CONSERVATION ELEMENT

DRAFT

MARCH 2017

CONSERVATION ELEMENT

PURPOSE

The purpose of the Conservation Element is to review the condition of natural resources within Douglas County and to identify issues and opportunities to protect natural resources. Degradation of natural resources such as air, water, and soil, can create negative impacts to public health, the natural environment, and the economy.

The Conservation Element concludes with Goals, Policies, and Actions to support protection of natural resources in Douglas County. Additional information on natural resources in Douglas County is provided in Volume II of the Master Plan. Reference documents include the Carson River Watershed Regional Floodplain Management Plan (2013), the Carson River Watershed Adaptive Stewardship Plan (2007), the 2007 Open Space and Agricultural Land Preservation Plan and the Community Wellhead Protection Plan (2012).

AIR QUALITY

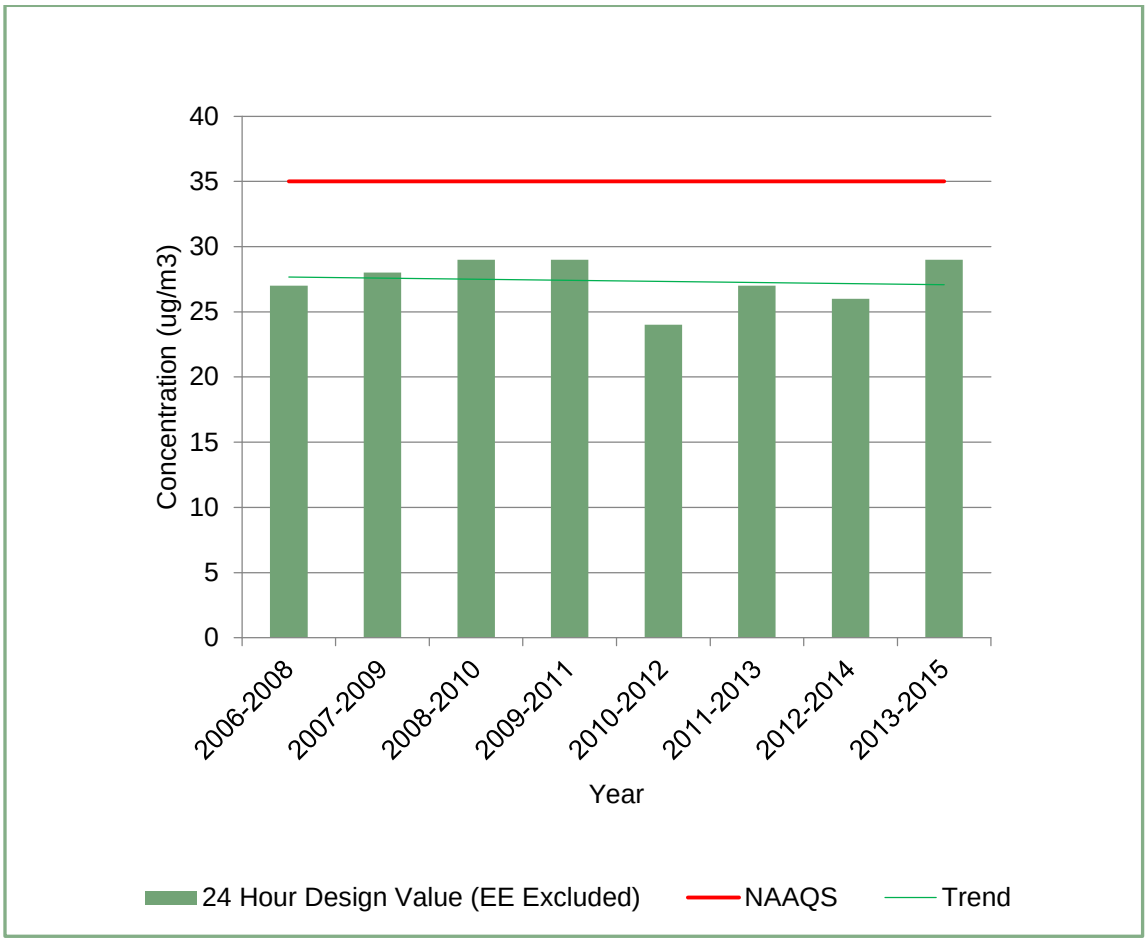
Under the 1970 Clean Air Act, the Environmental Protection Agency (EPA) is required to set National Ambient Air Quality Standards (NAAQS) for six common criteria air pollutants: ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. The NAAQS include primary and secondary standards. The primary standards are intended to protect public health while the secondary standards protect public welfare (e.g., soils, water, vegetation). The State Air Quality Planning Division monitors and reports on air quality for all Nevada counties, except Clark and Washoe Counties.

There are two air quality-monitoring stations in Douglas County. One station is operated by the Bureau of Air Quality in the Nevada Division of Environmental Protection (NDEP) and is located in the Ranchos Aspen Park in the Gardnerville Ranchos General Improvement District. The other monitoring station is operated by the Tahoe Regional Planning Agency (TRPA) for purposes of monitoring TRPA Thresholds and is located on Market Street in the Lake Tahoe Basin. The Ranchos station is a special purpose-monitoring site (recognized by EPA since 2013, but in existence since 2006) which monitors particulate matter (PM) pollution of 2.5 micrometers in diameter or smaller in ambient air. One micrometer is defined as one-millionth of a meter in width; and 2.5 micrometer pollution is so small that it can only been seen with an electron microscope. Major sources of PM 2.5 include motor vehicles, power plants, residential wood burning, forest fires, agricultural burning, road dust, and some industrial processes. PM 2.5 can deleteriously affect people with lung and heart conditions, especially in sensitive groups such as the elderly, pregnant women, fetuses, and children; and contributes to visible haze (smog) in the atmosphere. Under NAAQS, PM 2.5 is not allowed to exceed 11 micrograms per cubic meter of air for the Annual Design Value or 35 micrograms per cubic meter of air for the 24-hour design value.

Figure 1 displays the 24-hour design values for PM 2.5 since 2006 at the Gardnerville Ranchos air quality monitoring station. The values have remained between 25 and 30 micrograms per cubic meter. Although this monitoring station shows that PM 2.5 standards have been below the

24-hour design value of 35 micrograms per cubic meter, there have been exceedances. The EPA exception events rule allows states to "flag" data as an exceptional event and to exclude the data for this reason. NDEP believes these PM 2.5 exceedances (EE) are usually caused by wildfires in Douglas County and surrounding regions.

Figure 1
Gardnerville Ranchos PM 2.5 Monitoring Station
24 Hour Design Value (EE Excluded)



Source: Bureau of Air Quality, Nevada Division of Environmental Protection, December 2016

As noted above, one of the most significant sources of PM 2.5 air pollution is residential wood burning. The NDEP Wood Stove Change-Out Program, which is managed by the University of Nevada, Reno (UNR) Business Environmental Program, provides rebates to homeowners in Douglas County who agree to replace old wood stoves with EPA certified stoves. The rebates can be used to purchase new wood stoves, pellet stoves, or gas stoves. According to the NDEP Bureau of Air Quality, approximately 100 wood stoves have been replaced with newer wood stoves or non-wood stoves since 2013 when the program began. This appears to be a popular program but it is unknown how long NDEP will continue this effort. Unfortunately, no data exists for trends in the total number of wood stoves in the County, and how many of these stoves may or may not conform to current EPA emission standards.

NDEP's Diesel Reduction Program is another effort to improve air quality. The Douglas County School District recently purchased three new school buses to retire existing diesel school buses under this program. According to the California Air Resources Board, more than 90 percent of diesel vehicle particulate matter is less than 1 micrometer in size.

There are currently seventeen (17) businesses in the County that operate with NDEP air quality permits, including Starbucks, Harrahs, Harveys, and Bing Construction. Any process or activity that is an emission source requires an air quality permit from NDEP to ensure that regulated pollutants do not harm public health or cause deteriorated conditions in areas that have clean air. Table 1 provides additional information on the companies with air quality discharge permits in Douglas County. Air quality operating permits are categorized as either Class 2 or Class 3 based on the amount of emissions.

Table 1
Companies with Air Quality Operating Permits

Company	Class	Emissions (ton/year)
A & A Construction, Inc.	Class 3	0.86914
Aervoe Industries, Inc.	Class 2	0.02520
American Avk Company	Class 2	3.98864
Bing Construction Co. Of Nevada	Class 2	14.42946
Carson Valley Veterinary Hospital	Class 3	0.51160
Columbia Properties Tahoe, LLC	Class 2	6.88143
Harrahs Lake Tahoe Hotel Casino	Class 2	82.41117
Harvey's Resort Hotel Casino	Class 2	12.04715
New Cingular Wireless PCS, LLC DBA AT&T Mobility	Class 3	0.02097
North Sails Nevada	Class 2	3.19655
OS Operations, Inc.	Class 2	9.07720
Starbucks Coffee Company	Class 2	152.62520
Verizon Wireless	Class 3	0.17182
Verizon Wireless	Class 3	0.01625
Verizon Wireless	Class 3	0.00909
Verizon Wireless	Class 3	0.00243
Verizon Wireless	Class 3	0.01035

Source: Bureau of Air Quality, Nevada Division of Environmental Protection, December 2016

PROTECTION OF OPEN SPACE AND SENSITIVE AREAS

Open space areas in Douglas County include public lands managed by the Bureau of Land Management (BLM) and the U.S. Forest Service (USFS), agricultural areas, and undeveloped private lands. Many of these areas include floodplains and wetlands and provide important ecosystem benefits. In addition, protection of open space areas helps to preserve the scenic qualities of the County. Private open space lands can be protected from development through fee simple purchase, purchase of development rights, or else through conservation easements. NRS 111.390 through 111.440 is the Nevada Conservation Easement law. Open space easements and acquisitions have been purchased through the County's Transfer Development Rights (TDR) program and the Southern Nevada Public Lands Management Act (SNPLMA). The County's development regulations also help to protect open space through the Planned Development Overlay District and the Clustered Development provisions of the Development Code.

