



**CITY COUNCIL STUDY SESSION
TUESDAY, APRIL 15, 2025**

COUNCIL CHAMBERS
280 MADISON AVENUE NORTH
BAINBRIDGE ISLAND, WA

AND

REMOTE MEETING ON ZOOM
[HTTPS://BAINBRIDGEWA.ZOOM.US/J/92947338351](https://bainbridgewa.zoom.us/j/92947338351)
OR TELEPHONE: US: +1 253 215 8782
WEBINAR ID: 929 4733 8351

AGENDA

- 1. CALL TO ORDER / ROLL CALL - 6:00 PM**
- 2. APPROVAL OF AGENDA / CONFLICT OF INTEREST DISCLOSURE - 6:05 PM**
- 3. REGULAR BUSINESS**
 - 3.A (6:10 PM) Receive 2024 Annual Report and Review 2025 Workplan for the Climate Change Advisory Committee, 15 Minutes**
[2024 Committee Work and 2025 Workplan.docx](#)
 - 3.B (6:25 PM) Discuss Water Conservation - Public Works, 30 Minutes**
[City_Council_Water Conservation Slides_041525.pptx](#)
[Water Consumption Factsheet.pdf](#)
[Water System Plan - Appendix J Conservation Plan.pdf](#)
[City-Connects-Vol-28.pdf](#)
[COBI Connects Summer 2022.pdf](#)
- 4. COMMITTEE REPORTS - 6:55 PM**
- 5. ADJOURNMENT - 7:05 PM**

GUIDING PRINCIPLES

Guiding Principle #1 - Preserve the special character of the Island, which includes downtown Winslow's small town atmosphere and function, historic buildings, extensive forested areas, meadows, farms, marine views and access, and scenic and winding roads supporting all forms of transportation.

Guiding Principle #2 - Manage the water resources of the Island to protect, restore and maintain their ecological

and hydrological functions and to ensure clean and sufficient groundwater for future generations.

Guiding Principle #3 - Foster diversity with a holistic approach to meeting the needs of the Island and the human needs of its residents consistent with the stewardship of our finite environmental resources.

Guiding Principle #4 - Consider the costs and benefits to Island residents and property owners in making land use decisions.

Guiding Principle #5 - The use of land on the Island should be based on the principle that the Island's environmental resources are finite and must be maintained at a sustainable level.

Guiding Principle #6 - Nurture Bainbridge Island as a sustainable community by meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Guiding Principle #7 - Reduce greenhouse gas emissions and increase the Island's climate resilience.

Guiding Principle #8 - Support the Island's Guiding Principles and Policies through the City's organizational and operating budget decisions.



City Council meetings are wheelchair accessible. Assisted listening devices are available in Council Chambers. If you require additional ADA accommodations, please contact the City Clerk's Office at 206-780-8604 or cityclerk@bainbridgewa.gov by noon on the day preceding the meeting.



CITY OF
BAINBRIDGE ISLAND

City Council Study Session Agenda Bill

MEETING DATE: April 15, 2025

ESTIMATED TIME: 15 Minutes

AGENDA ITEM: (6:10 PM) Receive 2024 Annual Report and Review 2025 Workplan for the Climate Change Advisory Committee,

SUMMARY: The purpose of this presentation is to inform the City Council of the work performed by the Climate Change Advisory Committee (CCAC) in 2024, and to propose a work plan of activities for 2025.

The CCAC serves to make recommendations to the City Council on actions to develop plans, policy and project issues related to implementation of the City's Climate Action Plan. The CCAC works closely with the Climate and Sustainability Manager on developing a work plan for the year. A link to the administrative duties of the CCAC can be found here:

<https://www.codepublishing.com/WA/BainbridgeIsland/#!/BainbridgeIsland02/BainbridgeIsland0237.html#2.37>

Staff concurs with the work plan as presented.

AGENDA CATEGORY: Discussion

PROPOSED BY: Executive

RECOMMENDED MOTION:

I move to forward the 2025 Workplan to a future business meeting for consideration of approval.

COMMUNITY ENGAGEMENT AND OUTREACH:

FISCAL IMPACT:

Amount:	
Ongoing Cost:	
One-Time Cost:	
Included in Current Budget?	

ATTACHMENTS:

[2024 Committee Work and 2025 Workplan.docx](#)

Climate Change Advisory Committee

Annual Report and Workplan for 2025

2024 Activities

Energy Transitions Initiative Partnership Project (ETIPP)

The CCAC supported the completion of the final report and developed recommendations on implementing the report's findings. The ETIPP report provided recommendations on how we can become 100% carbon free by 2040 (a Climate Action Plan goal) and increase our resilience to climate change.

Community Heat Pump Installation Program

The CCAC worked closely with City staff on the development and promotion of the program. This program addresses priorities related to reduction of greenhouse gas emissions in the CAP

EV Charging Infrastructure Code

At the Councils request, the CCAC developed recommendations on an EV charging code for commercial (non-residential) and multifamily properties. This required extensive data gathering, community outreach, and working with City staff.

Zero Emissions Landscaping Ordinance

At the Councils request, the CCAC worked with the Race Equity Advisory Committee (REAC) to develop recommendations on an ordinance to transition to zero emissions landscaping tools. This required extensive data gathering and coordination with REAC and City staff.

Electrification Expo

Several CCAC members helped coordinate the Electrification Expo attended by over 400 people in September. The purpose of the Expo was to provide information that inspires participants to take individual and collective action to reduce their home energy use and to advocate for changes on the local, state, and federal level.

Intercounty Climate Partnership

CCAC members coordinated with several other small city local climate groups (Edmonds, Shoreline, Lake Forest and Kenmore) to discuss matters concerning their Climate Action Plans. The group has met twice, and we are hoping to bring in City staff and Council members.

2025 Workplan Priorities

GHG Inventory

Provide support as needed on the 2023 GHG emissions inventory showing progress towards the emissions reduction goal set in the Climate Action Plan.

Kicking Gas Heat Pump Pilot Program

Work with staff to summarize findings from the pilot program and draft next steps to advance action 3.A.2.b in the Climate Action Plan to identify and apply for grants and subsidies for energy efficiency improvements for low-income residents to address equity concerns.

E-Bike Voucher Program

Support outreach for this new incentive program aimed at providing vouchers to income eligible residents for the purchase of electric bikes that will advance action 4.A.1.g in the Climate Action Plan calling for policies to support usage of electric bikes (e.g. invest in public charging infrastructure, and work with community organizations like Helpline House to provide subsidies for low-income residents).

ETIPP Technical Assistance Reports

Continue to provide support for next steps towards implementation of pathways and planning for costs to achieve 100% renewable electricity on the island and opportunities to increase the resilience of the electric systems on the island.

Climate Lens & Framework

Support piloting the climate tool that applies a climate framework to outreach and decision making that advance actions 5.A.1.b, 6.A.1.c, and 7.D.1.a of the Climate Action Plan that calls for climate-informed decision making.

Climate Action Plan (CAP) Update

Convene multiple engagement events with the public to solicit feedback in preparation for the update of the Climate Action Plan called for in action 9.C.1.b.

Comprehensive Plan and Winslow Subarea Plan Support

Review and provide Committee feedback on draft plans, as requested by the Council and staff.



CITY OF
BAINBRIDGE ISLAND

City Council Study Session Agenda Bill

MEETING DATE: April 15, 2025

ESTIMATED TIME: 30 Minutes

AGENDA ITEM: (6:25 PM) Discuss Water Conservation - Public Works,

SUMMARY: The City Council passed a motion at the February 25, 2025 Regular Business Meeting to discuss water conservation. The presentation will present data on water consumption from the City of Bainbridge Island water utility, and present previous water conservation educational materials.

AGENDA CATEGORY: Discussion

PROPOSED BY: Public Works

RECOMMENDED MOTION:

Discussion only with Policy Direction requested.

COMMUNITY ENGAGEMENT AND OUTREACH:

None planned at this time.

FISCAL IMPACT:

Amount:	N/A
Ongoing Cost:	N/A
One-Time Cost:	N/A
Included in Current Budget?	false

BACKGROUND: The City Council passed a motion at the February 25, 2025 Regular Business Meeting to discuss water conservation.

Included in the agenda packet are some reference materials to aid in the discussion, including a fact sheet that includes information regarding water usage across the largest water systems on the Island over the last 10 years. The summary identifies trends in water usage indicating that overall, water usage across all the largest water system is increasing by approximately 3% per year, while population is increase at 2% per year. Water usage increases associated with the City's Winslow water system are slightly less than increases in population. See the attached slide show for more information.

Also included in the packet is the 2015 Water Conservation Plan adopted in the City's Water System Plan, and water conservation materials prepared by City staff in 2022 for the City Connects newsletter.

Given that the Water Conservation Plan is 10-years old, the City Council may want to consider authorizing the preparation of a new plan or new policy objectives as one of the management strategies stemming from the Groundwater Management Plan.

