

Las Vegas Valley Water District

Small Systems Water Conservation Plans

2014-2018

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CONSERVATION PLANS

Nevada Revised Statutes (NRS) requires each water supplier that provides water for municipal, industrial or domestic purposes to adopt a water conservation plan. Senate Bill 62, passed in the 2005 Nevada legislative session, added a provision requiring conservation plans to be updated every five years. The law was again modified in the 2007 legislative session to require specific water savings estimates and pricing criteria in each plan. The Small Systems Water Conservation Plans were developed and are being updated to meet these requirements and to continue to promote efficient water use by each community.

THE LAS VEGAS VALLEY WATER DISTRICT'S ROLE IN MANAGING SMALL SYSTEMS

The Las Vegas Valley Water District (LVVWD) is a not-for-profit public agency that began providing water to the Las Vegas Valley in 1954. In addition to serving the residents of Las Vegas and unincorporated Clark County, the LVVWD provides oversight and management support for several small water systems in Clark County.

In its efforts to provide a comprehensive approach to conservation and water resource management in Southern Nevada, the LVVWD is combining into one document the conservation plans for the following water systems:

- Blue Diamond Water System
- Jean Water System
- Kyle Canyon Water District
- Searchlight Water System

Because the climate, elevations and weather zones vary for the various communities served by the small systems, the conservation plans for these areas have been developed to best serve each community. These communities also rely on local groundwater supplies for their sole water source. In addition, it is important to note that these small systems are not Southern Nevada Water Authority (SNWA) purveyor members and do not have access to the same conservation rebates and programming that are provided to customers of the SNWA's member agencies. The plans for each system have been presented to the respective communities, which have had an opportunity to provide comment.

Each water system has service rules, and these service rules allow LVVWD to reject, rescind, reduce or terminate current or proposed uses of water where such uses:

- a) Are contrary to the LVVWD's obligation to ensure reasonable use including, but not limited to, compliance with rules for water efficiency, drought, conservation and the use of non-potable water for irrigation.
- b) May encumber or impair the LVVWD's ability to maintain an adequate level of service to other customers.
- c) Compromise public health, welfare or safety due to circumstances that limit the available water supply to the water system.

Blue Diamond, Jean, Kyle Canyon and Searchlight are located within the unincorporated areas of Clark County and are subject to the following ordinances:

- Chapter 24.30 - Waste of water from public water system
- Chapter 24.34 – Water use restrictions
- Title 30 – Comprehensive development code
- Title 30 – Turf limitations.

The climate and resources of each community for the small systems differ and thus the conservation activities outlined in each system's Water Conservation Plan best meet the needs of that community. Generally, conservation measures include leak detection, system improvements and educational outreach to help the communities understand and implement effective conservation measures.

CONSERVATION EFFECTIVENESS MEASURES

LVVWD maintains water pumping records for the small systems. The records are retrieved through the Supervisory Control and Data Acquisition (SCADA) system, which provides reliable, real-time, high speed communications over wide areas. The system monitors data from various sensors and transmits real-time data back to the LVVWD for analysis. Staff reviews the pumping data and changes in storage tank levels to determine if use is consistent for the community. If a change is detected, staff will investigate to determine if it is a distribution system issue or a customer issue.

Using baseline and post-implementation data, the LVVWD calculates water conservation estimates, which are communicated to the community.

The "gallons per capita per day" (GPCD) metric is used by some communities to measure water consumption and as a general means of establishing conservation goals and water-use benchmarks for tracking purposes. A variety of factors influence per capita use, including climate, demographics, building density, and local business or industrial water use. In calculating total system GPCD for the Blue Diamond Water System, Kyle Canyon Water District and Searchlight Water System, residential and non-residential deliveries and non-revenue water are combined.

Each system's total GPCD is calculated by first dividing the total annual system water use by the estimated population of the community, then dividing by the days in a year. Population figures are taken from the Clark County Department of Comprehensive Planning's Southern Nevada Consensus Population Estimates, which have been adjusted to remove sections of the community not served by LVVWD (such as customers served by a groundwater well). The GPCD for each system has not been adjusted for weather because LVVWD does not have reliable weather data for each geographic area.

Because Jean, Nevada, has no permanent residents and the population estimates are based mostly on the transient correctional center population, it is not possible to calculate or estimate a reasonable GPCD for the Jean Water System.

WATER MANAGEMENT PRACTICES

The LVVWD will continue to use these base water management practices to sustain previous GPCD reductions and achieve future gains.

Metering

Metering is the foundation of sound demand-management programs. The LVVWD will continue to meter all customer connections for all classes of water in accordance with American Water Works Association standards.

Meters are read monthly and data is classified and retrievable on the basis of customer class, meter size, land use and other relevant variables. The LVVWD has the ability to identify unusual water use patterns, such as spikes in consumption due to leaks, and to notify customers of unusual account activity. In addition, the LVVWD has implemented automated meter reading (AMR) systems, which record water usage data at each meter and transmit the information through radio waves to specialized receiving units. AMR systems eliminate the need for individual manual reads, improve meter-reading efficiency and provide customers with improved billing processes. AMRs are used in Blue Diamond, Jean and Searchlight, as well as the LVVWD service area.

The Kyle Canyon Water District has an Advance Metering Infrastructure (AMI), which allows metering information to be collected automatically and sent via a server for use in billing systems or for other analysis. The benefit of an AMI system is that the meters can be checked without sending field staff and data can easily be obtained on recent meter consumption.

Water Rates

The LVVWD consistently monitors each small system's funding, infrastructure and conservation needs as they relate to appropriate water rates, and may suggest changes in the water rate structure to further encourage conservation should such action be necessary.

Non-Revenue Water – All water delivery systems experience losses. In the water industry, these losses are known as non-revenue water. Non-revenue water is the difference between an agency's total water production and the sum of all metered uses. Such losses are predominantly associated with leaks, variations in meter accuracy and theft.

The LVVWD has a variety of active programs to more effectively account for the total production. While these ongoing efforts will continue to improve accounting accuracy for and minimize loss of non-revenue water, measurable GPCD savings are not attributed to this management tool. The following programs are conducted throughout the region:

- Efforts are ongoing in all service areas to identify older infrastructure that has been deemed susceptible to leaks.
- Prior to installing facilities, soil testing is conducted to identify potential threats to the distribution system's integrity. For example, where testing indicates that soil chemistry will be destructive to copper piping, plastic sleeves are installed over the service line to prevent corrosion.

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- Reservoirs are thoroughly inspected at regular intervals to assure their integrity.
- Production meters are regularly maintained and calibrated.
- All customer meters are monitored for consumption anomalies. Small customer meters are subject to a planned replacement program based upon life expectancy and large meters are regularly maintained and calibrated.

