City of Fallon

Water Conservation Plan

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City of Fallon
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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, 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 the City of Fallon in accordance with Nevada Revised Statue (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. Progression Towards Metering All Connections
g. Standards for Water Efficiency in New Developments
h. Tiered Rates for Water Users
i. Water Restrictions Based on the Time of Day and Day of the Week
j. Evaluation Measurements
k. 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 City of Fallon as required by NRS 540. This plan is available for inspection during normal business hours at City Hall, City Engineer's Office, 55 Williams Avenue, Fallon, NV 89406.

The original Water Conservation Plan for the City of Fallon was developed in 1992 and modified on November 13, 2009.

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, January 2026.

System Description

The City of Fallon is a public water system and has a current water operation permit, NV0000045. The City of Fallon serves water to about 3,418 metered customers in its service area in the City of Fallon, which is located in Churchill County. The service area boundaries are the incorporated city limits of Fallon and covers approximately four-square miles. The service area's terrain is flat.

The estimated population served in 2019 was 9184. The City of Fallon estimates that its customer base will increase by 1.5% on a yearly basis through 2025. The State of Nevada, through its State Water Plan, estimates the population growth for Churchill County through 2025 will not be sufficient to exceed 50,000.

The water supply is from wells which are located within the Basalt Aquifer Basin of the Carson Desert #16050203 in the Carson Basin Hydrographic Region #160502. There is a total of four (4) wells supplying the system and a total of four (4) storage tanks. Each of these is identified in the tables below (Table 1 and Table 2).

Table 1 – Source of Supply

Well No.	Depth (feet)	Production (gpm)
#1	484	1,100
#2	521	1,100
#3	510	1,100
#4	392	2,100

Table 2 – Storage Tanks

Tank No.	Volume (gallons)
#1	1,800,000
#2	1,000,000
#3	400,000
#4	3,000,000

The City of Fallon has been granted water rights in the total amount of 3,886 AFA per year. There is a total of six (6) total water right permits.

Applications # **19859, 19860, 26168, 55507** have been certified; # **5627, 5628, 8243,** have been permitted. The current water rights are listed in the table below (Table 3).

Table 3 – Water Rights

Application (Certificate No.)	Well No.	Duty Balance
5627	#1	1613.01384
5628	#2	1613.01384
8243	#3	658.800763
None	#4	1614.394845

Water is delivered from the four ground wells which provide raw water to the arsenic removal facility for treatment, and the water then flows into an on-site storage tank (400 kgal). From this initial tank, water is pumped directly into the distribution system and into elevated storage tanks located near the top of Rattlesnake Hill. Water is distributed to the customers through various types of piping including cast iron, PVC, ductile iron, and some ACP.

City of Fallon requires, at a minimum, a Grade IV Treatment Operator. The plant operator is required to perform daily, monthly, quarterly, semi-annual, and annual monitoring and testing of water quality. The arsenic treatment plant was completed in February 2004 and has been in operation since.

The plant operator is required to perform all monitoring and testing of water quality. The City of Fallon does not currently have any outstanding water quality issues.

City of Fallon charges metered rates for all customers. It does not have a tiered rate usage fee. A breakdown of the meter size, number, and charge is found in the table below.

All customers are billed a base rate in addition to a quantity charge. The fees are detailed in the table below (Table 4).

Table 4 – Customers and Usage Charges

Meter Size	Number	Monthly Fee	Quantity Fee ($/100 cubic feet)
3/4-inch	2999	$15.00	$1.07
1-inch	230	$33.18	$1.07
1-1/2-inch	42	$66.37	$1.07
2-inch	99	$107.02	$1.07
3-inch	25	$221.54	$1.07
4-inch	4	$321.05	$1.07
6-inch	3	$642.10	$1.07

Wastewater collected from the service area is directed to the City of Fallon's 2.2 MGD wastewater treatment facility.

Current water rates were established in May 2006. Water rates are reviewed every year by the City Engineer.

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, January 2026.

City of Fallon has appointed the City Engineer 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 City of Fallon will enact the voluntary conservation measures found in the ***Conservation Measures*** section. When more stringent measures are needed, the City of Fallon 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. Progression Towards Metering All Connections
g. Standards for Water Efficiency in New Developments
h. Tiered Rates for Water Users
i. Water Restrictions Based on the Time of Day and Day of the Week
j. Evaluation Measures
k. Conservation Estimates

Each provision is discussed below.

a. Public Education

Public education is a key for cooperation with conservation efforts, so funding for public education is crucial. City of Fallon recognizes this and will establish a conservation education program and corresponding budget.

