilities for residents as the City grows, requiring additional dedications of open space from developers may encounter resistance. Also, a system must be designed to clarify the difference between parks and open space so that developers do not count green spaces, medians, neighborhood buffers, etc. as parks.

Table 2-8. Open Space and Trails: Opportunities and Constraints continued

TRAILS OPPORTUNITIES		TRAILS CONSTRAINTS	
Multi-Use Opportunities Most flood control channels have maintenance roads (typically 12-15' width) that may be suitable for pedestrian and biking access. A pedestrian separation device separating the channel from the road is required (typically a 6' chain link fence). The pedestrian separation device must be designed and installed in a manner that does not impair normal operations and maintenance activities, or emergency response and rescue activities.	Connectivity The City can connect to locations of Clark County Wetlands Park, NCA trailheads, the Sloan Canyon Visitors Center, and the Rivers Mountain Loop Trail, and other existing or planned facilities. Other Trail Opportunities include: <ul style="list-style-type: none">Existing and Proposed TrailsRailroadsDitches/WashesPowerlinesRoadsProposed Transportation Improvements (Foothills, McCullough Drive, West Henderson Loop)Light Rail or BRT Location	Retrofitting Trails Retrofitting trails onto existing infrastructure, flood control facilities, and private property encounter more resistance and high costs than if trails were integrated into the original development. Opposition from owners adjacent to trails, especially when trails are located between flood control channels and residential backyards.	Connectivity Where maintenance access roads do not exist on channels, trails may have to merge onto sidewalks or on-street lanes. Successful engineered access (i.e., cantilevered paths over channels) may be possible in limited situations.

Table 2-8. Open Space and Trails: Opportunities and Constraints continued

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