TRANSFER DEVELOPMENT RIGHTS CONSERVATION EASEMENTS

The County's TDR program was adopted in 1996 and allows property owners in sending areas (A-19 and FR-19 Zoning Districts) to transfer their development rights to designated receiving areas based on execution of conservation easements. Property owners obtain bonus development rights if the conservation easement includes floodplain acreage. To date, 3,964.40 acres of private land have been preserved as open space under the County's TDR program. Table 2 provides information on the lands protected as open space during the last 20 years.

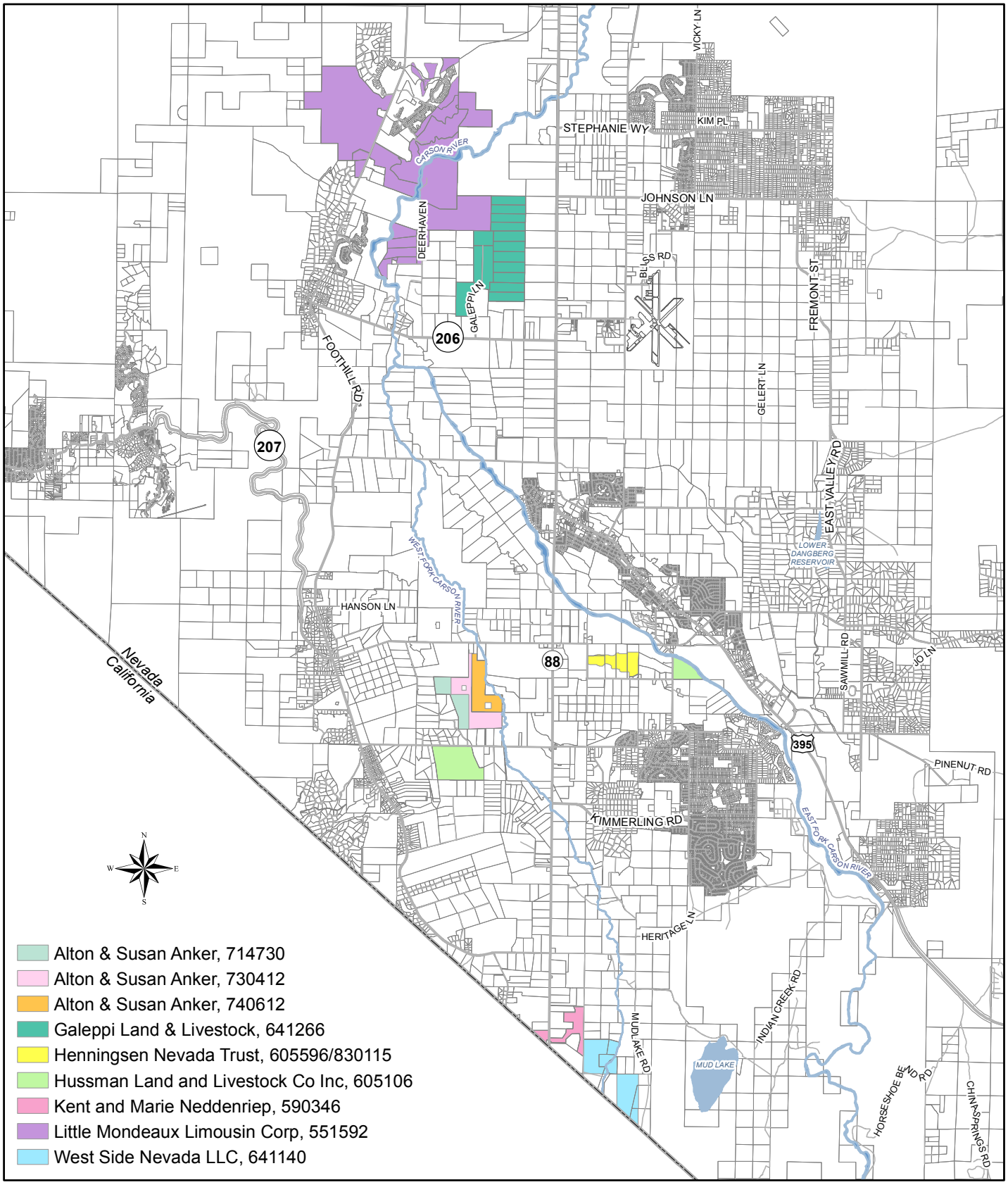
Table 2
TDR Conservation Easements, 2002-2016

Property Owner	Conservation Easement (Acreage)
Alton and Susan Anker	375.77
Galeppi Land & Livestock	700.02
Henningsen Nevada Trust	100.48
Hussman Land & Livestock	260.74
Kent and Marie Neddenriep	100.42
Little Mondeaux Limousin Corp.	2,137.81
West Side Nevada LLC	289.16
Total	3,964.40

Source: Douglas County Community Development Department

Map 1 depicts the location of the conservation easements created through the TDR program. Additional information on the development rights created by the TDR program is provided in the Growth Management Element.

Map 1
TDR Conservation Easements



SOUTHERN NEVADA PUBLIC LANDS MANAGEMENT ACT

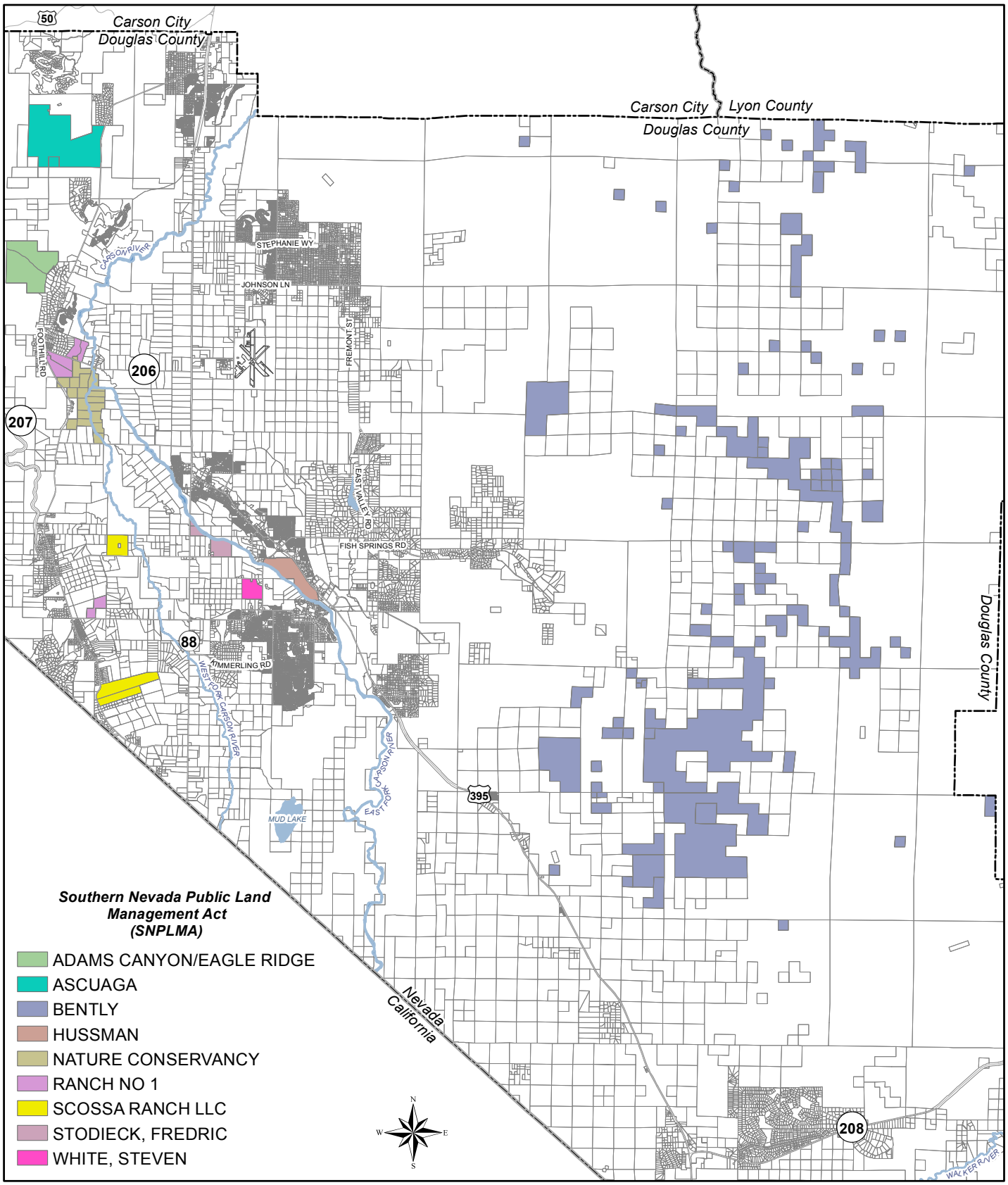
The Southern Nevada Public Lands Management Act (SNPLMA, Public Law 105-263) was passed in 1998 and allows the Bureau of Land Management to utilize the proceeds from BLM land sales in Clark County for different purposes, including acquisition of environmentally sensitive lands. The first SNPLMA environmentally sensitive land transaction in Douglas County was the 300 acre conservation easement for the Hussman property in Gardnerville. As shown in Table 3, SNPLMA has protected 18,320.94 acres in Douglas County. Map 2 displays the location of SNPLMA Conservation Acquisitions and Easements in the Carson Valley portion of Douglas County.

