

CARSON CITY'S OPEN SPACE RESOURCES AND CONSTRAINTS

CHARACTERISTICS OF EXISTING OPEN LAND

The undeveloped public and private land in Carson City includes: large open areas around the airport, farmland in and near the city, scattered small vacant tracts within neighborhoods and the broad foothills and mountains that surround the city.

While all undeveloped land contributes to a sense of openness, some of it is more valuable as Open Space than others, whether it is due to visual attractiveness, public health/safety, or value for wildlife habitat. It is not realistic to assume we can preserve all currently undeveloped land, nor is it desirable. Land is also needed for housing, for employment and for the City to grow. As Carson City grows, land will also be needed for active parks and other public uses. Therefore, we must identify and focus on the land that will be most important as Open Space (left in a natural condition) to current and future generations.

The characteristics that are most important to Carson City for protection as Open Space, can be grouped into four basic categories:

- high visual value (City backdrop, scenic areas, feeling of openness)
- important environmental conditions (wildlife habitate, rare species, etc.)
- open areas important to public health/safety, welfare (flooding, ground water recharge)
- areas of cultural/ recreational importance (historic, existing use area)

Each of these categories is described in greater detail below³: many of which are illustrated on the maps in Appendix A5.

Visual Open Space

A Visual Preference Survey⁴ administered in 1994 confirmed that Open Space lands are important visual elements of the city. Scenes that highlighted the mountains and other dominant landscape features scored very positively with local residents. The

³ The available data and accuracy of the characteristics described here vary widely. Additional studies need to be conducted to improve the accuracy of the mapping, which will aid future decision-making. This is particularly important for wildlife habitats, wetlands, vegetation types and aquifer recharge, and wellhead protection areas. Conditions that were considered but not adopted as justifications for Open Space protection include the following:

- Geologic faults – setback requirements vary greatly, and may not even be required. Fault zones may be used for non-structural development such as roads, parking lots, golf courses, etc.
- Mineral deposits – The Nevada Bureau of Mines and Geology (Tingley 1990) gives the Carson City area a low-to-moderate potential for the occurrence of gold, silver, copper, iron and tungsten, and a low potential for manganese. Gravel deposits are not identifiable from existing geology or soils maps. The deposits are generally considered shallow and not commercially viable. Volcanic cinder is viable, but not identifiable from existing information.

⁴ Visual Preference Survey. Carson City, Nevada, 1994. VPS is a trade registered mark from A. Nelessan Associates. Inc., Princetown, New Jersey

Carson River landscape also scored high. Significant visual resources of Carson City include:

- Views of the mountain backdrop that surrounds the city;
- Prominent land forms such as the “C” Hill, Lone Mountain, Prison Hill, and Rattlesnake Mountain that contribute to Carson City’s unique identity;
- Irrigated agricultural lands within the community that are a relief from development.

Visual Open Space was ranked as a *very high priority* for conservation, in the opinion survey conducted in conjunction with this Open Space plan as described in Chapter 2.



Figure 5: Irrigated pasture land provides valuable visual Open Space within the city.

Important Environmental Conditions

Vegetation

Native vegetation in the lower Eagle Valley is dominantly shrubs such as sagebrush, rabbitbrush, antelope bitterbrush, and Anderson peach brush; and grasses such as bottlebrush squirreltail, Thurber needlegrass, Indian ricegrass and Sandberg bluegrass. Areas that have burned in the recent past, such as parts of Duck Hill, C Hill and the north foothills, evidence a considerable quantity of annual weeds (non-native species) such as Russian thistle and cheatgrass. Cheatgrass is a particularly flammable ground cover that greatly increases the danger of wildfires.

Tree species vary by elevation and slope direction. On the east foothills are found pinon pine, and juniper trees. In the west mountains and higher elevations of the foothills can be found white fir, incense cedar, Ponderosa Pine, Red Fir, Lodgepole Pine, Western White pine, Jeffrey pine, and aspen. In the lower elevations, trees such as cottonwood, alders, chokecherry and willows are found.