ATTACHMENTS:

[City_Council_Water Conservation Slides_041525.pptx](#)
[Water Consumption Factsheet.pdf](#)
[Water System Plan - Appendix J Conservation Plan.pdf](#)
[City-Connects-Vol-28.pdf](#)
[COBI Connects Summer 2022.pdf](#)

Water Conservation

April 15, 2025



CITY OF
BAINBRIDGE ISLAND

Agenda

1. Review recent water usage findings
2. Review 2015 Water Conservation Plan objectives and implementation
3. Next steps for consideration

Water Usage Findings – Large Water Systems

- Overall population increasing about 1% per year
- Residential water use across large water systems increasing about 2% per year
- Analysis does not consider some population growth is happening outside large water service areas

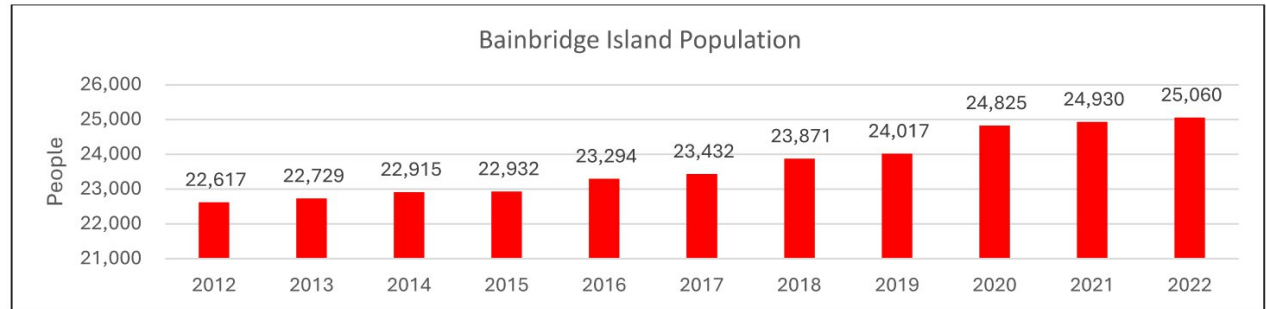


Figure 2 US Census and WA Office of Financial Management

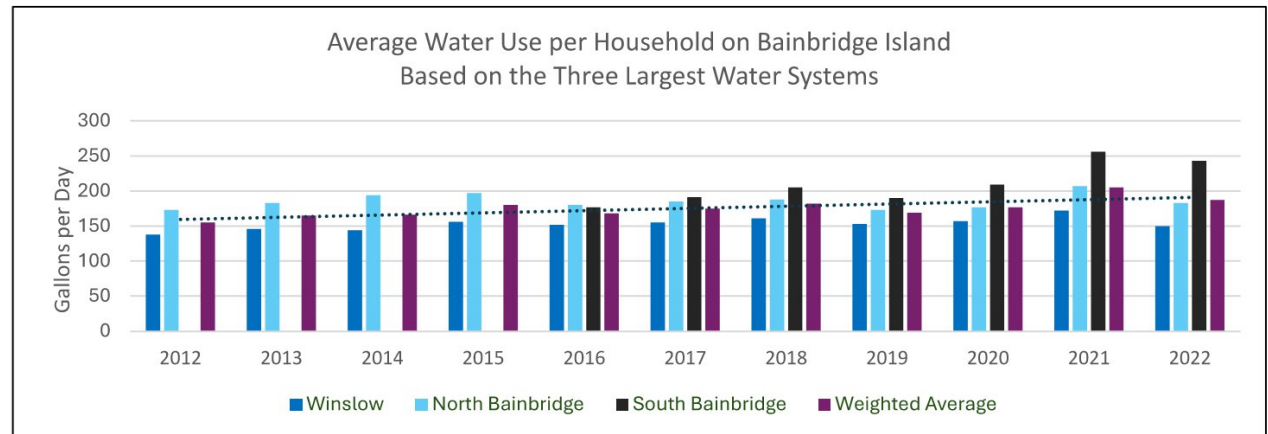
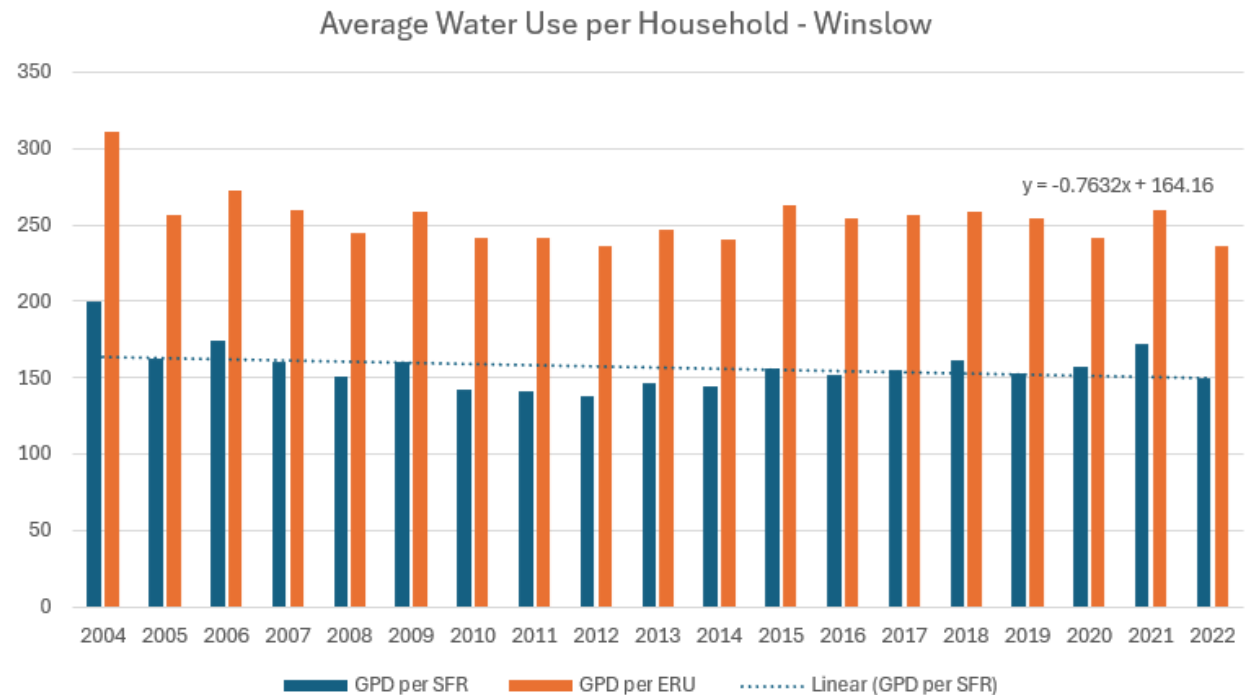


Figure 1 Residential Water Use Trends

Water Usage Findings - Winslow

- 2012-2022 Winslow water service area residential population increased ~2% per year
- Winslow water usage increased ~1.3%
- Between 2004-2022 Winslow water usage decreased ~-0.5%



Water Usage Findings - Winslow

Broken out by Customer Type																			
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Irrigation	25,338	31,937	32,605	27,176	32,695	26,782	28,817	35,070	31,648	35,496	55,084	51,954	53,749	56,061	49,723	44,116	55,983	43,657	54,180
		6,599	668	(5,429)	5,519	(5,912)	2,035	6,252	(3,422)	3,849	19,587	(3,129)	1,795	2,312	(6,339)	(5,607)	11,868	(12,326)	10,523
		26.0%	2.1%	-16.6%	20.3%	-18.1%	7.6%	21.7%	-9.8%	12.2%	55.2%	-5.7%	3.5%	4.3%	-11.3%	-11.3%	26.9%	-22.0%	24.1%
Average Annual Growth Rate																			6.06%
Government	32,527	34,291	33,500	30,260	37,494	34,926	33,730	28,285	30,123	27,037	32,359	29,397	38,015	36,629	40,400	30,773	28,752	30,217	34,722
		1,764	(790)	(3,240)	7,234	(2,568)	(1,197)	(5,445)	1,838	(3,086)	5,322	(2,961)	8,617	(1,385)	3,771	(9,628)	(2,021)	1,465	4,505
		5.4%	-2.3%	-9.7%	23.9%	-6.8%	-3.4%	-16.1%	6.5%	-10.2%	19.7%	-9.2%	29.3%	-3.6%	10.3%	-23.8%	-6.6%	5.1%	14.9%
Average Annual Growth Rate																			1.29%
Commercial	111,866	114,766	108,554	102,251	104,296	110,790	106,589	106,665	114,555	110,882	118,174	115,247	116,717	113,417	122,477	94,156	90,842	102,000	94,986
		2,900	(6,211)	(6,304)	2,045	6,494	(4,201)	76	7,890	(3,672)	7,291	(2,926)	1,469	(3,299)	9,060	(28,322)	(3,314)	11,158	(7,014)
		2.6%	-5.4%	-5.8%	2.0%	6.2%	-3.8%	0.1%	7.4%	-3.2%	6.6%	-2.5%	1.3%	-2.8%	8.0%	-23.1%	-3.5%	12.3%	-6.9%
Average Annual Growth Rate																			-0.59%