Details regarding the conservation plans of each small system are listed in the following appendices:

- I. Blue Diamond Water System
- II. Jean Water System
- III. Kyle Canyon Water District
- IV. Searchlight Water System

Blue Diamond Water System

Water Conservation Plan

Supplement Water Resources

The LVVWD recognizes the need for ensuring a community. To offset the impacts of severe drought, Blue Diamond's existing water resources, including deliveries, well deepening, and even temporary infrastructure to the District's Las Vegas Valley so

The LVVWD, as the operator of the Blue Diamond Water System, will ensure that sustainability as part of its

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Blue Diamond Water Conservation Plan

OVERVIEW

In May 1992, the Las Vegas Valley Water District (LVVWD) assumed operation and maintenance of the Blue Diamond Water System. In 1994, the LVVWD entered into a water supply agreement with a nearby mine, James Hardie Gypsum (now CertainTeed Gypsum Manufacturing), which transferred 150 acre-feet of the mine's groundwater rights to LVVWD for municipal use in the Blue Diamond area.

The Village of Blue Diamond has approximately 285 residents, according to the Clark County Department of Comprehensive Planning 2013 population estimates, which have been adjusted to remove areas not served by the Blue Diamond Water System. The water system serves approximately 120 customer accounts, the vast majority of which are residential. Growth potential in Blue Diamond is limited. The community is surrounded by federal lands managed by the Bureau of Land Management and those lands are not currently identified for disposal. As a result, the potential for further increases in water demand is small.

Physical Setting

Blue Diamond is located in the extreme southwestern Las Vegas Valley, approximately 15 miles southwest of Las Vegas and about 3 miles northwest of the intersection of State Routes 159 and 160. The Village of Blue Diamond lies in the extreme southwestern portion of the Las Vegas Valley hydrographic basin and within the Red Rock Canyon National Conservation Area.

Climate

Blue Diamond experiences a desert climate with hot summers and cool winters. Average summer temperatures are in the high 90s, while winter temperatures remain around the low 40s. The area averages more than 290 days of sunshine and approximately 5 inches of precipitation per year.

Water Sources and Water System:

As noted above, LVVWD has existing permitted water rights for 150 acre-feet per year (afy) through its agreement with CertainTeed Gypsum Manufacturing for use in the Blue Diamond area. Based on current usage patterns in the Village of Blue Diamond, approximately 90 percent of the supply is committed.

The Blue Diamond Water System is supplied by two groundwater wells, Blue Diamond North (BDN) and Blue Diamond South (BDS), both of which were drilled in the 1950s and reach depths of 57 and 70 feet, respectively. These wells are owned by CertainTeed and provide water to both the mine and the Blue Diamond public water system. Storage capacity for the public system is 250,000 gallons in two tanks located on a hillside immediately south of the village. The booster pump that provides water to the storage tanks runs on an as-needed basis and is also owned by CertainTeed. Because of the wells' location within the state-protected Red Rock Canyon National Conservation Area, potential contamination of the Blue Diamond water system is unlikely.

WATER CONSERVATION

The Blue Diamond Water Conservation Plan was developed and is being updated to meet state requirements and to continue to promote efficient water use by the community.

Groundwater is the sole natural resource used to meet water demands in Blue Diamond. Increases in yearly precipitation volumes correlate directly to a rise in water levels found in the wells, indicating that pumping and consumption don't affect local water levels nearly as much as precipitation and localized recharge do. Significant reliance upon recharge, coupled with the fact that approximately 20 percent of the area's groundwater rights are allotted to the Blue Diamond community, demonstrates that community conservation efforts alone will not have a significant impact on overall available water resources.

Conservation Effectiveness Measures

Table 1 provides the estimated gallons per capita per day (GPCD) for the Blue Diamond water system since 2009.

Table 1. Blue Diamond Water System – Total System GPCD

Year	Usage	Population	GPCD
2009	40,300,000	248	445
2010	38,010,000	245	425
2011	42,560,000	235	496
2012	40,850,000	281	398

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The GPCD number in Table 1 is imprecise. Research indicates that population estimates for the area vary significantly depending on the source or methodology used. The population estimate used for this plan is taken from the most recent Clark County estimate, but it is possible the actual number is significantly higher or lower, which would affect the resulting GPCD. Also, the Clark County population figures have been adjusted to remove areas not served by the Blue Diamond Water System.

In late 2012, LVVWD data shows that production meters in Blue Diamond began to degrade, thus water use information may not be accurate for the end of 2012 through October 2013, when the meters were replaced.

Conservation Activities

Water Management and Water System Improvements [20-40 GPCD]

While the LVVWD has developed a capital improvement plan to improve the system's existing infrastructure, Blue Diamond is a financially self-sustaining system with a very small customer base, meaning it has little economy of scale with which to absorb large capital costs. Consequently, any proposed improvements are heavily dependent on the acquisition of grant funding or other alternative funding sources to offset the costs to the community and its residents.

Blue Diamond Water Conservation Plan

The greatest opportunity for GPCD reduction will come from improving the Blue Diamond Water System. These improvements will depend upon the availability of state and federal funding. LVVWD has documented and prioritized system improvements that would improve the systems reliability and reduce water loss, and staff members monitor state and federal grant opportunities for possible funding sources for these improvements, which would be too expensive for the population of Blue Diamond to absorb.

Automatic Meter Reading System [4 GPCD]

All Blue Diamond Water System customers have a water meter. All meters are functioning with minimal maintenance. Water meters help identify customer water use, volumes and patterns. This information provides a valuable tool in helping to plan future infrastructure needs for the area as well in identifying system leaks and losses.

The LVVWD has installed an Automatic Meter Reading System (AMR) to all existing water meters. This system can assist in identifying water leaks at the water user's location, and can quantify overall non-revenue water loss in the water system by comparing production quantities with end user quantities.

Leak Detection Monitoring [10 GPCD]

Blue Diamond has 16 Permalog units installed in the area. Permalog units are typically installed on water valve nuts located within the main distribution system to "listen" for leak sounds that travel along water pipes. If nothing is heard, a signal is transmitted to LVVWD indicating the system is functioning as normal. However, when a possible leak is detected, a notification is transmitted that there could be a leak in the system. This allows staff to identify and correct leaks early and also ensure that necessary repairs can occur under regular maintenance activities. Early leak detection is critical in minimizing the amount of water that is lost within the system. Continued use of the Permalog units will help conserve water in the Blue Diamond community.

Encourage Drip Irrigation for Trees and Shrubs [1 GPCD]

Residential landscapes in Blue Diamond feature mature trees and shrubs that provide shade, absorb carbon dioxide, reduce soil erosion, provide homes for wildlife, decrease energy use, lessen noise pollution, lower air temperatures and reduce storm runoff. While trees and shrubs provide a host of benefits, they can also be a source of inefficient watering practices. Some Blue Diamond residents use hand-placed sprinklers or hand water to irrigate their landscapes. Drip systems are substantially more water efficient and low-maintenance compared with sprinkler or hand irrigation. Drip systems limit the amount of water wasted and provide a deeper soak than sprinklers.