Table 3
SNPLMA Environmentally Sensitive Land Acquisitions, 2004-2016

Project Name & Property Owner	Acres	Description
Carson Valley Conservation Easement Group A – Hussman	300.00	BLM purchased the conservation easement for this property in FY 2006
Carson Valley Conservation Easement Group A – River Fork Ranch/Nature Conservancy	739.00	BLM purchased the conservation easement for this property in FY 2007
Carson Valley Conservation Easement Group B - White	139.00	BLM purchased the conservation easement for this property in 2008
Carson Valley Conservation Easement Group B - Stodieck	153.00	BLM purchased the conservation easement for this property in 2009
Carson Valley Conservation Group D - Scossa	530.00	BLM purchased the conservation easement for two parcels in 2008. The property contains hot springs and the only known colony of the Carson Valley Silverspot Butterfly in Douglas County
Adams Canyon – Eagle Ridge at Genoa	722.47	The U.S. Forest Service purchased this inholding in 2007. The property includes a segment of the Pony Express Historic Trail and provides critical deer winter range habitat
Ranch 1 - Lekumberry	357.44	BLM purchased the conservation easement for three separate parcels in 2014, including the Wasson Ranch, the Slaughterhouse Ranch, and a parcel located along Centerville Lane. The easements will protect habitat for sensitive and listed species and floodplain functions of the Carson River
Bently Pine Nut Parcels – Bently Enterprises	14,147.03	BLM will purchase vacant land which includes more than 9,000 acres of Sage-Grouse habitat, Washoe Tribe cultural sites, riparian areas, mule deer, antelope, and bird migratory corridors
Jacks Valley Ranch Conservation Easement - Ascuaga	1,233.00	The U.S. Forest Service will acquire a conservation easement over 1,233 acres of ranchland and forest to protect migratory corridors, wildlife habitat, historic structures, and Native American cultural resources.
TOTAL	18,320.94	

Source: BLM SNPLMA Search Engine (www.blm.gov/snplma)

Map 2
SNPLMA Environmentally Sensitive Land Acquisitions



FLOODPLAIN PROTECTION

Douglas County includes 31,582 acres of riverine and alluvial fan floodplains. Riverine floodplains allow flood waters to disperse over normally flat areas adjacent to rivers and streams and reduce the energy of the water flow, thus protecting downstream properties. Riverine floodplains provide areas of groundwater recharge as well as wildlife habitat areas, and their locations are relatively predictable. Alluvial fan floodplains, on the other hand, are not easily predictable, carry high velocity flows, and often carry sediment.

Table 4 provides information on 100 Year Floodplain acreage within each community plan area. The community plan areas with the highest percentage of floodplain acreage include the South Agricultural Community Plan area at 56.9 percent, the Minden/Gardnerville Community Plan at 44.0 percent, and the North Agricultural Community Plan area at 37.7 percent.

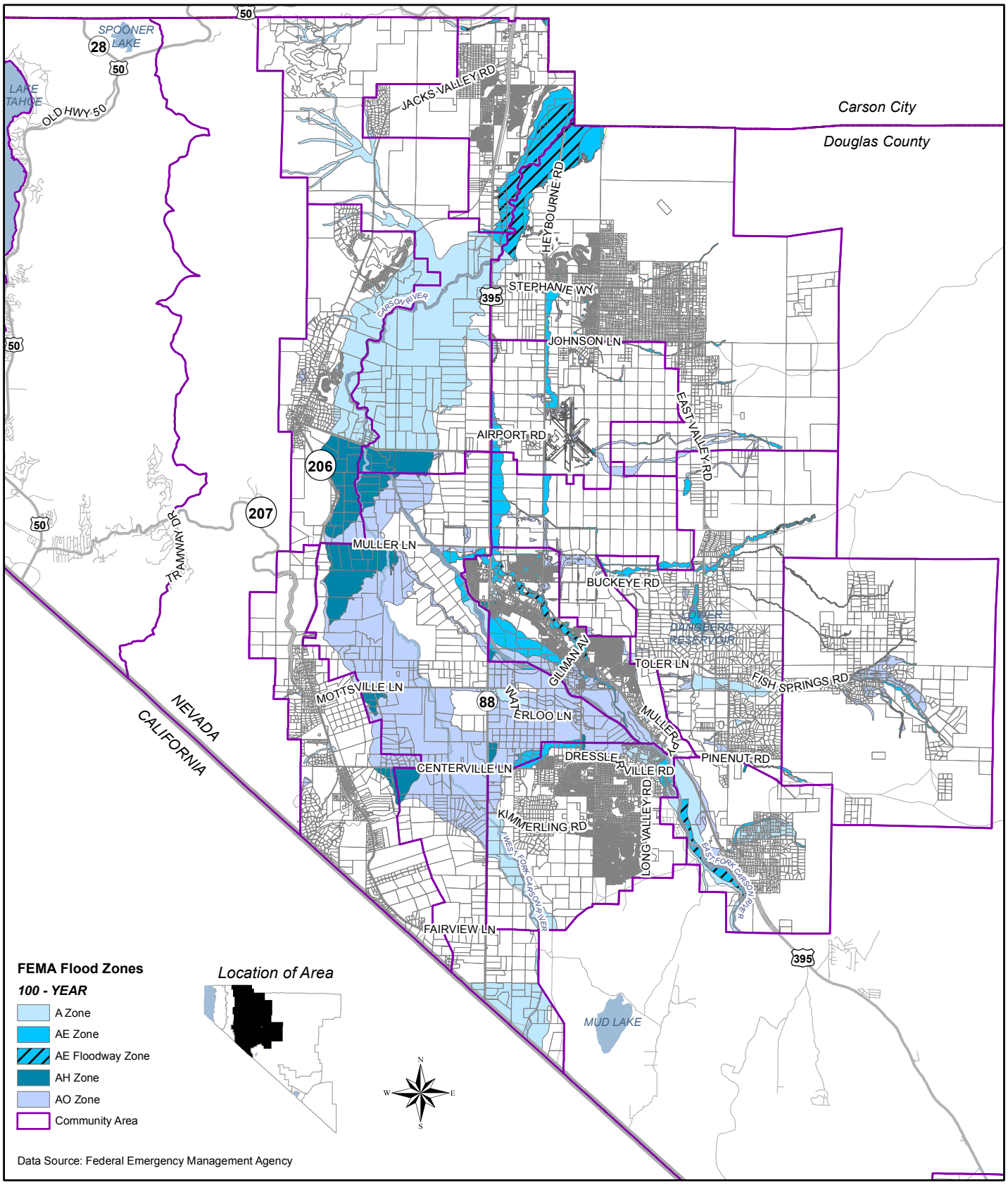
Table 4
100 Year Floodplain Acreage, by Community Plan Area

Community Plan	Total Acreage	100 Year Floodplain Acreage	Percentage in Floodplain
Agricultural, Central	4,519.71	594.91	13.2%
Agricultural, North	12,904.96	4,860.59	37.7%
Agricultural, South	15,847.30	9,024.15	56.9%
Airport	4,678.00	407.91	8.7%
Antelope Valley	47,348.90	1,573.62	3.3%
East Valley	9,922.45	757.97	7.6%
Fish Springs	12,197.05	525.72	4.3%
Foothill	6,679.16	358.00	5.4%
Gardnerville Ranchos	6,672.82	1,093.03	16.4%
Genoa	6,362.75	2,129.07	33.5%
Indian Hills/Jacks Valley	5,056.27	758.52	15.0%
Johnson Lane	17,984.13	1,348.24	7.5%
Minden/Gardnerville	4,052.55	1,785.05	44.0%
Pinenut	222,245.87	2,450.43	1.1%
Ruhenstroth	5,091.94	1,009.40	19.8%
Sierra	19,369.53	4.23	0.0%
Tahoe Basin	39,249.66	487.63	1.2%
Topaz Lake	5,145.08	204.14	4.0%
Topaz Ranch Estates/Holbrook Jct.	26,813.46	2,209.05	8.2%
TOTAL	472,141.57	31,581.66	6.7%

Source: Douglas County GIS

The majority of floodplain areas in Douglas County are located in the Carson Valley. Of the 31,582 acres of floodplain in the County, 24,653 acres, or 78 percent, are found in the Carson Valley. Map 3 displays the location of floodplain areas within the Carson Valley portion of Douglas County.

