

March 16<sup>th</sup> 2015

# **Orovada General Improvement District**

## **Water Conservation Plan**

**3-16-2015**

**Prepared for:**

**Orovada General Improvement District  
P.O. Box 134  
Orovada, NV 89425  
(775) 272-3282 or (541) 480- 7170**

**Prepared by:**

**Miryah Borlak  
Orovada General Improvement District  
&  
Ryan Kolda  
Nevada Rural Water Association  
363 Fairview Drive  
Carson City, NV 89701-3503  
(775) 841-4222**

March 16<sup>th</sup> 2015

## TABLE OF CONTENTS

Introduction .....	3
Statutory Requirements .....	4
System Description .....	5
Plan Provisions .....	7
Public Education .....	8
Conservation Measures .....	8
Water Management .....	9
Contingency Plan .....	10
Schedule .....	11
Evaluation Measurements .....	11
Conservation Estimates .....	12
Rate Analysis .....	12
Appendices	
A – Conservation Measures .....	14
B – Public Education Materials .....	19
C – End-User Water Savings .....	22

March 16<sup>th</sup> 2015

## **Introduction**

The water supply in Nevada is a precious commodity and plays an important role in determining Nevada's future. Nevada is the one of the driest states in the nation as well as one of the fastest growing ones. Nevada's future, both from an economic and a quality of life view, depends heavily upon the wise management of the water supply.

Groundwater, in general, provides about 40 percent of the total water supply used in Nevada. In some areas, groundwater provides the entire water supply. Groundwater usage may vary considerably from year-to-year as it is sometimes pumped to supplement surface water sources.

Water use in Nevada can be classified as:

- Domestic (household, both indoor and outdoor) – Met by public supply or private supply (e.g. wells).
- Commercial (businesses) – Met by public supply or private supply (e.g. non-community systems).
- Industrial (manufacturing/construction) – Met by public supply or private supply (e.g. non-community systems).
- Thermoelectric (electric/fossil fuel/geothermal power generation) – Met by public supply in a minor fraction.
- Mining (mining processes) – Supply source varies widely from operation to operation and is dependent upon the mineral being recovered and the recovery process employed.
- Irrigation (land use) – Met by self-supplied or supplied by irrigation companies or districts.
- Livestock (farm needs) – Supply source varies.

While all classifications of water usages have shown an increase over the years, it has historically been irrigation water use which has accounted for the majority of the water use in Nevada.

It has been estimated that the domestic water use accounts for less than 15 percent of the water used in Nevada, but this is expected to rise to nearly 25 percent as the population increases (based upon existing water use patterns and conservation measures). It is expected that Nevada's population will become increasingly concentrated in its primary urban areas of Las Vegas (Clark County), Reno/Sparks (Washoe County) and Carson City, with varied spillover effects on neighboring counties.

It is vitally important that all residents understand the fundamental science of water, how it is managed in the state, and the issues affecting its management. Water education must become a priority and must include education of children as they are our future.

Because Nevada does not have a comprehensive state-wide conservation program, it is reliant upon the individual water suppliers for developing their own conservation programs. In 1991,

**March 16<sup>th</sup> 2015**

Nevada enacted a law requiring adoption of conservations plans by water suppliers. Minimum standards for plumbing fixtures were adopted in 1991 (Assembly Bill 359) by Nevada and in 1992 minimum flow standards for plumbing fixtures were adopted by the federal government (National Energy and Policy Conservation Act).

Conservation is an essential part of ensuring adequate water supply as it is no longer feasible to develop new sources. It has proven to be a cost-effective way to reduce demands and/or to extend a given water supply. It can easily be pursued by all water users regardless of the water system type. Key to evaluating the program's effectiveness is the water use measurement (through meters and other measurement devices). Various conservation measures can be put into place and the achievement of the goals set with these measures is vital to combating the expected increase in water usage.

## **Statutory Requirements**

This water conservation plan was prepared for Orovada General Improvement District in accordance with Nevada Revised Statute (NRS) 540. As outlined in NRS 540.141, the provisions of this plan must include:

- a. Public Education
- b. Conservation Measures
- c. Water Management
- d. Contingency Plan
- e. Schedule
- f. Evaluation Measurements
- g. Conservation Estimates

In addition to the provisions of the water conservation plan, listed above, NRS 540.141 also requires a rate analysis to be performed and included with the submittal.