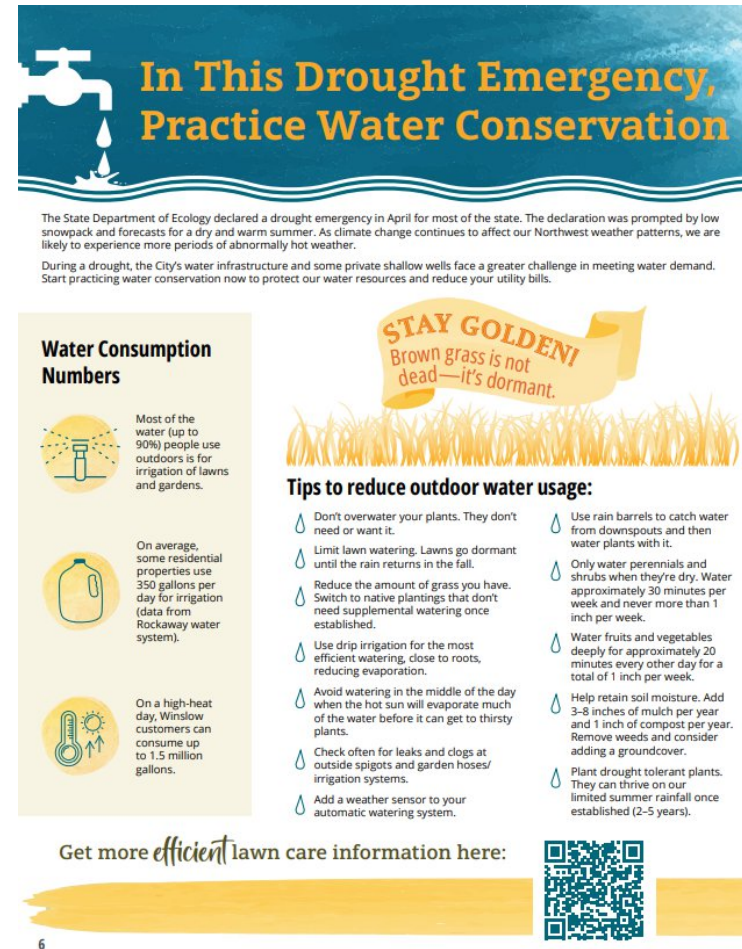
- Non-residential water usage trends vary:
 - Irrigation +6.06%
 - Government +1.29%
 - Commercial -0.59%

2015 Water Conservation Plan Objectives

- Educate customers about basic water supply principals
- Encourage water conservation
- Increase customer's understanding of water-use habits
- Attain maximum utilization of current water supplies
- Reduce peak daily, peak monthly, and total annual water consumption
- Reduce lost and unaccounted for water to below 10%
- Improve efficiency of water use prior to developing new supplies

2015 Water Conservation Plan Implementation

- Public Education
- Technical Assistance
- System Measures
- Incentives



In This Drought Emergency, Practice Water Conservation

The State Department of Ecology declared a drought emergency in April for most of the state. The declaration was prompted by low snowpack and forecasts for a dry and warm summer. As climate change continues to affect our Northwest weather patterns, we are likely to experience more periods of abnormally hot weather.

During a drought, the City's water infrastructure and some private shallow wells face a greater challenge in meeting water demand. Start practicing water conservation now to protect our water resources and reduce your utility bills.

Water Consumption Numbers

- Most of the water (up to 90%) people use outdoors is for irrigation of lawns and gardens.
- On average, some residential properties use 350 gallons per day for irrigation (data from Rockaway water system).
- On a high-heat day, Winslow customers can consume up to 1.5 million gallons.

STAY GOLDEN!

Brown grass is not dead—it's dormant.

Tips to reduce outdoor water usage:

- Don't overwater your plants. They don't need or want it.
- Limit lawn watering. Lawns go dormant until the rain returns in the fall.
- Reduce the amount of grass you have. Switch to native plantings that don't need supplemental watering once established.
- Use drip irrigation for the most efficient watering, close to roots, reducing evaporation.
- Avoid watering in the middle of the day when the hot sun will evaporate much of the water before it can get to thirsty plants.
- Check often for leaks and clogs at outside spigots and garden hoses/irrigation systems.
- Add a weather sensor to your automatic watering system.
- Use rain barrels to catch water from downspouts and then water plants with it.
- Only water perennials and shrubs when they're dry. Water approximately 30 minutes per week and never more than 1 inch per week.
- Water fruits and vegetables deeply for approximately 20 minutes every other day for a total of 1 inch per week.
- Help retain soil moisture. Add 3-8 inches of mulch per year and 1 inch of compost per year. Remove weeds and consider adding a groundcover.
- Plant drought tolerant plants. They can thrive on our limited summer rainfall once established (2-5 years).

Get more *efficient* lawn care information here:



2015 Water Conservation Plan Implementation

- Public Education
- Technical Assistance
- System Measures
- Incentives

Leak check services

Notification of high water usage

Technical studies
(Groundwater Management Plan;
Beneficial Re-Use Plan)

2015 Water Conservation Plan Implementation

- Public Education
- Technical Assistance
- **System Measures**
- Incentives

Source meters (all currently being upgraded and replaced in 2025)

Distribution leak detection –
Analysis to be completed after
source meter replacement

Service meter testing and
replacement

2015 Water Conservation Plan Implementation

- Public Education
- Technical Assistance
- System Measures
- Incentives



Conservation pricing – higher consumption charge for higher water usage; higher rates from May-October

Potential Next Steps for Consideration

1. Develop new or updated policy objectives for conservation
2. Relevant data collection (if needed)
3. Implementation

Water Conservation

Discussion

April 15, 2025



Residential Water Consumption Factsheet

Introduction

As we look into the future and predict how much water we will need as an island community it is useful to know if habits of water use are changing. Are we using more water per person or less? By comparing known water use data with known population data from multiple large water systems on the island we can produce a proxy for general water uses habits on the Island. An exact island wide trend is impossible to determine because water use is not metered for every house or use on the island.

Purpose

To establish an approximation of total water use on Bainbridge Island and determine if this value has a significant trend.

Data Sources and Methodology

The majority of water consumed on Bainbridge Island is for residential purposes therefore this analysis will focus on trends in average water use per household.

Water consumption data is available by single family residential (SFR) connection or equivalent residential unit (ERU) for the three largest water systems on the island during the following data ranges.

Water System Name	Average Annual Use per Day, per SFR/ERU (2022)	Range of Available Data	SFR/ERUs ¹ (2022)
Winslow (COBI)	156 gallons	2004-Present	2,332
North Bainbridge (KPUD)	186 gallons	2016-Present	1,943
South Bainbridge (KPUD)	206 gallons	2016-2022 ²	1,686

1 KPUD's water usage is available per equivalent residential unit (ERU), a way to express water use by nonresidential customers as an equivalent number of SFR customers. This data represents majority SFR connections with a minor component of commercial uses.

2 In 2022 South Bainbridge was consolidated with Island Utility. For purposes of this analysis only data prior to this was used.

The total average annual water consumption metric (per SFR/ERU) was calculated using a weighted average based on the number of connections in the respective system, i.e. there are more water users in the Winslow system therefore the average water use value receives more weight.

Non-Residential Consumption

Outside of residential use, the largest consumptive use is non-residential irrigation, such as at parks and schools. On average this use is less than 5% of total water use on the island and is not included in this analysis. For annual usage and growth rates in this sector and others see Appendix A for daily water use by customer type in the Winslow Water System.

Trends

Water Use per Capita

During the period of 2012-2022 water use per capita increased from an average of 156 GPD in 2012 to 187 GPD in 2022. This equates to about a 20% increase over past 10 years or about 2% per year.