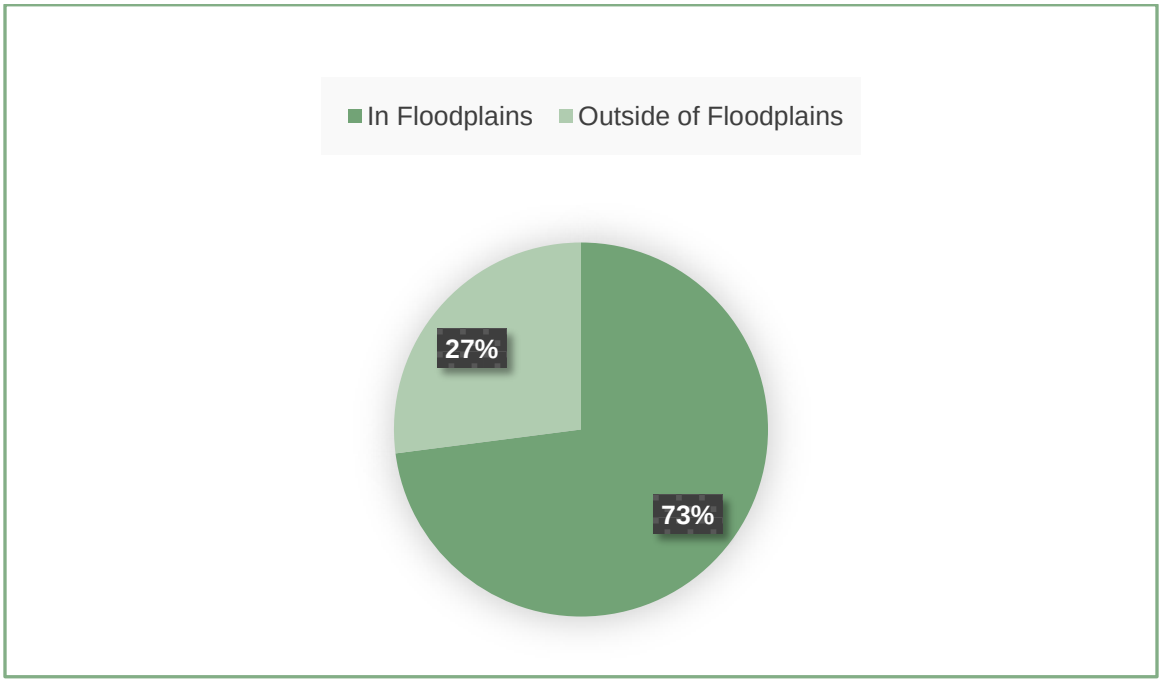
Map 3
Floodplain Areas in Carson Valley



Data Source: Federal Emergency Management Agency

Many of the riverine floodplain areas in the Carson Valley have been protected from development through Douglas County's Transfer Development Rights (TDR) program). As shown in Figure 2, 73 percent of the conservation easement acreage (2,892 acres) is located inside floodplains.

Figure 2
Douglas County TDR Conservation Easements
Protecting Floodplains



Source: Douglas County Community Development, Douglas County GIS

Floodplain regulations and public safety issues are discussed in the Public Safety Element of the Master Plan.

RENEWABLE ENERGY

The State of Nevada Renewable Portfolio Standard, as set forth in NRS 704.7801, has set a goal of 25 percent renewable energy by 2025. The portfolio standard requires each electric utility in Nevada to sell a percentage of electricity from renewable sources. This percentage increases every year until reaching the 25 percent standard. The renewable portfolio standard for the entire state reached 18.0 percent in 2014. Nevada Energy, the largest utility in the State, achieved a renewable portfolio percentage of 23.9 percent in 2014.

The Governor's Office of Energy manages several tax incentive, grant, and loan programs to encourage the development of clean energy in Nevada. The Office of Energy has provided six (6) Direct Energy Assistance Loans (DEAL) to state employees who live in Douglas County. The DEAL program provides up to $6,000 in loans for energy efficiency upgrades. To date, the Office of Energy has not provided any renewable energy tax abatements to Douglas County.

Douglas County has amended its development regulations during the last ten years to encourage the development of different types of renewable energy in the County. For example, the County adopted new wind energy regulations in 2007. The County also adopted regulations for solar facilities as accessory land uses. Consistent with state law, the County adopted new regulations for solar facilities as primary land uses in 2014. NRS 278.26503 requires local jurisdictions to permit renewable energy projects with nameplate capacity of at least 10 megawatts.

Subsequent to the adoption of the new ordinance to facilitate development of stand-alone solar facilities, two solar facility applications were denied by the County: one in the East Valley Community Plan and another one in the South Agricultural Community Plan. In June 2016, the County adopted a more restrictive solar facility ordinance (Ordinance 2016-1457). The new ordinance permits solar facilities with nameplate capacity of at least 10 megawatts only in the FR-40 zoning district by special use permit. In addition, the new ordinance includes new criteria to address scenic and environmental concerns about solar facilities. The solar facilities ordinance does not permit applications for solar facilities with less than 10 megawatts of nameplate capacity.

WATER

Douglas County includes 26 square miles of surface water bodies and seven different groundwater basins. The largest surface water body is Lake Tahoe and the largest groundwater basin is the Carson Valley Hydrographic Basin. The potable water supply is largely dependent on groundwater wells while irrigation water is largely dependent on surface water. Water quality is compromised from non-point sources that threaten both surface waters and underground aquifers. More information on water supply and water quality is presented below.

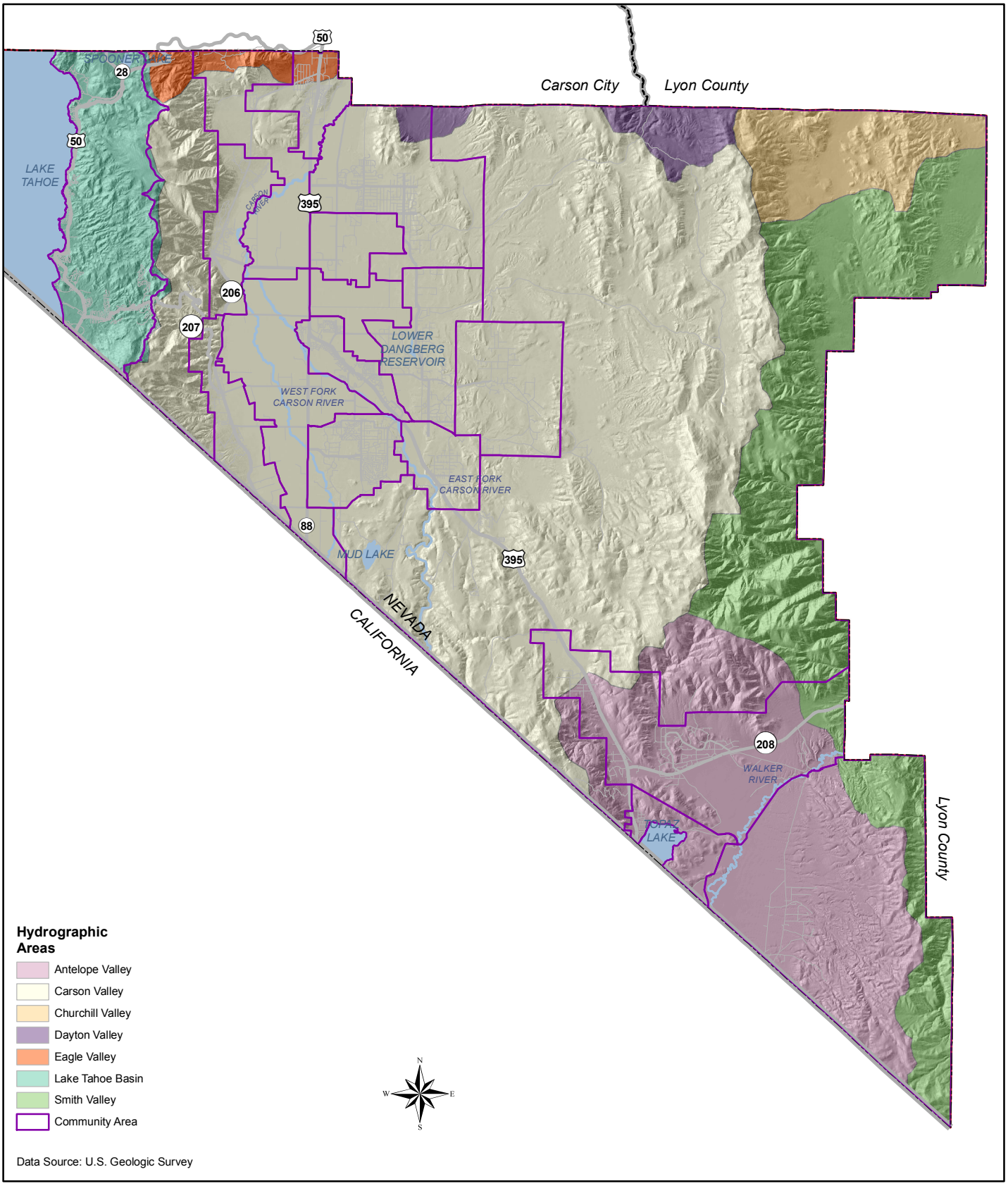
WATER SUPPLY

There are 256 hydrographic basins in Nevada and Douglas County includes portions of seven of these basins. Each basin is a geographic drainage area and considered a separate source of water. The most significant water basins in Douglas County are the Carson Valley, Lake Tahoe, and Antelope Valley basins. The County also includes small portions of the Churchill Valley, Dayton Valley, Eagle Valley, and Smith Valley water basins. Map 4 depicts the different hydrographic basins in Douglas County.

