

**CARSON RIVER ESTATES
HOMEOWNERS ASSOCIATION
WATER CONSERVATION PLAN**



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Carson River Estates Homeowners Association
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This water conservation plan is submitted by Carson River Estates Homeowners Association (CREHOA). The purpose of the water conservation plan is to continue to encourage a more efficient use of water by CREHOA homeowners and comply with Nevada Revised Statutes 540.121 through 540.151.

NRS 540.121

Carson River Estates Water System is owned and operated by Carson River Estates Homeowners Association, a non-profit corporation registered with the state of Nevada. The water system supplies water to the residents of Carson River Estates, a subdivision one mile north of the city of Fallon.

The water system consists of three wells, one hydro-pneumatic tank, one fire hydrant, and approximately one mile of pipes and a system of six isolation valves of various sizes. The wells and service connections are metered. There are thirty-four service connections with two lots empty that could eventually require a connection.

The three wells are identified as Wells #1, #2, and #3. A pump house with the controls for the system is located at the same site as Well #1. Wells 1 and 2 each pump at a rate of thirty-nine gallons per minute. Well 3 pumps at a rate of forty-seven gallons per minute. All three wells pump to a two thousand gallon, horizontally mounted, hydro-pneumatic water storage tank located inside the pump house.

There is a propane-powered generator that automatically starts when there is a power loss, providing power to the pumps.

Currently the water system services approximately 83 people. This number could fluctuate slightly depending on families buying or selling their homes, children leaving home, deaths, etc. There are only two lots left in the subdivision that are empty, so any kind of large growth is impossible.

In November 2011, the State of Nevada issued Carson River Estates Homeowners Association a permit to operate an arsenic treatment plant through the use of individual reverse osmosis systems in each home.

The primary water conservation goals for CREHOA are listed below. These goals involve ongoing efforts that will improve the abilities of CREHOA to manage available water and reduce the amount of water waste.

- CREHOA will increase public awareness of the limited supply of water in Nevada and the need to conserve water.
- CREHOA will send out water conservation tips and updates to members via email.
- CREHOA will encourage the reduction in lawn sizes for those homeowners with lawns. (Six homeowners have now significantly reduced the amount of lawn and landscaped with xeriscape.)
- CREHOA will attempt to reduce water waste and reduce consumption by 5% by

the year 2019.

- CREHOA will continue to maintain accurate water pumping and usage records in order to identify and reduce water leakages and inaccuracies in the water system (distribution lines, water meters, etc.)
- CREHOA will continue to discourage the “wasting of water,”
- CREHOA has an emergency response plan, including a drought plan and a current list of emergency contact information, equipment available for emergencies, etc.
- CREHOA will periodically review and evaluate water conservation measures and incentives for effectiveness and determine if revisions or continuations to the programs will be made.
- All connections now in the CREHOA service area are currently on water meters. Meters will be changed out on a scheduled basis.
- CREHOA has a four-tiered pricing structure for water to encourage water conservation and to raise revenues. Prices on this structure have been raised several times in the past five years and in 2013 the cost of water for the highest water users rose substantially to encourage conservation. This will be monitored for effectiveness.
- CREHOA will update the water conservation plan every five years (as required by NRS 540.131.4.c.)

NRS 540.131

Each member of CREHOA will be sent the Conservation Plan. Everyone will get the opportunity to submit written views and recommendations on the plan. CREHOA will review all comments and make any revisions it deems necessary.

CREHOA will keep this water conservation plan in the home of the president of the association or the home of the keeper of the records. Members of the association may view this plan after contacting the president or keeper of the records. Any comments they have are welcomed.

CREHOA will update this water conservation plan at least every 5 years (in order to comply with State requirements). The next update to the plan will need to be completed in 2019.

This water conservation plan is intended solely for use within the CREHOA service area boundaries and does not include a joint effort with any additional water suppliers.

Due to the small size of the system, CREHOA does not currently have personnel, procedures, or finances in place to monitor water waste full time. Officers and workers are all volunteers. CREHOA does not have the financial capability of hiring employees for the sole purpose of water conservation, so CREHOA will continue educating

homeowners in order for the conservation and drought sections in this plan to be effective.

NRS 540.141

A key objective of this plan is to increase public awareness of the limited supply of water in Nevada and the need to conserve water. A successful educational program provides information to the homeowners that help to motivate water users in their efforts to conserve water.

CREHOA will provide its homeowners with educational materials and resources including home and landscape guides, mailers, and links to conservation websites. Example water conservation brochures and pamphlets will be sent via email, mail, or hand delivered to members of CREHOA.