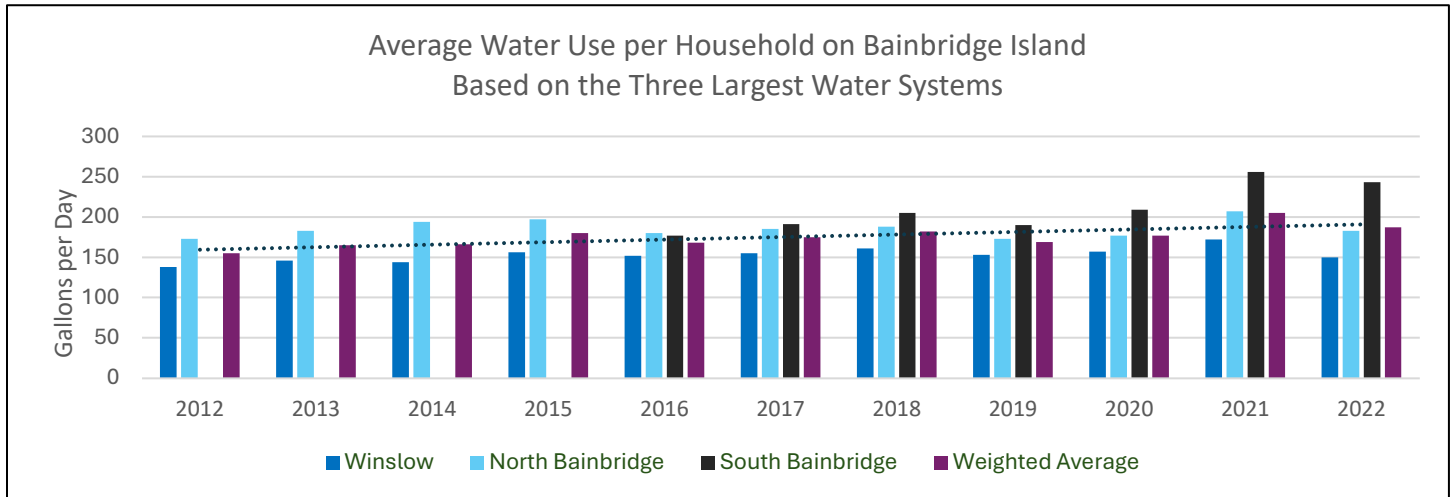


Figure 1 Residential Water Use Trends

Population

Island population has increased by 2,443 people over the past 10 years or about 1% per year.

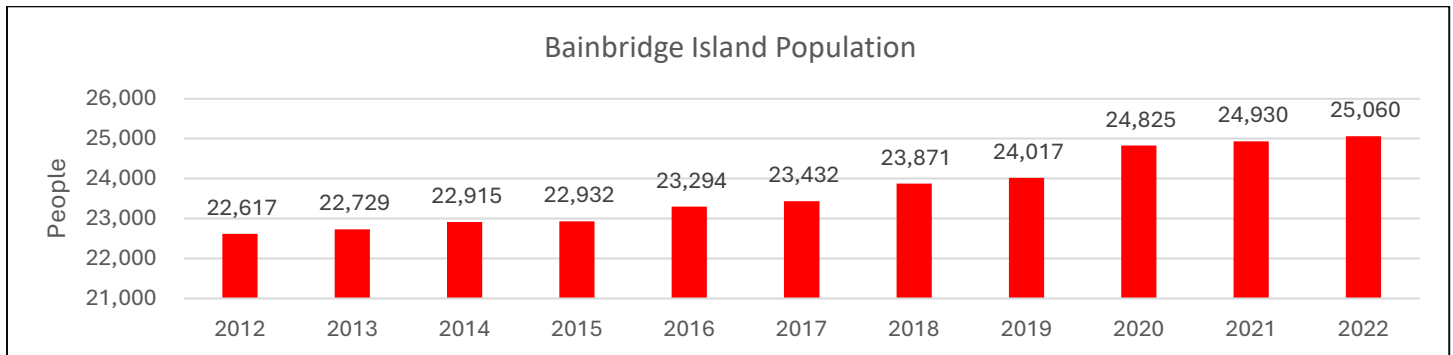


Figure 2 US Census and WA Office of Financial Management

Total Water Use

The total increase in water use on the island is a combination of population growth and an increase in water use per capita. On average both values have been increasing in recent history, population by about 1% per year and water use by about 2% per year. Together we can use these trends to approximate that the Island is consuming about 3% more water each year for residential purposes (Figure 3).

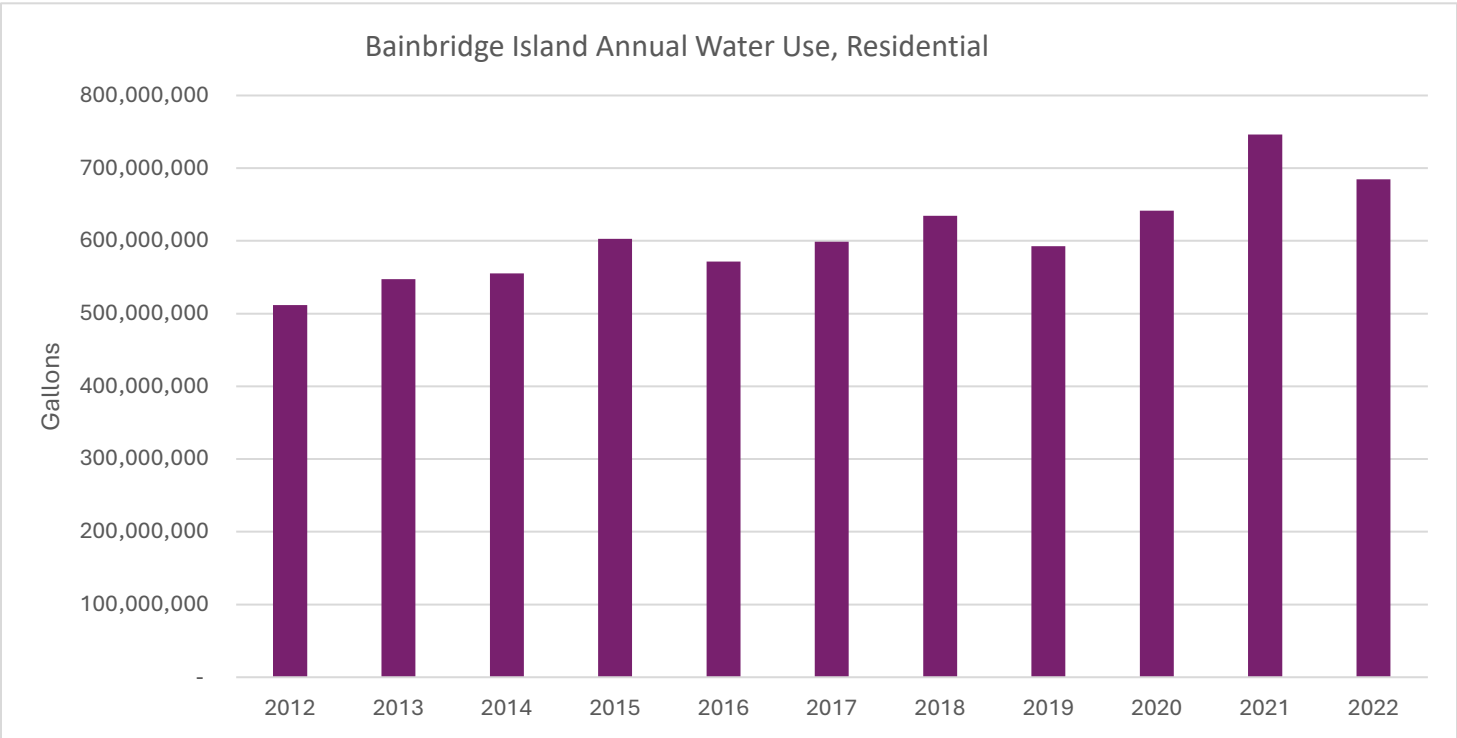


Figure 3 Total Residential Water Use

Appendix A. Winslow Water System Consumption by Customer Class 2005-2023																			
Gallons per day																			
Customer Type	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Single Family	304,688	329,725	305,641	291,536	308,418	274,953	273,272	272,194	290,628	290,902	318,056	314,724	332,075	349,623	343,086	362,632	400,860	349,234	367,358
Multi-Family	90,658	98,531	110,724	112,339	115,424	112,798	116,635	109,936	116,057	110,415	112,757	114,346	111,403	109,759	116,053	122,908	131,107	129,347	121,264
Commercial	111,866	114,766	108,554	102,251	104,296	110,790	106,589	106,665	114,555	110,882	118,174	115,247	116,717	113,417	122,477	94,156	90,842	102,000	94,986
Government	32,527	34,291	33,500	30,260	37,494	34,926	33,730	28,285	30,123	27,037	32,359	29,397	38,015	36,629	40,400	30,773	28,752	30,217	34,722
Irrigation	25,338	31,937	32,605	27,176	32,695	26,782	28,817	35,070	31,648	35,496	55,084	51,954	53,749	56,061	49,723	44,116	55,983	43,657	54,180
Other	7,416	6,300	6,197	5,025	5,064	5,256	5,798	5,420	6,527	5,761	6,279	5,529	4,703	5,000	5,332	4,810	5,621	5,277	4,941
Sands Disp Sta	-	217	608	269	672	285	500	547	575	665	1,845	1,417	1,102	1,035	497	640	1,030	893	-
Flushing		2,740	2,740	2,740	2,740	5,192	7,732	5,805	5,693	2,950	6,278	8,537	9,056	10,948	11,218	14,177	11,366	13,974	
Total Authorized	572,493	618,505	600,569	571,596	606,802	570,983	573,072	563,921	595,805	584,109	650,831	641,151	666,820	682,474	688,787	674,210	725,561	674,599	677,450
Change		46,013	(17,936)	(28,973)	35,206	(35,819)	2,089	(9,151)	31,884	(11,696)	66,722	(9,680)	25,669	15,654	6,313	(14,577)	51,351	(50,962)	2,851
Growth Rate		8.0%	-2.9%	-4.8%	6.2%	-5.9%	0.4%	-1.6%	5.7%	-2.0%	11.4%	-1.5%	4.0%	2.3%	0.9%	-2.1%	7.6%	-7.0%	0.4%
Average Annual Growth Rate																			1.06%