This plan is being submitted to the Nevada Department of Conservation and Natural Resources (DCNR), Division of Water Resources (DWR) for review and approval prior to its adoption by the Orovada General Improvement District, as required by NRS 540.131.

This plan is available for inspection upon request via e-mail at [orovadagid@hotmail.com](mailto:orovadagid@hotmail.com).

This plan will conform to all public notice requirements as found in NRS 540, NRS 318.

This is the original Water Conservation Plan for the Orovada General Improvement District.

In accordance with NRS 540.131, this plan will be reviewed from time-to-time to reflect changes and must be updated every five (5) years to comply with NRS 540.131 and NRS 540.141. The next update of this plan is to be on, or before, **March 16<sup>th</sup> 2019**.

March 16<sup>th</sup> 2015

**System Description**

The Orovada General Improvement District is a publically-owned non-transient community water system and has a current water operation permit, NV0003032. The Orovada General Improvement District serves water to 500 customers on 60 connections in its service area in Orovada, which is located in Humboldt County. The service area boundaries are with the Orovada city limits and covers approximately 1 square mile. The service area’s terrain is flat.

The estimated population served in 2014 is 500. The Orovada General Improvement District estimates that its customer base will increase by 0% on a yearly basis through 2020. The State of Nevada, through its State Water Plan, estimates the population growth for Humboldt County through 2020 to be insufficient to exceed a total population of 50,000. The State Water Plan only includes population projections for counties that are expected to equal or exceed a resident population of 50,000 persons by the end of 2020.

The water supply is from groundwater in the Quinn River Valley-Orovada Sub-Area (33A) which is located within the Black Rock Desert – Humboldt Sub-Region, Black Rock Desert Basin #2, Upper Quinn sub-basin #16040201 of the Great Basin Hydrographic Region #16. There are a total number of 2 wells supplying the system and 1 storage tank. Each of these is identified in the tables below (Table 1 and Table 2).

**Table 1 – Source of Supply**

<b>Well No.</b>	<b>Depth (feet)</b>	<b>Production (gpm)</b>
<b>1</b>	<b>Unknown</b>	<b>275</b>
<b>2</b>	<b>369</b>	<b>210</b>

**Table 2 – Storage Tanks**

<b>Tank No.</b>	<b>Volume (gallons)</b>
<b>1</b>	<b>125,000</b>

The Orovada General Improvement District has been granted water rights in the total amount of 100 million gallons annually. Applications # 48557 and 53936 have been permitted and 35950 has been certified (certificate #11175). The current water rights are listed in the table below (Table 3).

**Table 3 – Water Rights**

<b>Application (Certificate No.)</b>	<b>Rate of Diversion (CFS)</b>	<b>Annual Use (AFA)</b>
<b>35950 (11175)</b>	<b>0.5</b>	<b>34.924082</b>
<b>48557</b>	<b>2</b>	<b>306.89</b>
<b>53936</b>	<b>1</b>	<b>306.89</b>

Water is supplied by 2 wells that pump to the storage tank which provides system pressure via gravity. Water is then distributed to the customers through the 4”-6” C900 main lines.

The Orovada General Improvement District requires, at a minimum, a Distribution Grade 1 operator. Orovada General Improvement District contracts services from Kirk Peterson who is a Distribution Grade 3 operator.

The plant operator is required to perform all monitoring and testing of water quality. The Orovada General Improvement District does not currently have any outstanding water quality issues.

The last sanitary survey performed by the Nevada Department of Environmental Protection (NDEP) was completed on November 6, 2012 and shows 2 significant deficiencies with the system. These deficiencies were: 1) System tank was at low level during the day and no alarm was sounding. 2) Storage tank overflow pipe is undersized and not protected by screen or flapper valve. These have since been corrected and BSDW has been notified.

The Orovada General Improvement District charges metered rates. It does not have a tiered rate usage fee. A breakdown of the customer type, number, and charge is found in the tables below.

Residential customers are billed a \$24.50 monthly fee in addition to a quantity charge. The fees are detailed in the table below (Table 4).

**Table 4 – Residential Customers and Usage Charges**

<b>Meter Size</b>	<b>Number</b>	<b>Monthly Fee</b>	<b>Quantity Fee (\$/thousand gallons)</b>
<b>Residential</b>	<b>35</b>	<b>\$24.50</b>	<b>0-24 = \$0.00 Above 24 = \$3.15</b>

Commercial customers are billed a \$30.69 monthly charge in addition to a quantity charge. The fees are detailed in the table below (Table 5).

