





## 2 BACKGROUND DATA

The 176 Pine Nut Allotments included in this Plan comprise approximately 27,130 acres, all of which are located in Douglas County, Nevada. The area from Carson City south to the Pine Nut Mountains is known as the Carson Valley, with the Carson River running through it on a south-to-north course. The Valley extends from the Pine Nut Mountains on the east to the foothills of the Sierra Nevada Mountains on the west. U.S. Hwy 395 is the main highway connecting the Carson Valley to points north and south. Minden/Gardnerville is the main urban center about 60 miles south of Reno.

The Sierra Nevada Mountains reach 11,000 feet above mean sea level, and peaks in the Pine Nut Mountains reach 9,000 feet. The elevation of the valley ranges from 4,600 feet, where the Carson River flows out of the area, to 5,000 feet above sea level.

The Northern Allotments are located in an area of flat to rolling terrain. Elevations in the area are less than 5,800 feet. The US 395 allotments are in the Pine Nut Mountain Range which is very rugged, and elevations exceed 8,000 feet in many areas. US 395 climbs to approximately 6,000 feet within this highway corridor.

### PHYSICAL FEATURES

#### Climate

The Carson Valley is an arid, high-desert basin bounded by the Sierra Nevada Mountains to the west and the Pine Nut Mountains to the east. In the Carson Valley area, summers are warm and dry at the lower elevations and cool and dry at the higher elevations. Winters are cold with occasional severe cold spells. In the Pine Nut Mountains the continental climate is characterized by short, hot summers, and moderately cold winters.

The average annual maximum temperature for the area is 89 degrees F., and the average annual minimum temperature range is 19 degrees F. July is the warmest month and January is the coldest month.

Located in the rain shadow of the Sierra Nevada, the Carson Valley floor receives an average 10 inches of precipitation per year, while the Sierra Nevada Mountains receive as much as 45 inches of precipitation per year, and the Pine Nut Mountains as much as 26 inches per year.

#### Vegetation

Vegetation varies widely throughout the Pine Nut Allotments and surrounding area. Major vegetation types include:

- Pinon Pine
- Juniper
- Mountain Mahogany
- Big Sage
- Mormon Tea
- Rabbit Brush
- Bitter Brush
- Other Minor Species (sagebrush, cheat grass, blue grass, greasewood)

Higher elevations are predominantly forested with Pinon Pine and Juniper, and the lower lying areas are predominantly sagebrush and cheat grass.

## Water Resources

The most significant surface water feature in the Carson Valley is the Carson River, which flows northward through the central part of the valley. The Carson River drains several ephemeral drainages originating in the Sierra Nevada and Pine Nut Mountains, and is a major source of irrigation water.

Groundwater in the Carson Valley flows from the margins of the valley towards the Carson River in the center of the valley, and then northward along the Carson River. The US Geological Survey identifies three water-bearing units in the Carson Valley:

- Unconsolidated Alluvium – Primary aquifer in the Carson Valley, with a groundwater yield sufficiently high to support irrigation, municipal and domestic demands; depth to groundwater ranges from 5 feet below ground surface near the Carson River to greater than 100 feet at the margins of the valley.
- Tertiary Sediments – Include clays with interbedded discontinuous sand and gravel lenses; supply water primarily for domestic purposes.
- Bedrock – Fractured zones in the volcanic and sedimentary rock; supply water primarily for domestic purposes.

Water resources investigations show that aquifers exist at various elevations in the area of the north allotments and northeast allotments. The shallow aquifer supplies most of the development in that area. However, this aquifer appears not to be fully recharging, and as a result, long-term supply will probably need to come from a deeper aquifer. Well yields also vary in the area.

Groundwater is available in the southern area (southeast of Minden/Gardnerville urban area along the US 395 corridor), but primarily to the west of the highway in basalt deposits. Aquifers occur at various elevations, some of which are as deep as 1,600 feet.

## Geology/Soils

The Carson Valley was formed by volcanic, tectonic and erosional events during the past 240 million years. The oldest geologic units in the Carson Valley are 138 to 240 million year old volcanic and sedimentary rocks deposited in the Jurassic and Triassic Periods. During the Cretaceous Period (63 to 138 million years ago), granitic magma of the Sierra Nevada batholith intruded into the Jurassic and Triassic sedimentary rocks, forming the basement rock of the Carson Valley and a majority of the Pine Nut and Sierra Nevada Mountains. A long period of erosion followed the intrusion, until approximately 10 million years ago when basin and range faulting created present day topography by dropping the valley floor and uplifting the Sierra Nevada and Pine Nut Mountains. Erosion of the newly-formed highlands

resulted in deposition of Tertiary Sediments, consisting of 40 to 80 foot thick clay beds with 10 to 20 foot thick sand and gravel interbeds over most of the valley floor. Continued faulting between 15 and 5 million years ago tilted the Tertiary sediments towards the west, and Tertiary Andesites and Basalts erupted along the southern and western sides of the valley. During the last 2 million years, continued erosion of highlands filled the Carson Valley, covering the Tertiary Sediments with Quaternary Alluvium. The combined thickness of basin fill in the Carson Valley (i.e., Tertiary Sediments and Quaternary Alluvium) ranges from 5,000 feet to 2,000 feet on the west and east sides of the valley, respectively.