Water is considered a public good and the State of Nevada is responsible for protecting this critical resource by monitoring pumpage in the water basins and approving or denying applications for new water withdrawals, including transbasin diversions. Each groundwater reservoir provides a perennial yield. According to the State, “withdrawals of groundwater in excess of the perennial yield may contribute to adverse conditions such as water quality degradation, storage depletion, diminishing yield of wells, increased economic pumping lifts, and land subsidence.”

Water law in Nevada is based on prior appropriation (first in time, first in right) and beneficial use (e.g., irrigation, recreation, and municipal uses). All water uses in Nevada require a permit from the State Engineer except for domestic uses and uses that pre-date Nevada’s water laws, which are known as pre-statutory vested rights.

Map 4
Hydrographic Basins in Douglas County



Data Source: U.S. Geologic Survey

The water supply for Douglas County includes groundwater wells and surface water. Water is used for a variety of uses, including farm irrigation, recreation, industrial, and domestic uses. Douglas County residents obtain drinking water either through individual wells or through public water purveyors, such as Douglas County, the Town of Minden, and the Gardnerville Water Company. Additional information on water purveyors is provided in the Public Facilities and Services Element of the Master Plan.

Property owners are allowed to drill wells for domestic water without obtaining a permit from the State Engineer if they pump less than 2 acre feet of water per year (NRS 534.180). One acre foot of water covers one acre of land to a depth of one foot and is equal to 325,851 gallons.

Annual reports for each basin describe the amount of pumpage by manner of use. These annual reports also detail when the State Water Engineer has denied new appropriations. More information on water usage in the Antelope, Carson Valley, and Lake Tahoe Basins is provided below and summarized in Table 5.

ANTELOPE VALLEY BASIN

The Antelope Valley Hydrographic Basin in Nevada is approximately 115 square miles in area with most of the basin located in southern Douglas County. A small portion of the basin is in Lyon County. The Antelope Valley Groundwater Basin supplies water to residents and businesses in Topaz Ranch Estates, Holbrook Junction, and Topaz Lake. The total estimated perennial yield of the entire Antelope Valley Hydrographic Basin is approximately 6,200 acre-feet per year, including 2,600 acre-feet per year in Nevada and 3,600 acre-feet per year in California. The committed groundwater rights total 6,420 acre-feet.

In 2011, the Nevada State Engineer denied a request to appropriate additional groundwater for irrigation purposes (Ruling 6151) since the existing water rights already exceeded the estimated perennial yield of the Antelope Valley Basin. For the 2014 water year, the State of Nevada reports that an estimated 3,702 acre-feet was pumped (Nevada side only), with 3,051 acre feet, or 82.4 percent, used for irrigation purposes.

CARSON VALLEY BASIN

The Carson Valley Hydrographic Basin in Nevada is 419 square miles in area, or 444 square miles if Alpine County, California is included. A small portion of the Carson Valley Basin extends into Carson City. According to the 2013 Pumpage Report, the total pumpage was 31,612 acre feet. There are 93,444 acres feet of committed water rights for the Carson Valley Basin, including 46,630 of supplemental rights for irrigation purposes. The supplemental rights are used when the Carson River is running low and not providing enough surface water for irrigation purposes.

There are 3,622 domestic wells in the Carson Valley Basin. Wells are concentrated in the following areas: Johnson Lane (810), Sheridan Acres (411), Ruhenstroth (381), and East Valley (321). The total pumpage for domestic use was 3,644 acre feet.

During the 2013 Water Year, 3,274 acre feet of effluent was imported into the Carson Valley Basin for irrigation purposes and wetlands.

LAKE TAHOE BASIN

For the 2012 water year, 7,495 acre feet of water was pumped out of the Lake Tahoe Basin (Nevada only). Unlike the Carson Valley or Antelope Valley Basins, most of the water is used by municipal water users and not for irrigation purposes. According to the 2012 report, 6,318 acre feet was used by municipal water users, or 84.3 percent.

Table 5
Water Pumpage, by Basin & Manner of Use
(in acre feet)

	Carson Valley (2013 Water Year)	Tahoe Basin (2012 Water Year)	Antelope Valley (2014 Water Year)
Irrigation & Stockwater	12,214	519	3,051
Municipal & Quasi-Municipal	10,634	6318	293
Wildlife/Other	5,048*		
Commercial	72	35	42
Recreation		455	2
Domestic	3,644	168	314
TOTAL	31,612	7,495	3,702 AF
Perennial Yield	*49,000*	*N/A*	*2600*
Committed Water Rights	93,444	20,415	6,420 AF

Source: State of Nevada, Division of Water Resources
** Includes 4,225 acre feet for the U.S. Fish and Wildlife Lahontan Fish Hatchery.*

The future water allocations for the Lake Tahoe Basin may change due to the approval of the Truckee River Operating Agreement (TROA) on December 1, 2015. TROA establishes future Lake Tahoe and Truckee River water allocations between California and Nevada.

WATER QUALITY

Clean water regulations for the entire country were established with the 1972 Federal Water Pollution Control Act, also known as the Clean Water Act. The Nevada Division of Environmental Protection (NDEP) is responsible for implementing the Clean Water Act with oversight from the U.S. Environmental Protection Agency. The Carson Water Subconservancy District (CWDS) is the designated Clean Water Act Section 208 water quality planning body for the Carson River.

In 2007, the Carson Water Subconservancy District (CWSD) completed the Carson River Watershed Stewardship Plan. The Stewardship Plan sets forth specific water quality projects for the Carson River Watershed.

NDEP is required to submit a list of those waters which do not meet the standards of the Clean Water Act, also known as the 303(d) list of Impaired Waters. Further, NDEP is required to develop a water quality plan or total maximum daily load (TMDL) for waters on the 303(d) list. Water quality standards are established based on the beneficial uses for each waterbody, such

as irrigation, aquatic life, and recreation. TMDL plans establish pollution budgets for specific pollutants. The Carson River has TMDL plans approved in 2005 for phosphorus and 2007 for total suspended solids and turbidity. The Lake Tahoe TMDL Plan for Nevada was approved by EPA on August 16, 2011.

The 2014 Integrated Water Quality Report for Nevada provides information on the waterbody segments that are either still on the 303(d) list or else new additions to the list. The report includes assessments of 660 waterbody segments, including the Carson River, Walker River, and Topaz Lake.

There is no discharge of treated wastewater allowed into Lake Tahoe or the Carson River. Discharges into the Carson River ended in 1987. All treated wastewater in Douglas County is used as effluent for farms, golf courses, or engineered wetlands. During the 2013 water year for example, wastewater utilities such as the Incline Village General Improvement District and the Douglas County Sewer Improvement District transferred more than 3,000 acre feet of wastewater from the Lake Tahoe Basin into the Carson Valley.

Since there are no direct discharges, or "point" sources of pollution, the threats to clean water in Douglas County come from "non-point" sources, including septic tanks, stormwater runoff, and agricultural activities; and to a lesser extent, airborne deposits of dust and other aerosol pollutants. Douglas County is under the Small Area Municipal Storm Sewer System (MS4) permit for the Johnson Lane and Clear Creek areas in northern Douglas County, as approved by NDEP. As such, the MS4 permit requires minimum control measures to control non-point sources of pollution. It is expected that the coverage area for the small area MS4 permit will be expanded south to the Towns of Gardnerville and Minden. The existing MS4 permit expired in 2015, but has been administratively continued by NDEP. It is expected that the new MS4 permit will be expanded to include Gardnerville, Gardnerville Ranchos, and Minden.

Stormwater management is a strategy to improve water quality and the quantity of water that runs off impervious surfaces during storm events. As such, stormwater management is an important tool to decrease non-point source pollution. To date, the County has not adopted a county-wide stormwater management program or a dedicated funding source for stormwater management activities.

In 2012, Douglas County adopted the Community Wellhead Protection Plan as an amendment to the Master Plan. The Plan was prepared by the NDEP with the assistance of a task force of County, Town, and GID representatives. As documented in the Wellhead Protection Plan, certain land uses are known to create potential contaminants for public drinking water, such as gasoline stations. Groundwater is also threatened by nitrates caused by concentrations of septic systems. There are 6,162 individual septic systems on 5,960 parcels in Douglas County (outside of the Tahoe Basin). More information on septic systems is presented in the Public Facilities and Services Element.

