

**Storey County Water District  
NV 0000240  
Water Conservation Plan**

**Background/System Information**

The Storey County Water District (PWS NV 0000240) serves customers within the Virginia City limits. The total service area is approximately two square miles. The estimated population served (in 2020) is 1267. Residential customers are billed at a metered progressive rate monthly. Meters are installed on all residential services. There are 705 service connections.

The system is located just north of the town of Dayton. Water is supplied from Marlette Lake and Hobart springs in the Lake Tahoe area. Above ground storage consists of two raw water tanks, 500,000 gal at Five Mile Reservoir and a 1.4 million gallon tank at the water treatment plant. There are also five finished water tanks through the distribution system. Two at the treatment plant which total 1,000,000 gallons when completed, and one at the north end of town which has a capacity of 125,000 gallons. The Silver City tank has a capacity of 172,000 gallons and the Divide tank has a capacity of 97,000 gallons.

Full-time disinfection is practiced using sodium hypochlorite. Wastewater collected from the area is managed through the Virginia City Wastewater Treatment Facility at Six Mile Canyon Road at the bottom of town. Reclaimed water runs into Six Mile Canyon Creek. Part of this water is used to water trees on the districts property.

The limiting resource in the system is the transmission capability, rather than the peaking or total annual water availability at the source. Development serviced by the Virginia City Water System should be allowed, and could more than accommodate the population growth expectations from the Population Chapter of the Master Plan.

The Storey County Water District original water conservation plan was completed in 1995. It was to be reviewed and updated at five years intervals, with modifications to meet changing system conditions as they develop.

**Plan Elements**

This plan describes the drinking water conservation and drought management efforts in the Virginia City limits, along with implementation schedules. The plan components conform to Nevada regulations as outlined by the Nevada Department of Conservation and Natural Resources, Division of Water Resources. Plan elements address the following areas:

- Increase public awareness of the need to conserve water

- Encourage reduction in lawn sizes and the use of arid and semiarid plants
- Identify specific water conservation measures
- Propose plan to identify and reduce leakage
- Increase reuse of effluent where applicable
- Provide a drought contingency plan
- Implementation schedule
- Plan effectiveness metrics

For each conservation measure specified in the plan or joint plan, an estimate of the amount of water that will be conserved each year as a result of the adoption of the plan or joint plan, stated in terms of gallon of water per person day (gpcpd).

- Variable pricing analysis  
The feasibility of charging variable rates for the use of water to encourage the conservation of water.
- Water savings in gallons/person/day  
How the rates that are proposed to be charged for the use of water in the plan or joint plan will maximize water conservation, including, without limitation, an estimate of the manner in which the rates will affect consumption of water (expressed in terms of (gpcpd).

Storey County Water District is beginning the process of restructuring the usage rates for all customers. These new rates will be designed to encourage maximum water conservation even more so than in the past.

- Incentives to encourage water conservation
- Incentives to retrofit plumbing fixtures
- Incentives for water conserving landscaping

## **Public Awareness**

The Storey County Water District efforts to enhance public awareness of the need to conserve water include the following:

- New customers will be provided with literature on conservation when they open a rental service account. Examples include materials from the Turf Institute, American Water Works Association, and the USDA Agricultural Extension.
- Periodically, educational literature will be distributed. Educational materials include tips on Conservation landscaping, basic ways to conserve water, things you can do to prevent water waste and water leak loss calculators.

- Participate in Earth Day activities or other public outreach opportunities to raise public awareness of water use when available.
- Incentives for the customers of Storey County Water District to observe water conservation practices are demonstrated through educational pamphlets and flyers.

### **Lawn sizes and use of arid and semiarid plants**

The Storey County Water District encourages the public to practice scientific turf management, and makes literature and resources such as the Turf Institute, available to customers. In the past Storey County installed artificial turf at the High School which has been demonstrated to save the water district over 1.5 million gallons per year. Local nurseries are encouraged to promote the use of drip irrigation and climate-appropriate plant materials. Storey County Water District residents have very small, if any, lawns.

### **Specific water conservation measures**

- Storey County adopted a Plumbing-Water Conservation Ordinance in 2001. The ordinance applies to structures which are renovated as well as all new construction.
  - a) Copies of the Plumbing-Water Conservation Ordinance will be furnished to the local suppliers and contractors.
  - b) The Storey County Building Department checks new construction, renovation, and expansions within Storey County to insure compliance with the ordinance.
  - c) All Storey County customers periodically will be receiving conservation tips in billing literature. We will also share with all customers the savings the Delta and Bucket of Blood Saloon have had with the conservation methods they have installed. These new fixtures have saved the Delta 22%, and the Bucket of Blood 20% in overall water usage.
- Commercial meters will be tested when unusually low readings are observed and replaced as needed.
- Residential meters have been equipped with radio reading technology. Meters will be replaced as the meter reading program dictates.
- The plumbing code, which specifies low-flow fixtures, is enforced which results in an estimated savings of 1-4 gpcpd.
- The Storey County Water District Code includes a provision that water service can be shut off for wasting water. This is enforced by visual inspection for runoff, following up on citizen reports, and review of use at the services. Typically a verbal or written warning is issued, followed by a shut-off when cooperation is not forthcoming.
- The Storey County Water District has 705 water customers.

- A residential metering program has been in place for a number of years.
- Incentives for the customers of Storey County Water District to retrofit plumbing fixtures are demonstrated through educational pamphlet flyers.
- Storey County Water District residents are encouraged to restrict the use of system water for landscaping or vehicle washing.