Blue Diamond residents are encouraged to use drip systems to water trees and shrubs through educational outreach efforts. Residents also are encouraged to visit LVVWD.com for more information about drip irrigation or visit the Springs Preserve, which offers classes on the installation of drip irrigation systems.

Encourage Native Landscaping When Planning Upgrades [>1 GPCD]

The SNWA conducted a five-year study that documented substantial water use reductions by converting turf grass to xeric and/or drought-tolerant plant material. The study found that residents in Southern Nevada annually applied an average of 73 gallons of water per square

Blue Diamond Water Conservation Plan

foot of turf, but just 17.2 gallons annually per square foot after converting turf areas to “water smart” landscape plantings. In Blue Diamond, water application to these landscape types may be different in this climate and environment; however the benefits of using native landscaping still apply. Consequently, it is estimated that landscape conversions may reduce water use by more than 75 percent for each square foot converted annually.

Residents with ornamental turf are encouraged to use native and drought-tolerant plants when making landscape changes.

Educational Outreach [1 GPCD]

The LVVWD will continue to provide conservation information through a variety of public education programs.

Water Watch Newsletter – The LVVWD will continue to publish the *Water Watch* newsletter to help educate Blue Diamond residents about conservation issues and techniques specific to their area.

Participation in Town Advisory Board Meetings – LVVWD staff will continue to attend TAB meetings to address residents’ questions related to conservation and the water system and provide helpful information to further meet conservation goals.

Conservation Helpline – The Southern Nevada Water Authority (SNWA) operates a Conservation Helpline (258-SAVE) that is available to residents. The Hotline is a resource for customers to ask conservation questions and obtain general water conservation information.

LVVWD.com – The LVVWD’s website has useful tips and how-to multimedia demonstrations to help residents learn how to save water both indoors and outdoors.

Youth Education – The SNWA Youth Education program “H2O University” makes available to all Clark County School District children – at both public and private schools – the *Desert Discovery* publication. *Desert Discovery* is written for Kindergarten through fifth graders and features information on water conservation, water issues, and sustainability in the desert. In addition, a conservation-based school tour of the LVVWD’s Springs Preserve are encouraged for all elementary school children.

WATER SHORTAGE CONTINGENCY

The Blue Diamond Water System is dependent upon the amount of water available through natural recharge into the groundwater aquifer. In the event of a continued and sustained drought where water levels within the Blue Diamond wells reach depths that are critically low, the LVVWD will focus on reducing non-essential uses and waste. The following specific measures are potential options for Blue Diamond in the event of a drought emergency.

Blue Diamond Water Conservation Plan

Mandatory Watering Restrictions

In addition to water use restrictions in Clark County ordinances, implementation of appropriate landscape watering restrictions would further limit or prohibit landscape watering in order to preserve system supplies and reduce operational demands on the system's wells. The nature and duration of the restrictions would be dictated by the situation.

Drought Surcharge

Drought surcharges are temporary pricing measures intended to encourage reduction in water consumption during drought conditions. Drought surcharges are a pricing strategy based on the economic law of demand that states as the price of a resource increases, the demand for the resource decreases, thereby balancing resources with customer demands.

Well Operating Conditions Notifications

With community involvement and support, implement a program whereby residents and businesses are notified when the water system's well operating conditions change and communicate mandatory and/or voluntary actions. Identify the triggers for the well water levels and the customer response to help ensure the water supply is protected.

It is important to note that even with impressive response from the community, the well levels may continue to fall due to their reliance on precipitation to replenish the groundwater aquifers.

Supplement Water Resources

The LVVWD recognizes the need for ensuring a reliable water source for the Blue Diamond community. To offset the impacts of severe drought, the LVVWD has options to supplement Blue Diamond's existing water resources, including the use of bottled water, water truck deliveries, well deepening, and even temporarily or permanently connecting Blue Diamond's infrastructure to the District's Las Vegas Valley service area.

The LVVWD, as the operator of the Blue Diamond Water System, is committed to conservation and sustainability as part of its strategic planning process. Education of the customer base regarding indoor and outdoor water savings tips will be the focus of ongoing efforts in the community.

Staff members also will continue to monitor local, state and federal funding sources to fund needed infrastructure improvements that will reduce water loss and provide for updated leak detection technologies. Given the small customer base from which costs must be recovered, any schedule for replacing older infrastructure in the Blue Diamond Water System will remain entirely dependent on securing grant funding for the necessary improvements.

Blue Diamond Water Conservation Plan

Table 2. Timeline for Implementation

<i>Conservation Measure</i>	<i>Anticipated Completion</i>
<i>Water Management</i>	<i>As funding allows</i>
<i>Clark County Ordinances</i>	<i>Continuous</i>
<i>Metered Rates</i>	<i>Continuous</i>
<i>Leak Detection Monitoring</i>	<i>Continuous</i>
<i>Automated Meter Reading</i>	<i>Continuous</i>
<i>Water System Improvements</i>	<i>As funding allows</i>
<i>Educational Programs</i>	<i>Continuous</i>
<i>Encourage Drip Irrigation</i>	<i>Continuous</i>
<i>Encourage Native Landscaping</i>	<i>Continuous</i>

Public Notice

As required by NRS 540.131, the Conservation Plan was presented to area residents and discussed at the February 26, 2014 Red Rock Citizens Advisory Committee Meeting. Public comment was held from March 3 – 17, 2014 and the plan was made available to the public for inspection and comment at the Las Vegas Valley Water District main offices and at <http://www.lvvwd.com/smsys/blue.html>.

Once finalized, the Conservation Plan will be available for public inspection during office hours at the following location, as well as on LVVWD.com:

Las Vegas Valley Water District
 1001 South Valley View Blvd.
 Las Vegas, NV 89107

<i>Automated Meter Reading</i>	1
<i>Water Conservation Programs</i>	1
<i>Leak Detection Programs</i>	1
<i>Landscaping Programs</i>	1

Public Notice

Due to the general absence of full-time resident customers were notified by mail that a draft form online on the LVVWD website as well as at the

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APPENDIX II

Jean Water System

WATER CONSERVATION PLAN

May 2014

OVERVIEW

The Las Vegas Valley Water District (LVVWD) acquired the Jean Water System in 1985. As owner, LVVWD is responsible for the maintenance and operation of the water system.

While there are no permanent residents in Jean, 2013 Clark County population estimates indicate a population of 158 in the “special places and groups” category, which refers to residences such as nursing homes, hospitals or correctional facilities. It is assumed that the population refers to the estimated average population of the Jean Conservation Camp, a nearby low security correctional facility.

Physical Setting

Jean is an unincorporated town administered by Clark County and is located approximately 30 miles south of Las Vegas and 12 miles north of the Nevada-California state line along Interstate 15.

