



**CHAPTER 8:
Environmental Resources & Conservation Element**

Introduction



Douglas County contains high mountain ranges, such as the Carson Range of the Sierra Nevada, as well as low lying agricultural and range lands that are subject to flooding from rivers and snow melt. The County is subject to flash floods as well as earthquakes due to the existence of the Genoa Fault, which runs along the foothills. With the growth of population, the County and its unincorporated Towns have endeavored to secure additional water while also meeting federal regulations concerning water quality. Many of the environmental issues require regional cooperation in order to be successful, such as development practices in the Carson River watershed.

The Environmental Resources and Conservation Element describes the issues related to the natural environment in Douglas County and measures needed to protect these resources and to also protect public health and safety. This Element identifies current issues regarding air quality, energy resources, floodplain management, water quality and water quantity, and other natural resources, and includes the related goals, policies, and actions to address these issues.

More detailed information on existing environmental conditions, including maps of soils, floodplains, and steep slopes, are located in Volume II of the Master Plan.

Issues

Air Quality

The Nevada Division of Environmental Protection (NDEP) Bureau of Air Quality Planning (BAQP) operates an ambient air quality monitoring network of gaseous and particulate pollutant monitors. The monitors are located in small communities throughout rural Nevada. There is one monitoring station in Douglas County designed to monitor the highest concentrations of carbon monoxide (CO) at Lake Tahoe. The station is located at Stateline, on Harvey's Resort Hotel. There is a second monitoring station in Douglas County that monitors for particulate matter less than or equal to 10 micrometers in diameter (PM₁₀) concentrations, fine particulate matter less than or equal to 2.5 micrometers in diameter (PM_{2.5}) concentrations, and ground level ozone (O₃) on Lyell Way in Aspen Park in the Gardnerville Ranchos.

The NDEP BAQP's Nevada Air Quality Trend Report 1998-2009 dated January 2011 states that ambient concentrations of PM_{2.5} have trended upward in Gardnerville and are approaching the National Ambient Air Quality Standards (NAAQS) limits. BAQP is in

the process of analyzing samples to determine the cause(s) of the elevated levels. Some of the principal reasons may include road treatment during the winter months as well as wood burning stoves. Natural fires may also cause elevations in PM_{2.5}.

It should be noted that the U.S. Environmental Protection Agency (EPA) is actively reviewing and revising several of the NAAQS. Generally, these reviews are resulting in revised standards that are more stringent. More stringent standards may affect the future attainment status within Nevada's 15 Rural Counties and will increase the possibility that Douglas County will be found to be in a non-attainment area for PM_{2.5} and would be in violation of the NAAQS. As a result, BAQP may be required to expand the State's monitoring network.

Energy Resources

Nevada's Renewable Energy Portfolio is one of the most aggressive in the Country. The State encourages utilities to build, or purchase electricity from, renewable energy projects and by 2025 will require all applicable utilities to have 25 percent of their production come from renewable energy. In Douglas County, solar arrays, wind energy conversion systems, and geothermal systems have and continue to be installed for commercial, institutional, and residential uses. Along with the State of Nevada, the development of these renewable energy resources is expected to increase in the coming years. The challenge for Douglas County is going to be having provisions in place that promote the development of renewable energy, as well as the latest technological advances, but that also protect the public health and safety, scenic vistas, and the rural lifestyle enjoyed by County residents.



In response to Nevada Assembly Bill (AB) 236, a statute that encouraged the use of straw bale construction, solar power, and wind energy conversion systems, Douglas County Code was amended in 2007 and again in 2010. The main issue was with the location and size of wind energy conversion systems. Ultimately, provisions were put in place to promote wind energy, while still ensuring that they are appropriately located, sized, and do not negatively impact the public.

The State of Nevada has high geothermal potential. The Great Basin Center for Geothermal Energy at the University of Nevada, Reno, has been established to further explore and identify geothermal resources in Nevada. A geothermal system has been installed by the County to heat the Historic Courthouse in Minden. This has reduced the average gas bill from approximately \$2,000 to \$35 dollars a month. The County may want to consider adopting renewable energy standards or performance goals to promote the use of renewable energy as a part of the County's operation.