It is the goal of City of Fallon 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. 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.

City of Fallon will 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.).

City of Fallon 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.

Public Education has been shown to cause a savings of 2-5%. With an annual consumption of 505.216 million gallons (2019) the City of Fallon could save 10,104,320 to 25,260,800 gallons annually.

b. Conservation Measures

To promote conservation and voluntarily conservation of water, City of Fallon is adopting water-use regulations to promote water conservation during non-emergency situations. These regulations include the following non-essential water use:

1) Use of water through any connection when City of Fallon 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 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.

11) Service of water by any restaurant except upon the request of the patron.

The City of Fallon is a fully metered water system. It is estimated that metering effects behavior and saves about 20% of water. With annual consumption (2019) of 505.216 million gallons this measure is saving about 126.304 million gallons annually.

In the event these conservation measures are insufficient to control the water shortage, City of Fallon may wish to implement the mandatory measures discussed in the Contingency Plan section below.

City of Fallon 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.

City of Fallon currently does not provide incentives for conservation but may do so in the future.

c. Water Management

City of Fallon monitors and records water levels at all tank sites. The system is monitored by a SCADA system and fluctuations are controlled by the system.

There are no inter-ties existing or planned with other local water purveyors. The City system has redundancy in storage tanks and pumping systems to maintain to ensure adequate water supplies are available.

City of Fallon does not actively monitor for water losses but does foresee implementing a program in the future. The American Water Works Association audit showed the non-revenue water as percent by volume to be 8.78%. The City has a goal of keeping this percentage at less than 10%. To ensure the goal is met, the City will continue to monitor and record water levels at all tank sites, actively check for leaks and repair them immediately. The City will also continue to compare production figures versus billing information.

City of Fallon leak detection program consist of clerk's office careful monitoring of individual customer accounts for excessive usage. All City crews are trained to actively look for potential leaks, and any leaks discovered are repaired immediately.

City of Fallon is systematically replacing all meters for remote-read meters over the next five to ten years. All customers are fully metered.

A formal capital improvement plan is in place, it is currently being funded through rates, and there are plans to replace distribution lines at their anticipated useful life. The capital improvement plan is reviewed annually at the time of budget review.

City of Fallon does not have a system for reusing wastewater treatment facility effluent. Treated effluent waters is discharged to the New River Drain for the benefit of the Stillwater Wildlife Refuge.

City of Fallon 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 City of Fallon Building Department checks new construction, renovation, and expansions within the City limits to ensure compliance with this ordinance.

d. 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.

City of Fallon 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 described as follows:

In Stage 1, the warning stage, City of Fallon 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 tables, and replacement flapper valves) can be made available, or at cost, and can be actively distributed, if needed.

In Stage 2, the alert stage, City of Fallon 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, City of Fallon 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, tiered user rates would go into effect and 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.

e. Schedule

All the provisions listed are currently in place and are actively working to achieve results.

f. Progression Toward Metering All Connections

All water connections are currently metered.

g. Standards for Efficiency in New Developments

City of Fallon 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 City of Fallon Building Department checks new construction, renovation, and expansions within the City limits to ensure compliance with this ordinance.

h. Tiered Rates for Water Users

To encourage conservation the City of Fallon will enact a tiered user rate that will go into effect during Stage 3 – Emergency Stage

i. Water Restrictions Based on the Time of Day and Day of the Week

The City of Fallon can meet peak demand during irrigation months; however, a situation may arise that limits the pace of water production making it difficult to meet the current peak demand. As a response to Stage 2 situation the City of Fallon would limit use of water for outside plants, lawns, landscape, and turf areas more often than every other day, with even numbered addresses watering on even numbered days and odd numbered addresses watering on odd numbered days, except that this provision shall not apply to commercial nurseries, golf courses and other water-dependent industries. Watering of plants, lawn, landscape, and turf areas will be prohibited between the hours of 12 noon to 4 p.m.

j. Evaluation Measurements

A water audit was performed using AWWA standards. The results from the audit show the non-revenue water as percent by volume to be 8.78% and the Ratio of Current Annual Real Losses (Real Losses) to the Unavoidable Annual Real Losses (UARL) or Infrastructure Leakage Index (ILI) to be 2.39.

The City of Fallon had a 2019 annual consumption of 505.216 million gallons. With an estimated population of 9184 that shows a demand of 150.7 gallons per capita per day (gpcd). The results of this water audit will be compared to the results from subsequent audits in order to determine the effectiveness of the measures/incentives.