Water usage is much higher in the summer than in the winter. Of the 34 homes, six have no lawn, six have a small lawn in the front yard with none in back, and several have minimal lawn. Of those who do have front and back lawns, CREHOA will encourage the reduction of the size of lawns and encourage the use of xeriscaping methods and drought tolerant/native plants. Six homes have done this. CREHOA states in a letter to all new homeowners that newly planted lawns are not encouraged; xeriscape is encouraged. Two homes updated all of their sprinklers and drip systems to make them more efficient.

Homeowners will be reminded and encouraged to use water saving devices in their homes such as low flow toilets and shower heads, water efficient washing machines and dish washers, etc.

One home has remodeled its bathrooms to include water saving fixtures and has installed a new, more efficient cover to its pool to reduce evaporation and save water.

CREHOA continues to update individual homeowners meters and replace the old ones..

CREHOA compares water meter readings from the three wells to the amount of water billed to its homeowners. Currently the difference between non-billable water and pumped water is less than 10%.

Each CREHOA home site has its own septic system, so use of recycled wastewater is not a consideration. Increasing the reuse of effluent is not applicable unless individual homeowners choose to reroute gray water waste outdoors to plants and lawn.

CREHOA will continue to monitor for any signs of high pressure in the system. Because of the design of the system with the three low pressure pumps set at different levels, and the 2000 gallon hydro-pneumatic water storage tank this has not been a problem.

CREHOA's Emergency Response Plan includes a short contingency plan for drought conditions and will be updated as needed. All water supplied by CREHOA comes from fairly deep groundwater sources. Because of this, it is difficult to determine the effect of a drought year on the groundwater system and the consequences of a drought may not be detected in the water table until several years after the drought.

In extreme instances, where a well can no longer provide the needed water, CREHOA will consider options such as restricting water usage until the problem can be solved, increasing the depth of the existing wells, developing a new well site, and/or aggressively finding a new water source, etc.

NRS 540.151

Conservation education in CREHOA has been ongoing. There have been reminders at homeowners' meetings, and newsletters and emails have been sent throughout the year.

CREHOA will assess the effectiveness of its plan once it has gone through another summer cycle. It will compare the total usage of water with the previous year's to see if less water was used and determine if the plan is working. The water savings between our fiscal year 2012-2013 and fiscal year 2013-2014 was significant. We attribute part of this to water conservation implemented by individual homeowners.

By implementing the steps described in this plan CREHOA anticipates some savings of water. An amount based solely on the education of the homeowners is difficult to estimate because of variables out of our control such as different numbers of family members at the houses at one time, etc.

During the winter months, water usage is normal in most households. The summer irrigation season is where the savings in water will become the most obvious. Some homeowners use no water for irrigation or very little while some use way too much. Because CREHOA is such a small water system, just the change in one or two homeowners' usage patterns during the summer would make a big difference.

Conservation can be achieved through an increase in the homeowners becoming further educated and continually reminded of the value of conserving water. It's very difficult to determine the level of individual participation in educational conservation programs but an estimate of a savings of 1 gpcpd for about 80 people would result in a savings of 29,200 gallons per year.

A reduction in water usage of just 5% in the 10 houses with the highest summer usage would result in a yearly savings of 237,000 gallons. CREHOA will concentrate on this area of education. Water rates for the highest users were raised substantially to encourage water use reduction.

Using these figures, CREHOA estimates that between 3 and 10 gallons per capita per day could be saved depending on consumer participation.

CREHOA charges variable rates for water usage. The rates are as follows:

Monthly Assessment: Currently each home in the subdivision is assessed \$45 per month for use of the water system and an additional fee based on water usage. In FY2014, \$17.50 of the assessment is being set aside from each payment to put in the reserve fund. The remaining \$27.50 is used for water system operating expenses or other services required to support the water system.

Water Charges: In addition to the monthly assessment, each homeowner is charged \$.88 per thousand gallons of water used under 365,000 gallons, \$1.10 per thousand gallons of water used between 365,000 and 465,000 gallons, \$1.65 per thousand gallons of water used between 465,000 and 565,000 gallons, and \$3.20 per thousand gallons of water used over 565,000 gallons. The last tier was increased by \$1.00 from the previous year to encourage water conservation by high end users.

CREHOA increases rates based on revenues needed for operating expenses and enough extra for a reserve fund. CREHOA anticipates a savings in water usage after implementing a large increase in rates for high end users.

Last year the homeowner historically using the most water, reduced usage by 200,000 gallons. Twenty-four homeowners reduced water usage from the previous year. We believe this is partly due to water conservation on their part because of price increases in water and because of constant reminders to conserve water.

SUMMARY

CREHOA is strongly committed to water conservation. It will continue to educate its homeowners and encourage water savings, especially during the summer irrigation season with more drought tolerant plants, reduction of lawn areas, and more xeriscaping.