In 2009, the Public Works Department conducted an internal audit of County buildings and as a result adjusted all the run times on heating, ventilating, and/or air-conditioning (HVAC) units, installed automatic light sensors in restrooms for light and water, changed all the street lights from high pressure sodium to light emitting diodes (LED), replaced all of the County light fixtures with florescent light bulbs, and installed a system to control the run time of lighting. With these upgrades and new energy efficient practices, the County has reduced the annual electrical utility budget by approximately \$100,000 a year. The County may want to consider allocating these cost savings towards new energy efficient projects in order to further increase our energy efficiency and fund the projects outlined in the Douglas County Energy Audit.

The Douglas County Energy Audit, dated November 1, 2011, includes specific recommendations for County buildings, such as improving insulation, replacing glass, retrofitting lavatory faucets, and replacing HVAC equipment. The audit also includes the projected payback time for retrofits (the cost of a project divided by energy savings per year), which will help the County prioritize projects in the CIP. Ultimately, implementing the recommended projects will help the County achieve its financial goals as well as demonstrate its commitment to renewable energy and conservation.



To create private incentives for renewable energy systems, the County has granted a 50% discount on all building related fees. Furthermore, the County will be recommending the adoption of portions of the International Building Code - Green Building Code during 2012.

The Community Development Department has recognized issues with the Development Code, Section 20.690.030T, as it relates to property development standards for solar energy, which require wall-mounted and ground-mounted solar panels to be screened from public view. This standard has created problems for property owners because it sometimes requires extensive landscaping or fencing to screen solar panels. In addition, neighboring property owners have submitted complaints to the County because these panels and the ground mounted stands can be unsightly. The standard does not allow the County to require any additional screening if the solar panels are screened from public view. The public view is considered to be from a public right-of-way and not from a private residence. This issue will need to be explored with the next update to the Development Code.

Fire Hazards

Natural and manmade fires continue to pose significant challenges to Douglas County. Many wildfires impact the Pinenut Regional Plan area, which includes the Washoe Tribe Pinenut Allotments, as well as the Topaz, Tahoe, and Sierra Regional Plan areas. During

2011, there were two large wildfires in Douglas County, including the Ray May fire which burned 2,895 acres in the Pinenut Mountains and Holbrook Fire in Topaz. The Gondola Fire in the area of Heavenly Ski Resort in 2002 and the Angora Fire in South Lake Tahoe in 2007 have increased the public's concern over the threat of catastrophic wildfire in both the Sierra and Tahoe Regional Plan areas.

The cost of fighting wild land fires continues to go up. For example, the East Fork Fire and Paramedic Districts (EFFPD) entered into a two party cost share agreement with the BLM to cover the cost of the Ray May Fire. Unfortunately, the EFFPD costs are still expected to exceed a quarter of a million dollars. Thus, the high costs associated with controlling fires, along with the threat to public health and safety and potential loss of structures, provides strong justification for supporting the Nevada Fire Safe Council's efforts to create defensible space on private property and for forest fuels reduction projects on federal, state, and tribal lands. With the significant reductions taking place in federal, state, and local budgets, the issue is going to be keeping funding for programs aimed at preventing fires in the coming years.

Floodplain Management

Floodplain management remains a significant issue for residents and property owners in Douglas County. As of 2010, there are 34,068 acres of land within the special flood hazard areas (100 year floodplain) in Douglas County, or 7.5% of the total land area of Douglas County. Of the 34,068 acres in the primary floodplain, 28.8% is already developed.