March 16<sup>th</sup> 2015**Table 5 – Commercial Customers and Usage Charges**

<b>Meter Size</b>	<b>Number</b>	<b>Monthly Fee</b>	<b>Quantity Fee (\$/gallon)</b>
<b>Commercial</b>	<b>24</b>	<b>\$30.69</b>	<b>0-30 = \$0.00 Above 30 = \$3.15</b>
<b>Extra Meter</b>	<b>1</b>	<b>\$44.22</b>	<b>0-50 = \$0.00 Above 50 = \$3.15</b>

Wastewater collected from the service area is discharged into the two (2) wastewater ponds that have an additional two (2) overflow ponds. Currently no system is in place to reuse of effluent.

Current water rates were established in 2013. Water rates are reviewed every yearly.

## **Plan Provisions**

In accordance with NRS 540.131, this plan will be reviewed from time-to-time to reflect changes and must be updated every five (5) years to comply with NRS 540.131 and NRS 540.141. The next update of this plan is to be on, or before, **March 16<sup>th</sup> 2019**.

The Orovada General Improvement District will appoint a staff member, if economically feasible, to oversee the conservation efforts and this staff member will be responsible for implementation of conservation programs, monitoring of water use, and will review /revise the conservation plan when needed.

In an effort to promote voluntary conservation and aid in Nevada's future, the Orovada General Improvement District will enact the voluntary conservation measures found in the ***Conservation Measures*** section. When more stringent measures are needed, the Orovada General Improvement District will enact the measures found in the ***Contingency Measures*** section. All measures can be found in Appendix A.

As required by NRS 540.141, the water conservation plan must include the following provisions:

- a. Public Education
- b. Conservation Measures
- c. Water Management
- d. Contingency Plan
- e. Schedule
- f. Evaluation Measures
- g. Conservation Estimates

March 16<sup>th</sup> 2015

Each provision is discussed below.

## **Public Education**

Public education is a key for cooperation with conservation efforts, so funding for public education is crucial. The Orovada General Improvement District recognizes this and will establish a conservation education program and corresponding budget, if economically feasible.

It is the goal of the Orovada General Improvement to increase public awareness to conserve water, encourage reduction in lawn sizes, encourage the use of climate-appropriate plants, encourage the use of drip irrigation, and encourage conscious decisions for water use.

The conservation education program includes education materials such as bill inserts, pamphlets, flyers, and posters. New customers will be provided these materials when service is established, while existing customers will receive these materials periodically through bill inserts or direct mail. Materials can also be posted at the post office, the general store, and Harney Electric. Educational pamphlets will be provided to all customers upon request and should include an explanation of all costs involved in supplying drinking water and demonstrate how the water conservation practices will provide water users with long-term savings. Education materials should also encourage reduction of lawn sizes, use of drip irrigation, use of climate-appropriate plants, and conservation tips and techniques (see Appendix B).

Customers should also be able to read and understand their water bills. Bills should be informative, going beyond the basic billing information. Bills should include comparisons to previous bills and tips on water conservation that can help customers make informed choices about their water usage. Bill inserts can also include this information.

The Orovada General Improvement District could participate in public outreach opportunities such as Earth Day, provide information at a variety of school programs, participate at workshops for plumbers/suppliers/builders, and could provide incentives for conservation efforts (e.g. plumbing retrofit rebates, water conservation landscaping rebates, etc.).

The Orovada General Improvement District could also establish a water conservation advisory committee that would involve the public in the conservation process and provide feedback to the system concerning its efforts, thus fostering support for conservation in the community.

## **Conservation Measures**

In an effort to promote conservation and voluntarily conserve water, the Orovada General Improvement District is adopting water-use regulations to promote water conservation during non-emergency situations. These regulations include the following non-essential water use:

