



Chehalis WaterSmart Report II

Lauren Church

Program on the Environment, University of Washington

This report was completed through Phase II of the WaterSmart Conservation Plan, a Capstone
Project with the Chehalis Basin Partnership

September 2023



TABLE OF CONTENTS

PREAMBLE	2
INTRODUCTION	2
SECTION 1 – OVERVIEW OF RESEARCH METHODS	3
SECTION 2 – SURVEY RESULTS	3
SECTION 3 – EXPERT INTERVIEW RESULTS	4
SECTION 4 – LITERATURE REVIEW RESULTS	5
SECTION 5 – WATER CONSERVATION STRATEGY IMPLEMENTATION	7
SECTION 6 – DISCUSSION AND NEXT STEPS	9
REFERENCES	11
APPENDIX A – RESOURCES FROM OTHER MUNICIPALITIES	13
APPENDIX B – EXPERT INTERVIEW QUESTIONNAIRE	14
APPENDIX C – SURVEY INSTRUMENT	16

Preamble: This report was designed to develop methods for water conservation strategy implementation in the City of Chehalis. The work within this paper is suited for this city, but can also apply to other municipalities of similar size in the Chehalis Basin and surrounding area to develop or improve water conservation efforts.

INTRODUCTION

This report was created by a University of Washington student through a Capstone project and summer internship with the Chehalis Basin Partnership (CBP). This project was the second phase of the WaterSmart Conservation Plan, building off of the work from the previous Capstone project and the first WaterSmart Conservation Report. Research within this report was conducted to understand the ways in which water conservation strategies from the first WaterSmart report of interest to the City of Chehalis could be feasibly implemented in Chehalis. The goal of this research was to create methods that Chehalis can utilize to increase municipal water conservation to improve water availability in the Chehalis Watershed and maintain this availability in the future.

The significance of this work is related to the current increased water demand, decreased water availability, and the projections for this to perpetuate in the future. According to the LWV of Thurston County's report, "the growing demand for water from population and economic growth will contrast with a projection of no increase in water supplies. The supply of water is projected to remain stable on an annual basis but change significantly on a seasonal basis. In the decades ahead, challenges to meet both human and ecosystem water needs will intensify" (LWV 2023). As a result of increasingly warmer, dryer, and longer summer months, the topic of water conservation has become increasingly relevant to ensure future water supply in the Chehalis Basin. Adequate water supply is critical to not only meet the needs of humans but also to preserve the health of ecosystems that depend on the same water sources (LWV 2023). It is for these reasons that municipalities should begin addressing this issue now to preserve water sources for the future.



According to the City of Chehalis Annual Water Quality Report (2022), Chehalis supplies water sourced largely from the Newaukum River to 2,940 homes and 840 businesses. Additionally, "the city has water rights and certificates to withdraw 3.31 million gallons per day (MGD) from the North Fork of the Newaukum River and 1 MGD from the Chehalis River" (2022). According to the Chehalis 2011 Water System Plan, the expected maximum day demand is anticipated to increase from 4.3 million gallons per day (MGD) in 2010 to 7.5 MGD in 2029 (Chehalis 2012). This increase is an indicator of anticipated water use increase with the same water sources.

SECTION 1 – OVERVIEW OF RESEARCH METHODS

The main recommendations for water conservation of interest to the City of Chehalis include public outreach, public giveaways of water-saving devices, a demonstration garden of water-saving plants, and water pricing structures. Research within this report was designed to better understand the effectiveness of the recommended strategies as well as how they could be implemented in Chehalis. This research consists of four main modes including citizen surveys, expert interviews, a literature review, and experiential data from city festivals. The reasoning behind this data collection was to best understand how different water conservation strategies might be implemented in line with the needs of the City of Chehalis and its residents.

The recommendations from interviews come from the opinions of experts in surrounding municipalities and are examples to understand their experiences. The results from this research are merely used to identify effective water conservation strategies based on what these municipalities are pursuing and then evaluate possible outcomes for Chehalis based on this. The literature review conducted for this research was done to back up strategies' plausibility with more general and concrete research. Understanding the experience of municipalities, the state of current literature, and the preferences of citizens are all used to form the implementation recommendations in this report.