Douglas County has had floodplain regulations since 1974 and also participates in the National Flood Insurance Program (NFIP) Community Rating System (CRS) in order for property owners to acquire discounted flood insurance. As a participating community, the County must follow the Federal Emergency Management Agency (FEMA) regulations at a minimum for the permitting of construction within the special flood hazard areas. At a FEMA audit in the spring of 2007, Douglas County was informed of deficiencies in the County's floodplain management process as it relates to construction and inspection, such as the correction/clarification of elevation certificates on file or clarifying plans and specifications for FEMA. The audit also required the County to amend the floodplain management ordinance to ensure consistency with FEMA regulations. As a result, the County initiated a number of public workshops regarding proposed changes. After several readings of the ordinance, the Board of Commissioners adopted an updated Chapter 20.50, Floodplain Management, in October 2008. The revised language was reviewed and accepted by FEMA staff to ensure consistency with FEMA regulations.

In June 2008, a NFIP CRS audit was completed. Following completion of the audit, the County was able to maintain a rating of six, which provides a 20 percent reduction in flood insurance costs for Douglas County residents. The modifications made to the Community Development Department's floodplain management program and the information submitted to NFIP annually should keep the County's rating at the same level.

In August 2008, Douglas County adopted the Carson River Watershed Regional Floodplain Management Plan. The Plan was also adopted by other jurisdictions along the Carson River, including Carson City, Lyon County, Churchill County, and Alpine County, California. The Plan's objectives relate to floodplain management strategies that will reduce flood damage. The Carson Water Subconservancy District is responsible for submitting an annual progress report. Douglas County is required to evaluate its progress in implementing the objectives of the Floodplain Management Plan.

In 2008, FEMA updated the Flood Insurance Rate Maps (FIRM) used by the County in determining flood zone information for several eastern Carson Valley Basins (Buckbrush Wash, Johnson Lane Wash, Buckeye Creek, etc.), which changed the flood zone for approximately 5,000 parcels in the valley. In July 2008, the County hired a consultant to complete a peer review of the technical analysis prepared by FEMA. The consultant determined that the analysis by FEMA includes improper modeling methods and inaccurate data. As a result, the County appealed the modeling methods and data used to develop the FIRMs to FEMA. In July 2009, the County was advised by FEMA that they had rejected the appeal and the maps would go into effect on January 20, 2010. As a result, the County initiated public outreach through mailings, posting notices in newspapers, and holding workshops. Homeowners with mortgages that were moved into a flood zone were required to obtain flood insurance.

In 2010, the county filed suit against FEMA on the remapping. In July 2011, FEMA and the County agreed to submit data to a Scientific Resolution Panel (SRP) which will then make a recommendation to the FEMA administrator's designee. Both FEMA and the County have agreed to be bound by the decision that comes from the SRP process, which is yet to be completed.

Noise

It is important to ensure that noise does not negatively impact any residential community or the rural lifestyle enjoyed by the residents of Douglas County. As a result, Douglas County Code prohibits exterior noise levels from exceeding 65 Continuous Noise Event (CNE) exterior and 45 CNE interior in residential areas. Furthermore, the code requires residential developments to incorporate the standards to mitigate noise levels, such as providing distance between a noise source and receiver and locating land uses not sensitive to noise, which include but are not limited to parking lots, garages, maintenance facilities, and utility areas, between a noise source and a receiver.

Seismic Activity

The Genoa Fault, which runs north/south along the foothills of the Sierra Nevada mountains, is the most active fault in the State of Nevada. The Douglas County Geographic Information Systems (GIS) Department maintains a fault map, which gives staff an indication of where fault lines may be located. In addition, applications for new land division, and in some cases site improvement permits and building permits, are required to include a Geotechnical (Soils) Engineering Report that meets the requirements of Division 3 in the Design Criteria and Improvement Standards (DCIS) manual. A report is required to indicate the presence of geologic hazards (including faults) and provide construction recommendations. Furthermore, all new buildings are required to comply with the provisions of the International Building Code (IBC), including earthquake safety requirements.

There has been an issue with requiring a Geotechnical (Soils) Engineering Report with tentative parcel map applications. Many applicants have complained that the cost of the report is a financial hardship. As a result, staff is considering requiring a hazard map at the tentative map stage. A hazard map would show all potential hazards on and around the vicinity of a site. If a hazard map identified an issue of concern, staff would be able to condition that a Geotechnical (Soils) Engineering Report be submitted with the site improvement permit, which is required prior to final map submittal.

