

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com



Guiding Water Conservation:

Aurora's New Water Conservation Calculator and Its Implementation

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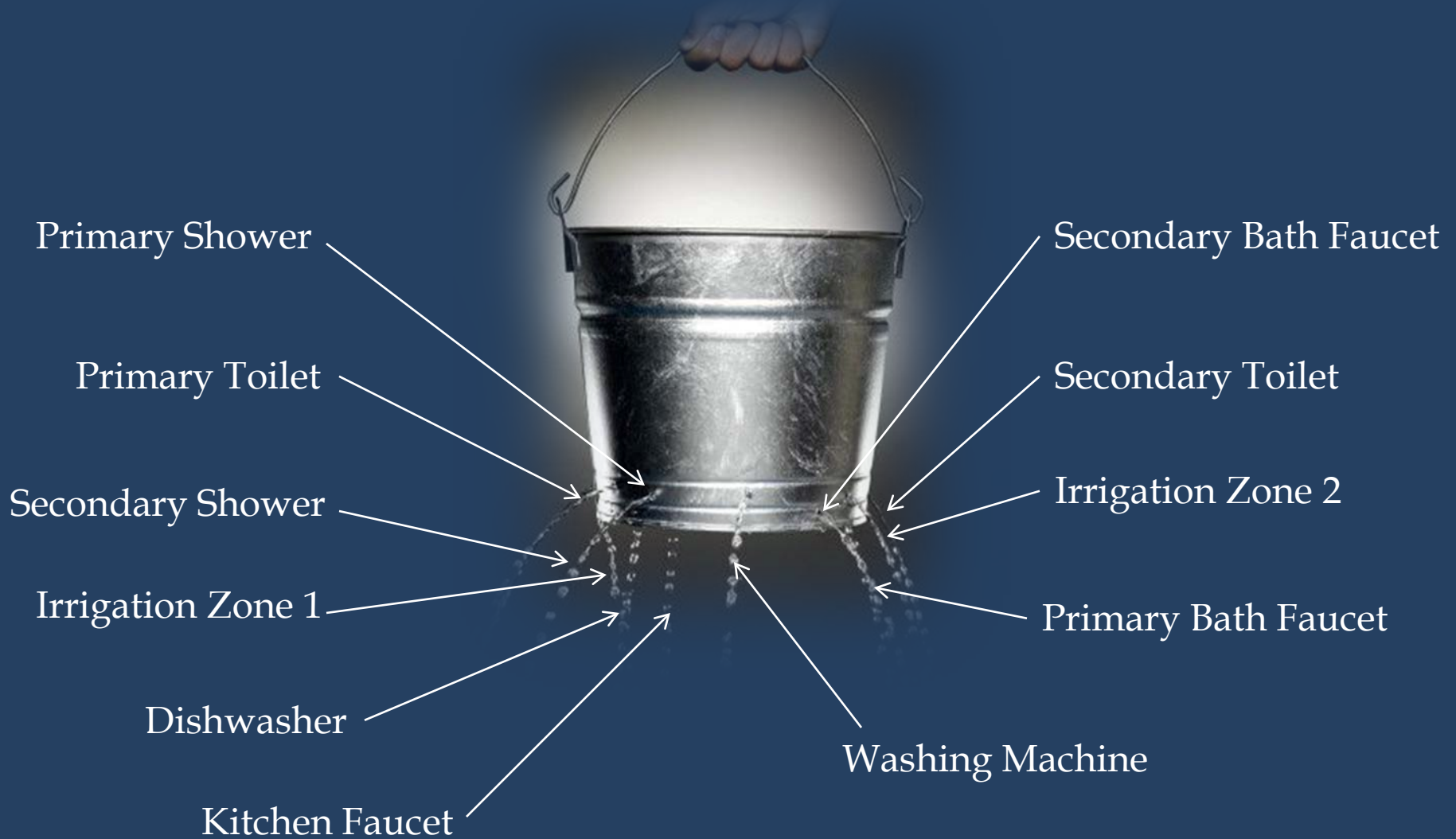
AURORA
WATER



Problem:

Conserving water is an abstract concept for our customers and decisions tend to be based on the rebates we offer

What Is The Priority?



What Are We Missing?