Climate

Jean experiences a desert climate with hot summers and cool winters. Summer temperatures generally stay in the 90s, while winter temperatures remain around the 40s. The area averages more than 290 days of sunshine and approximately 4.5 inches of precipitation per year.

Water Sources and Water System

The Jean Water System service area is supplied by groundwater from the Ivanpah Valley aquifer, which is recharged from the southern end of the Spring Mountains and the New York Mountains.

The distribution is divided into a potable water system and a non-potable water system and is supplied by four groundwater wells (Table 1). The non-potable water is mostly used for irrigation. If needed, potable water can be transferred to the non-potable water tank.

The system serves 13 customer accounts in the community. The accounts are non-residential and include the Gold Strike Hotel; the Jean Conservation Camp; the Letica Corporation, a manufacturer of paper and plastic packaging materials; and the Las Vegas Rock quarry.

Table 1. Jean Well System

Well Name	Depth (feet)	Year Constructed	Capacity (gpm)	Purpose
State Well (J-2)	857	1982	125	Potable system
Gold Strike Well (J-3)	1,282	1988	125	Potable system
Midway Well (J-4)	1,881	1990	150	Potable system
J-7	670	2008	200	Non-potable system

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WATER CONSERVATION

The Jean Water Conservation Plan was developed and is being updated to meet state requirements and to continue to promote efficient water use by the community.

Groundwater is the sole natural resource used to meet water demands in Jean. Methods critical to managing and extending this resource include water conservation, prudent land use practices and a sustainable development approach. Conservation provides an additional resource by freeing up water that was previously consumed inefficiently or wasted.

All Jean Water System customers have a water meter. All meters are functioning with minimal maintenance. Water meters help identify customer water use, volumes and patterns. This information provides a valuable tool in helping to plan future infrastructure needs for the area as well in identifying system leaks and losses.

The LVVWD has installed an Automatic Meter Reading System (AMR) to all existing water meters. This system can assist in identifying water leaks at the water user's location, and can quantify overall non-revenue water loss in the water system by comparing production quantities with end user quantities.

Conservation Effectiveness Measures

Table 2 provides the total water consumption in Jean since 2005. Gallons per capital per day (GPCD) is not estimated because Jean has no permanent residents on which to base the calculations.

2011	12,560,000
2012	40,850,000

Table 2. Jean Annual Consumption

Year	Total (million gallons)
2005	149.17
2006	144.48
2007	137.98
2008	98.11
2009	87.78
2010	90.45
2011	80.73
2012	76.82

Because of aging infrastructure, a certain degree of non-revenue water loss occurs. Upgraded infrastructure and recent installation of more efficient meter reading technology has decreased the amount of non-revenue water loss the system currently experiences; however the system still has a high percentage of non-revenue water loss for a municipal water system. Staff is monitoring the system and will address any changes in non-revenue water loss.

Conservation Activities

At a minimum, the LVVWD will use the following measures to aid in water conservation for Jean.

Water Upon Request Program

The Nevada Restaurant Association, Water Conservation Coalition and the Southern Nevada Water Authority (SNWA) developed the Water Upon Request program, which encourages restaurants to serve water only when patrons request it. This program saves participating restaurants water, time and money by eliminating unconsumed glasses of water. For every glass of water not served, as much as 1.5 to more than 3 gallons of water is saved. LVVWD staff will work with the resort properties in Jean to encourage participation in the program.

Linen Exchange Program

The SNWA introduced a Linen Exchange Program in Southern Nevada. Through this voluntary program, resorts only change linens on the third day of the guests' stay unless otherwise requested. The average savings of washing linens and towels every three days is about 50 gallons per room each day. LVVWD staff will work with the resort properties in Jean to encourage participation in the program.

Education

The LVVWD will continue to provide conservation information through a variety of public education programs.

LVVWD.com – The LVVWD's website has useful tips and how-to multimedia demonstrations to help customers learn how to save water both indoors and outdoors.

WATER SHORTAGE CONTINGENCY

In the event of a continued and sustained drought where water levels within the Jean wells reach depths that are critically low, the LVVWD will focus on reducing non-essential uses and waste, including limiting highly visible uses of water even if they produce nominal efficiency gains. The following specific measures are potential options for Jean's use in the event of a drought emergency.

Mandatory Watering Restrictions

In addition to water use restrictions in Clark County ordinances, implement appropriate landscape watering restrictions that would further limit or prohibit landscape watering in order to preserve system supplies and reduce operational demands on the system's wells. The nature and duration of the restrictions would be dictated by the situation.

Drought Surcharge

Drought surcharges are temporary pricing measures intended to encourage reductions in water consumption during drought conditions. Drought surcharges are a pricing strategy based on the economic law of demand that states as the price of a resource increases, the demand for the resource decreases, thereby balancing resources with customer demands. The LVVWD could implement a drought surcharge, which could be modified as needed based upon the community's performance in meeting water demand reduction goals.

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IMPLEMENTATION

As the owner and operator of the Jean Water System, the LVVWD is committed to conservation and sustainability as part of its strategic planning process. Due to limited outdoor water use in the Jean area, indoor water conservation is the principal focus of the Jean Water Conservation Plan.

It is expected that water savings will be achieved by continuing to identify and minimize non-revenue water loss in the system. Efforts to identify and replace older infrastructure and technologies in the water system are ongoing. However, given the small customer base from which costs must be recovered, any schedule for replacing older infrastructure in the Jean Water System will remain entirely dependent on securing grant funding for the necessary improvements. Until then, general customer education and outreach will be ongoing.

Table 3. Timeline for Implementation

<i>Conservation Measure</i>	<i>Anticipated Completion</i>
<i>Clark County Ordinances</i>	<i>Continuous</i>
<i>Metered Rates</i>	<i>Continuous</i>
<i>Leak Detection Monitoring</i>	<i>Continuous</i>
<i>Automated Meter Reading</i>	<i>Continuous</i>
<i>Water Upon Request Program</i>	<i>Continuous</i>
<i>Linen Exchange Program</i>	<i>Continuous</i>
<i>Educational Programs</i>	<i>Continuous</i>

Public Notice

Due to the general absence of full-time residents and/or a Town Advisory Board, all customers were notified by mail that a draft Jean Conservation Plan was available for review online at the LVVWD website, as well as at the LVVWD offices and the Goodsprings Justice Court. They were also provided with contact information if they wished to provide public comment.

Once finalized, the Jean Water Conservation Plan will be available for inspection during office hours at the Goodsprings Justice Court and the Las Vegas Valley Water District's main offices at 1001 South Valley View Blvd., Las Vegas, NV 89107. The plan also will be posted on LVVWD's website at <http://www.lvvwd.com/smsys/jean.html>.