Water Quality

Water Quality issues in Douglas County relate to protecting the quality of water below the ground as well as the surface water that travels into the rivers and streams. More specifically, water quality issues are focused on stormwater management, addressing arsenic and nitrate concentrations in groundwater, and development of a wellhead protection program.

Storm Water Management

Storm water drainage systems are an integral part of the development process. A successful drainage system provides a communal benefit by allowing storm water from heavy downpours and snow melts to be directed into natural or man made water bodies allowing excess water to drain away from developed areas and prevent flooding. The problem is the storm water collects and transports pollutants from developed areas as well as agricultural operations and deposits the pollutants into the County's water bodies. The polluted water often carries oil and grease, pesticides, construction sediment, and trash. When these pollutants are carried into rivers and streams by a storm sewer system discharge, the waterways become impaired, which results in the contamination of drinking water and the degradation of natural ecosystems. During the last twenty years,

federal Clean Water Act regulations have been adopted to reduce the amount of polluted storm water runoff that flows into municipal storm sewer systems.

Since 2002, these regulations have been applied to small municipal separate storm sewer systems (Small MS4's). Storm drainage is regulated through Douglas County Code and Division 6 of the DCIS manual. In more urbanized areas, such as Minden and Gardnerville, storm water is conveyed into storm sewer systems, maintained by either the County or Towns, as well as irrigation ditches. In more rural areas, storm water is primarily conveyed into irrigation ditches. Ultimately, storm water in the Carson Valley Regional Plan ends up in the Carson River. Any proposed development that could directly impact an existing irrigation facility is required to be reviewed by the Water Conveyance Advisory Committee (WCAC).

The WCAC has expressed a concern with the continued maintenance that is required of irrigation facilities to ensure drainage does not become impaired by overgrown vegetation or litter. At the present time, the majority of irrigation facilities are maintained by agricultural users. The WCAC's concern is that if agricultural operations continue to decline, there will be no routine maintenance of irrigation ditches and they will eventually stop transporting water. Furthermore, the WCAC has discussed the need for the County to inspect and maintain storm water facilities, such as sand oil interceptors, culverts, road side ditches, detention ponds, and pipes, in the public right-of-way and in parking lots in order to protect the quality of water that is conveyed into irrigation ditches. This issue has yet to be addressed by the County.

Since 2002, Douglas County has been subject to the Small MS4 General Permit as the County has areas included in the State of Nevada urbanized area map. The Indian Hills General Improvement District was also subject to the Small MS4 General Permit for the same reason. In 2003, Douglas County adopted the Carson Area Metropolitan Planning Organization (CAMPO) Stormwater Management Plans for Johnson Lane and Clear Creek. The General Discharge Permit allows discharges from these areas into the waters of the United States under the National Pollutant Discharge Elimination System (NPDES). The MS4 permit requires that Douglas County implement six minimum control measures to reduce the discharge of pollutants to the maximum extent practical. The County is in the process of rewriting the Clear Creek and the Johnson Lane Storm Water Management Plans to be completed by December 2011. The new MS4 permit expires in July 2015. Douglas County, through its Public Works Department, is required to submit annual reports to the Nevada Division of Environmental Protection (NDEP), Bureau of Water Pollution Control.

The Douglas County Engineer proposed a utility rate structure in 2009 to help pay for a stormwater management plan and implementation strategies. The proposed plan was considered during a number of workshops and stakeholder groups. Due to other strategic priorities, staff has not pursued a program. At this time, there is no funding source to either develop or implement a stormwater management plan to address these issues.

In the Lake Tahoe Basin, stormwater management will be addressed as part of the Lake Tahoe Total Maximum Daily Load (TMDL) Program. As discussed in more detail in the Tahoe Regional Plan in the Land Use Element, funding this program is going to be extremely expensive and is an issue of concern.