Getting Into the Program

Free Classes (Xeriscape)
Water Audits (Indoor
and Outdoor)
Volunteer in the Garden
Youth Education
City Website



Program Components

Toilet Rebate
Washer Rebate
Indoor Water Audit
Irrigation Audit
Xeriscape Rebate
Irrigation Rebate



Conserving Water

Retrofitting Toilets
Retrofitting Faucets
Retrofitting Showerheads
Retrofitting Dishwasher
Retrofitting Washer
Correcting Irrigation
Problems and Schedules
Changing Behavior
Removing turf for
Xeriscape



Your Test

Customer calls asking for advice.

What advice would you give? Specifically, what retrofit would have the greatest overall cost savings after 10 years.

What other information do you need?

Can you accurately answer now?

Variables

Age of House: 1983

Family Members: 4

Bathrooms: 2 full, 1 half

INDOOR

Toilets:	1990 (3.5), 1990 (3.5), 1983 (4.0)	12 flushes/day
Showers:	1990 (4), 1990 (3)	25 min/day
Bathroom Sinks:	1990 (3), 1990 (3), 1983 (?)	20 min/day
Add'l Faucets:	1995 (3), 1995 (2.75)	12 min/day
Washer:	1990, Top-Loader (49)	10 loads/week
Dishwasher:	1990 (?)	7 loads/week

OUTDOOR

Irrigation:	1 Zone, 1,000 sq. ft., Bluegrass, Full Sun, Loam, Breezy, Mild Slope, DU = ?, Watering Time: Total Minutes = 679/year
Watering Rate:	30 gpm

To Provide Accurate Guidance

Customers are unique = many variables

How accurate are our recommendations?

Need more information

The Variables

Indoor Variables

- Age of the Home/Fixtures
- Number of People
- Behavior and Usage Patterns
- Current Fixtures

Outdoor Variables

- Zone Information
 - Square Footage
 - System
 - Env. Factors
- Current Watering Practices

Retrofit Variables

- Rebates
- New Fixtures
- New Behavior/Usage
- Cost of Retrofits
- New Watering Practices



Water Conservation Calculator

[Home](#) [Calculator](#) [FAQs](#) [Contact Us](#)

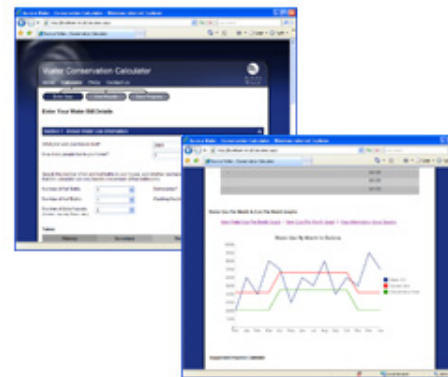


Welcome Aurora Water Customer,

Understanding where and how much water we use is the first step in beginning to conserve.

The Residential Water Use Calculator serves as an analysis of your current water use and conservation potential, providing you with a long term plan to meet your conservation goals. It is recommended that you review the calculator before using it to determine what data you need to collect. This will be the longest part of the process. The Calculator requires specific information about your property, including:

1. Construction Year
2. Number of family members
3. Indoor appliance usage data
(Toilet, shower, faucet, washing machine & dishwasher)
4. Zone-by-zone irrigation system details



Once this information is entered, determine which retrofit actions you are interested in taking under the retrofit options pulldown menus. Based on your decisions, your 'Ranked Conservation Plan' will be produced. As you complete these steps, you will be able to view your changes graphically on the following spreadsheet as your water use approaches your conservation goals. Finally, the Water Use Calculator will produce an 'Irrigation Calendar' based on your plant material, environmental factors, and irrigation system information.

Please be sure to save your progress frequently as the calculator will time out after 15 minutes of inactivity.

Section 1

Indoor Water Use Information

Fixture Information

Section 1 - Indoor Water Use Information



Important: You must click the "Save Progress" sub-menu item at the top, before you exit the calculator or click any of the main menu links such as FAQs, or your progress will be lost.

What year was your house built?

How many people live in your home?

Specify the number of full and half baths in your house, and whether you have a dishwasher and washing machine. Note that this calculator can only handle a maximum of four bathrooms.

Number of Full Baths Dishwasher?