Broken out by Customer Type																			
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Irrigation	25,338	31,937	32,605	27,176	32,695	26,782	28,817	35,070	31,648	35,496	55,084	51,954	53,749	56,061	49,723	44,116	55,983	43,657	54,180
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		26.0%	2.1%	-16.6%	20.3%	-18.1%	7.6%	21.7%	-9.8%	12.2%	55.2%	-5.7%	3.5%	4.3%	-11.3%	-11.3%	26.9%	-22.0%	24.1%
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Commercial	111,866	114,766	108,554	102,251	104,296	110,790	106,589	106,665	114,555	110,882	118,174	115,247	116,717	113,417	122,477	94,156	90,842	102,000	94,986
		2,900	(6,211)	(6,304)	2,045	6,494	(4,201)	76	7,890	(3,672)	7,291	(2,926)	1,469	(3,299)	9,060	(28,322)	(3,314)	11,158	(7,014)
		2.6%	-5.4%	-5.8%	2.0%	6.2%	-3.8%	0.1%	7.4%	-3.2%	6.6%	-2.5%	1.3%	-2.8%	8.0%	-23.1%	-3.5%	12.3%	-6.9%
Average Annual Growth Rate																			-0.59%
Multi-Family	90,658	98,531	110,724	112,339	115,424	112,798	116,635	109,936	116,057	110,415	112,757	114,346	111,403	109,759	116,053	122,908	131,107	129,347	121,264
		7,873	12,193	1,615	3,084	(2,625)	3,836	(6,699)	6,121	(5,642)	2,342	1,588	(2,943)	(1,644)	6,294	6,854	8,199	(1,760)	(8,083)
		8.7%	12.4%	1.5%	2.7%	-2.3%	3.4%	-5.7%	5.6%	-4.9%	2.1%	1.4%	-2.6%	-1.5%	5.7%	5.9%	6.7%	-1.3%	-6.2%
Average Annual Growth Rate																			1.75%
Single Family	304,688	329,725	305,641	291,536	308,418	274,953	273,272	272,194	290,628	290,902	318,056	314,724	332,075	349,623	343,086	362,632	400,860	349,234	367,358
		25,036	(24,084)	(14,105)	16,882	(33,465)	(1,680)	(1,078)	18,434	275	27,153	(3,332)	17,352	17,548	(6,537)	19,546	38,228	(51,626)	18,124
		8.2%	-7.3%	-4.6%	5.8%	-10.9%	-0.6%	-0.4%	6.8%	0.1%	9.3%	-1.0%	5.5%	5.3%	-1.9%	5.7%	10.5%	-12.9%	5.2%
Average Annual Growth Rate																			1.27%

WATER CONSERVATION PLAN



City of Bainbridge Island Water Conservation Plan 2015

INTRODUCTION

The City of Bainbridge Island operates the Winslow and Rockaway Beach water systems, with approximately 2,458 connections. Water conservation, past and present, has consisted of both required and recommended measures for public water systems.

CONSERVATION OBJECTIVES

Bainbridge Island, as a quasi-enclosed environment, must protect its water resources to ensure that future generations will have a sufficient quantity of high quality water to support life on the Island. Customer education about water quantity and quality creates an added awareness and improved water habits by the citizens of this island. Through the conservation program, the City seeks to meet the following conservation objectives:

- Educate customers about basic water supply principals
- Encourage water conservation
- Increase customer's understanding of water-use habits
- Attain maximum utilization of current water supplies
- Reduce peak daily, peak monthly, and total annual water consumption
- Reduce lost and unaccounted for water to below 10%
- Improve efficiency of water use prior to developing new supplies

Implementation through a comprehensive conservation program will not only accomplish the above objectives, but it is a required component of a Water System Plan and is required if a system will be requesting additional water rights or will be applying for State Revolving Fund loans.

EVALUATION OF CONSERVATION MEASURES

The City of Bainbridge Island maintains approximately 2,458 water service connections and, therefore, qualifies as a medium-sized public water system. Table 1 below identifies the conservation measures that are required and recommended for a medium-sized water system in the Department of Health (DOH) and Department of Ecology (Ecology)

Conservation Planning Requirements and which measures have been implemented by the City of Bainbridge Island.

TABLE 1

Recommended Conservation Measures for Medium Sized Systems

Conservation Measures For Medium Systems*	Recommended	Implemented
A. Public Education		
1. School Outreach		
2. Speakers Bureau		
3. Program Promotion (<i>implementation required</i>)	X	
4. Theme Shows and Fairs		
B. Technical Assistance		
1. Purveyor Assistance	X	X
2. Customer Assistance	X	X
3. Technical Studies		X
4. Bill Showing Consumption History	X	X
C. System Measures		
1. Source Meters (<i>required if requesting water rights</i>)	X	X
2. Service Meters	X	X
3. Unaccounted Water/Leak Detection	X	X
D. Incentives/Other Measures		
1. Single-family/Multi-family Kits	X	X
2. Nurseries/Agriculture	X	
3. Landscape Management/Playfields/ Xeriscaping	X	
4. Conservation Pricing	X	X
5. Utility Financed Retrofit		X
6. Seasonal Demand Management		X
7. Recycling/Reuse		
*This program applies to utilities with 1,000 to 25,000 services.		

WATER USE DATA COLLECTION

A summary of the City's water use data collection for each of the required types of data listed in the *Conservation Planning Requirements* is presented below.

TABLE 2**Summary of Water Use Data**

Required Data Type⁽¹⁾	Unit of Measure	Collection Frequency	Comments
Source of Supply Meter Readings	Gallons	Daily	Separate records are kept for each source of supply.
Import/Export from Emergency Interties			Not applicable.
Export from Other Interties			Not applicable.
Wholesale Water Purchased			Not applicable.
Peak Day	Gallons	Daily	Daily meter readings are taken from the supply wells.
Peak Month	Gallons	Annual	Peak month is tabulated from daily meter readings.
Unaccounted for Water: Approx. 4.7% on average	Percent	Monthly	Calculated based on production minus consumption.
Accounted for Water	CCF	Bi-Monthly	Customer meter readings.
Single-Family ⁽²⁾ Service Meter Readings	CCF	Bi-Monthly	Customer meter readings.
Multi-family Service Meter Readings	CCF	Bi-Monthly	Customer meter readings.
Commercial Service Meter Readings	CCF	Bi-Monthly	Customer meter readings.
Irrigation Service Meter Readings	CCF	Bi-Monthly	Customer meter readings.
Population Served	Approx. 6,549	Annually	Annual update of City/County Comprehensive Plans for City and UGA boundaries and population.
Economic Data			Existing water rates for each customer class are included below.

WATER DEMAND FORECAST

Water demand forecasts are discussed in Chapter 2 of the City's Water System Plan.

DESCRIPTION OF CONSERVATION MEASURES

Public Education

Upon request the City coordinates with teachers at Sakai Intermediate School (5th & 6th graders) and Woodward Middle School (7th & 8th graders) to plan water conservation programs each academic school year. These programs may include classroom visits and/or water system facility tours.

Speakers Bureau: Upon request the City engages teachers, students, homeowner associations, business associations, and numerous other groups such as non-profits and watershed organizations in speaking opportunities as they become available.

Currently, the City publicizes the need for water conservation through several methods:

- Annual water quality reports with conservation message
- Water information kiosk at City Hall and customer service desk

Technical Assistance

Purveyor Assistance: The City is not a wholesale supplier, but does share technical information to other water purveyors within and outside of its defined service areas on an as requested basis.

Customer Assistance: Customers are offered assistance through messages in bills, informative brochures at the water kiosk at City Hall and face-to-face at the customer service desk in City Hall. The City alerts its customers of observed high water use via telephone, which initiates requests for the complimentary leak check service. The City's June/July Annual Water Quality Report provides information on water quality as well.

Technical Studies: The City has done a number of studies including Groundwater Monitoring Program Update, 2009; USGS Groundwater Model, 2011; City of Bainbridge Island Winslow Water Management Plan, 2005; City of Bainbridge Island Wellhead Protection Program, 2003; and Winslow Water System Engineering Program & Analysis, 2002 that address water conservation techniques such as personal conservation, water main leakage, water retention and aquifer storage and recovery.

Bill Showing Consumption History: The City's water bills show water usage of the past year in a table as 100s of cubic feet.