Low Impact Development

Currently, the Douglas County Design Criteria and Improvement Standards (DCIS), Part II, Section 6.1.4.7, encourages, but does not require, low impact development (LID) standards. LID is a land planning and engineering design approach to managing storm water runoff. LID emphasizes conservation and use of on-site natural features to protect water quality. This approach implements engineered small-scale hydrologic controls to replicate the pre-development hydrologic regime of watersheds through infiltrating, filtering, storing, evaporating, and detaining runoff close to its source. Many jurisdictions have found that LID is more cost-effective than traditional practices, such as detention ponds and retention basins, and can help to meet water quality goals by recharging groundwater through infiltration. The Nonpoint Education for Municipal Officers (NEMO) Nevada offers many examples of LID practices that could be implemented in Douglas County.

Arsenic and Nitrate

Douglas County continues to participate in activities with the Carson Water Subconservancy District (CWSD) to address water resources and management planning. This includes ongoing water quality studies (nitrogen budget), project funding and system modeling. The CWSD continues to participate in the development of options to meet arsenic standards. Planning efforts have resulted in completion of the water line in March 2009 to connect the East Valley Water Systems with the Town of Minden and work on the North Douglas County – Carson City Water Line Inter-Tie Project to connect north Douglas County, the Indian Hills General Improvement District, and Carson City to the Town of Minden water supply to address arsenic standards. The County has also completed an alternative analysis to connect the Fairgrounds/Sunrise Estates Facility to the Town of Minden and continues planning to address arsenic and nitrate issues in the neighboring Ruthenstroth community.

Concerns with groundwater degradation due to inadequate treatment of wastewater from septic systems or high concentrations of septic systems continues to be an issue of concern for the County and State. One of the areas of concern is the Ruhenstroth community because it is currently on wells and septic systems with a diminishing supply of water quantity and reduced water quality. The extension of a waterline to the Fairgrounds/Sunrise Estates Facility would allow the possibility of the Ruhenstroth community connecting to a public water system in the future. However, it is anticipated

that the cost of doing so would be extremely high. There are also a number of people in the community opposed to connecting to the County's water system.

The Johnson Lane community also has a high concentration of wells and septic systems. The County recently installed a new water tank in the Johnson Lane community as part of the North Douglas County – Carson City Water Line Inter-Tie Project. However, at this time the County has no plans to require properties on wells to connect to the County water system. Grants to help pay to connect properties to public water systems are not as readily available as they have been in the past.

Wellhead Protection

In 2009, the Board of Commissioners approved participation in the State of Nevada's Integrated Source Water Protection Program (ISWPP), a voluntary program undertaken to prevent the pollution of community drinking water sources, including ground water, lakes, rivers, springs, and streams. The Draft Douglas County Community Wellhead Protection (CWHP) Plan was prepared, with guidance from local public water service (PWS) providers, state agencies, and United States Geological Survey (USGS), under the guidance of the ISWPP, to provide a framework for the long-term protection of public drinking water supply sources (consisting mainly of ground water) throughout the Carson Valley, Holbrook Junction, and Topaz areas. It is anticipated that the plan will be presented before the Board of Commissioners for formal adoption in 2012.

Water Quantity

Douglas County is involved in other on-going water projects including work with the CWSD and USGS on the Carson Basin water budget study and the development of a ground water numeric model. This is an ongoing study that will span several years. USGS is working on various pumping scenarios and preparation of a report scheduled to be issued in 2012.

The most recent annual and historic water pumpage and ground water rights figures for Carson Valley are provided by the Division of Water Resources in the *Carson Valley (Hydrographic Basin 8-105) Groundwater Pumpage Inventory Water Year 2010*. This report is updated on an annual basis. In 2010, the committed groundwater rights totaled 96,326 acre-feet for the water year (October 1, 2009 through September 30, 2010). The total estimated groundwater pumpage in 2010 was 25,786 acre-feet, which represents approximately 27% of the committed groundwater resources. Figure 8.1 provides more information on the permitted usage as well as the actual usage for each category during the 2010 Water Year.