## DEMOGRAPHICS

### Population

Table 2-1 shows population growth in the three parts of Western Nevada that comprise the region evaluated.

	1980	1990	2000	2006	2008	%Δ 1980-2008
Douglas County	19,921	27,637	41,259	45,909	45,180	126.8%
Carson City	32,022	40,443	52,457	55,289	54,867	71.3%
Washoe County	193,623	254,667	339,486	396,428	410,443	112.0%
Total	311,043	324,737	435,202	499,632	512,498	64.8%

Source: US Census Bureau, Decennial Census Counts and Estimated Count for 2006 and 2008

The data show that Douglas County has been experiencing the highest growth rates of the three areas measured, with an increase of 126.8% from April 1, 1980 to July 1, 2008. Carson City grew by a little over one-half that rate, at 71.3%, while Washoe County increased by 112.0%.

In numerical terms, Douglas County grew by 25,259 people while Carson City grew by 22,845 people, nearly the same amount as Douglas County. However, Washoe County added 216,820 people which was 9.5 times the numerical growth in Douglas County. Both Douglas County and Carson City showed slight declines in population between 2006 and 2008 as the US entered into recession, but Washoe County showed continued growth. According to data released in 2007 by the Center for Regional studies at the University of Nevada Reno, these trends are going to change in the future. Their report estimates that between 2008 and 2026 these three areas will grow as shown in the following table.

	2008 Population	2026 Pop. Est.	# Change	% Change
Douglas County	45,180	66,064	20,884	46.2%
Carson City	54,867	79,134	24,267	44.2%
Washoe County	410,443	586,248	175,805	42.8%
Total	512,498	731,446	218,948	42.7%

## Economy

Table 2-3 lists the largest employers in the commercial/industrial sector in Douglas County. This list excludes school districts and health care providers that are also large employers.

<b>Employer</b>	<b>City</b>	<b>Industry</b>	<b>Code</b>	<b>Number of Employees</b>
Harrah's Stateline	Stateline	Casino Hotels	721120	1,500 - 1,999
Harvey's Resort Hotel Casino	Stateline	Casino Hotels	721120	1,000 - 1,499
Horizon Casino Resort	Stateline	Casino Hotels	721120	800 - 899
Bently Nevada	Minden	Industrial Process Variable Instruments	334513	600 - 699
Douglas County	Minden	Executive & Legislative Offices Combined	921140	600 - 699
Carson Valley Inn	Minden	Casino Hotels	721120	500 - 599
Lakeside Inn & Casino	Stateline	Casino Hotels	721120	300 - 399
Travel Systems Limited	Zephyr Cove	Food Service Contractors	722310	200 - 299
Resorts West A Nevada Partner	Stateline	Hotels (except Casino Hotels) and Motels	721110	200 - 299

Source: Nevada Department of Employment, Training and Rehabilitation (DETR)

This list clearly shows that the gaming industry dominates commercial/industrial employment in Douglas County and that most of this sector is located at Lake Tahoe rather than in the valley. However, the valley is reported to be a major residential location for gaming-industry workers because of the lack of available housing and the high prices of land and houses at the lake. Several of the casinos have their own shuttles that pick up employees in the valley and take them to work at their facilities at the lake.

For that reason, the gaming industry at Lake Tahoe and other areas in the region add to the demand for residential housing in the Carson Valley.

Table 2-4 shows, by industrial sector, employment in Douglas County.

Unfortunately, the gaming industry has been declining since 2003, from 9,201 in 2003 to 8,246 in 2006 for a decrease of more than 10%. The statistic for 2007 is for the first quarter only, so it is not known whether the annual average will also show the slight increase indicated in Table 4. If the pattern of decline continues, then this sector will not stimulate additional housing demand in Douglas County in at least the near future.

The construction sector showed positive growth from 2003 through 2006, but the decline in the 1<sup>st</sup> Quarter of 2007 reflects the major recession that hit this industry in the past year. With serious turmoil in both the housing construction sector and the mortgage lending industry, it is not expected that there will be recovery any time soon.

Manufacturing appears to be relatively healthy, with an increase in employment of 6.8% between 2003 and the 1<sup>st</sup> Quarter of 2007. However, the Carson Valley has relatively few manufacturing employers and the number of workers reflects only about 8.4% of all employment, compared to a national average of about 9.8%. Diversifying the economic base and recruiting more higher wage manufacturing industries is a goal of regional economic development efforts.