Once finalized, the Conservation Plan will be available for public inspection during office hours at the following locations, as well as on LVVWD.com:

Las Vegas Valley Water District
1001 South Valley View Blvd.
Las Vegas, NV 89107

Goodsprings Justice Court
23120 Las Vegas Boulevard South
Jean, NV 89019

APPENDIX III

Kyle Canyon Water District

Water Conservation Plan

...with the goal of...
...water-efficient water fixtures. The code includes
...fixtures, toilets, and showers.
...
...fixtures, toilets, and showerheads that
...water. Table 1 identifies minimum flow
...efficient rates of flow for residential and public
...water-efficient fixtures.
...
...The CAVWD will continue to educate the community

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OVERVIEW

The Kyle Canyon Water District was formed on December 5, 1973, as a 318 General Improvement District of Clark County. Clark County administers the district, but the water system has been maintained and operated by the Las Vegas Valley Water District through a contract with Clark County since 1974.

Kyle Canyon has approximately 443 residents, according to the Clark County Department of Comprehensive Planning 2013 population estimates, after adjusting to remove areas not served by the Kyle Canyon Water District. There are 429 service connections. Some service connections are inactive for a variety of reasons, including ownership transitions, seasonal residency and postponed development.

Physical Setting

Kyle Canyon is located in Clark County approximately 35 miles northwest of downtown Las Vegas on Mount Charleston in the Toiyabe National Forest. Kyle Canyon sits at approximately 6,800 feet above sea level and is a heavily wooded residential area surrounded by dense vegetation including joshua, juniper, ponderosa, bristlecone and piñon pine, and white fir trees.

Climate

Kyle Canyon experiences four seasons. Summer is extremely dry on the mountain with temperatures averaging 20-30 degrees cooler than in the Las Vegas Valley. Winter temperatures are regularly below freezing, with snow conditions occurring between November and April each year. The mountain receives 10.5 inches of precipitation on average.

Water Sources and Water System

The Kyle Canyon Water District is divided into four major residential subdivisions that are served by four groundwater wells and four reservoirs. The system's water rights (permit numbers 62266, 62267, 62268 and 77031) have a total combined duty of 480.895 acre-feet per year.

Historically, a variety of health, safety and distribution issues have challenged the system, including rapid growth, a series of well and reservoir outages, and broken lines due to freezing and age. A series of recent system improvements have resulted in increased system reliability, improved water quality, improved fireflow capability and reduced system loss.

Pipelines and service lines that were prone to continual leakage were replaced. A new reservoir and new pressure reducing valves were installed to provide better water delivery management. New meters with automated meter reading devices (AMR) were installed. The new equipment has allowed new operational processes to be implemented that effectively identify large leaks when they happen. Operational monitoring identifies any change in duration and frequency of pumping. If a leak is suspected, a technician is dispatched to check the service and turn it off if no homeowner is on site. If no customer leak is indicated by the AMR data, the technician will begin searching for a pipeline leak.

In order to fund future improvements, and in compliance with grant requirements, the Kyle Canyon Water District has established a depreciation account that will help offset financial impacts of future infrastructure needs and asset replacements.

Table 1. Kyle Canyon Well system

Well Name	Depth (feet)	Year Constructed	Capacity (gpm)	Purpose
Echo 3	286	1964	330	Potable System
Echo 4	530	1997	150	Potable System
Echo 5	458	2003	95	Potable System
Rainbow	245	1960	125	Potable System

WATER CONSERVATION

The Kyle Canyon Water District Conservation Plan was developed and is being updated to meet state requirements and to continue to promote efficient water use by the community. Groundwater is the sole natural resource used to meet water demands in Kyle Canyon, which is a verdant mountain community, contrasting dramatically with the desert valley below. In winter, the community often receives several feet of snow that support the green environment during spring runoffs. However, the mountain becomes exceptionally dry during summer and fall, resulting in extreme fire danger.

The perception of an abundance of water, coupled with the threat of fire, led to extremely high water consumption for many years. This trend peaked in 2002, when consumption levels reached 295 gallons per capita per day (GPCD). In response, the Kyle Canyon Water District adopted its first conservation plan on June 18, 2002.

Kyle Canyon’s residential population is unique for Southern Nevada and presents a challenge in calculating an accurate GPCD for conservation purposes. Only an estimated 50 percent of homeowners in Kyle Canyon are full-time residents. This ratio fluctuates from year to year, causing the Clark County population estimates to vary by as much as 46 percent from one year to the next. As a result, some shifts in GPCD may be the result of changes in the percentage of full-time residents, not a change in consumption behaviors.

Conservation Effectiveness Measures

Table 2 provides the estimated GPCD for the Kyle Canyon Water District since 2011, when meters were installed in the community.

Table 2. Kyle Canyon Water District – Total System GPCD

Year	Usage	Population	GPCD
2011	33,770,000	661	140
2012	25,250,000	443	156

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The GPCD number in Table 2 is imprecise. Research indicates that population estimates for the area vary significantly depending on the source or methodology used. The population estimate used for this plan is taken from the most recent Clark County estimate, but it is possible the actual number is significantly higher or lower, which would affect the resulting GPCD. The Clark County population estimates were adjusted to remove areas not serviced by the Kyle Canyon Water District.

Conservation Activities

At a minimum, the LVVWD will use the following measures to aid in water conservation in Kyle Canyon.

Water Management Plan [12-20 GPCD]

In June 2003, the Kyle Canyon Water District adopted a Water Management Plan with input from the community. The plan promotes conservation and prepares Kyle Canyon residents for potential water shortages and service interruptions. This is done by establishing measures that reduce customer demands to extend the use of local groundwater supplies. In order to achieve targeted reductions during times of supply shortage, such as drought or emergency conditions, the plan establishes water supply conditions that are primarily determined by the water levels in Kyle Canyon's wells. The four Operating Condition levels are determined as follows:

Sustainable:

In the sustainable stage, water supplies from the groundwater aquifer are sufficient to meet the needs of the community. The system is at the "Sustainable" condition when water supplies are being used at a rate that does not exceed the groundwater aquifer's ability to recharge. Water levels in each of the community wells are stabilized, and there is no immediate concern of infrastructure failure.

Concerned:

The concerned stage implies that water supplies from the groundwater aquifer are being used at a rate consistent with the aquifer's ability to naturally recharge. This stage is triggered when water levels in the wells fall below the following operating stages:

- Echo Well No. 3 - 90 ft. from surface
- Echo Well No. 4 - 170 ft. from surface
- Echo Well No. 5 - 120 ft. from surface
- Rainbow Well - 145 ft. from surface

Critical:

In the critical stage, water supplies from the groundwater aquifer are being depleted at a rate higher than the aquifer's ability to naturally recharge and the water level in one or more of the wells has dropped significantly. Well failure is highly likely or imminent. This stage is triggered when water levels in the wells fall below the following operating stages:

- Echo Well No. 3 - 110 ft. from surface
- Echo Well No. 4 - 230 ft. from surface
- Echo Well No. 5 - 140 ft. from surface
- Rainbow Well - 165 ft. from surface

Emergency:

The emergency stage indicates that a well outage, infrastructure failure or water quality issue has occurred. During emergency conditions, all or part of the community's water system has failed and resources are not adequate to meet the demands of the community.