March 16<sup>th</sup> 2015

- 1) Use of water through any connection when the Orovada General Improvement District has notified the customer in writing to repair a broken or defective plumbing, sprinkler, watering or irrigation system and the customer has failed to make such repairs within 5 days after receipt of such notice.
- 2) Use of water which results in flooding or run-off in gutters, waterways, patios, driveway, or streets.
- 3) Use of water for washing aircraft, cars, buses, boats, trailers or other vehicles without a positive shut-off nozzle on the outlet end of the hose. Exceptions include washing vehicles at commercial or fleet vehicle washing facilities operated at fixed locations where equipment using water is properly maintained to avoid wasteful use.
- 4) Use of water through a hose for washing buildings, structures, sidewalks, walkways, driveways, patios, parking lots, tennis courts, or other hard-surfaced areas in a manner which results in excessive run-off or waste.
- 5) Use of water for watering streets with trucks, except for initial wash-down for construction purposes (if street sweeping is not feasible), or to protect the health and safety of the public.
- 6) Use of water for construction purposes, such as consolidation of backfill, dust control, or other uses unless no other source of water or other method can be used.
- 7) Use of water for more than minimal landscaping in connection with any new construction.
- 8) Use of water for watering outside plants and turf areas using a hand-held hose without a positive shut-off valve.
- 9) Use of water for decorative fountains or the filling or topping off of decorative lakes or ponds. Exceptions are made for those decorative fountains, lakes, or ponds which utilize recycled water.
- 10) Use of water for the filling or refilling of swimming pools.

In the event these conservation measures are insufficient to control the water shortage, the Orovada General Improvement may wish to implement the mandatory measures discussed in the *Contingency Plan* section below.

The Orovada General Improvement District also promotes the development of water conserving principles into the planning, development, and management of new landscape projects such as public parks, building grounds, and golf course. Customers are encouraged to consult with the local nursery or perform an internet search on the availability of water conservation plants and how to renovate existing landscapes. Customers are also encouraged to evaluate irrigation management systems using metering, timing, and water sensing devices.

The Orovada General Improvement District provides the following incentives for conservation: At present, it is not viable to offer any water conservation incentives.

## **Water Management**

The Orovada General Improvement District monitors and records water levels at all well and tank sites. Static water levels of the wells are monitored and recorded via sounding device

March 16<sup>th</sup> 2015

quarterly. If the tank falls below the set low water level of 11 feet a light turns on to indicate the issue.

Working relationships with other local water purveyors are not maintained to ensure adequate water supplies are available since there are no adjacent water systems in the area. Orovada General Improvement District does maintain communication with McDermitt and Winnemucca to ensure availability of parts and labor should an emergency arise.

The Orovada General Improvement District does actively monitor unaccounted for water losses. Production versus sales and authorized usage allows the determination of unaccounted for water losses. Current-to-historical comparisons are examined and evaluation methods are examined to locate leaks, if significant differences are found.

The Orovada General Improvement District does not have a formal leak detection program. All large leaks are repaired immediately and small leaks (less than 1 gallon per minute) are repaired as soon as operational conditions permit.

The Orovada General Improvement District is in a mostly flat region with one pressure zone. System pressures are maintained between 40psi and 75psi.

The Orovada General Improvement District does not have a formal well head protection program. Hazards are identified and activity is monitored in the vicinity of the system wells.

The Orovada General Improvement District does not have a meter replacement program for all meters that are not registering properly. Meters that have stopped registering are replaced once the condition is discovered.

A capital improvement plan is not in place. Water facilities are replaced when necessary.

The Orovada General Improvement District does not have a system for reusing of effluent. Wastewater is discharged into ponds.

Humboldt County has adopted a Plumbing Water Conservation Ordinance which applies to structures which are renovated as well as all new construction. This ordinance is furnished to local suppliers and contractors. The county checks new construction, renovation, and expansions within the county to ensure compliance with this ordinance.

## **Contingency Plan**

The objective of the contingency plan would be to manage the available resources to ensure continued supply of potable water during periods of drought or extended drought.

It is envisioned that voluntary conservation will be sufficient to ensure an adequate supply of water and reduce water usage. However, if a sustained drought (lack of precipitation) is encountered, it may be necessary to implement mandatory restrictions in order to ensure an adequate supply of water to meet essential needs.

March 16<sup>th</sup> 2015

The Orovada General Improvement District plans for drought response would be three (3) stages of drought response: (1) warning stage, (2) alert stage, and (3) emergency stage. The stages are describes as follows:

In Stage 1, the warning stage, the Orovada General Improvement District would increase monitoring of its water supplies and would begin creating public awareness of the water supply situation and the need to conserve. Conservation measures at this stage would be voluntary. Retrofit kits (low-flow faucet aerators, low-flow showerheads, leak detection tablets, and replacement flapper valves) can be made available, or at cost, and can be actively distributed, if needed.