Figure 8.1
Carson Valley Groundwater Pumpage Inventory for 2010 Water Year, by Category

Category	Permitted Usage (Acre-Feet)	Actual Usage (Acre-Feet)	Percentage of Pumpage by Manner of Use
Irrigation	52,007*	8,708	33.77 %
Municipal/Quasi-Municipal	34,578	10,550	40.92 %
Commercial	164	60	.23 %
Stockwater	408	142	.55 %
Domestic	31	3,690**	14.31 %
Other	9,138	2,635	10.22 %
TOTAL	96,326	25,786	100%

*Includes 48,600 acre-feet of supplemental surface water rights for agricultural purposes (this figure is part of the total irrigation figure, not in addition to).

**Includes 3,670 exempt domestic wells.

Records of the State Engineer indicate approximately 3,670 domestic wells existed in the Carson Valley during water year 2010. The highest concentrations of domestic wells are in Johnson Lane with 917 wells, followed by Sheridan Acres with 401, East Valley with 377, and Ruhenstroth with 376. In order to protect groundwater resources, the County will need to continue to explore ways to connect these areas to community water systems.

Environmental Resources and Conservation (ERC) Goals, Policies, and Actions

- ERC Goal 1** **To minimize danger and damage to county residents from natural hazards due to fire, seismic activity, liquefaction, and other geologic hazards.**
- ERC Action 1.1 Douglas County shall work with the Nevada Fire Safety Council, UNR Cooperative Extension, EFFPD, TDFPD, and Volunteer Fire Departments to encourage and support efforts to reduce hazardous fuels on private property.
- ERC Goal 2** **To manage hillside development densities, locations, and project designs in order to minimize impacts on the county’s natural resources and aesthetic character, and to protect future residents from safety hazards.**
- ERC Goal 3** **To provide the residents of Douglas County with increased safety from flooding.**
- ERC Policy 3.1 Consider formation of a special district responsible for the development of regional flood and stormwater solutions and preparation of drainage plans for each community and for their implementation and maintenance.
- ERC Policy 3.2 Flood-prone areas, including wetlands, sloughs, arroyos, alluvial fans, detention facilities, and other flood risk areas should be considered for acquisition by public purchase or by dedication for public usage as parkways, sports facilities, neighborhood parks, recreational areas, and for wildlife habitat. Adequate right-of-way for the conveyance of stormwater to the Carson River should be obtained.
- ERC Policy 3.3 Non-structural flood control measures such as zoning limitations, open space acquisition on, and watershed management should be used within the Carson River Floodplain as alternatives to structural measures.
- ERC Policy 3.4 Assist agricultural community in maintenance of irrigation systems used for drainage and/or flood control.
- ERC Policy 3.5 Require sufficient easement widths for improvements and maintenance along all conveyance ditches that will be used for stormwater flood flows.

- ERC Policy 3.6 Encroachment and structure setbacks should be reviewed to eliminate conflicts and ensure that maintenance of the conveyance ditch and/or storm drain system can be achieved.
- ERC Action 3.1 Develop a priority and phasing plan to provide for a detailed watershed analysis and improvement recommendations by watershed in relation to the seriousness of the existing and potential flood flow problems.
- ERC Action 3.2 Investigate the use of existing irrigation ditches and canals to help alleviate Carson River and stormwater flooding problems, and prevent critical water conveyances from being obstructed or abandoned.
- ERC Action 3.3 Improve portions of irrigation system to improve flood conveyance capacities while not impacting operational capabilities.
- ERC Action 3.4 Investigate acquisition of rights-of-way, development of conveyances, and utilization of wetlands southeast of Genoa as possible detention facilities.
- ERC Action 3.5 Evaluate and develop a fair share of maintenance costs for irrigation facilities used for flood control.
- ERC Action 3.6 Determine transportation improvements required to allow for a minimum of one access to communities during 100-year flood events.
- ERC Action 3.7 Douglas County will work with the Towns on the 2013 Hazard Mitigation Plan revisions.
- ERC Goal 4 To develop code provisions and design standards that incorporate Low Impact Development Design Standards, buffers, and other strategies to protect surface water quality in the County from the effects of growth, urbanization, and agricultural practices.**
- ERC Policy 4.1 Require development to incorporate storm drainage facilities that reduce urban run-off pollutants within the site or as part of a regional facility.
- ERC Policy 4.2 Assist in the provision of a regular cleaning program for County, District, and Town maintained underground drainage systems.
- ERC Policy 4.3 Cooperate with private and public agencies to protect water quality throughout the region.