In addition to well levels, staff consider several other factors in making an operating condition determination, including but not limited to, anticipated or actual higher demands for water, system failure or water quality issues. In order to reduce water use and protect groundwater supplies, irrigation restrictions go into effect when an elevated Operating Condition is declared. Table 3 outlines the "day of week" watering restrictions that apply under each Operating Condition.

Table 3. Watering Schedule

KYLE CANYON WATERING SCHEDULE BY ADDRESS				
Operating Condition	Spring May - June	Summer July - August	Fall September - 1st freeze	Winter 1st freeze - April
Sustainable	Responsible water use	Responsible water use	Responsible water use	No outdoor irrigation
Concerned	Group 1: Mon Group 2: Tues	Group 1: Mon, Thur Group 2: Tues, Fri	Group 1: Mon Group 2: Tues	No outdoor irrigation
Critical	Group 1: Thurs Group 2: Tues	Group 1: Thurs Group 2: Tues	Group 1: Thurs Group 2: Tues	No outdoor irrigation
Emergency	No outdoor irrigation			
Saturday or Sunday: Hand-watering only, unless emergency conditions exist.				
Group 1 – Addresses ending in even numbers, Group 2 – Addresses ending in odd numbers				

Changes in Operating Conditions are communicated to the public on several levels. An official public notice is posted, visible signage is posted at two key locations in the community and members of the Town Advisory Board and individual residents are notified by way of phone calls, direct mail, e-mail, or any combination thereof.

Metered Services [12 GPCD]

Water meters were installed at every Kyle Canyon property between 2008 and 2010, and a metered rate structure was implemented in October 2011. The installation of water meters has helped measure customer water use, volumes and patterns and provide a valuable tool in identifying property owner leaks.

In addition, KCWD customers have become much more cognizant of their own water use, now that consumption-based rates are being assessed.

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Advanced Metering Infrastructure System [5 GPCD]

In addition to the installation of meters, the LVVWD has implemented an Advanced Metering Infrastructure (AMI) in Kyle Canyon. The AMI system sends meter data to the LVVWD via an Internet server for use in the billing system and other analysis. AMI allows easy access to recent meter consumption history as the data can be pulled remotely without need to send a meter reading truck or field technician to the property to read the meter.

The LVVWD generates a series of reports, including one that records constant water flow for 24 consecutive hours, prior to the meter read. LVVWD staff contact by telephone residents whose account indicates a continual water flow for 24 consecutive hours prior to a meter read. If a telephone notification is unsuccessful, residents are notified via mail.

Water savings from this measure are intermittent and seasonal. However, the use of AMI technology helps residents detect and resolve leak issues early on, enabling them to repair leaks much sooner. If the system uses unusually large quantities of water, and if we do not find a customer leak that just began, we know to look for a system leak.

Water Fixtures Retrofit [2 GPCD]

Based on SNWA conservation estimates, more than 300 homes in the Kyle Canyon area were built prior to 1994, before NRS Chapter 278 established building codes that require more efficient water fixtures. The codes include limitations on water flow on shower fixtures, toilets and faucets.

Updating toilets, faucets and showerheads that were installed prior to 1994 can help conserve water. Table 4 identifies common household fixtures and their associated water efficient rates of flow before retrofit and post retrofit, assuming they are retrofitted with water-efficient fixtures.

The LVVWD will continue to educate the community about water fixture retrofit options and benefits.

Table 4. Water Fixture Retrofit Potential Savings

Fixture	Non-Efficient	Efficient	Estimated Savings
Toilet	3.5 – 7.0 gallons per flush	1.3 gallons per flush	1.2 - 5.7 gallons per flush
Shower	Varies	2.0 – 2.5 gallons per minute	2,000 gallons of water annually saved when two faucets / showerheads are replaced
Sink	Varies	1.5 gallons per minute (bathroom) 2.2 gallons per minute (kitchen and laundry)	
Washing Machines	41 gallons per load	28 gallons per load	13 gallons per load
Dishwashers	9 – 12 gallons per load	4 – 7 gallons per load	Up to 8 gallons per load

Encourage Drip Irrigation for Trees and Shrubs [1 GPCD]

Residential landscapes in Kyle Canyon feature mature trees and shrubs that provide shade, absorb carbon dioxide, reduce soil erosion, provide homes for wildlife, decrease energy use, lessen noise pollution, lower air temperatures and reduce storm runoff. While trees and shrubs provide a host of benefits, they can also be a source of inefficient watering practices. Many Kyle Canyon residents use hand-placed sprinklers or hand water to irrigate their landscapes. Drip systems are substantially more water efficient and low-maintenance compared with sprinkler or hand irrigation. Drip systems limit the amount of water wasted and provide a deeper soak than sprinklers.

Kyle Canyon residents are encouraged to use drip systems to water trees and shrubs. Residents also are encouraged to visit LVVWD.com for more information about drip irrigation or visit the Springs Preserve, which offers classes on the installation of drip irrigation systems.

Encourage Native Landscaping When Planning Upgrades [>1 GPCD]

The SNWA conducted a five-year study that documented substantial water use reductions by converting turf grass to xeric and/or drought-tolerant plant material. The study found that residents in Southern Nevada annually applied an average of 73 gallons of water per square foot of turf, but just 17.2 gallons annually per square foot after converting turf areas to “water smart” landscape plantings. In Kyle Canyon, water application to these landscape types may be different in this climate and environment; however the benefits of using native landscaping still apply. Consequently, it is estimated that landscape conversions may reduce water use by more than 75 percent for each square foot converted annually.

Residents with ornamental turf are encouraged to use native and drought-tolerant plants when making landscape changes.

Educational Programs [1 GPCD]

The Kyle Canyon Water District (KCWD) will continue to provide conservation information through a variety of public education programs.

Water Watch Newsletter – The KCWD will continue to publish the *Water Watch* newsletter to help educate Kyle Canyon residents about conservation issues and techniques specific to their area.

Participation in Town Advisory Board Meetings – Staff will continue to attend TAB meetings to address residents’ questions related to conservation and the water system and provide helpful information to further meet conservation goals.

Conservation Helpline – The Southern Nevada Water Authority (SNWA) operates a Conservation Helpline (258-SAVE) that is available to residents. The Hotline is a resource for customers to ask conservation questions, report water waste, and obtain general water conservation information.

LVVWD.com – The LVVWD’s website has useful tips and how-to multimedia demonstrations to help residents learn how to save water both indoors and

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outdoors. The website also allows Kyle Canyon residents to sign up for email notifications regarding well operating conditions.

