

South Maine Mobile Home Park

Water Conservation Plan

March 31, 2010

Prepared for:

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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 conservation 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 South Maine Mobile Home Park 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 South Maine Mobile Home Park, as required by NRS 540.131.

This plan will conform to all public notice requirements as found in NRS 540 and NRS118b. This plan is available for inspection during normal business hours at 1054 South Maine Street, Fallon, NV 89406.

This is the first Water Conservation Plan for South Maine Mobile Home Park.

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 31, 2015.

System Description

South Maine Mobile Home Park rents spaces to roughly 50 units (40 mobile homes, 2 houses, and 8 recreational vehicles), at 1055 S. Maine Street, in the community of Fallon, Churchill County. Service area boundaries are South Maine and Tolas Road and covers approximately 5 acres of flat terrain. Included with the space rent is potable water. Nevada has classified South Maine Mobile Home Park as a privately-owned combined residential community water system and has issued a current water operation permit, NV0000055.

The estimated population served in 2009 was roughly 100 transient individuals. South Maine Mobile Home Park does not anticipate any growth for the mobile home park because the park is built out. The State of Nevada, through its State Water Plan, estimates the population growth for Churchill County through 2020 to be 2.28% annually.

The water supply is groundwater and is obtained from wells which are located within Basin #101 (Carson Desert) of the Carson River Basin. There are a total of two wells supplying the system and the system is fed by two hydro-pneumatic tanks. There are no storage tanks. The wells are identified in the table below (Table 1).

Table 1 – Source of Supply

Well No.	Depth (feet)	Production (gpm)
1	27	20
2	27	20

In response to higher than normal Arsenic levels in existing wells, a shared community well will be put in place and become used and useful in mid-2010. This well will be shared between South Maine Mobile Home Park, Tolas Mobile Home Park, and Deluxe Mobile Home Park. The existing wells for South Maine Mobile Home Park will be abandoned once the new community well is placed in service.

South Maine Mobile Home Park has been granted water rights, subject to proof of beneficial use, for its existing well, in the total amount not to exceed 4.48 AF (1.46 MG) per year (through Application #77265). A secondary application (#79065) has been filed to modify the point of diversion to the community well (the location of the well has not yet been established). The

current water rights are listed in the table below (Table 2).

Table 2 – Water Rights

Application No.	Well No.	Diversion Rate	Annual Use
77265	#1	0.05 c.s.f.	1.46 MG (4.48 AF)
79065	Community well	(transfer from 77265)	(transfer from 77265)

Water is pumped and treated with chlorine prior to entering the distribution system. Water is then distributed to the customers through 2-inch and 1-1/2-inch PVC water mains.

South Maine Mobile Home Park requires, at a minimum, a Grade 1 water treatment operator. Currently, water management and operations are contracted out to SPB Utility Services, Inc. of Reno, Nevada. SPB Utility Services, Inc. is a technical support company specializing in water and wastewater plant consultation, management and operations, including the endorsement to install and repair backflow prevention assemblies.

The plant operator is required to perform monthly, quarterly, and yearly monitoring and testing of water quality. South Maine Mobile Home Park does not have any outstanding water quality issues. Although water quality testing is compliant, South Maine Mobile Home Park is experiencing higher than normal levels of arsenic and uranium.

The last sanitary survey performed by the Nevada Department of Environmental Protection (NDEP) was completed on September 9, 2008, and showed 11 deficiencies were found with the system. These deficiencies were:

1. Cross-connection at treatment plant. The house used for filling the chlorine mixing tank was observed on the floor without backflow protection. The faucet must be equipped with an atmospheric vacuum breaker.
2. The well does not have a watertight cover plate or there are problems with the cover plate. Observed an opening at the base of the water line pipe from the well. It must be sealed to a tight fit.
3. The well casing is not equipped with a vent pipe, pipe height is not adequate, properly oriented or screened. The vent pipe is not fitted securely to the cover plate, causing the standpipe to drop into the casing and the vented end to lay flat against the cover plate. The screen needs to be replaced. If a configured PVC pipe is used to create a vent pipe, it must be properly secured and screened.
4. MCL exceeded primary or secondary levels and were not reported to BSDW. Update the compliance plan submitted on February 6, 2007, to indicate the actions the system is taking to comply with the standards. The plan must include specific actions and dates (milestones) for achieving compliance. The plan may be used to prepare an Administrative Order on Consent (AOC).