WETLANDS

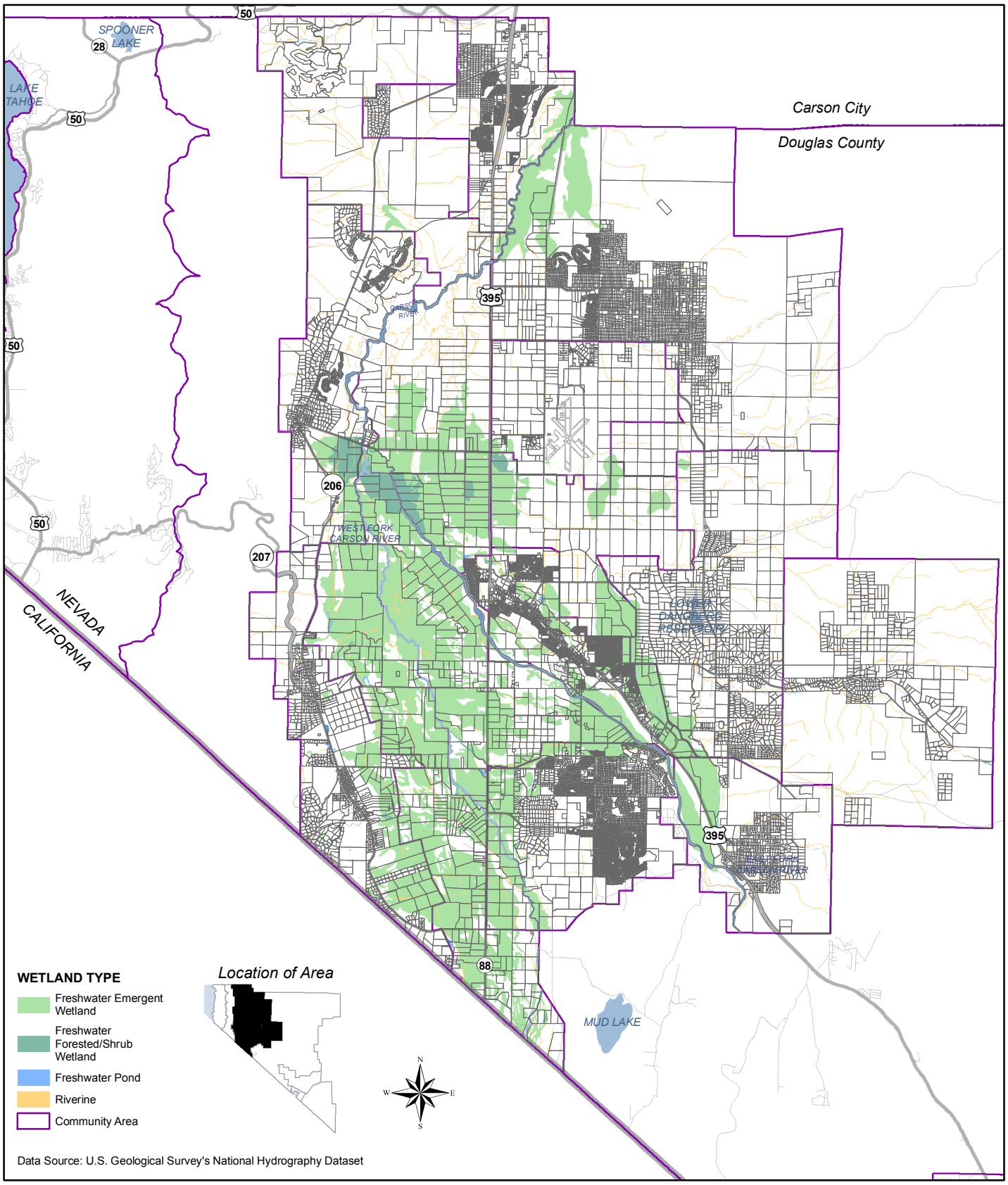
There are 2,786 acres of wetlands in Douglas County, including almost 900 acres of engineered wetlands created to handle effluent disposal for the Incline Village General Improvement District (IVGID). Wetlands are generally defined as areas that are periodically inundated with water or areas that are saturated with surface or groundwater on an annual or seasonal basis. Wetland areas provide breeding, rearing, and feeding grounds for many species of fish and wildlife. Wetland areas also provide flood protection, help to filter pollutants from stormwater runoff, and provide opportunities for passive recreation.

Photo 1
IVGID Wetlands Enhancement Facility

Source: Incline Village General Improvement District

Map 5 displays the location of different wetland types in the Carson Valley portion of Douglas County. Wetlands are classified into five different systems, subsystems, and classes. Map 5 displays the location of different classes of freshwater wetlands as well as the location of riverine areas.

Map 5
Wetlands in the Carson Valley



WILDLIFE

The Federal Endangered Species Act of 1973 protects endangered and threatened species of animals and plants. An endangered species is in danger of extinction throughout all or a significant portion of its range. A threatened species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. In Douglas County, endangered species include the Sierra Nevada Yellow Legged Frog, the Cui-ui, and the Carson Wandering Skipper. Threatened species include the Lahontan Cutthroat Trout, and Webber Ivesia. The Wolverine is proposed to be listed as a threatened species. Table 6 provides additional information on current listings of endangered and threatened species in Douglas County.

Photo 2
Carson Wandering Skipper

Source: U.S. Fish and Wildlife Service

Table 6
Endangered and Threatened Species in Douglas County

Species	Endangered	Threatened	Threats
Amphibians	Sierra Nevada Yellow-Legged Frog		Habitat destruction, disease
Fishes	Cui-ui	Lahontan Cutthroat Trout	Isolation, non-native species
Flowering Plants	None	Webber Ivesia	Urban development, OHVs and recreation use, livestock grazing and trampling, wildfire and suppression activities. There is final critical habitat designation.
Insects	Carson Wandering Skipper	None	Livestock grazing, off-road vehicle use, development, gas and geothermal development
Mammals		Wolverine is Proposed Threatened	Climate Change

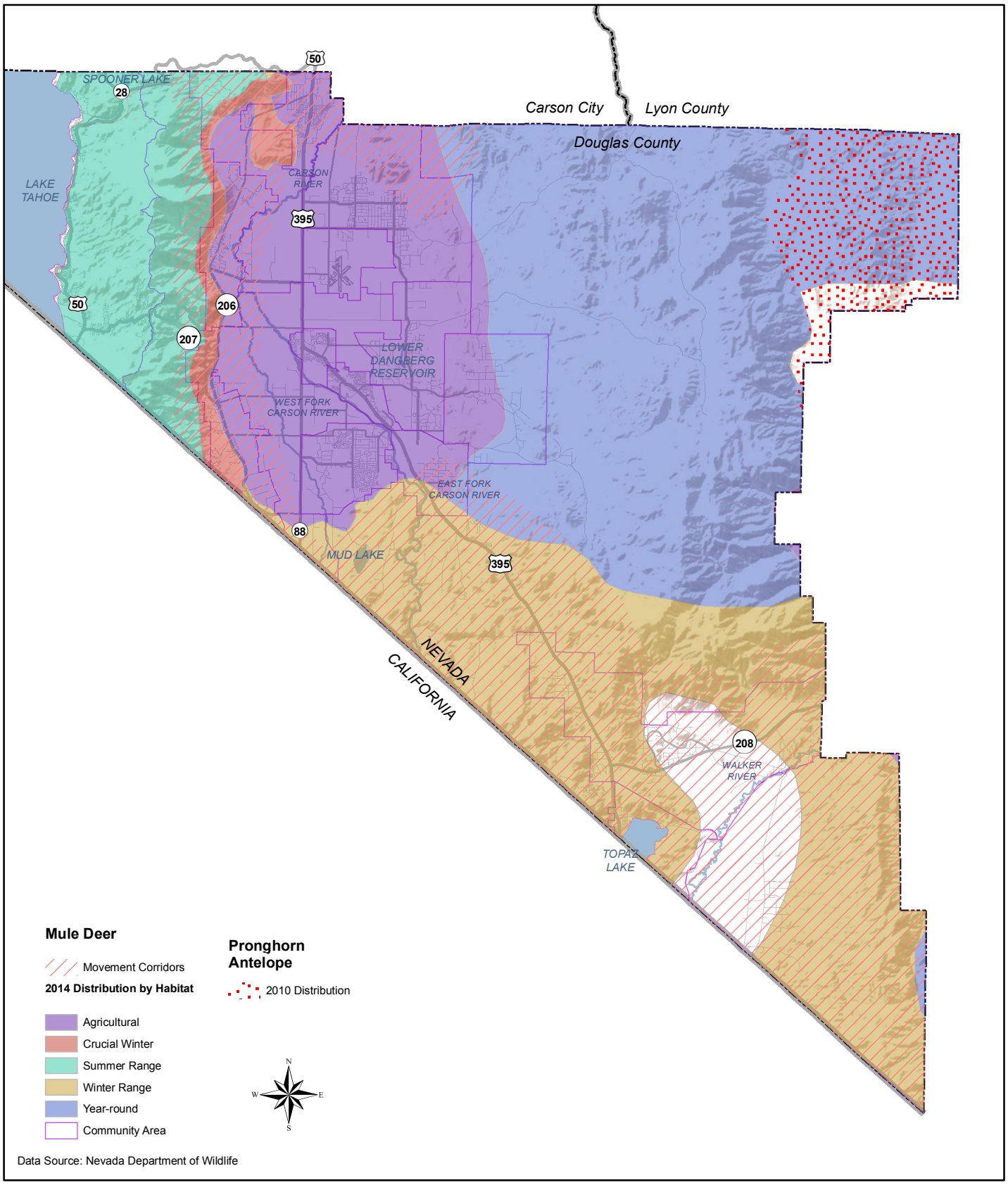
Source: U.S. Fish and Wildlife Service, Nevada Office

In 2013, the U.S. Fish and Wildlife Service proposed listing the bi-state sage-grouse distinct population segment as a threatened species under the Endangered Species Act. The U.S. Fish and Wildlife Service withdrew the Bi-State Sage-Grouse from the candidate species list in April 2015 as a result of the conservation plan spearheaded by the Governor's office. The primary threats to Sage-Grouse are wildland fires and encroachment of pinyon and juniper woodland.