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 will be implemented to take its place.

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.).

As a plan element is activated (e.g., mailing literature or declaring a drought stage), production figures will be compared to same-month historical data to estimate the plan element's effectiveness. This information will be utilized as a basis for any future water conservation plan revision and plan elements.

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.

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.).

k. Conservation Estimates

During normal operation, the City of Fallon practices public education and is a fully metered system. These measures save about 136,300,280 to 151,444,700 gallons annually.

During the Stage 1 phase of the conservation plan, it is estimated that conservation measures could be expected to save about 65,367,120 to 88,832,240 gallons annually.

During the Stage 2 phase of the conservation plan, it is estimated that conservation measures could be expected to save about 18,436,880 gallons annually.

During the Stage 3 phase of the conservation plan, it is estimated that conservation measures could be expected to save about 195,214,512 gallons annually

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

Appendices

APPENDIX A
CONSERVATION MEASURES

Stage 1 – Warning Stage

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

It is not currently known how many homes and businesses in Fallon use water saving fixtures and practice conservation. If the consumers were to practice 100% participation the savings could be between 19.5 to 26.5 gallons per capita per day (gpcd). With a population of about 9184 that would be a savings of 65,367,120 to 88,832,240 gallons annually.

Retrofits	Toilet tank displacement devices (for toilets using > 3.5 gallons/flush)	2 – 3 gpcd
	Toilet retrofit	8 – 14 gpcd
	Showerhead retrofit (aerator)	4 gpcd
	Faucet retrofit (aerator)	5 gpcd
	Fixture leak repair	0.5 gpcd

Non-essential water uses are:

1) Use of water through any connection when the City of Fallon 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. According to "Water Use and Conservation" by Amy Vickers, indoor leaks in a non-conserving home average 9.5 gallons per capita per day (gpcd) and those in a conserving home average 4.0 (gpcd). With a population of about 9184 the City of Fallon could see savings of about 18,436,880 gallons annually.

2) Use of water which results in flooding or run-off in gutters, waterways, patios, driveway, or streets. Since there is no particular quantification of this activity, no particular savings estimate is available, however avoiding such waste is undoubtedly good practice

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. Since there is no particular quantification of this activity, no particular savings estimate is available, however avoiding such waste is undoubtedly good practice.

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. Since there is no particular quantification of this activity, no particular savings estimate is available, however avoiding such waste is undoubtedly good practice.

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. Since there is no particular quantification of this activity, no particular savings estimate is available, however avoiding such waste is undoubtedly good practice.

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. Since there is no particular quantification of this activity, no particular savings estimate is available, however avoiding such waste is undoubtedly good practice.

7) Use of water for more than minimal landscaping in connection with any new construction. It is shown that low water-use plants save 7.5%. This being the case the City of Fallon will benefit from these guidelines that will govern new construction.

8) Use of water for watering outside plants and turf areas using a hand-held hose without a positive shut-off valve. Since there is no particular quantification of this activity, no particular savings estimate is available, however avoiding such waste is undoubtedly good practice

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. Vickers estimates evaporation at 78 degrees F and 30% relative humidity to be about 3 inches per week. In the absence of fountain count and size there is no estimation of savings, but this measure is good practice.

10) Use of water for the filling or refilling of swimming pools. Vickers estimates evaporation at 78 degrees F and 30% relative humidity to be about 3 inches per week. In the absence of swimming pool count and size there is no estimation of savings, but this measure is good practice.

11) Service of water by any restaurant except upon the request of the patron. This measure seems insignificant unless it is considered that each unused glass of water must also be run through the dishwasher it becomes clear that the savings, while not particularly measurable, would be significant.

Since the reduction of the “non-essential water use” would be voluntary at this point the City of Fallon may see savings but without enforcement during the Stage 1 conservation the amount would be unknown.

Stage 2 – Alert Stage

1. City of Fallon set conservation goals and call for wide-based community support to achieve those goals.

2. City of Fallon would inform customers of mandatory conservation measures (non- essential water uses, listed in Stage 1 are now mandatory). With those measures in full effect the City of Fallon would see a water savings of more than 18,436,880 gallons annually.