Number of Half Baths Washing Machine?

Number of Extra Faucets
(Kitchen, Laundry Room, etc.)

Toilets

Primary		Secondary		Third		Fourth	
Year	gal/flush	Year	gal/flush	Year	gal/flush	Year	gal/flush
<input type="text" value="1990"/>	<input type="text" value="3.5"/>	<input type="text" value="1990"/>	<input type="text" value="3.5"/>	<input type="text" value="1983"/>	<input type="text" value="4.0"/>	<input type="text" value="1983"/>	<input type="text" value="Std"/>

Usage Information

Total Use: How much does your family use each item per day? If unknown, national averages will be assumed.

Total Toilet Use		Total Shower Use		Total Bathroom Faucet Use		Total Additional Faucet Use	
Flushes	<input type="text" value="12"/>	Minutes	<input type="text" value="25"/>	Minutes	<input type="text" value="20"/>	Minutes	<input type="text" value="12"/>

Section 2

Outdoor Water Use Information

Select an irrigation zone from the list on the left, then enter details for that zone. Details will be saved as you switch between zones.

<div style="border: 1px solid #ccc; padding: 5px;"> <div style="background-color: #e0e0e0; padding: 2px;">Irrigation Zone 1</div> <div style="height: 400px; border: 1px solid #ccc;"></div> </div>	Zone Description	<input type="text" value="Back Yard"/>																							
	Plant Material	<input type="text" value="Bluegrass (Turf)"/>																							
	Square Feet	<input type="text" value="1000"/>																							
	Exposure	<input type="text" value="Full Sun"/>																							
	Soil Type	<input type="text" value="Loam"/>																							
	Slope	<input type="text" value="Mild"/>																							
	Wind	<input type="text" value="Breezy"/>																							
	Distribution Uniformity (DU)	<input type="text" value="60% (Avg DU for Pop-Ups)"/>																							
	<p>Enter the number of times per week that this zone is watered, as well as the number of minutes per watering.</p>																								
		<table border="0"> <tr> <td></td> <td>April</td> <td>May</td> <td>June</td> <td>July</td> <td>August</td> <td>Sept</td> <td>Oct</td> </tr> <tr> <td>Run Times / Week</td> <td><input type="text" value="2"/></td> <td><input type="text" value="3"/></td> <td><input type="text" value="3"/></td> <td><input type="text" value="3"/></td> <td><input type="text" value="3"/></td> <td><input type="text" value="3"/></td> <td><input type="text" value="2"/></td> </tr> <tr> <td>Min / Run Time</td> <td><input type="text" value="5"/></td> <td><input type="text" value="5"/></td> <td><input type="text" value="10"/></td> <td><input type="text" value="14"/></td> <td><input type="text" value="10"/></td> <td><input type="text" value="7"/></td> <td><input type="text" value="5"/></td> </tr> </table>		April	May	June	July	August	Sept	Oct	Run Times / Week	<input type="text" value="2"/>	<input type="text" value="3"/>	<input type="text" value="3"/>	<input type="text" value="3"/>	<input type="text" value="3"/>	<input type="text" value="3"/>	<input type="text" value="2"/>	Min / Run Time	<input type="text" value="5"/>	<input type="text" value="5"/>	<input type="text" value="10"/>	<input type="text" value="14"/>	<input type="text" value="10"/>	<input type="text" value="7"/>
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When you select the appropriate Water Use Calculation Method, the form below will adjust according to the type of data to be collected. You do not need to use the same calculation method for all irrigation zones.

Water Use Calculation Method

Precipitation Rate	Total Inches / Year	Total Gallons / Year
2.89	33.02	20571.6

Section 3

Water Bill Information

Section 4

Indoor Retrofits

Fixture Information

Section 4 - Indoor Retrofits and Behavior Changes



You may choose to retrofit each item by choosing a retrofit option from each pull down menu. Rows that are disabled are not applicable to your property. Aurora Water offers rebates on high-efficiency toilets, washing machines, and Bluegrass to Xeriscape conversions. [Click here to learn more about rebates.](#)

Toilets

Cost per toilet is assumed to be \$150 for a 1.6 gpf toilet and \$250 for a 1.2 gpf toilet if left blank. Install Cost is assumed to be \$80 if left blank.