In Stage 2, the alert stage, the Orovada General Improvement District would call for wide-based community support to achieve conservation, limit the use of fire hydrants to fire protection uses (by requiring effluent for construction and dust control purposes), implement water use restrictions, and impose penalties for ignoring the restrictions. Conservation measures at this stage would be mandatory and violations would incur fines.

In Stage 3, the emergency stage, the Orovada General Improvement District would declare a drought and water shortage emergency, would enforce water use restrictions, impose fines for violations, implement allocation of water (rationing), and impose higher fees for water usage. Media relations would be activated in order to inform the customers and monetary assistance may need to be secured in an effort to mitigate the effects of the drought (e.g. federal funding assistance). Conservation measures at this stage would be mandatory, rationing would be imposed, violations would incur fines, and over-use would be penalized by higher rates.

When a drought is declared over, voluntary conservation measures (see *Conservation Measures* section) will be reinstated and water supplies would continue to be monitored.

## **Schedule**

All of the provisions listed are currently in place and are actively working to achieve results. All of the provisions listed will be placed after the approval of this plan.

## **Evaluation Measurements**

Usage amounts measured will include summer use, average use per connection, and per capita use. If there is a decrease in usage as a result of a particular measure/incentive, that measure/incentive can be expanded or improved upon, if possible. If it is discovered that a particular measure/incentive is ineffective, it will be discontinued and a new one can then be implemented to take its place.

March 16<sup>th</sup> 2015

In addition to changes resulting from audits, updates, and modifications to conservation measures/incentives there will be changes made to meet changing conditions (e.g. customer growth and demand, changing use, new technologies, etc.).

### **Conservation Estimates**

Approximate consumption is 130 gpcpd.

During the Stage 1 phase of the conservation plan, it is estimated that conservation measures could be expected to provide a 2.5 to 5% reduction in water use, or 3.25-6.5 gpcpd.

During the Stage 2 phase of the conservation plan, it is estimated that conservation measures could be expected to provide a 5 to 7.5% reduction in water use, or 6.5-9.75 gpcpd.

During the Stage 3 phase of the conservation plan, it is estimated that conservation measures could be expected to provide a 7.5 to 15% reduction in water use, or 9.75-19.5 gpcpd.

The estimated water savings for various end-user efforts can be found in Appendix C.

### **Rate Analysis**

The charging of variable rates for the use of water has sometimes been shown to encourage conservation of water, but not in all systems. Oftentimes the end-user will continue to pay increasing block rates out of necessity for the water used. The use of variable water rates needs to be evaluated on a case-by-case basis.

At this time the Orovada General Improvement District does not anticipate any further water conservation savings due to a change in rate structure. The Orovada General Improvement District will continue to monitor the water usage and will re-visit this issue each time rates are reviewed. If so warranted, a change in rates will occur and this conservation plan will be updated to reflect the new rates.

**March 16<sup>th</sup> 2015**

**Appendices**

**March 16<sup>th</sup> 2015**

**APPENDIX A  
CONSERVATION MEASURES**

March 16<sup>th</sup> 2015

### **Stage 1 – Warning Stage**

1. The Orovada General Improvement District would increase monitoring of water supplies.
2. The Orovada General Improvement District would begin creating public awareness of the water supply situation and the need to conserve.
3. The Orovada General Improvement District would inform customers of voluntary conservation measures (non-essential water uses, listed below).
4. The Orovada General Improvement District would provide customers with retrofit kits either at cost or free.

Non-essential water uses are:

- 1) Use of water through any connection when the Orovada General Improvement District has notified the customer in writing to repair a broken or defective plumbing, sprinkler, watering or irrigation system and the customer has failed to make such repairs within 5 days after receipt of such notice.
- 2) Use of water which results in flooding or run-off in gutters, waterways, patios, driveway, or streets.
- 3) Use of water for washing aircraft, cars, buses, boats, trailers or other vehicles without a positive shut-off nozzle on the outlet end of the hose. Exceptions include washing vehicles at commercial or fleet vehicle washing facilities operated at fixed locations where equipment using water is properly maintained to avoid wasteful use.
- 4) Use of water through a hose for washing buildings, structures, sidewalks, walkways, driveways, patios, parking lots, tennis courts, or other hard-surfaced areas in a manner which results in excessive run-off or waste.
- 5) Use of water for watering streets with trucks, except for initial wash-down for construction purposes (if street sweeping is not feasible), or to protect the health and safety of the public.
- 6) Use of water for construction purposes, such as consolidation of backfill, dust control, or other uses unless no other source of water or other method can be used.
- 7) Use of water for more than minimal landscaping in connection with any new construction.
- 8) Use of water for watering outside plants and turf areas using a hand-held hose without a positive shut-off valve.
- 9) Use of water for decorative fountains or the filling or topping off of decorative lakes or ponds. Exceptions are made for those decorative fountains, lakes, or ponds which utilize recycled water.
- 10) Use of water for the filling or refilling of swimming pools.