System Measures

Source Meters: The sources that supply the Winslow Water System all have source meters.

Service Meters: All customers are metered. Meters are tested on a ten-year schedule and replaced as necessary with emphasis on larger meters.

Unaccounted Water/Leak Detection: The City's average unaccounted for water over the last six years was 4.7%.

Incentives/Other Measures

Landscape Management/Playfields/Xeriscaping: The City of Bainbridge Island tracks irrigation separately for some customers. There are currently a total of approximately 41 irrigation meters that serve commercial, government, multi-family and single-family customers.

Conservation Pricing: The City currently has a rate structure that charges a monthly fixed base rate based on size of water meter plus a charge for consumption on an inclined block rate basis. Single and multi-family customers pay a higher consumption charge for the more water used year round, and all other customers are charged more for consumption from May through October. Single and multi-family customers are charged a rate of \$1.09 per 100 cubic feet (cf) for the first 500 cf used, \$1.76 per 100 cf for the next 700 cf used, \$2.49 per 100 cf for the next 1,800 cf used, and \$3.39 per 100 cf for amounts over 3,000 cf. Other users including commercial, public, and industrial are charged \$1.43 per 100 cf from November to April and \$1.65 per 100 cf from May through October. This structure generally promotes water conservation by giving the customer economic incentive to conserve water, especially during peak water use periods.

Utility Financed Retrofit: At this time, the City provides reimbursement to replace high-flush toilets with low flow toilets of up to \$100.00 to qualified customers connected to the City's Winslow sewer system.

EVALUATION OF WATER REUSE OPPORTUNITIES

Background and Scope

In 2003, Chapter 90.46 of the Revised Code of Washington (RCW) was amended to require public water systems serving 1,000 or more connections to evaluate opportunities for reclaimed water when completing water system plans.

This evaluation has four elements:

1. Discussion of water reclamation and reuse requirements in Washington State
2. Identification of potential reclaimed water users
3. Feasibility analysis of implementing reclaimed water projects
4. Recommendations for implementing a reclaimed water program

Water Reclamation and Reuse Requirements in Washington State

“Reclaimed water” is defined in RCW 90.46.010 as “effluent derived in any part from sewage from a wastewater treatment system that has been adequately and reliably treated, so that as a result of that treatment, it is suitable for a beneficial use or a controlled use that would not otherwise occur, and is no longer considered wastewater.”

In the State of Washington, any type of direct beneficial reuse of municipal wastewater is defined as water reuse or reclamation. *The Departments of Health and Ecology have issued Water Reuse and Reclamation Standards jointly.* This discussion is based on the current standards dated September 1997, which are adopted by reference in RCW Chapter 90.46, Reclaimed Water Use.

Washington State reuse standards are based on similar standards used throughout the United States. Washington’s reuse standards for municipal wastewater can be broken down into four categories:

- Treatment Standards
- Permitted Uses of Reclaimed Water
- Use Area Requirements
- Operational and Reliability Requirements

Washington's reuse treatment standards call for *continuous* compliance, meaning that the treatment standard must be met on a constant basis or the treated water cannot be used as reclaimed water.

Treatment Standards

The State of Washington's standards for municipal wastewater reuse have four classifications based on the type of treatment provided. The classifications are summarized below in Table 4.

Permitted Uses of Reclaimed Municipal Wastewater

Allowable water reuse methods within the State of Washington are presented in Table 5.

Most of the allowable reuse methods provide limited opportunity for reuse due to the relatively small quantities and seasonal nature of the reuse demand.

Two reuse methods that offer the potential for 100 percent reuse on a year-round basis are ground water recharge and streamflow augmentation. A more detailed discussion of ground water recharge and streamflow augmentation is provided after Table 5.

TABLE 4

State of Washington Reclaimed Water Treatment Standards

Reuse Class	Continuously Oxidized ⁽¹⁾	Continuously Coagulated ⁽²⁾	Continuously Filtered ⁽³⁾	Disinfection (Total Coliform Density) ⁽⁴⁾	
				7-Day Median Value	Single Sample
A	Yes	Yes	Yes	≤2.2/100ml	23/100ml
B	Yes	No	No	≤2.2/100ml	23/100ml
C	Yes	No	No	≤23/100ml	240/100ml
D	Yes	No	No	≤240/100ml	no standard

- (1) Oxidized wastewater is defined as wastewater in which organic matter has been stabilized such that the biochemical oxygen demand (BOD) does not exceed 30 mg/L and the total suspended solids (TSS) do not exceed 30 mg/L (monthly average basis), is non-putrescible (does not have a foul smell) and contains dissolved oxygen.
- (2) Coagulated wastewater is defined as an oxidized wastewater in which colloidal and finely divided suspended matter have been destabilized and agglomerated prior to filtration by the addition of chemicals or an equally effective method.
- (3) Filtered wastewater is defined as an oxidized, coagulated wastewater that has been passed through natural undisturbed soils or filter media, such as sand or anthracite, so that the turbidity as determined by an approved laboratory method does not exceed an average operating turbidity of 2 nephelometric turbidity units (NTU), determined monthly, and does not exceed 5 NTU at any time.
- (4) Disinfection is a process that destroys pathogenic organisms by physical, chemical or biological means. The disinfection standards use coliform density as the measure of pathogen destruction. DOH recommends that a chlorine residual of 0.5 mg/L be maintained during conveyance from the reclamation plant to the use area to avoid biological growth in the pipeline and sprinkler heads.

TABLE 5
Allowable Uses of Reclaimed Water

Use	Class of Reclaimed Water Allowed			
	Class A	Class B	Class C	Class D
Irrigation of Non-Food Crops				
Trees and fodder, fiber, and seed crops	YES	YES	YES	YES
Sod, ornamental plants for commercial use, pasture to which milking cows or goats have access	YES	YES	YES	NO
Irrigation of Food Crops				
Spray Irrigation:				
All food crops	YES	NO	NO	NO
Food crops which undergo physical or chemical processing sufficient to destroy all pathogenic agents	YES	YES	YES	YES
Surface Irrigation:				
Food crops where there is no reclaimed water contact with edible portion of crop	YES	YES	NO	NO
Root crops	YES	NO	NO	NO
Orchards and vineyards	YES	YES	YES	YES
Food crops which undergo physical or chemical processing sufficient to destroy all pathogenic agents	YES	YES	YES	YES
Landscape Irrigation				
Restricted access areas (e.g. cemeteries, freeway landscaping)	YES	YES	YES	NO
Open access areas (e.g. golf courses, parks, playgrounds, etc.)	YES	NO	NO	NO
Impoundments				
Landscape impoundments	YES	YES	YES	NO
Restricted recreational impoundments	YES	YES	NO	NO
Nonrestricted recreational impoundments	YES	NO	NO	NO
Fish Hatchery Basins	YES	YES	NO	NO
Decorative Fountains	YES	NO	NO	NO
Flushing of Sanitary Sewers	YES	YES	YES	YES

TABLE 5 – (continued)

Allowable Uses of Reclaimed Water

Use	Class of Reclaimed Water Allowed			
	Class A	Class B	Class C	Class D
Street Cleaning				
Street sweeping, brush dampening	YES	YES	YES	NO
Street washing, spray	YES	NO	NO	NO
Washing of Corporation Yards, Lots, and Sidewalks	YES	YES	NO	NO
Dust Control (Dampening Unpaved Roads, Other Surfaces)	YES	YES	YES	NO
Dampening of Soil for Compaction (Construction, Landfills, etc)	YES	YES	YES	NO
Water Jetting for Consolidation of Backfill Around Pipelines				
Pipelines for reclaimed water, sewage, storm drainage, gas, electrical	YES	YES	YES	NO
Fire Fighting and Protection				
Dumping from aircraft	YES	YES	YES	NO
Hydrants or sprinkler systems in buildings	YES	NO	NO	NO
Toilet and Urinal Flushing	YES	NO	NO	NO
Ship Ballast	YES	YES	YES	NO
Washing Aggregate and Making Concrete	YES	YES	YES	NO
Industrial Boiler Feed	YES	YES	YES	NO
Industrial Cooling				
Aerosols or other mist not created	YES	YES	YES	NO
Aerosols or other mist created (e.g. cooling towers, spraying)	YES	NO	NO	NO
Industrial Process				
Without exposure of workers	YES	YES	YES	NO
With exposure of workers	YES	NO	NO	NO

Ground Water Recharge

Ground water recharge with reclaimed water is permitted under the water reuse standards. Three categories of ground water recharge are covered in the water reuse standards:

- (1) direct injection to a drinking water aquifer,
- (2) direct injection to a non-drinking water aquifer, and
- (3) surface percolation.

Direct Injection to a Drinking Water Aquifer

Direct injection of reclaimed water to a drinking water aquifer must meet the water quality standards for primary contaminants (except nitrate), secondary contaminants, radionuclides and carcinogens contained in Table 1 of WAC 173-200, as well as maximum contaminant levels (MCLs) contained in the State Drinking Water Standards, WAC 246-290.