Wildlife

There is a great variety of wildlife species in the Carson City area, including mule deer, mountain lions, bobcats, black bears, beavers, coyotes, gray fox, quail, mourning dove, muskrats, raccoons, striped and spotted skunks, jackrabbits, hawks, owls, eagles, cottontail rabbits and a variety of small mammals, reptiles and amphibians. The Eagle Valley serves as an important winter range for the deer herds that migrate through the area and move down from nearby mountains. A small band of wild horses

is found in the Pine Nut range east of the City. They can occasionally be seen grazing between the foothills and the Carson River.



Figure 6: Wild mustangs roam the mountains and foothills east of Carson City

Drainage corridors in the west canyons (Kings, Combs, etc.) are important to wildlife because they serve many different species of small animals as both habitat and migration corridors. The richest riparian corridor in Carson City is along the Carson River.

Wetlands are both wildlife habitats and natural water filtration systems. Official wetland maps are not available for Carson City. Wetlands must typically be identified through site-specific inventory. However, probable wetlands can be found in numerous locations, large and small, in drainages and low areas throughout the valley.

Rare Species

Bald eagles visit the Carson City area in winter but are not known to nest or reside here year-round. No other *threatened* or *endangered* species have been identified in the area. Two *sensitive* species in the area are the Carson City wood nymph butterfly and the Carson wandering skipper butterfly. The wandering skipper is known to select saltgrass areas in the Hot Springs vicinity of Carson City. Both species utilize riparian habitats to complete their life cycles.

The Open Space program will facilitate the preservation of habitat for a variety of vegetation, wildlife species, including rare ones. In turn, preserving these habitats will enhance the value of Open Space lands for present and future generations.

Open areas important to health, safety and welfare

Watersheds/wellheads

Portions of Carson City's undeveloped land serve as watersheds and infiltration areas that protect the quantity and quality of the public water supply. Watersheds receive precipitation in the form of snow and rain. Precipitation that falls on the foothills gradually flows into drainageways where it is absorbed into the ground. In the ground, this water continues to flow underground toward the valley floor where it is eventually withdrawn through the City's wells. Each of the City's well heads has a designated protection area. These zones represent various time intervals (five years, ten years, etc.) that ground water will take to migrate to the wellhead. If ground water contamination were to occur, these zones reflect the margin of safety before the wellhead would likely be contaminated.

The Open Space Plan is important to the City's watershed protection program since it can facilitate the conservation of areas essential for protecting Carson City's water resources. Similarly, the City's wellhead and watershed programs can facilitate the acquisition of Open Space lands through potential partnerships.

Drainageways

Drainageways collect runoff and channel it to the Carson River. Major drainageways include the west canyons (King's, Voltaire, Vicee, Combs, and Ash) as well as a number of other smaller tributary drainages. These areas are important to protect not only for their drainage functions, but also as wildlife habitat and for their aesthetic values. Drainageways typically support larger trees and shrubs and contain more diverse ecosystems. These areas are important to protect as a natural resource.



Figure 7: Major drainageways are important for storm water functions as well as wildlife habitat.

Areas Subject to Flooding

Carson City is susceptible to flooding most frequently from intense warm winter storms that melt a heavy snow pack. The general drainage direction is from the foothills to the Carson River that carries runoff out of the Valley. The areas subject to flooding are indicated by flood plain designations on special maps. In addition to the federally designated 100-year flood plains there are other, more frequent flood occurrences (10-year, 25-year floods) that are not usually mapped but are just as

important. In the developed portion of the City, some of the flood plains disappear since the flood flows are conveyed through the city by drainage ditches and underground pipes.

The Open Space Plan can facilitate the preservation of lands subject to flooding and drainages therefore contributing to the health, safety and welfare of residents.