The U.S. Fish and Wildlife Service operates the Lahontan National Fish Hatchery. The Hatchery is located south of Gardnerville and manages the recovery of the Cui-ui and the Lahontan Cutthroat Trout.

Map 6 displays the distribution of mule deer and pronghorn antelope in Doulas County as well as mule deer movement corridors.

Map 6
Mule Deer and Pronghorn Antelope Distribution and Movement Corridors



Data Source: Nevada Department of Wildlife

CONSERVATION ISSUES AND OPPORTUNITIES

2016 MASTER PLAN SURVEY - The 2016 Master Plan Survey asked respondents to rank 18 different topics using a scale of 1 to 5 with 5 being most important. Of 898 responses, the topic which ranked first was police and fire services with a weighted average of 4.30. Two topics tied for second place with the same score of 4.15: natural resource conservation and scenic quality.

CONSERVATION INDICATORS OR THRESHOLDS - The data on air quality, water quality, and water supply are prepared by several different state agencies but there is no central data source to understand the trends for different natural resources. Given the importance of protecting natural resources in Douglas County, it would be helpful to develop Conservation Indicators for lands outside of the Lake Tahoe Basin, similar to Truckee Meadows Tomorrow. TRPA has adopted environment threshold carrying capacities for air, water, soil and other environmental features.

ENVIRONMENTAL REVIEW – Nevada does not require any environmental review for development proposals, although legislation has been proposed in the past (e.g., Senate Bill 277 in the 2015 Legislative Session). Environmental review under the National Environmental Protection Act (NEPA) is only triggered if a project involves federal funding or federal permits. The County's new solar facility ordinance is requiring some form of environmental review but it is not well defined. It may be appropriate for the County to develop measurable environmental review criteria for either 1) Significant development proposals, and/or 2) Projects proposed in sensitive development areas. The establishment of specific environmental review criteria could include information on prime farmland soils, brownfields, geologic hazards, riparian areas, historic and cultural resources, floodplains and wetlands, threatened or endangered species, wildlife habitat and wildlife migration corridors, wellhead protection areas, and other environmental resource matters addressed in the Master Plan and other County adopted documents. It would be particularly helpful to ensure that environmental resources are integrated into the County's Geographic Information Systems for use by staff and the public.

AIR QUALITY- There are several opportunities to ensure that air quality does not worsen in Douglas County in relation to PM 2.5. Voluntary programs such as the NDEP wood stove exchange program help to retire polluting wood stoves and should be supported by the County. Similar to Washoe County, Douglas County may want to create voluntary no burn days when weather conditions are adverse and may want to monitor new wood stove installations or replacements for statistical purposes.

PROTECTION OF OPEN SPACE AND SENSITIVE AREAS – More strategies are needed to protect open space areas, including floodplains and wetlands. The County's TDR program has successfully protected almost 3,000 acres of riverine floodplain, but there have been no new conservation easements recorded since 2009. If the County were able to establish an Open Space Acquisition Program with a dedicated funding source, the County would then be able to obtain additional floodplain and wetland areas.

CLEAN WATER – Protecting surface and ground water from pollution requires controlling non-point sources of pollution. Development practices such as low-impact development (LID) or best management practices (BMPs) can help filter storm water on-site, thus removing pollutants prior to discharge into surface water bodies. Section 6.1.3.7 of the Douglas County Design Criteria and Improvement Standards Manual provides information on Low Impact Development practices, such as vegetated swales, permeable pavers, and bioretention. However, the County does not

require LID practices at the current time. The Carson Water Subconservancy District (CWSD) prepared a new report in 2015 on Low Impact Development (Low Impact Development in the Carson River Watershed). The main goal of LID, according to this report, is to "decrease the amounts of pollutants delivered to the local waterways by infiltrating stormwater on-site." The report reviews the benefits of low impact development and provides examples of LID projects in Reno and Carson City. Both Reno and Washoe County now require LID practices. Carson City is currently preparing a LID ordinance in conjunction with the update of the Carson City Stormwater Management Plan. All Property owners in the Tahoe Basin are already required to install LID practices as part of the TRPA Best Management Practices Program.

Agricultural practices can also contribute to non-point source pollution. Pollution from pesticides, livestock manure, and overgrazing near streambeds can all degrade water quality. To protect public health and safety, the County should work with farmers and ranchers to practice agricultural best management practices (BMPs) such as waste management practices and expanded setbacks along streams. Improving water quality in the Carson River will benefit all residents and property owners and will help restore aquatic life in the river and facilitate development of recreation activities.

Douglas County can pursue grant funding for water quality improvement projects through the EPA 319 program as well as the NRCS watershed initiatives. The Carson River Watershed Stewardship Plan was prepared by the Carson Water Subconservancy District in 2007 and is currently being updated. Completion of an updated Stewardship Plan will allow CWSD jurisdictions to have 100% access to EPA 319 funding (although a 50 percent match is required). The NRCS watershed initiative is providing $33 million to Churchill County for watershed improvements along the Carson River.

Municipal water supplies can be threatened by specific types of land uses, as documented in the Douglas County Community Wellhead Protection Plan. The Community Wellhead Protection Plan, as adopted in 2012, presents an opportunity for the County to take additional measures to protect groundwater wells.

CONSERVATION GOALS, POLICIES, AND ACTION

The following goals, policies, and actions for the Douglas County Conservation Element set forth priorities to protect natural resources in the next five to ten years.

CONSERVATION GOAL 1

TO PROTECT SURFACE WATER QUALITY IN THE COUNTY FROM THE EFFECTS OF GROWTH, URBANIZATION, AND AGRICULTURAL PRACTICES.

Conservation Policy 1.1	Require development to incorporate storm drainage facilities that reduce urban run-off pollutants within the site or as part of a regional facility.
Conservation Policy 1.2	Assist in the provision of a regular cleaning program for County, District, and Town maintained underground drainage systems.
Conservation Policy 1.3	Cooperate with private and public agencies to protect water quality throughout the region.
Conservation Policy 1.4	Douglas County will support implementation of the updated CWSD Carson River Watershed Stewardship Plan.
Conservation Action 1.1	**Prepare a Low Impact Development Ordinance for all new residential, commercial, and industrial development to reduce pollutants from entering surface waters in Douglas County.**
Conservation Action 1.2	**Revise development code regulations to eliminate or ameliorate harmful agricultural practices that contribute to surface water pollution, including waste management practices.**
Conservation Action 1.3	**Work with NDEP and the Carson Water Subconservancy to remove one or more river segments from the EPA list of 303 (d) impaired waters.**

CONSERVATION GOAL 2

TO IMPROVE EXISTING DRAINAGE AND PREVENT FUTURE DRAINAGE PROBLEMS FROM OCCURRING.

Conservation Policy 2.1	The Water Conveyance Advisory Committee will continue to review development proposals that could impact irrigation facilities.
Conservation Policy 2.2	Continue to participate in watershed management with agencies such as the Upper Carson River Watershed Management Committee and the Carson Water Subconservancy District.

Conservation Policy 2.3	Drainage facilities on U.S. Highway 395 at Smelter Creek, south of Gardnerville and from Minden north to Cradlebaugh Bridge, should be expanded and improved at every opportunity.
Conservation Action 2.1	**Douglas County shall develop comprehensive storm drainage design criteria for developed areas in conjunction with the Towns and GIDs.**

CONSERVATION GOAL 3

TO PROTECT FLOODPLAINS AND WETLANDS FOR THEIR VALUES FOR GROUNDWATER RECHARGE, FLOOD PROTECTION, SEDIMENT AND POLLUTION CONTROL, WILDLIFE HABITAT, AND OPEN SPACE.

Conservation Policy 3.1	Any development proposed within the Corps of Engineers Designated 404 Wetland Areas must meet the requirements specified by the Corps of Engineers and Fish and Wildlife Service or other jurisdiction and agencies. A copy of the 404 Permit, along with conditions, must be provided to Douglas County for incorporation into their files.
Conservation Policy 3.2	Douglas County may review the potential for wetland mitigation banking to allow for replacement of wetlands.
Conservation Policy 3.3	Wetlands shall be protected to provide for groundwater recharge, flood protection, sediment and pollution control, wildlife habitat, and open space.
Conservation Action 3.1	**Develop an Open Space Acquisition Program for voter approval before the next Master Plan Update to acquire floodplain and wetland areas in the County for floodplain storage, aquifer recharge, wildlife habitat, open space and recreation purposes, either by fee simple, conservation easements, or purchase of development rights.**

CONSERVATION GOAL 4

TO PROTECT POTABLE WATER SUPPLIES, LIMIT NON-POINT SOURCE IMPACTS ON GROUNDWATER QUALITY, AND PROMOTE A REGIONAL APPROACH TO AQUIFER MANAGEMENT.