### **Plan to identify and reduce leakage**

- The Storey County Water District currently has in place a capital improvement plan to replace distribution lines at the anticipated life-cycle end.
- We are auditing production to determine the amount of water usage and establishing a historical same- month production record. When production increases unexpectedly, we will initiate a leak survey.
- It is our written policy to repair leaks in a timely manner. All large leaks are repaired immediately and small leaks (less than 1 gallon per minute) within 48 hours.

### **Reuse of effluent**

Currently, there are no plans in place to reuse effluent within the service area, however the Storey County Water District is looking for economical ways to accomplish this.

Incentives for the customers of Storey County Water District to use water conserving landscaping are demonstrated through educational pamphlets and flyers.

### **Drought contingency plan**

Nevada is an arid state and Storey County is continuing to grow and water demand is increasing. The area is subject to drought cycles; therefore, it is necessary to have a drought contingency plan. The objective of our plan is to manage the available resources to insure continued supply of potable water during periods of drought. We work with other local water purveyors to insure adequate supplies are available. We do not have an inter-tie available which could allow water to flow both ways. Therefore, water conservation is especially critical during a drought condition.

When the Storey County Water District has found that a water scarcity condition exists or has the possibility to exist and has also proclaimed the existence of such condition or emergency, it shall also declare an appropriate drought or emergency stage for its service area which may be Stage 1, Stage 2, Stage 3, Stage 4, described as follows:

#### **Stage 1 Droughts or Emergency**

1. Water from the Storey County Water District, allowed to pool, pond, or runoff from applied areas is considered a waste of water and as such is not permitted.
2. Leaks occurring on the customer side of the service connection in the district are considered a waste of water, not permitted, and as such must be fixed in a timely manner.

3. Water from the District system which runs down the street is considered a waste of water and is not permitted. If a sprinkler system is broken and left on for more than two hours, the water will be shut off at the meter by Storey County personnel.
4. During a Stage 1 drought or emergency, lawn watering, including landscaping, will not be permitted between the hours of 1:00pm and 5:00pm. Agriculture and irrigation is not permitted using system water.

### **Stage 2 Droughts or Emergency**

1. Water from the Storey County Water District, allowed to pool, pond, or runoff from applied areas is considered a waste of water and as such is not permitted.
2. Leaks occurring on the customer side of the service connection in the Storey County Water District potable water system are considered a waste of water and as such are not permitted.
3. No hard surfaces including sidewalks, driveways, parking areas, or decks may be washed or hosed down with Storey County Water District potable water unless required by health and safety requirements.
4. Water from the district used for watering vegetation, including lawns, landscaping, and gardens is not permitted
5. Use of district water for decorative purposes is not permitted.

### **Stage 4 Droughts or Emergency**

1. Water from the Storey County Water District, allowed to pool, pond, or runoff from applied areas is considered a waste of water and as such is not permitted.
2. Leaks occurring on the customer side of the service connection in the Storey County Water District potable water system are considered a waste of water and as such are not permitted.
3. No hard surfaces including sidewalks, driveways, parking areas, or decks may be washed or hosed down with Storey County Water District potable water unless required by health and safety requirements.
4. Water from the district used for watering vegetation, including lawns, landscaping, and gardens is not permitted.
5. Use of district water for decorative purposes is not permitted.
6. Water from the district used for general construction or maintenance activities, including dust control, compaction and concrete curing, is considered a waste of water and as such is no permitted.

7. During a stage 4 drought or emergency, the planting of installing of new lawns is prohibited.

### **Implementation schedule**

All of the plan elements listed are currently in place. The plan is to be reviewed every 5 years, and updated as system needs change.

All of the residential services are metered. Storey County Water District has an automatic calling system (reverse 911) which will call all customers to notify them of emergency conditions/

### **Plan effectiveness metrics**

Historical production data is available. As data accrues, it is compared to the estimated population each year to determine the gallons per capita per day (gpcd) consumption. For 2020, the gross production divided by the estimated population is approximately **87** gpcd. If the average annual consumption is significantly greater than 105 gpcd, plan revision will be considered, to include additional conservation measures. At the present time, production provides a gross gpcpd estimate.

When a plan element is activated, such as a mailing literature or declaring a drought stage, production in terms of gpcd will be compared to same month historical data to estimate effectiveness. It is estimated that customer education alone will be the major driver of conservation, by raising awareness of the proper use of water. Customer awareness alone, without a rate structure change, but with the public education elements, can be expected to provide at least a ten percent reduction in water use.

### **Variable pricing analysis**

The present residential water rate is included in the monthly bill. Water rates are reviewed periodically and adjusted to meet budgeted costs. Each time the water rates are altered, the water usage patterns will be also analyzed to determine the new rate structure. The estimated amount of water conserved as a result of actual price changes, in terms of gpcd, will be used in future analyses. Charging variable rates for the use of water to encourage conservation of water is currently in use.

### **Water savings in gallons/person/day**

The current water usage of Storey County Water District is 90 gpcd, which is estimated to be 110% of the national average in 2015 at 82 gpcd (Dieter and others,2017). The Storey County Water District will continue to monitor the water usage of its population and water use regulations will be amended as needed.

### **Rate structure impact on water conservation**

The Storey County Water District continually evaluates their customer's water usage. The district will continue to monitor the gpcd of its customers and will re-visit this issue at each rental rate modification to ensure both budgetary and water conservation goals are met.

**Incentives to encourage water conservation**

The Storey County Water District restricts water usage to domestic purposes only. The district will evaluate and apply additional conservation measures as those tools become available.

**Incentives to retrofit plumbing fixtures**

Plumbing fixtures are replaced with water conservation fixtures as remodeling is done on existing homes.

**Incentives for water conserving landscaping**

The Storey County Water District does not allow use of the system water for agricultural purposes. The district encourages restricted water use for landscaping and gardening purposes.