March 16<sup>th</sup> 2015

**Stage 2 – Alert Stage**

1. The Orovada General Improvement District would set conservation goals and call for wide-based community support to achieve those goals.
2. The Orovada General Improvement District would inform customers of mandatory conservation measures (non-essential water uses, listed in Stage 1 are now mandatory).
3. The Orovada General Improvement District would inform customers of penalties if mandatory conservation measures are not observed (penalties are listed below).
4. The Orovada General Improvement District would inform customers of mandatory conservation water fees.
5. The Orovada General Improvement District limit the use of fire hydrants to fire protection uses only.
6. The Orovada General Improvement District would provide customers with retrofit kits either at cost or free.

Penalties for violation of mandatory conservation measures are:

- 1<sup>st</sup> violation – written warning.
- 2<sup>nd</sup> violation – \$25.00
- 3<sup>rd</sup> violation – \$50.00
- 4<sup>th</sup> violation – turn-off of water services.

Offenses for separate water use restriction violations will each start at the warning stage (1<sup>st</sup> violation) and the penalties for the offenses are in addition to the regular rate schedule charges.

Stage 2 water rates would be 1.5 times the normal quantity rate, or as deemed necessary.

A flow restrictor can be installed if the customer is non-responsive after the 1<sup>st</sup> violation. The flow restrictor shall not restrict water delivery by greater than 50% of normal flow and shall provide the premise with a minimum of 30,000 gallons/month. The flow restrictor may be removed only by the Orovada General Improvement District, only after a 30-day period has elapsed and only upon payment of the appropriate removal charge of:

<b><u>Connection Size</u></b>	<b><u>Removal Charge</u></b>
5/8-inch to 1-inch	\$25.00
1-1/2-inch to 2-inch	\$50.00
3-inch and larger	Actual Cost

If, after the removal of the flow restrictor, any non-essential or unauthorized use of water shall continue, another flow restrictor may be installed and shall remain in place until water supply conditions warrant its removal and the appropriate charge for removal has been paid.

March 16<sup>th</sup> 2015

### Stage 3 – Emergency Stage

1. The Orovada General Improvement District would declare a drought and water shortage emergency and use media relations to supplement efforts to keep customers informed.
2. The Orovada General Improvement District would set rationing benchmarks for each customer class.
3. The Orovada General Improvement District would inform customers of prohibited water uses (non-essential water uses, listed in Stage 1 are now prohibited).
4. The Orovada General Improvement District would inform customers of penalties if prohibited measures are not observed (penalties are listed below).
5. The Orovada General Improvement District would inform customers of rationing water fees.
6. The Orovada General Improvement District would limit the use of fire hydrants to fire protection uses only.
7. The Orovada General Improvement District would provide customers with retrofit kits either at cost or free.
8. The Orovada General Improvement District would seek monetary assistance in an effort to mitigate the drought (e.g. federal funding).

Penalties for violation of prohibited water use measures are:

- 1<sup>st</sup> violation – written warning.
- 2<sup>nd</sup> violation – \$50.00
- 3<sup>rd</sup> violation – turn-off of water services.

Offenses for separate water use restriction violations will each start at the warning stage (1<sup>st</sup> violation) and the penalties for the offenses are in addition to the regular rate schedule charges.

Rationing benchmark is set at 120.25 gpcpd.

Stage 3 water rates would be 2 times the normal quantity rate, or as deemed necessary.