Additionally, for direct injection to a drinking water aquifer, pre-injection treatment must include the following:

- (1) reverse osmosis treatment
- (2) turbidity ≤ 0.1 NTU (average) and ≤ 0.5 (maximum)
- (3) total organic carbon levels ≤ 1.0 mg/L
- (4) total nitrogen ≤ 10 mg/L as N

Direct Injection to a Non-Drinking Water Aquifer

Direct injection of reclaimed water to a non-drinking water aquifer must meet Class A reclaimed water treatment standards as well as the following additional criteria:

- (1) BOD₅ ≤ 5 mg/L
- (2) TSS ≤ 5 mg/L
- (3) any additional criteria deemed necessary by DOH or Ecology

Surface Percolation

Ground water recharge using surface percolation requires at least Class A reclaimed water unless a lesser level is allowed under a pilot project status by DOH and Ecology. In addition to secondary treatment to provide oxidized wastewater, the process must include a “step to reduce nitrogen prior to final discharge to ground water”.

Streamflow Augmentation

For small streams where fish habitat has been degraded due to low instream flows, streamflow augmentation is an option allowed under the water reuse regulations and standards. This reuse method requires an NPDES permit and adherence to the Surface Water Quality Standards (WAC 173-201A). However, the key difference between streamflow augmentation and surface water disposal is that a determination of beneficial use has been established based on a need to increase flows to the stream. To make this determination requires concurrence from the Washington State Department of Fish and Wildlife that the need exists for additional instream flows.

Other Uses

The water reuse standards allow for other uses that are not discussed in detail in this chapter. However, the general basis for the reuse criteria is that when unlimited public access to the reclaimed water is involved (as is the case for the reuse scenarios that might apply for the City of Bainbridge Island) the criteria will require Class A reclaimed water. Essentially, for a water reclamation project to have the flexibility to allow for relatively unrestricted use, the reclaimed water should meet the Class A reuse standard.

Use Area Requirements

The water reuse standards establish criteria for siting and identifying water reclamation projects and their facilities. Water reclamation storage facilities, valves, and piping must be clearly color-coded and labeled and no cross connections between potable water and reclaimed waterlines are allowed. The potable water system manager must have an approved cross connection control program pursuant to WAC 246-290-490.

Maximum attainable separation between reclaimed water lines and potable water lines must be achieved. A minimum horizontal separation of 10 feet is required for buried lines, but when crossing is necessary, a minimum 18-inch vertical separation is required and the potable water line must be above the reclaimed water line.

Reclaimed water may be used to flush toilets in condominiums and apartment complexes as long as residents do not have access to plumbing systems for repairs or modifications.

Another key requirement for a water reclamation project is setback distance. Table 6 summarizes setback requirements for water reclamation facilities. In general, setback distances are minimized with higher levels of treatment and reliability. Class A reclaimed water requires no buffer between irrigated areas and public use areas.

TABLE 6**Setback Distances for Reclaimed Water in the State of Washington**

Reclaimed Water Use/ Facility	Distance (Feet)			
	Class A	Class B	Class C	Class D
Minimum Distance to Potable Water Well:				
Spray or Surface Irrigation	50	50	100	300
Unlined Storage Pond or Impoundment	500	500	500	1,000
Lined Storage Pond or Impoundment	100	100	100	200
Pipeline	50	100	100	300
Min. Distance from Irrigation Areas to Public Areas	0	50	50	100

Operational and Reliability Requirements

Under the reuse standards, there are a number of operational and reliability requirements for a water reclamation plant. Several key requirements are summarized below.

- Minimum Class III Operator
- Critical equipment and process failures must be signaled by an alarm
- Emergency storage and disposal facilities in the event of equipment failure or the intermittent production of effluent that does not meet the reclaimed water standards.
- Operating records provided to DOH as well as Department of Ecology.
- No bypass of untreated or partially treated water.
- Either a stand-by power supply or long-term disposal or storage facilities for untreated wastewater.

POTENTIAL RECLAIMED WATER USERS**Inventory of Large Water System Users**

Table 2-6 in the City of Bainbridge Island Water Comprehensive Plan identifies the City's fifteen (15) largest water users. These users accounted for approximately 16 percent of the total water used in the Winslow system in 2004. Of the fifteen, eight are apartments, condominiums, or retirement homes; three are schools; two are supermarkets; and the remaining two are a health services provider and Bainbridge Parks and Recreation, an special purpose district that has recently changed its name to Metropolitan Park District.

Parks and Recreational Areas

The City of Bainbridge Island has two City parks on the Island. Most of the park space on the Island is owned by the Metropolitan Park District. The City's parks and the closest large state park are listed in Table 7. None of the three parks is currently

irrigated. Consequently, none is a good candidate for reuse irrigation from a water resource perspective since the reuse water would not be replacing an existing potable use.

Most of the park spaces that the Metropolitan Park District owns are generally maintained in a natural state and do not have areas that are currently irrigated. Consequently, these parks are not good candidates for reuse irrigation. There are some parks that the Metropolitan Parks District does irrigate. As seen in Chapter 2, the Metropolitan Parks District accounted for 61 ERUs of the total 3,236 ERUs in 2004 or approximately two percent.

TABLE 7

Public Areas near of the City of Bainbridge Island WWTP

Park	Distance from WWTP	Total Area (acres)	Currently Irrigated
Waterfront Park	3,000 ft	5.5	0%
Fort Ward Parade Ground	5 miles	2.5	0%
Non-City Parks			
Fort Ward Park	5 miles	108	0%

WATER REUSE FEASIBILITY ANALYSIS

Using the information above, an analysis of reuse opportunities within the City's service area follows.

Groundwater Recharge

The City considered groundwater recharge in its wastewater treatment plant upgrade planning process. The analysis indicated that without substantial upgrades in technology, the City's treatment plant could not provide sufficient nitrogen removal throughout the colder parts of the year to meet groundwater standards. Additional treatment processes, specifically a membrane bioreactor, were deemed too expensive to be cost effective to provide any benefit to the City from groundwater recharge.

Streamflow Augmentation

Based on the Washington State Department of Ecology's draft 2002/2004 Water Quality Assessment 303(d) list for non-pollutant impaired streams, there are no streams in the vicinity of the Winslow Water System on Bainbridge Island that could potentially benefit from streamflow augmentation. Consequently, no incentive exists to implement a streamflow augmentation program.

Irrigation

The City's analysis of upgrades to its wastewater plant did consider using Class A reclaimed water for irrigation. A preliminary estimate made in 2003 indicated that it would cost \$830,000 to install effluent filtration equipment suitable for making Class A effluent. This cost was revised during subsequent planning to \$1.5 million dollars. This cost represents only the cost to provide Class A reclaimed water at the wastewater plant and does not include any pumping or distribution infrastructure.

The City chose during the wastewater treatment plant upgrade planning phase to include sufficient space for future treatment equipment for Class A effluent but not to install it at this time since it was not cost effective.

In addition to treatment plant upgrades, there is also the cost of pumping and a distribution system for the Class A. A possible candidate for Class A water is the Wing Point Golf Course, which is located near the wastewater plant. Wing Point has its own water system for irrigation from wells that it owns water rights. Consequently, it is highly unlikely that Class A reclaimed water represents a viable alternative to Wing Point since the cost for producing Class A water are likely to be far more than the cost of pumping groundwater.

Other potential uses for Class A would be school ballfields. This would require a significant pumping facility and a distribution system network. For example, approximately 6,000 linear feet of distribution system line would be required to supply the High School athletic fields.

REUSE CONCLUSIONS

For the foreseeable future, the City can meet its water conservation goals without investing in such a significant project. Additionally, there appear to be no environmental pressures for the City to discontinue discharging treated wastewater effluent into waters of the Puget Sound. Therefore, this preliminary analysis indicates that the costs significantly outweigh potential benefits for developing a water reuse capability.

If the City wishes to give further consideration to water reuse, costs for upgrades to the WWTF and water distribution system should be further refined in a detailed study. An evaluation of financing options, which would likely include a combined effort of grants/loans and rate increases, should be included in this study.

ESTIMATED COSTS OF CONSERVATION MEASURES

The estimated costs of the conservation measures are shown in Table 8, along with a schedule for implementation.