Industry	2003	2004	2005	2006	1st Quarter 2007
<b>Total All Industries</b>	<b>20,879</b>	<b>21,685</b>	<b>21,622</b>	<b>21,645</b>	<b>21,414</b>
Total Private Coverage	18,696	19,456	19,333	19,347	19,140
Natural Resources & Mining	162	181	176	175	160
Construction	1,740	1,934	2,183	2,029	1,846
Manufacturing	1,709	1,713	1,753	1,802	1,826
Trade, Transportation & Utilities	2,528	2,764	2,795	2,863	2,824
Information	235	221	197	230	214
Financial Activities	707	791	865	774	804
Professional & Business Services	1,230	1,396	1,572	1,702	1,527
Education & Health Services	802	884	1,054	1,149	1,149
Leisure & Hospitality	9,201	9,145	8,363	8,246	8,436
Other Services	373	377	350	361	336
Government	2,183	2,230	2,289	2,298	2,274

Source: Nevada Department of Employment, Training and Rehabilitation

Trade, transportation and utilities have been a growth sector, gaining 11.7% employment from 2003 to the 1<sup>st</sup> Quarter of 2007. In part, this reflects the growth of the retail trade industry in response to the increased population in the county.

The professional and business services sector has also shown strong growth, increasing by 24.1% over the period shown in Table 6. This is the fastest-growing sector in the U.S. economy and the data show that Douglas County is participating in that growth.

Education and health services showed the strongest growth, increasing by 43.3%. This sector also pays the highest annual mean wage in Douglas County at \$42,853 according to the latest data available. It represented 5.4% of total employment in the county in the 1<sup>st</sup> Quarter of 2007.

In general, the current slump in the housing and mortgage finance industry is likely to cause static overall employment levels for at least the short term. The decline in gaming industry employment will also dampen growth in Douglas County. There are currently no obvious “drivers” for rapid growth although there are continuous efforts to recruit new companies to the area through economic development efforts.

## EXISTING LAND USE

Existing land use is primarily public and private forest and range lands with minimal residential development. Existing development is concentrated along Pine Nut Creek and the US 395 corridor.

The vast majority of the Pine Nut Allotments are undeveloped. What housing exists is scattered along the US 395 corridor. The



Pine View Estates

only residential development is Pine View Estates, which is located adjacent to the US 395 approximately 7 miles southeast of Gardnerville at Cedar Flat. The development includes approximately 200 single-family homes.

Commercial development occurs mainly along US 395 in the communities of Minden, Gardnerville and Dresslerville. The Holbrook Junction area offers the only commercial facilities along US 395 through the Pine Nut Mountains, along with the lodge and other services at Topaz Lake.

Some of the Pine Nut Allotments are under commercial leases for livestock grazing purposes. In the upper elevations, allotment owners also harvest pine nuts commercially. Also, the use of off-road vehicles for recreation is popular in this area. Because very few of the Pine Nut Allotments are fenced or have been surveyed, trespass is an ongoing problem, especially with those with off-road vehicles and with some pine nut harvesters. The general public does not always know where the boundaries are for public land, Indian Lands, and other private lands.

## COMMUNITY FACILITIES AND SERVICES

There are no schools located in the area of the Pine Nut Allotments. Elementary students attend various Carson Valley schools, and all middle and high school students attend Carson Valley Middle School and Douglas High School, respectively.

In the US 395 area, power and communications are in place along US 395. With the exception of the Pine View Estates, there are currently no other community sewer systems in the planning area. Sewage disposal is provided by individual sewage disposal systems. Also, with the exception of the Pine View Estates, there are no community water systems in the planning area. Water is provided by individual wells. Solid waste collection and disposal services are provided by Douglas Disposal, Inc. Currently, there are no landfills in Douglas County. Waste is received either by collection trucks or by local residents at a transfer station west of US 395, south of Gardnerville, and south of Pinenut Road. It is then transported to the Lockwood Landfill in Storey County, which is owned and operated by Reno Refuse, Inc.

Fire protection and emergency services are provided by the East Fork Fire and Paramedic District. The District is one of three fire protection districts in Douglas County and serves approximately 600 square miles. The district supports 13 fire stations, 8 of which are all volunteer. The District provides structural firefighting, emergency medical services, wildland firefighting and operations-based hazardous materials response. Fire protection is also provided by the Bureau of Land Management and the US Forest Service.

## TRANSPORTATION

US Highway 395 is the major north-south link to urban centers to the north, traversing the southern portion of the allotments north to Gardnerville, Minden, Carson City, and Reno. State Route 3 joins US 395 at Holbrook Junction. Other access to the allotments is provided by Leviathan Mine Road which extends west from US 395 into the southwestern portion of the allotments; Pine Nut Road which extends east from US 395 just north of Dresslerville into the central portion of the allotments; and the "Sunrise Route" which extends east from the highway just north of the Douglas-Tahoe Airport into the northern portion of the allotments. Most of the other roads in the area are unimproved dirt roads or trails suitable for trucks and/or four-wheel-drive vehicles only.

Bus and truck (shipping) service is provided along US 395. Rail and major air service are available at Reno, 50 miles north of the allotments. Local flights are available at the Carson Municipal Airport, about 20 miles north and the Douglas-Tahoe Airport, just north of Minden provides service for private flights only.

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