A flow restrictor can be installed if the customer is non-responsive after the 1<sup>st</sup> violation. The flow restrictor shall not restrict water delivery by greater than 50% of normal flow and shall provide the premise with a minimum of 24,000 gallons/month. The flow restrictor may be removed only by the Orovada General Improvement District, only after a 30-day period has elapsed and only upon payment of the appropriate removal charge of:

<u>Connection Size</u>	<u>Removal Charge</u>
Residential	\$25.00
Commercial	\$50.00

**March 16<sup>th</sup> 2015**

If, after the removal of the flow restrictor, any non-essential or unauthorized use of water shall continue, another flow restrictor may be installed and shall remain in place until water supply conditions warrant its removal and the appropriate charge for removal has been paid.

If any customer seeks a variance from the provisions of Stage 3, then that customer shall notify the Orovada General Improvement District in writing, explaining in detail the reason for such a variation. The Orovada General Improvement District shall respond to each request.

**March 16<sup>th</sup> 2015**

**APPENDIX B  
PUBLIC EDUCATION MATERIALS**

**March 16<sup>th</sup> 2015**

There are several publications available for use at U.S. EPA website for general distribution (currently located at <http://epa.gov/watersense/pubs/index.htm#ideas>). These publications include such topics as:

- Simple Steps to Save Water,
- Ideas for Residences,
- Ideas for Commercial,
- Using Water Wisely In the Home,
- Outdoor Water Use in the US,
- Toilet Flush Facts,
- Watering Can Be Efficient,
- Irrigation Timers for the Homeowner, and
- Water Efficient Landscaping,

These publications can be utilized until the Orovida General Improvement District develops system-specific publications.

There are also numerous website that provide tips for conserving water. One of these is: <http://www.wateruseitwisely.com/100-ways-to-conserve/index.php>. Customers can be directed to this website for tips to conserve water.

March 16<sup>th</sup> 2015

Specific tips for landscaping that can be provided to the customers are listed below. During drought conditions outdoor watering restrictions may be imposed, and therefore some of the following tips will not apply.

## **Tips for Landscaping**

### Watering:

- Detect and repair all leaks in irrigation systems.
- Use properly treated wastewater for irrigation where available.
- Water the lawn or garden during the coolest part of the day (early morning is best). Do not water on windy days.
- Water trees and shrubs, which have deep root systems, longer and less frequently than shallow-rooted plants which require smaller amounts of water more often. Check with the local nursery for advice on the amount and frequency of watering needed in your area.
- Set sprinklers to water the lawn or garden only—not the street or sidewalk.
- Use soaker hoses and trickle irrigation systems.
- Install moisture sensors on sprinkler systems.

### Planting:

- Have your soil tested for nutrient content and add organic matter if needed. Good soil absorbs and retains water better.
- Minimize turf areas and use native grasses.
- Use native plants in your landscape—they require less care and water than ornamental varieties.
- Add compost or peat moss to soil to improve its water-holding capacity.

### Maintaining:

- Use mulch around shrubs and garden plants to reduce evaporation from the soil surface and cut down on weed growth.
- Remove thatch and aerate turf to encourage movement of water to the root zone.
- Raise your lawn mower cutting height to cut grass no shorter than three inches—longer grass blades encourages deeper roots, help shade soil, cut down on evaporation, and inhibit weed growth.
- Minimize or eliminate fertilizing which requires additional watering, and promotes new growth which will also need additional watering.

### Ornamental Water Features:

- Do not install or use ornamental water features unless they recycle the water. Use signs to indicate that water is recycled. Do not operate during a drought.

March 16<sup>th</sup> 2015

**APPENDIX C**  
**END-USER WATER SAVINGS**

March 16<sup>th</sup> 2015

Here are just a few of the end-user water savings that could be realized:

### **Leaky Faucets**

**Issue:** Leaky faucets that drip at the rate of one drip per second can waste more than 3,000 gallons of water each year.

**Fix:** If you're unsure whether you have a leak, read your water meter before and after a two-hour period when no water is being used. If the meter does not read exactly the same, you probably have a leak.

### **Leaky Toilets**

**Issue:** A leaky toilet can waste about 200 gallons of water every day.

**Fix:** To tell if your toilet has a leak, place a drop of food coloring in the tank; if the color shows in the bowl without flushing, you have a leak.

### **Showering**

**Issue:** A full bath tub requires about 70 gallons of water, while taking a five-minute shower uses 10 to 25 gallons.

**Fix:** If you take a bath, stopper the drain immediately and adjust the temperature as you fill the tub.

### **Brushing Teeth Wisely**

**Issue:** The average bathroom faucet flows at a rate of two gallons per minute.

**Fix:** Turning off the tap while brushing your teeth in the morning and at bedtime can save up to 8 gallons of water per day, which equals 240 gallons a month!