5. The system does not have and/or follow an approved site sample plan for Total Coliform Rule monitoring. Verify that a Total Coliform Plan is available at the system. Review the plan and submit an updated plan by October 31, 2008.
6. The system does not have or has not implemented a current written cross-connection control program. Verify that a Cross Connection Plan is available at the system. Review the plan and submit an updated plan by October 31, 2008.
7. The system does not have or has not implemented a current emergency response plan that addresses source, production, storage, and distribution. Verify that an Emergency Response Plan has been submitted or submit a plan by October 31, 2008.
8. The system does not have a current written operation and maintenance plan. Verify that an Operation and Maintenance Plan is available at the system. Review the plan and submit an updated plan by October 31, 2008, if needed.
9. The hydro-pneumatic tank air replacement system is not adequate. The tank appeared to be “waterlogged” causing the pump to cycle very frequently. Maintain air to water level in accordance with manufacture’s requirements. The active storage volume must be sufficient to limit pump cycling to manufacture’s and industry recommendations.
10. NSF listed equipment or chemicals are not used at the treatment plant. Two gallons of “Clorox” brand sodium hypochlorite stored on floor in well house. Use sodium hypochlorite product found to be compatible with drinking water – NSF/ANSI standard 60.
11. There is evidence of rodent infestation at the well. Rodent proof the well house. Note that when removing rodent dropping there is a risk of exposure to Hanta Virus. Please take precautions as included in this report.

These deficiencies have either been addressed or are no longer issues because of the new joint well being placed into service.

South Maine Mobile Home Park does not currently meter individual spaces for water use. A flat rate monthly charge is assessed for all mobile home spaces; this rate includes water, garbage, and sewer. South Maine Mobile Home Park does not bill individual mobile home spaces for electricity use. Each space contracts individually with gas and cable providers and is responsible for payment to each provider.

Wastewater collected from the service area is collected and processed on-site. There are no plans for reusing affluent at this time.

Current mobile home space rents were established on May 1, 2009. Rates are reviewed annually and adjusted accordingly.

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 31, 2015.

South Maine Mobile Home Park will appoint a staff member 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, South Maine Mobile Home Park will enact the voluntary conservation measures found in the *Conservation Measures* section. When more stringent measures are needed, South Maine Mobile Home Park 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

Each provision is discussed below.

Public Education

Public education is a key for cooperation with conservation efforts, so funding for public education is crucial. South Maine Mobile Home Park recognizes this and will establish a conservation education program and, if possible, will establish a corresponding budget.

It is the goal of South Maine Mobile Home Park 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 pamphlets, flyers, and posters. New customers can be provided these materials when service is established, while existing customers can receive these materials periodically. Materials will also be posted in the common area of the park for all customers to review. 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).

Conservation Measures

In an effort to promote conservation and voluntarily conserve water, South Maine Mobile Home Park 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 South Maine Mobile Home Park 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 cars, boats, trailers, or other vehicles without a positive shut-off nozzle on the outlet end of the hose.
- 4) Use of water through a hose for washing buildings, structures, sidewalks, walkways, driveways, patios, or other hard-surfaced areas in a manner which results in excessive run-off or waste.
- 5) Use of water for more than minimal landscaping in connection with any new construction.
- 6) Use of water for outside plants, lawn, and landscape areas with even numbered spaces watering on even days of the month and odd numbered spaces watering on odd days of the month.
- 7) Use of water for watering outside plants and lawn areas using a hand-held hose without a positive shut-off valve.

In the event these conservation measures are insufficient to control the water shortage, South Maine Mobile Home Park may wish to implement the mandatory measures discussed in the ***Contingency Plan*** section below.

South Maine Mobile Home Park also promotes the development of water conserving principles into the planning, development, and management of new landscape projects. 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.

At present, it is not viable for South Maine Mobile Home Park to offer financial incentives for water conservation to individual customers. Instead, South Maine Mobile Home Park has taken the initiative to repair or replace defective plumbing within the mobile homes that are in the park. By its own initiative it is setting a good example and creating a good-will incentive.

Water Management

South Maine Mobile Home Park monitors and records water usage at all well sites. The system is designed such that water levels in the hydro pneumatic tanks are adjusted automatically when the tank's pressure reaches a particular set-point.

Currently there are no inter-ties with other water systems. However, there are plans for a community well to be shared between the two other adjacent mobile home parks, as discussed earlier.

South Maine Mobile Home Park does not monitor unaccounted for water losses because individual spaces are not metered and there is no comparison to be made between production and space usage. There are no plans to meter individual spaces.

South Maine Mobile Home Park does not have a formal leak detection program. When leaks are discovered, they are repaired immediately.