Areas of Cultural/Recreational Importance⁵

Carson City's historic sites are generally related to its role as a government center and mining community in the 1800's. Recorded historic sites include historic sites related to Open Space include numerous government buildings, such as the Nevada State Capital, the U.S. Mint, the Nevada State Library, Pony Express trails, V&T railroad grade and the Carson River route of the Emigrant Trail. Mill sites are located near the V&T grade along the Carson River. On Duck Hill is located the Virginia City Pipeline and Flume that carried water from Marlette Lake and Hobart Reservoir to Virginia City. Some known pre-historic sites have been identified but remain not well publicized for their protection.

Public lands around Carson City are popular for off-highway vehicle use, horseback riding and mountain biking. The Prison Hill area receives an estimated 7,000 visits annually from local residents.⁶ The Carson River, with its tall cottonwood trees, is a popular destination for passive recreation such as walking, fishing, and canoeing. Relatively little of the Carson River corridor is in public ownership.



Figure 8: Carson City's open areas are used recreationally in all seasons.

The areas of Cultural and Recreational importance enhance the enjoyment of Open Space. The plan may be one additional means of permanently preserving Carson City's historic context.

EXISTING PROTECTION OF OPEN SPACE

Although there is a significant amount of undeveloped land in and around Carson City, not all of it is subject to imminent development. Land that has some form of

⁵ Recreation on Open Space land is intended to be oriented to take advantage of the land in its natural condition, as differentiated from the more organized recreation that takes place in parks.

⁶ Carson City Urban Interface Plan Amendment, 1996.

legal constraint to development may be considered as “already protected” and not requiring further public action to preserve it. However, even for “protected land”, there are varying degrees of protection. For example, City parks are permanently protected from development. Designated floodways⁷ are also well protected but floodplains may be developed under certain conditions. Some federally owned lands are not permanently protected. Often, federal lands may be subject to certain kinds of development (mining, logging, and access roads) or may be transferred to public or private parties in exchange for private land to be preserved elsewhere.

Various kinds of existing protection are described below:

State Lands

State Trust lands were set aside by Congress to allow each state to derive revenue for the public school system. Therefore, for the purpose of this plan, these are always candidates for development (such as subdivisions or shopping centers). Although in the past, many of these parcels have been used primarily for grazing, most states are becoming more aggressive in encouraging development that will increase state revenues. Thus, it must be assumed that State Trust Lands are highly susceptible to development.

On the other hand, forested lands owned by the state are relatively immune to traditional development. The State does have this property protected to insure the integrity of the Carson City watershed. The State Prison lands in Carson City include large open areas such as the prison farm and large natural area buffers. The State Prison system is not likely to allow urban development on these lands for security reasons. However, they may receive additional development of prison facilities. Generally, in Carson City it is expected that State Prison land will remain mostly undeveloped, although not accessible to the general public.

Federal Lands

Federal lands in Carson City fall under the jurisdiction of either the U.S. Forest Service or the Bureau of Land Management. Federal lands are generally protected against most traditional development. However, they can be subject to less-intensive kinds of uses. For example, federal lands (BLM and US Forest Service) are managed under “multiple-use” guidelines, meaning they may be used for recreation, mining, logging, wildlife management, mineral extraction, etc. Federal lands may also be traded to private parties⁸, or given to local governments for “Recreation and Public Purposes (R&PP) that generally includes some form of construction of public facilities.

Generally speaking, federal lands located west of U.S. Hwy 395 (Carson foothills) are under the jurisdiction of the U.S. Forest Service. Federal lands located east of U.S. Hwy 395 are managed by the BLM. The BLM has recently adopted an Urban Interface Plan for the Carson City area that designates specific areas for possible R&PP uses and sets aside a large portion of the visible BLM land (east and north foothills) for protection from any development or transfer including the withdrawal of mineral rights. The U.S. Forest Service is currently developing a similar plan for its land on the west foothills of Carson City.

⁷ The floodplains is the fringe area of irrigation, the floodways is the channel where floodwater moves with velocity.