- ERC Action 4.1 Prepare recommendations to require Low Impact Development for all new development in Douglas County.
- ERC Action 4.2 Continue to work with the Town of Minden on an inter-local agreement to provide water service to the Fairgrounds/Sunrise Estates Facility and continue exploring the option of connecting the Ruhestroth community to the system.
- ERC Action 4.3 Explore the option of connecting properties in the Johnson Lane community to the County water system.
- ERC Goal 5 To improve existing drainage and prevent future drainage problems from occurring.**
- ERC Policy 5.1 Continue utilization of the Water Conveyance Advisory Committee for review of projects and effects on irrigation facilities.
- ERC Policy 5.2 Continue to participate in watershed management with agencies such as the Upper Carson River Watershed Management Committee and the Carson Water Subconservancy District.
- ERC Policy 5.3 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.
- ERC Action 5.1 Douglas County shall develop comprehensive storm drainage design criteria for developed areas in conjunction with the Towns and GIDs.
- ERC Goal 6 To protect wetlands for their values for groundwater recharge, flood protection, sediment and pollution control, wildlife habitat, and open space.**
- ERC Policy 6.1 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.
- ERC Policy 6.2 Douglas County may review the potential for wetland mitigation banking to allow for replacement of wetlands.
- ERC Policy 6.3 Wetlands shall be protected to provide for groundwater recharge, flood protection, sediment and pollution control, wildlife habitat, and open space.

- ERC Goal 7** **To protect potable water supplies, limit non-point source impacts on groundwater quality, and promote a regional approach to aquifer management.**
- ERC Policy 7.1 Development shall be designed so as to minimize the amount of newly created impervious surfaces. Open spaces and landscaped areas shall be encouraged.
- ERC Policy 7.2 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.
- ERC Policy 7.3 Development occurring at urban densities shall be serviced by a sanitary sewer utility.
- ERC Policy 7.4 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 programs aimed at reducing the potential for impacts to groundwater quality.
- ERC Policy 7.5 The potential for contamination of critical aquifer recharge areas by proposed development shall be determined through an environmental review process. Potential impacts to groundwater supplies serving as potable water supplies shall be appropriately mitigated as outlined in the future Wellhead Protection Plan.
- ERC Policy 7.6 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.
- ERC Action 7.1 The County shall develop and disseminate a public information program directed at informing residents of strategies for minimizing non-point source impacts to groundwater.
- ERC Action 7.2 Implement the Wellhead Protection Plan when adopted and require new development to submit plans to affected water purveyors.

ERC Goal 8 **To protect the functions and values of surface water systems, which include fish and wildlife habitat, aquifer recharge and discharge, and recreational opportunities.**

ERC Policy 8.1 Disposal of 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.

ERC Policy 8.2 Activities which interfere with an aquatic system's function as a defined groundwater recharge area shall not be permitted.

ERC Policy 8.3 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.

ERC Goal 9 **To improve water quality by reducing the negative impacts of stormwater runoff and increase best management practices for new development and redevelopment.**

ERC Policy 9.1 The County shall encourage maintenance of historic stormwater discharge rates and volumes into surface water systems or provide improvements to reduce impacts.

ERC Policy 9.2 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.

ERC Action 9.1 Develop a funding source to develop and implement a stormwater management plan for the Carson Valley.

ERC Action 9.2 Implement the Clear Creek and Johnson Lane Stormwater Management Plans as required by the MS4 NPDES permit.

ERC Action 9.3 Develop a program for inspecting and maintaining storm water facilities in the public right-of-way and in parking lots in order to protect the quality of water that is conveyed into irrigation ditches.