Youth Education – The SNWA Youth Education program “H2O University” makes available to all Clark County School District children – at both public and private schools – the *Desert Discovery* publication. *Desert Discovery* is written for Kindergarten through fifth graders and features information on water conservation, water issues, and sustainability in the desert. In addition, a conservation-based school tour of the LVVWD’s Springs Preserve are encouraged for all elementary school children.

WATER SHORTAGE CONTINGENCY

The Kyle Canyon Water Management Plan, as described in preceding sections, is designed to help the community respond to drought and short-term emergency conditions. It focuses on reducing non-essential uses and waste through successive levels of drought severity and prohibits all water use during short-term emergency conditions. In addition, multiple methods of customer notification are outlined to ensure that customers are aware of elevated Operating Conditions and the associated water use restrictions.

The LVVWD, U.S. Forest Service, Nevada Division of Forestry and Mount Charleston Volunteer Fire Department work closely together to implement response plans to emergency fire events. Fire response agencies strive to protect the area’s water resources by utilizing imported water whenever possible. However, to support their efforts, the LVVWD developed an emergency response plan. When notified, staff will adjust well operations to maximize available water resources and ensure a reliable water supply for residents.

The system improvement to put a bypass pipeline to the Rainbow subdivision was completed. The pipeline allows water from the Echo Wells to supplement the Rainbow Well supply regardless of power availability.

IMPLEMENTATION

The LVVWD, as the operator of the Kyle Canyon Water District, is committed to conservation and sustainability as part of its strategic planning process. Education of the customer base regarding indoor and outdoor water savings tips will be the focus of ongoing efforts in the community.

Staff members also will continue to monitor local, state and federal funding sources to fund needed infrastructure improvements that will reduce water loss and provide for updated leak detection technologies.

Table 5. Timeline for Implementation

<i>Conservation Measure</i>	<i>Anticipated Completion</i>
<i>Water Management Plan</i>	<i>Continuous</i>
<i>Clark County Ordinances</i>	<i>Continuous</i>
<i>Metered Rates</i>	<i>Continuous</i>
<i>Leak Detection Monitoring</i>	<i>Continuous</i>
<i>Automated Meter Reading</i>	<i>Continuous</i>
<i>Water Fixture Retrofit</i>	<i>Continuous</i>
<i>Encourage Drip Irrigation</i>	<i>Continuous</i>
<i>Encourage Native Landscaping</i>	<i>Continuous</i>
<i>Educational Programs</i>	<i>Continuous</i>

Public Notice

As required by NRS 540.131, the Conservation Plan was presented to area residents and discussed at the February 27, 2014 Mount Charleston Town Advisory Board Meeting. Public comment was held from March 3 – 17, 2014 and the plan was made available to the public for inspection and comment at the Mt. Charleston Library, Mt. Charleston Lodge, Echo Canyon Information Board, the Las Vegas Valley Water District main offices and at <http://www.lvvwd.com/smsys/kyle.html>.

Once finalized, the Conservation Plan will be available for public inspection during office hours at the following locations, as well as on LVVWD.com:

Las Vegas Valley Water District
 1001 South Valley View Blvd.
 Las Vegas, NV 89107.

Mt. Charleston Library
 25 Ski Chalet Place
 Mt. Charleston, Nevada

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Searchlight Water System

Water Conservation Plan

May 2014

Searchlight Water Conservation Plan

OVERVIEW

On February 16, 1988, the Las Vegas Valley Water District (LVVWD) became responsible for the operation, maintenance and administration of the Searchlight Water System through an Interlocal Agreement with Clark County. In 2002, LVVWD assumed full ownership of the system.

The Town of Searchlight has approximately 390 residents, according to the Clark County Department of Comprehensive Planning 2013 Population Estimates, which have been adjusted to remove areas not serviced by the Searchlight Water System. There are 263 active customer accounts.

Physical Setting

Searchlight is located approximately 60 miles south of Las Vegas and approximately 40 miles north of Laughlin. The town is within the Piute Valley Hydrologic Basin.

Climate

Searchlight experiences a desert climate with hot summers, mild winters, and very little rainfall. Summer temperatures frequently surpass 100 degrees, while winter temperatures remain around 60 degrees. Daily low temperatures seldom drop below freezing. The area receives an average of 7.66 inches of precipitation a year.

Water Sources and Water System

The LVVWD has existing permitted water rights in the Piute Valley and the adjacent Eldorado Valley Basin. The system's water rights (permit numbers 36329, 43454, 51980, 59897, and 58651) total 4,353.95 acre-feet per year.

Currently, water is supplied to residents by two wells (S-1 and S-2). Well S-2 is the primary production well supplying water to the community. The water table at Well S-2 has declined steadily over time. Should this trend continue, Well S-2 will be unable to meet projected future demands for Searchlight. Well S-1 was drilled in 1983 and serves as an emergency backup well, with limited resource and pumping capacity.

The LVVWD has applied for and received federal and state grant funding to help pay for infrastructure improvements costs on behalf of the Searchlight Water System. A new well, (S-3) has been drilled and developed and a 12-inch diameter, 26,600 linear-foot discharge pipeline has been installed. Construction on Well S-3 began in 2009 and it is scheduled to be complete in early 2014, at which point S-3 will become the community's primary water source, with S-1 serving as a back-up.

Historically, Searchlight's ability to pursue new system improvements has been constrained by limited or nonexistent cash reserves, insufficient revenues and higher operational costs that must be distributed among a very small customer base. The LVVWD will continue to pursue federal and state grant funding sources to complete existing and future system needs.

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Searchlight Water Conservation Plan

Table 1. Searchlight Well System.

Well Name	Depth (feet)	Year Constructed	Capacity (gpm)	Purpose
S-1	550	1983	240	Potable System
S-2	1,046	1990	330	Potable System
S-3	1,020	2009	340	Potable System

WATER CONSERVATION

The Searchlight Water Conservation Plan was developed and is being updated to meet state requirements and to continue to promote efficient water use by the community.

Groundwater is the sole natural resource used to meet water demands in Searchlight. The condition of the Piute Basin is such that additional water resources may not be available or may be severely limited from time to time. Given this natural resource environment, conservation and sustainable practices are essential to a stable water system.

Conservation Effectiveness Measures

Table 2 provides the estimated gallons per capita per day (GPCD) for the Searchlight Water System since 2011.

Table 2. Searchlight Water System (GPCD)

Year	Usage	Population	GPCD
2011	70,670,000	607	319
2012	71,550,000	388	505

The first Searchlight Conservation Plan was developed in 2006, and updated again in 2011. This Conservation Plan is being updated before the 2015 deadline in order to incorporate it with the other LVVWD small system plans.

The 2011 Searchlight Conservation Plan relied upon consumptive water usage numbers to calculate GPCD. The LVVWD is using total water usage – including non-revenue water loss – to calculate all small systems GPCD. The 2011 figure listed in Table 2 reflects this change.