### **Watering Wisely**

**Issue:** The typical single-family suburban household uses at least 30 percent of their water outdoors for irrigation. Some experts estimate that more than 50 percent of landscape water use goes to waste due to evaporation or runoff caused by overwatering.

**Fix:** Drip irrigation systems use between 20 to 50 percent less water than conventional in-ground sprinkler systems. They are also much more efficient than conventional sprinklers because no water is lost to wind, runoff, and evaporation. If the in-ground system uses 100,000 gallons annually, you could potentially save more than 200,000 gallons over the lifetime of a drip irrigation system should you choose to install it. That adds up to savings of at least \$1,150!

March 16<sup>th</sup> 2015

### **Washing Wisely**

**Issue:** The average washing machine uses about 41 gallons of water per load.

**Fix:** High-efficiency washing machines use less than 28 gallons of water per load. To achieve even greater savings, wash only full loads of laundry or use the appropriate load size selection on the washing machine.

### **Flushing Wisely**

**Issue:** If your toilet is from 1992 or earlier, you probably have an inefficient model that uses at least 3.5 gallons per flush.

**Fix:** New and improved high-efficiency models use less than 1.3 gallons per flush—that's at least 60 percent less than their older, less efficient counterparts.

Compared to a 3.5 gallons per flush toilet, a WaterSense labeled toilet could save a family of four more than \$90 annually on their water bill, and \$2,000 over the lifetime of the toilet.

### **Dish Washing Wisely**

**Issue:** Running dishwasher partial full and pre-rinsing dishes before loading the dishwasher.

**Fix:** Run the dishwasher only when it's full and use the rinse-and-hold dishwasher feature until you're ready to run a full load. Pre-rinsing dishes does not improve cleaning and skipping this step can save you as much as 20 gallons per load, or 6,500 gallons per year. New water-saver dishwashers use only about 4 gallons per wash.

March 16<sup>th</sup> 2015

Estimated water savings from EPA Water Conservation Guidelines 1998 (Appendix B, Table B-1):

Type	Estimated Usage (gpcpd)	Conservation Usage (gpcpd)	Savings (gpcpd)	Savings (%)
Toilet	18.3	10.4	7.9	43 %
Clothes Washers	14.9	10.5	4.4	30 %
Showers	12.2	10.0	2.2	18 %
Faucets	10.3	10.0	.3	3 %
Leaks	6.6	1.5	5.1	77 %

Benchmarks from selected conservation measures from EPA Water Conservation Guidelines 1998 (Appendix B, Table B-4):

Category	Measure	Reduction of End Use (% or gpcpd)
Universal metering	Connection metering	20 %
	Sub metering	20 – 40 %
Costing and pricing	10% increase in residential prices	2 – 4 %
	10% increase in non-residential prices	5 – 8 %
	Increasing-block rate	5 %
Information and education	Public education and behavior changes	2 – 5 %
End-use audits	General industrial water conservation	10 – 20 %
	Outdoor residential use	5 – 10 %
	Large landscape water audit	10 – 20 %
Retrofits	Toilet tank displacement devices (for toilets using > 3.5 gallons/flush)	2 – 3 gpcpd
	Toilet retrofit	8 – 14 gpcpd
	Showerhead retrofit (aerator)	4 gpcpd
	Faucet retrofit (aerator)	5 gpcpd
	Fixture leak repair	0.5 gpcpd
Pressure management	Governmental building (indoors)	5 %
	Pressure reduction, system	3 – 6 % of total production
Outdoor water use efficiency	Pressure-reducing valves, residential	5 – 30%
	Low water-use plants	7.5 %
	Lawn watering guides	15 – 20 %
	Large landscape management	10 – 25%
Replacements and promotions	Irrigation timer	10 gpcpd
	Toilet replacement, residential	16 – 20 gpcpd
	Toilet replacement, commercial	16 – 20 gpcpd
	Showerhead replacement	8.1 gpcpd
	Faucet replacement	6.4 gpcpd
	Clothes washers, residential	4 – 12 gpcpd
	Dishwashers, residential	1 gpcpd
Water-use regulation	Hot water demand units	10 gpcpd
	Landscape requirements for new developments	10 – 20 % in sector
	Greywater reuse, residential	20 – 30 gpcpd