3. Use of water for outside plants, lawn, landscape, and turf areas more often than every other day, with even numbered addresses watering on even numbered days and odd numbered addresses watering on odd numbered days, except that this provision shall not apply to commercial nurseries, golf courses and other water-dependent industries. Watering of plants, lawn, landscape, and turf areas are prohibited between the hours of 12 noon to 4 p.m. Water loss due to evaporation and wind has many associated factors (e.g., temperature, relative humidity, etc.) that vary daily, making estimating the effectiveness of the regulation problematic. At this time, no specific method of measuring effectiveness has been estimated for restricting water-times. However, watering-times are still considered an important regulation regarding water use efficiency. Limitation of water to every other day would be beneficial should the water system have difficulty keeping pace with peak demand during a supply shortage.

4. City of Fallon would inform customers of mandatory conservation water fees.

5. City of Fallon limit the use of fire hydrants to fire protection uses only. This change will conserve a significant amount of water. The exact measure is unknown due to variations of this sort of use in different communities.

Penalties for violation of mandatory conservation measures are:

1st violation – written warning.
2nd violation – $50.00
3rd violation – $150.00
4th violation – install flow restrictor and/or turn-off of water services.
Offenses for separate water use restriction violations will each start at the warning stage (1st violation) and the penalties for the offenses are in addition to the regular rate schedule charges.

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

A flow restrictor can be installed if the customer is non-responsive after the 1st violation. The flow restrictor shall not restrict water delivery by greater than 50% of normal flow. The flow restrictor may be removed only by the utility, only after a five-day period has elapsed and only upon payment of the appropriate removal charge of:

Connection Size	**Removal Charge**
3/4-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.

Stage 3 – Emergency Stage

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

Rationing benchmark is set at 100 gpcd.

With the 2019 consumption of 505.216 million gallons annually and a 2019 population of 9184 the gallons per capita per day is 150.4. The implementation of rationing at 100 gpcd could save the system up to 169,954,512 gallons annually.

Penalties for violation of prohibited water use measures are:

1st violation – written warning.
2nd violation – $200.00
3rd violation – turn-off of water services.

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

A flow restrictor can be installed if the customer is non-responsive after the 1st violation. The flow restrictor shall not restrict water delivery by greater than 50% of normal flow. The flow restrictor may be removed only by the utility, only after a ten-day period has elapsed and only upon payment of the appropriate removal charge of:

Connection Size	**Removal Charge**
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.

The City of Fallon will enact a tiered user rate. The first tier from 0-1,000 cubic feet will remain at the usual cost per 100 cubic feet to allow sufficient water for drinking, cooking, and sanitation needs to be met. To encourage conservation the second and third tiers will see cost increases. The second tier from 1,001 to 2,000 cubic feet will be at double the cost per 100 cubic feet of the first tier. The third tier from 2,001 and above will be at triple the cost per 100 cubic feet of the first tier. See graph below.

	Cubic Feet	Cost per 100 Cubic Feet
Tier 1	0-1,000	Standard Rate
Tier 2	1,001-2,000	Double the Standard Rate
Tier 3	2,001 and above	Triple the Standard Rate

It is estimated that an increasing-block rate saves 5%. With the annual consumption (2019) of 505.216 million gallons this change could save 25.26 million gallons annually

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

APPENDIX B
PUBLIC EDUCATION MATERIALS

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 City of Fallon develops system-specific publications. The City shall include copies of these education materials from time to time in monthly utility billings.

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.

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.
- 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.

APPENDIX C
END-USER WATER SAVINGS

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 are 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 bathtub 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!

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 reading 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.

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

Type	Estimated Usage (gpcd)	Conservation Usage (gpcd)	Savings (gpcd)	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 gpcd)
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 gpcd
	Toilet retrofit	8 – 14 gpcd
	Showerhead retrofit (aerator)	4 gpcd
	Faucet retrofit (aerator)	5 gpcd
	Fixture leak repair	0.5 gpcd
	Governmental building (indoors)	5 %
Pressure management	Pressure reduction, system	3 – 6 % of total production
	Pressure-reducing valves, residential	5 – 30%
Outdoor water use efficiency	Low water-use plants	7.5 %
	Lawn watering guides	15 – 20 %
	Large landscape management	10 – 25%
	Irrigation timer	10 gpcd
Replacements and promotions	Toilet replacement, residential	16 – 20 gpcd
	Toilet replacement, commercial	16 – 20 gpcd
	Showerhead replacement	8.1 gpcd
	Faucet replacement	6.4 gpcd
	Clothes washers, residential	4 – 12 gpcd
	Dishwashers, residential	1 gpcd
	Hot water demand units	10 gpcd
Water-use regulation	Landscape requirements for new developments	10 – 20 % in sector
	Greywater reuse, residential	20 – 30 gpcd