The GPCD number in Table 2 is imprecise. Research indicates that population estimates for the area vary significantly depending on the source or methodology used. The population estimate used for this plan is taken from the most recent Clark County estimate, which was adjusted to remove areas not serviced by the Searchlight Water System. Also, the 2012 population figures include adjustments made after the 2010 Census, which showed a significant drop in population.

While total water use has not significantly increased in Searchlight, the GPCD has increased due to the use of total system water production and a 36 percent reduction in population estimates in the calculations.

Searchlight Water Conservation Plan

The Searchlight Water System would benefit most from infrastructure improvements. LVVWD staff members are monitoring the system's non-revenue water and potential needed system improvements. Searchlight is a financially self-sustaining system with a very small customer base, meaning it has little economy of scale with which to absorb large capital costs. Consequently, any proposed improvements are heavily dependent on the acquisition of grant funding or other alternative funding sources to offset the costs to the community and its residents.

Conservation Activities

At a minimum, the District will use the following measures to continue to aid in water conservation for Searchlight:

Leak Detection [5 GPCD]

In August 2008, 86 Permalog Plus loggers were installed and programmed within the Searchlight Water System. These have improved the ability to identify and fix system leaks, as funding has allowed.

Automatic Meter Reading System [7 GPCD]

Installation of Automatic Meter Reading (AMR) equipment on all residential and non-residential meters in Searchlight was completed on December 21, 2007. The equipment has proven valuable as it effectively improves water consumption monitoring and improves water management. In addition, it aids in the identification of water leakage at customer locations and in quantifying the amount of non-revenue water in the system.

Encourage Drip Irrigation for Trees and Shrubs [1 GPCD]

While trees and shrubs provide a host of benefits, they can also be a source of inefficient watering practices. Some Searchlight residents use hand-placed sprinklers or hand water to irrigate their landscapes. Drip systems are substantially more water efficient and low-maintenance compared with sprinkler or hand irrigation. Drip systems limit the amount of water wasted and provide a deeper soak than sprinklers.

Searchlight residents are encouraged to use drip systems to water trees and shrubs. Residents also are encouraged to visit LVVWD.com for more information about drip irrigation or visit the Springs Preserve, which offers classes on the installation of drip irrigation systems.

Encourage Native Landscaping When Planning Upgrades [>1 GPCD]

The SNWA conducted a five-year study that documented substantial water use reductions by converting turf grass to xeric and/or drought-tolerant plant material. The study found that residents in Southern Nevada annually applied an average of 73 gallons of water per square foot of turf, but just 17.2 gallons annually per square foot after converting turf areas to "water smart" landscape plantings. In Searchlight, water application to these landscape types may be different in this climate and environment; however the benefits of using native landscaping still apply. Consequently, it is estimated that landscape conversions may reduce water use by more than 75 percent for each square foot converted annually.

Residents with ornamental turf are encouraged to use native and drought-tolerant plants when making landscape changes.

Searchlight Water Conservation Plan

Educational Outreach [1 GPCD]

The LVVWD will continue to provide conservation information through a variety of public education programs.

Water Watch Newsletter – The LVVWD will continue to publish the *Water Watch* newsletter to help educate Searchlight residents about conservation issues and techniques specific to their area.

Participation in Town Advisory Board Meetings – LVVWD staff will continue to attend TAB meetings to address residents' questions related to conservation and the water system and provide helpful information to further meet conservation goals.

Conservation Helpline – The Southern Nevada Water Authority (SNWA) operates a Conservation Helpline (258-SAVE) that is available to residents. The Hotline is a resource for customers to ask conservation questions, report water waste, and obtain general water conservation information.

LVVWD.com – The Water District's website has useful tips and how-to multimedia demonstrations to help residents learn how to save water both indoors and outdoors.

Youth Education – The SNWA Youth Education program "H2O University" makes available to all Clark County School District children – at both public and private schools – the *Desert Discovery* publication. *Desert Discovery* is written for Kindergarten through fifth graders and features information on water conservation, water issues, and sustainability in the desert. In addition, a conservation-based school tour of the LVVWD's Springs Preserve are encouraged for all elementary school children.

WATER SHORTAGE CONTINGENCY

In the event of a continued and sustained drought where water levels within the Searchlight wells reach depths that are critically low, the LVVWD will focus on reducing waste and non-essential use. The following specific measures are potential options for Searchlight's use in the event of a water shortage.

Mandatory Watering Restrictions

In addition to water use restrictions in Clark County ordinances, implement appropriate landscape watering restrictions that would further limit or prohibit landscape watering in order to preserve system supplies and reduce operational demands on the system's wells. The nature and duration of the restrictions would be dictated by the situation.

Drought Surcharge

Drought surcharges are temporary pricing measures intended to encourage reductions in water consumption during drought conditions. Drought surcharges are a pricing strategy based on the economic law of demand that states as the price of a resource increases, the demand for the resource decreases, thereby balancing resources with customer demands. The LVVWD

Searchlight Water Conservation Plan

could implement a drought surcharge, which would be modified as needed based upon the community's ability to meet water demand reduction goals.

Well Operating Conditions Notifications

With community involvement and support, implement a program whereby residents and businesses are notified when the water system's well operating conditions change and communicate mandatory and/or voluntary actions. It is important to note that even with impressive response from the community, the well levels may continue to fall due to their reliance on precipitation to replenish the groundwater aquifers.

IMPLEMENTATION

The LVVWD, as the owner and operator of the Searchlight Water System, is committed to conservation and sustainability as part of its strategic planning process. Due to limited outdoor water use in the Searchlight area, water conservation through reduced system loss and continuous monitoring is the principal focus of the Searchlight Water Conservation Plan. Education of the customer base through Town Advisory Board updates and online and printed materials also will be important to increasing water efficiency in Searchlight.

Table 3. Timeline for Implementation

<i>Conservation Measure</i>	<i>Anticipated Completion</i>
<i>Clark County Ordinances</i>	<i>Continuous</i>
<i>Metered Rates</i>	<i>Continuous</i>
<i>Leak Detection Monitoring</i>	<i>Continuous</i>
<i>Automated Meter Reading</i>	<i>Continuous</i>
<i>Educational Programs</i>	<i>Continuous</i>

Public Notice

As required by NRS 540.131, the Conservation Plan was presented to area residents and discussed at the February 12, 2014 Searchlight Town Advisory Board Meeting. Public comment was held from March 3 – 17, 2014 and the plan was made available to the public for inspection and comment at the Searchlight Community Center, Searchlight U.S. Post Office, the LVVWD main offices and at <http://www.lvvwd.com/smsys/searchlight.html>.

Once finalized, the Conservation Plan will be available for public inspection during office hours at the following locations, as well as on LVVWD.com:

Las Vegas Valley Water District
1001 South Valley View Blvd.
Las Vegas, NV 89107.

Searchlight Community Center
200 Michael Wendell Way
Searchlight, NV 89046

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