	Current	New gal/flush	Cost / Unit (\$)	Install Cost (\$)	Rebate ^a
Primary	3.5	1.28 <input type="button" value="v"/>	<input type="text" value="250.00"/>	<input type="text" value="80.00"/>	\$ 150.00
Secondary	3.5	1.6 <input type="button" value="v"/>	<input type="text" value="150.00"/>	<input type="text" value="80.00"/>	\$ 0.00
Third	4	1.28 <input type="button" value="v"/>	<input type="text" value="250.00"/>	<input type="text" value="80.00"/>	\$ 150.00
Fourth	0	No Change <input type="button" value="v"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	\$ 0.00

Usage Information

	Current Use	New Use	
Toilets	12.0	12 <input type="button" value="v"/>	Flushes Per Day
Showers	25.0	25 <input type="button" value="v"/>	Minutes Per Day
Bathroom Faucets	20.0	20 <input type="button" value="v"/>	Minutes Per Day
Other Faucets	12.0	12 <input type="button" value="v"/>	Minutes Per Day
Dishwasher	7.0	7 <input type="button" value="v"/>	Loads Per Week
Washing Machine	10.0	10 <input type="button" value="v"/>	Loads Per Week

Section 5

Outdoor Retrofits

Irrigation Zone 1

Zone Description

Back Yard

Current Plant Material

Bluegrass (Turf)

New Plant Material

Xeriscape - Ideal Watering

Current Sq. Ft.

1000

Converted Sq. Ft.

1000

Cost per Sq. Ft. (\$)

.75

Results

Totals and Savings Options

Total Cost & Total Savings

Total Upgrade Costs - Rebates

\$2075.00

Total Gallons Saved / Yr

94912

Total Money Saved / Yr

\$680.44

Description of Savings After 10 Years

Amount (\$)

Primary Shower Changes	\$ 1451.13
Washing Machine Changes	\$ 800.58
Primary Bathroom Sink Changes	\$ 486.44
Secondary Bathroom Sink Changes	\$ 486.44
Zone 1: Bluegrass (Turf) to Xeriscape	\$ 460.32
Secondary Shower Changes	\$ 400.01
Kitchen Faucet Changes	\$ 339.01
Third Bathroom Sink Changes	\$ 240.72
Primary Toilet Changes	\$ 166.84
Secondary Extra Faucet Changes	\$ 117.86