TABLE 8

Estimated Costs of Water Conservation Measures

Conservation Measure	2005	2006	2007	2008	2009	2010	Estimated Cost Per Year
Public Education							
<i>School Outreach</i>							
1. Kitsap Water Festival – Staff	X						8 hours
2. Kitsap Water Festival – Co-sponsor & Staff		X	X	X	X	X	8 hours + \$500 to bus BI 4 th graders
3. Classroom visits (coordination & program prep)		X	X	X	X	X	16 hours + \$200
4. Water system facility tour		X		X		X	8 hours
<i>Speaker Bureau</i>							
1. Establish target audiences (coordination)	X	X	X	X	X	X	4 hours
2. Actively seek speaking opportunities		X	X	X	X	X	8 hours
<i>Program Promotion</i>							
1. Monthly water bill messages	X	X	X	X	X	X	1 hour
2. Quarterly water bill inserts							
• To be determined	X	X	X	X	X	X	Approximately \$1600/year
3. Website development	X						
4. Website maintenance	X						
5. Drinking water display, booth, banner, & leak detectors	X						
		X					
		X					
		X					
		X					
			X				12 hours (initial draft & set-up)
			X				8 hours
				X	X	X	16 hours + \$50 for displays
	X						
		X	X	X	X	X	
	X	X					

TABLE 8 – (continued)

Estimated Costs of Water Conservation Measures

Conservation Measure	2005	2006	2007	2008	2009	2010	Estimated Cost Per Year
<i>Program Promotion continued</i>							
6. Water information kiosk at City Hall	X	X	X	X	X	X	Kiosk one time expense of \$175, plus cost of brochures (variable) Printing \$470, mailing cost to be determined
7. Annual Consumer Confidence Report with conservation message.	X	X	X	X	X	X	
<i>Theme Shows & Fairs</i>							
1. Earth Day Festival at T&C Market (booth)	X	X	X	X	X	X	10 hours
2. Bainbridge Island 4 th of July parade (banner)	X	X	X	X	X	X	10 hours
3. Kitsap County Regional Fair (staff time)	X	X	X	X	X	X	10 hours
4. Bainbridge Island Environmental Conference (booth)	X	X	X	X	X	X	10 hours
5. Harvest Festival (booth)	X	X	X	X	X	X	10 hours
Technical Assistance							
<i>Customer Assistance</i>							
1. Face-to-face assistance at City Hall billing desk	X	X	X	X	X	X	384 hours (8 hours per week) Cost reflected above.
2. Water Information kiosk with brochures	X	X	X	X	X	X	
<i>Technical Studies</i>							
1. Analysis of Manganese treatment	TBD						Costs to be determined
2. Market study (targeting unserved areas)	TBD						
3. Capacity Analysis	TBD						
4. Interlocal agreements analysis	TBD						
<i>Bill Showing Consumption History</i>							
1. Monthly	X	X	X	X	X	X	
System Measures							
<i>Source Meters (req'd if requesting water rights)</i>	X	X	X	X	X	X	
<i>Service Meters</i>							
1. Replacement program—rebuild or replace 10% annually	X	X	X	X	X	X	Variable cost

TABLE 8 – (continued)

Estimated Costs of Water Conservation Measures

Conservation Measure	2005	2006	2007	2008	2009	2010	Estimated Cost Per Year
<i>Unaccounted for Water/Leak Detection</i>							
1. Investigation/repair of customer service lines (on-going program)	X	X	X	X	X	X	Variable
2. Distribution system leak detection survey (every 4 years)			X				Approximately \$2,500
3. Continue to track lost & unaccounted for water	X	X	X	X	X	X	
Incentives/other Measures							
<i>Single-Family/Multi-Family Kits</i>							
1. Outdoor kit	X						Prices Vary
2. Indoor kit				X			
<i>Nurseries/Agriculture</i>							
1. Produce promotional brochure and make available at local nurseries.		X					
<i>Landscape Management/Playfields/Xeriscape</i>							
1. Rainbarrels	X						Costs to be determined
2. Work with local nursery on availability and promotion of low water using plants		X					
<i>Conservation Pricing</i>							
1. Use rate structure to encourage conservation	X	X	X	X	X	X	
<i>Utility Financed Retrofit</i>							
1. Research rebate for low flow washers				X			
2. Provide rebate for low flow washers					X	X	
<i>Seasonal Demand Management</i>							
1. Seasonal rate structure	X	X	X	X	X	X	
2. Provide lawn water calendars	X						
<i>Recycling/Reuse</i>							
1. Identify potential reuse projects		X					
2. Build demonstration rain garden	X						\$1000



In This Drought Emergency, Practice Water Conservation

The State Department of Ecology declared a drought emergency in April for most of the state. The declaration was prompted by low snowpack and forecasts for a dry and warm summer. As climate change continues to affect our Northwest weather patterns, we are likely to experience more periods of abnormally hot weather.

During a drought, the City's water infrastructure and some private shallow wells face a greater challenge in meeting water demand. Start practicing water conservation now to protect our water resources and reduce your utility bills.

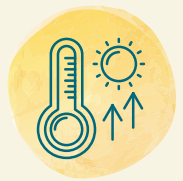
Water Consumption Numbers



Most of the water (up to 90%) people use outdoors is for irrigation of lawns and gardens.



On average, some residential properties use 350 gallons per day for irrigation (data from Rockaway water system).



On a high-heat day, Winslow customers can consume up to 1.5 million gallons.

STAY GOLDEN!
Brown grass is not dead—it's dormant.



Tips to reduce outdoor water usage:

- Don't overwater your plants. They don't need or want it.
- Limit lawn watering. Lawns go dormant until the rain returns in the fall.
- Reduce the amount of grass you have.
- Switch to native plantings that don't need supplemental watering once established.
- Use drip irrigation for the most efficient watering, close to roots, reducing evaporation.
- Avoid watering in the middle of the day when the hot sun will evaporate much of the water before it can get to thirsty plants.
- Check often for leaks and clogs at outside spigots and garden hoses/irrigation systems.
- Add a weather sensor to your automatic watering system.
- Use rain barrels to catch water from downspouts and then water plants with it.
- Only water perennials and shrubs when they're dry. Water approximately 30 minutes per week and never more than 1 inch per week.
- Water fruits and vegetables deeply for approximately 20 minutes every other day for a total of 1 inch per week.
- Help retain soil moisture. Add 3–8 inches of mulch per year and 1 inch of compost per year. Remove weeds and consider adding a groundcover.
- Plant drought tolerant plants. They can thrive on our limited summer rainfall once established (2–5 years).

Get more *efficient* lawn care information here:



CLIMATE SMART BAINBRIDGE FOCUS ON WATER

Autumn Salamack, the City's Climate Mitigation & Adaptation Officer, wants you to think about water this summer. With increasing drought and wildfire across the globe, we need to start developing water-smart habits. A 2014 Government Accountability Report said that 40 of our nation's state water managers expected water shortages under average conditions by 2024.

Even though the City's water supply is currently adequate, conservation of natural resources like groundwater is always encouraged. During periods of high heat, the City's water infrastructure and some private shallow wells have difficulty keeping up with demand.

Practicing water-smart habits also will help support healthy streams and wetlands and adequate water supply for island residents, businesses and visitors today and tomorrow.

There's no time like the present to start practicing water conservation to protect our water resources and reduce your utility bills.

Inside

Turn off the faucet. Don't keep the water running as you soap up dishes or brush your teeth.

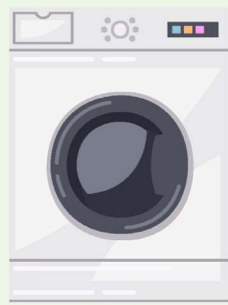


Take shorter showers; aim for five minutes or less.

Look for the EPA WaterSense® label when purchasing toilets, showerheads and bathroom faucets.

Wash only full loads of laundry or adjust the water level on your machine to match the size of your load.

Upgrade to a water-efficient, frontloading clothes washer.



Fill your dishwasher before running it. Limit pre-rinsing.



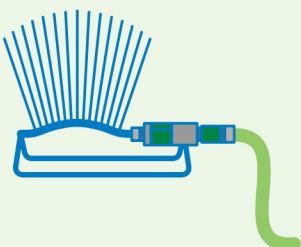
Outside

Watering. People use water outside for a number of reasons, such as to wash cars or pressure wash decks. But most of the water (up to 90%) people use outdoors is for irrigation of yards and gardens. Don't overwater your plants. They don't need it or want it.



Water just enough. *Annuals and veggie gardens:* Water deeply for approximately 30 minutes every three days for a total of 1 inch per week. *Perennials and shrubs:* Test the soil for dryness at the root zone and only water when dry, approximately 30 minutes per week and never more than 1 inch per week. *Lawns:* Water 20 minutes twice a week for a total of 1 inch per week or let the grass go brown. It will return in the fall.

Water efficiently and at the right time. Avoid watering in the middle of the day when the hot sun will evaporate much of the water before it can get to thirsty plants. Consider using a watering can, soaker hoses or a drip system. Use low-volume micro-irrigation where possible. Try to water as close to the roots as possible.



Take your irrigation system to the next level.

Inefficient irrigation systems can dump gallons of unneeded water on your walkways or patio. Check monthly for leaks and clogs at outside spigots and garden hoses/irrigation systems. Install weather-based irrigation systems—don't water your yard when it's raining! If you have an automatic watering system, upgrade it to include a weather sensor.



Catch the rain.

Use water barrels to gather water from your downspouts. You can use this water for your plants.