⁸ The Silver Saddle Ranch was recently acquired by the BLM through a trade for BLM land in the Las Vegas area.

Dedicated Open Space

The Existing Protection of Open Space map (in the Appendix) portrays land that is committed to remain as Open Space through some form of binding legal constraint, such as an easement or subdivision agreement. Examples of land preserved through development agreement include the Silver Oak golf course, University Heights Open Space and Empire Ranch open areas.

Regulatory Constraints

Regulatory constraints such as zoning, hillside ordinance, floodplain regulations, etc. are sometimes significant enough to preclude, or significantly restrict, development. Several important regulatory constraints are described below:

Floodways, Floodplains

Areas subject to 100-year frequency floods are identified on maps prepared by the Federal Emergency Management Agency (FEMA). Based on these maps, the City imposes development restrictions, and FEMA provides flood insurance. *Floodways*, the channel where floodwater is projected to move with velocity, are generally precluded from most types of development. However, land outside the *floodway*, but still within the 100-year *floodplain*, can be developed subject to specific engineering restrictions. Even though these restrictions are expensive, they are not prohibitively so, and therefore the floodplain is considered only partially protected.



Figure 9: The Carson River in flood condition, growing the floodway (active channel) and floodplain (fringe area of irrigation)

Hillside Development Ordinance

The City has implemented specific development restrictions for hillside areas. Development on slopes over 15% must comply with the City's Hillside Development Manual, which prescribes special standards for cut/fills, roads, etc.

A Special Use Permit is required for development on slopes over 33%, and also for development above the designated Skyline. Since a Special Use Permit is discretionary, this requirement can be more of a significant constraint to development and can greatly reduce overall density. However, some development is still allowed in these conditions. Therefore, the hillside regulations are only a *modest* constraint to development.

Other City Ordinances

Planned Unit Developments (PUD's) in Carson City are required to set aside up to 40% of the gross land area as Open Space. Since the PUD approach brings much greater flexibility to development, properly used it can be an effective incentive for the creation of Open Space. Large lot zoning can be somewhat effective in protecting Open Space. It has two drawbacks however: 1) it can be changed by land owner request and Board of Supervisors approval and 2) the smaller the lot size, the less Open Space is preserved. The City has given moderate-sized (1unit/ 10 acres) zoning to most of the area outside the "blue line" (the City's boundary for providing urban services).

Other Types of Existing Open Space Protection

Two potential regulatory constraints were not mapped:

Wetlands

Wetlands have a high degree of protection. They are regulated by the US Army Corps of Engineers. The regulations do allow limited development, but only with expensive mitigation. However, wetlands are not typically mapped on a regional scale, and are not mapped in any detail in the Carson City area. Thus their regulatory impact is only identifiable on a project-by-project basis and is difficult to map actual location and amount of wetland Open Space in advance, as it may be different than predicted.

Watershed and Wellhead Protection Areas

Although, the City has designated most of the west mountains as its watershed area and has identified wellhead protection, zones around the existing municipal wells (See Appendix) neither of these designations is accompanied by a regulatory requirement that reduces development. Therefore they are not yet effective at protecting Open Space.

DEGREES OF PROTECTION

The constraints described above, whether mapped or not, are grouped below into three relative *categories of protection*:

High – *highly probable to remain undeveloped.*

- Dedicated Open Space
- Wetlands
- BLM/USFS Urban Interface Area

Medium – *may be developed, but usually at high cost or at a relatively low level of development.*

- Federal lands (BLM, USFS)
- State Prison lands
- Hillside slopes over 33%
- FEMA Floodways

Low – *constraints to development are modest and although restricted, some level of development is likely.*

- Private land outside of City “blue line” (urban limit)
- Skyline areas and Hillside slopes of 15% to 33%
- State Trust lands
- Floodplains

These categories are merely intended to reflect the *relative* degree of protection (or potential for development) for land that might have one or more of the above constraints.