Suggested Irrigation Calendar

April

Zone	Days	Cycles / Day	Min / Cycle
1	4th T	3	6
2	-	-	-
3	-	-	-

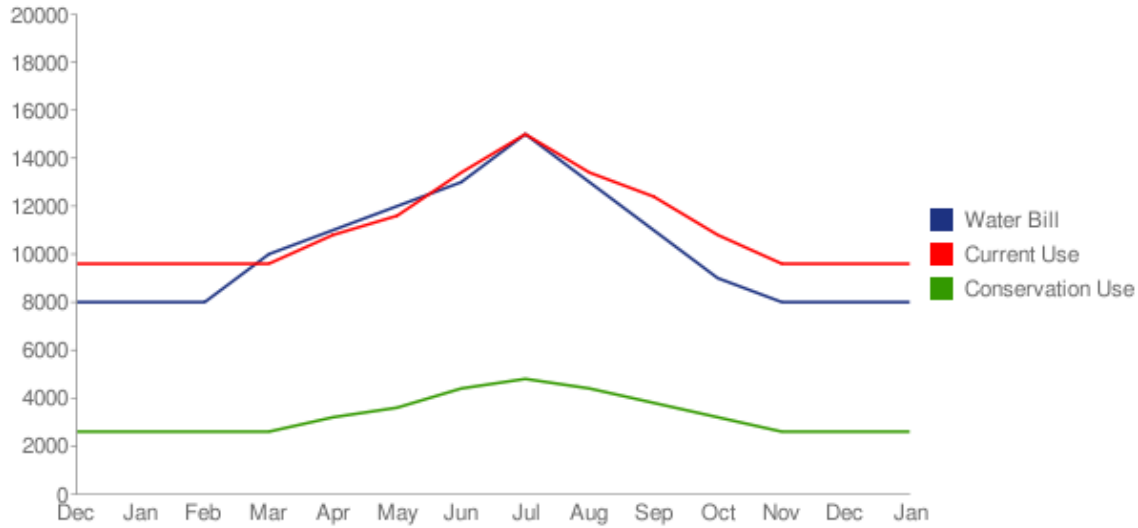
May

Zone	Days	Cycles / Day	Min / Cycle
1	4th T	5	6
2	-	-	-
3	-	-	-

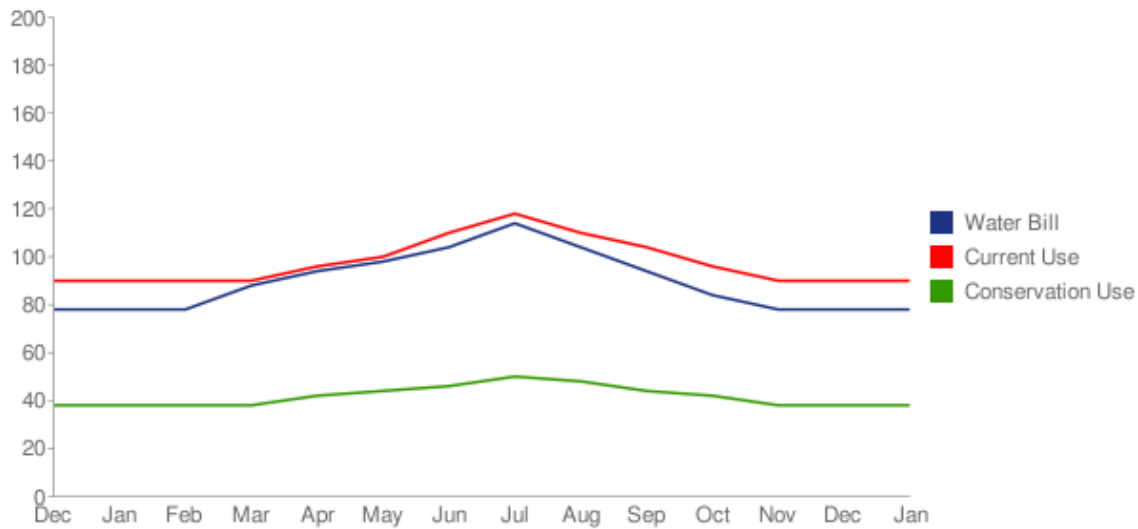
June

Zone	Days	Cycles / Day	Min / Cycle
1	2nd & 4th T	4	6
2	-	-	-
3	-	-	-

Water Use By Month In Gallons



Water Charges By Month In Dollars



How Did You Do?

Calculator

1. Primary Shower
2. Washing Machine
3. Primary Bathroom
Sink



Your Results

1. ?
2. ?
3. ?

Directing Conservation

Reinventing Customer Service

Completing the Calculator will be required

Before

Toilet
Washer
Irrigation



Rebates

Which is more
effective?

After

Calculator



Priority 1
Priority 2
Priority 3



Rebates

Customers become their own managers

Conservation Team Efforts

Up Front Work

1. Learning the Tool
2. Integrating Tool into current programs
 1. Irrigation Audits
 2. Indoor Audits
 3. Current Rebates
3. Motivating customers to participate

Support

1. Field Team helps customers at their home
2. Less effort as Tool becomes integrated and customers become comfortable

Our Current System

Getting Into the Program

Free Classes (Xeriscape)
Water Audits (Indoor
and Outdoor)
Volunteer in the Garden
Youth Education
City Website



Program Components

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Directing Conservation

Getting Into the Program

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Water
Conservation
Calculator



Conserving Water

Retrofitting Toilets
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**Removing turf for
Xeriscape**

In the Future

- Include all conservation efforts (only shows top 10)
- Display water savings for each individual action
- Check boxes to track changes
- Include rate increases
- Options for vegetable gardens
- Automatically fill in water bill
- Include bathtubs and swimming pools
- Build our Large Property Calculator into a website

The Potential

- What we will be able to do...
 - Quantify individual water customers' needs
 - Provide individualized conservation plans
 - Give appropriate rebates
 - Analyze projected savings
 - Quantify the savings associated with the program
 - Effectively institute a drought response

QUESTIONS?

www.aurorawater.org/ConservationCalculator