ERC Goal 10 To coordinate a regional approach to water resource development and management.

ERC Policy 10.1 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.

ERC Goal 11 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.

ERC Policy 11.1 Existing non-supplemental groundwater rights should be obtained for quasi-municipal use when such rights become available.

ERC Policy 11.2 Water conservation programs should be developed and instituted as necessary to reduce municipal demands.

ERC Policy 11.3 The County should develop a program for collecting pumped groundwater data in the Antelope Valley to assess the capability of meeting the anticipated growth in the area with groundwater resources.

ERC Goal 12 Douglas County shall begin evaluation of water resource alternatives to supplement the groundwater supply for future quasi-municipal use.

ERC Policy 12.1 The County shall begin investigation into the feasibility of developing surface water resources to supplement the groundwater supply for future population needs.

ERC Policy 12.2 Treated effluent will be used to replace supplemental and non-supplemental groundwater pumped for irrigation purposes where feasible.

ERC Policy 12.3 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."

ERC Goal 13 To maintain or improve existing air quality.

ERC Policy 13.1 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.

ERC Policy 13.2 Promote reduced wood burning by encouraging use of solar and geothermal resources and the use of other energy-efficient strategies.

ERC Action 13.1 Pursue cost effective air quality management strategies that contribute to improved local and regional air quality.

ERC Action 13.2 Work with NDEP on the establishment of a cost-effective program to measure and monitor air quality in the Carson Valley and other “airsheds,” in order to establish base data for future projections.

ERC Action 13.3 Establish standards for roadway surfacing and maintenance which reduce dust generation.

ERC Goal 14 To protect Douglas County’s sensitive wildlife and vegetation in recognition of their importance as components of the county’s quality of life.

ERC Policy 14.1 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.

ERC Policy 14.2 Douglas County shall work with the USFS, BLM, and Nevada Department of Wildlife to retain and enhance the viability of deer migration corridors through the county.

ERC Policy 14.3 Douglas County shall support efforts to manage the county’s rivers and streams to maintain or enhance the existing riparian ecosystems.

ERC Action 14.1 Douglas County shall establish development regulations and design guidelines to minimize impacts of new development on sensitive habitats and migration routes.

ERC Goal 15 To encourage the efficient use of available energy resources and to provide incentives for energy conservation in construction.

ERC Policy 15.1 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 use of these energy resources.

ERC Policy 15.2 The County shall encourage incorporation of energy conservation features in the design of all new construction and substantial rehabilitation projects, both public and private.

ERC Policy 15.3 The energy-efficiency of proposed new development should be considered when land use and development review decisions are made. The County's development regulations and design guidelines shall include provisions for protecting solar access, for siting structures to maximize natural heating and cooling, and for landscaping to aid passive cooling protection from prevailing winds and maximum year-round solar access.

ERC Policy 15.4 The County should encourage development which utilizes geothermal, solar, wind, biomass and other alternative energy resources that are compatible with the environment.

ERC Action 15.1 The County will investigate the feasibility of draft green building code regulations and will include incentives in Title 20 to increase green building construction.

ERC Action 15.2 In order 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.

ERC Goal 16 To minimize noise levels throughout the county and, wherever economically feasible, mitigate the effects of noise to provide a safe and healthy environment.

ERC Policy 16.1 The County shall adopt standards for maximum permissible levels and durations of noise emanating from various stationary sources by land use category. Standards may address general noise levels, as well as intermittent noise or noise occurring at inappropriate hours. Noise standards shall be used in evaluating proposals for new development and in establishing site and structural design requirements.

ERC Policy 16.2 Where possible, the County shall avoid locating noise generating facilities in close proximity to areas planned for noise sensitive land uses.

ERC Policy 16.3 The County shall avoid locating noise sensitive land uses such as hospitals, schools, and homes in existing and anticipated noise impact areas.

ERC Policy 16.4 The County shall consider noise concerns in evaluating all development proposals and major roadway projects.

ERC Policy 16.5 The County shall consider establishing noise standards for construction related activities, including limitations on hours of operation within the day.