Conservation Policy 4.1	Development shall be designed so as to minimize the amount of newly created impervious surfaces. Open spaces and landscaped areas shall be encouraged.
Conservation Policy 4.2	Historic drainage patterns shall be utilized and pre-development run-off rates and volumes shall be maintained except as planned as a part of a regional drainage plan.
Conservation Policy 4.3	Development occurring at urban densities shall be serviced by a sanitary sewer utility.

Conservation Policy 4.4	Industrial uses shall implement spill containment and management systems consistent with current best management practices. Industrial uses shall be encouraged to develop and implement on-going monitoring promicrograms aimed at reducing the potential for impacts to groundwater quality.
Conservation Policy 4.5	The County shall participate in the development of an interjurisdictional approach to protect critical aquifer recharge areas. Additional hydrogeologic and groundwater contamination vulnerability studies shall be conducted to better understand groundwater movement, locations of significant aquifer resources, and the potential for groundwater contamination.
Conservation Action 4.1	**The County shall prepare a Community Wellhead Protection Zoning Overlay District to protect sourcewater from pollution sources associated with incompatible land uses.**

CONSERVATION GOAL 5

TO PROTECT THE FUNCTIONS AND VALUES OF SURFACE WATER SYSTEMS, WHICH INCLUDE FISH AND WILDLIFE HABITAT, AQUIFER RECHARGE AND DISCHARGE, AND RECREATIONAL OPPORTUNITIES.

Conservation Policy 5.1	Disposal of untreated wastewater, disposal of solid waste, and creation of unstable fills which are inappropriate to the function of surface water systems or which may result in water pollution shall not be permitted.
Conservation Policy 5.2	Activities which interfere with an aquatic system's function as a defined groundwater recharge area shall not be permitted.
Conservation Policy 5.3	Activities which cause an increase in the intensity, duration of frequency of water level fluctuations within surface water systems should not be permitted unless part of exempted agricultural practices.

CONSERVATION GOAL 6

TO IMPROVE WATER QUALITY BY REDUCING THE NEGATIVE IMPACTS OF STORMWATER RUNOFF AND INCREASE BEST MANAGEMENT PRACTICES FOR NEW DEVELOPMENT AND REDEVELOPMENT.

Conservation Policy 6.1	The County shall encourage maintenance of historic stormwater discharge rates and volumes into surface water systems or provide improvements to reduce impacts.
Conservation Policy 6.2	The County shall promote the utilization of best management practices including state-of-the-art stormwater management

techniques, which ensure maintenance or improvement of the quality of the water entering surface water systems from stormwater drainage systems.

Conservation Action 6.1 **Develop a funding source to develop and implement a stormwater management plan for the Carson Valley.**

Conservation Action 6.2 **Implement the Clear Creek and Johnson Lane Stormwater Management Plans as required by the MS4 NPDES permit.**

Conservation Action 6.3 **Develop a program for inspecting and maintaining storm water runoff facilities in the public right-of-way and in parking lots to protect the quality of water that is conveyed into irrigation ditches, and other conveyances.**

CONSERVATION GOAL 7

TO COORDINATE A REGIONAL APPROACH TO WATER RESOURCE DEVELOPMENT AND MANAGEMENT.

Conservation Policy 7.1 The County shall facilitate coordinated development of goals, policies and programs for water resource management in Douglas County working with agencies such as the Carson Water Subconservancy District, the GIDs, Towns, Washoe Tribe, and other appropriate water purveyors.

CONSERVATION GOAL 8

TO MAINTAIN GROUNDWATER WITHDRAWALS AT, OR PREFERABLY, BELOW THE LIMITS PRESCRIBED BY THE STATE ENGINEER FOR THE CARSON VALLEY AND ANTELOPE VALLEY GROUNDWATER BASINS TO PROTECT OR MANAGE THE COUNTY'S GROUNDWATER RESOURCES.

Conservation Policy 8.1 Existing non-supplemental groundwater rights should be obtained for quasi-municipal use when such rights become available.

Conservation Policy 8.2 Water conservation programs should be developed and instituted as necessary measures to reduce municipal demands.

CONSERVATION GOAL 9

DOUGLAS COUNTY SHALL BEGIN EVALUATION OF WATER RESOURCE ALTERNATIVES TO SUPPLEMENT THE GROUNDWATER SUPPLY FOR FUTURE QUASI-MUNICIPAL USE.

Conservation Policy 9.1 Treated effluent will be used to replace supplemental and non-supplemental groundwater pumped for irrigation purposes where feasible.

Conservation Policy 9.2	The County should review and evaluate the recommendations and alternatives contained in the report "Potential for and Possible Effects of Artificial Recharge in Carson Valley, Douglas County, Nevada."

CONSERVATION GOAL 10

TO MAINTAIN OR IMPROVE EXISTING AIR QUALITY.

Conservation Policy 10.1	Encourage techniques to reduce the generation of fugitive dust resulting from agricultural activities. Such techniques may include vegetative cover, windbreaks, improved tillage practices, and other means.
Conservation Policy 10.2	Promote reduced wood burning by encouraging use of solar and geothermal resources and the use of other energy-efficient strategies.
Conservation Policy 10.3	Support continuation of the NDEP Wood Stove Change-Out Program and continue to promote the program throughout the County.
Conservation Policy 10.4	The County will require all new wood stoves to comply with EPA standards.
Conservation Action 10.1	**Pursue cost effective air quality management strategies that contribute to improved local and regional air quality.**
Conservation Action 10.2	**Establish standards for roadway surfacing and maintenance which reduce dust generation.**

CONSERVATION GOAL 11

TO PROTECT DOUGLAS COUNTY'S SENSITIVE WILDLIFE AND VEGETATION IN RECOGNITION OF THEIR IMPORTANCE AS COMPONENTS OF THE COUNTY'S QUALITY OF LIFE.

Conservation Policy 11.1	Douglas County shall protect environmentally sensitive and habitat areas that serve valuable ecological functions by limiting their development or by requiring mitigation of adverse impacts resulting from development.
Conservation Policy 11.2	Douglas County shall work with the USFS, BLM, and Nevada Department of Wildlife to retain and enhance the viability of deer and pronghorn antelope seasonal habitats and migration corridors.
Conservation Policy 11.3	Douglas County shall support efforts to manage the county's rivers and streams to maintain or enhance the existing riparian ecosystems to maintain and/or improve wildlife habitat for all species.

Conservation Action 11.1	**Douglas County shall establish development regulations, land use restrictions, and development design guidelines to minimize potential impacts of new development to sensitive species, including known migration routes.**

CONSERVATION GOAL 12

TO ENCOURAGE THE EFFICIENT USE OF AVAILABLE ENERGY RESOURCES AND TO PROVIDE INCENTIVES FOR ENERGY CONSERVATION IN CONSTRUCTION.

Conservation Policy 12.1	The County shall support the development of non-polluting renewable energy sources, such as solar, wind and geothermal energy, through the provision of appropriate land use designation and development regulations, which provide for on-site and off-site use of these energy resources
Conservation Policy 12.2	The County shall encourage incorporation of energy conservation features in the design of all new construction and substantial rehabilitation projects, both public and private.
Conservation Policy 12.3	The County should encourage development which utilizes geothermal, solar, wind, biomass and other alternative energy resources that are compatible with the environment.
Conservation Action 12.1	**The County will investigate the feasibility of draft green building code regulations and will include incentives in Title 20 to increase green building construction.**
Conservation Action 12.2	**To improve energy efficiency and reduce the cost of operating the County's buildings, prioritize and fund projects recommended in the Douglas County Energy Audit (2011) in the CIP.**

CONSERVATION GOAL 13

TO MINIMIZE NOISE LEVELS THROUGHOUT THE COUNTY AND, WHEREVER ECONOMICALLY FEASIBLE, MITIGATE THE EFFECTS OF NOISE TO PROVIDE A SAFE AND HEALTHY ENVIRONMENT.

Conservation Policy 13.1	The County shall avoid locating noise sensitive land uses such as hospitals, schools, and homes in existing and anticipated noise impact areas. The County shall work with the Minden-Tahoe Airport as part of the development review process to determine where aviation easements are necessary.
Conservation Action 13.1	**The County will prepare noise standards for noise generating activities, including limitations on hours of operation within the day.**

Conservation Action 13.2	**The County will complete a Part 150 Noise Study before the next five-year update of the Master Plan and adopt an Airport Zoning Overlay District to prohibit noise sensitive land uses within the vicinity of the Minden-Tahoe Airport.**

CONSERVATION GOAL 14

TO INCREASE AWARENESS OF THE CONDITION OF NATURAL RESOUCES IN DOUGLAS COUNTY AND PREVENT FURTHER DEGRADATION OF NATURAL RESOURCES.

Conservation Policy 14.1	Douglas County shall increase public awareness of natural resource conditions in the County.
Conservation Action 14.1	**Douglas County will revise master plan and zoning map amendment applications to require the applicant to address all elements of the Master Plan in relation to each proposal, particularly the Conservation Element.**