South Maine Mobile Home Park does not have a formal well head protection program. However, wells are maintained in a secured enclosed housing unit.

South Maine Mobile Home Park does not have a system for reusing of effluent. Effluent is handled on site.

Churchill 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 Churchill County Building Department checks new construction, renovation, and expansions within the Churchill 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.

Drought response would be three (3) stages: (1) warning stage, (2) alert stage, and (3) emergency stage. The stages are describes as follows:

In Stage 1, the warning stage, South Maine Mobile Home Park 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) may be made available, or at cost, and can be actively distributed, if needed.

In Stage 2, the alert stage, South Maine Mobile Home Park would call for wide-based community support to achieve conservation, 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, South Maine Mobile Home Park would declare a drought and water shortage emergency, would enforce water use restrictions, impose fines for violations, and could impose 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 and violations would incur fines, and renters could pay additional fees for water usage.

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 will be in place after the conservation plan has been approved.

Evaluation Measurements

Because individual spaces are not currently metered, it is impossible to determine the effectiveness of each plan element on an individual renter basis. However, South Maine Mobile Home Park can evaluate the effectiveness of each plan element from the perspective of the whole mobile home park. In that regard, 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.

If there is a decrease in production 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.

Conservation Estimates

While it is estimated that metering alone could be the major driver of conservation, by raising awareness of individual account use, South Maine Mobile Home Park does not have the finances available for metering individual space meters at this time.

During the Stage 1 phase of the conservation plan, it is estimated that conservation measures could be expected to provide a 5 to 10 % reduction in water use.

During the Stage 2 phase of the conservation plan, it is estimated that conservation measures could be expected to provide a 10 to 15 % reduction in water use.

During the Stage 3 phase of the conservation plan, it is estimated that conservation measures could be expected to provide a 15 to 30 % reduction in water use.

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 South Maine Mobile Home Park does not have the funds necessary to meter individual spaces and cannot charge variable rates based upon usage. South Maine Mobile Home Park will continue to monitor water pumpage 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.

Appendices

APPENDIX A
CONSERVATION MEASURES

Stage 1 – Warning Stage

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

Non-essential water uses are:

- 1) Use of water through any connection when South Maine Mobile Home Park 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 cars, boats, trailers, or other vehicles without a positive shut-off nozzle on the outlet end of the hose.
- 4) Use of water through a hose for washing buildings, structures, sidewalks, walkways, driveways, or patios in a manner which results in excessive run-off or waste.
- 5) Use of water for more than minimal landscaping in connection with any new construction.
- 6) Use of water for outside plants, lawn, and landscape areas with even numbered spaces watering on even days of the month and odd numbered spaces watering on odd days of the month.
- 7) Use of water for watering outside plants and lawn areas using a hand-held hose without a positive shut-off valve.

Stage 2 – Alert Stage

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

Penalties for violation of mandatory conservation measures are:

- 1st violation – written warning
- 2nd violation – \$25.00
- 3rd violation – \$50.00
- 4th violation and subsequent violations – \$100.00

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 space rental charges.

Stage 2 water rates could include an additional monthly water usage fee of \$25.00, or as deemed necessary.

Stage 3 – Emergency Stage

1. South Maine Mobile Home Park would declare a drought and water shortage emergency and use media relations to supplement efforts to keep customers informed.
2. South Maine Mobile Home Park would inform customers of prohibited water uses (non-essential water uses, listed in Stage 1 are now prohibited).
3. South Maine Mobile Home Park would inform customers of penalties if prohibited measures are not observed (penalties are listed below).
4. South Maine Mobile Home Park would limit the use of fire hydrants to fire protection uses only.
5. South Maine Mobile Home Park would provide customers with retrofit kits either at cost or free.
6. South Maine Mobile Home Park would seek monetary assistance in an effort to mitigate the drought (e.g. federal funding).

Penalties for violation of prohibited water use measures are:

- 1st violation – written warning.
- 2nd violation – \$100.00
- 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.

Stage 3 water rates could include an additional monthly water usage fee of \$50.00, or as deemed necessary.

If any customer seeks a variance from the provisions of Stage 3, then that customer shall notify South Maine Mobile Home Park in writing, explaining in detail the reason for such a variation. South Maine Mobile Home Park 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 South Maine Mobile Home Park 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.

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.

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'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!

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.

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
	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 gpcpd
Replacements and promotions	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
	Hot water demand units	10 gpcpd
Water-use regulation	Landscape requirements for new developments	10 – 20 % in sector
	Greywater reuse, residential	20 – 30 gpcpd