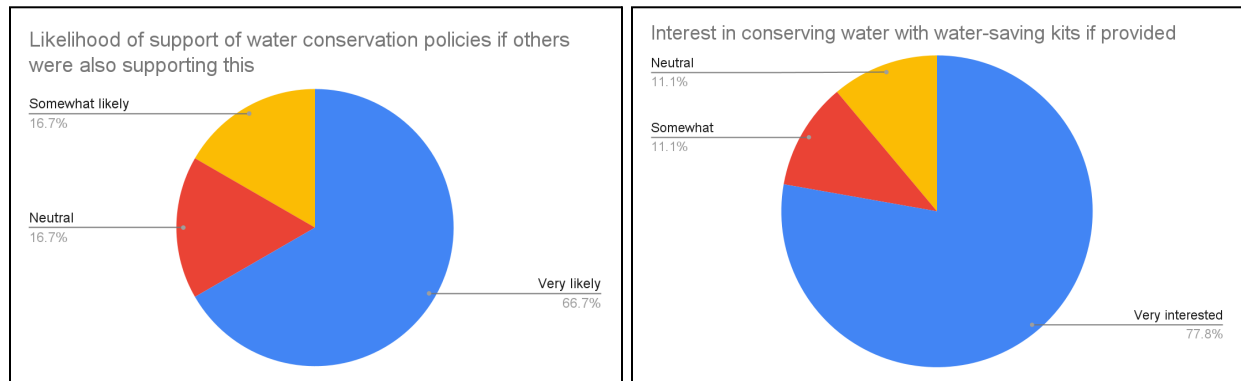
SECTION 2 – SURVEY RESULTS

For this research, survey responses were obtained from Chehalis residents at ChehalisFest and online. From these sources, fifteen surveys were acquired from Chehalis Residents. The questions in this survey asked citizens about their perceptions and preferences regarding water availability, water conservation strategies, and their likelihood of support and action regarding various actions. The results from this survey are from a small sample which does not represent all Chehalis citizens. Results should be regarded with this information as this is not a substantial evaluation of all Chehalis water customers.

One of the main results from this survey is that 55.6% of respondents stated that they strongly agree that there has been a trend in decreased water availability in the creeks and rivers in Chehalis during the summer. This reveals that of citizens surveyed, the majority hold a view that water availability is decreasing during the summer months and is visible in surrounding environments. In addition, the greatest sector of perceived greatest household water use among residents surveyed was showers. 77.8% of residents surveyed either strongly or somewhat agree that they only use enough water to meet their most basic needs in their homes.

As shown in the left pie chart below, 66.7% of respondents state they are very likely to support water conservation policies if others also were in support. Similarly, 77.7% of respondents strongly or somewhat agree that they would support tiered water pricing if others were also supporting this. 66.7% state that they are very likely to support domestic water conservation if other sectors also were reducing water use. A key finding related to water

conservation strategies is that 77.8% of citizens surveyed stated they were very interested in conserving water with water-saving kits if provided, which can be seen in the second pie chart.



SECTION 3 – EXPERT INTERVIEW RESULTS

Expert interviews were conducted among a variety of professionals involved with water utilities and water conservation. The experts included individuals such as a senior drinking water specialist, a water operations manager, a water sustainability analyst, and a public works director from the cities of Tacoma, Olympia, and Centralia. The main themes across the interviews included that the most important actions to conserve municipal water include leak prevention, water rate structures, public education, and efficient infrastructure. While these conservation strategies were stated to be the most effective, the current main water conservation actions being used in these cities include rate structures, public outreach, public education, water-saving kits, leak detection, efficient infrastructure, and landscape management.

Through each interview, experts interviewed also shared opinions of other useful actions to conserve water. One important measure is utilizing social norms and social pressure to cultivate a sense of conservation culture. This is essentially making it the norm to conserve water in a community. Similarly, it was stated that water-saving kits as well, public education, and public outreach are important to generate interest in water conservation among residents. This is important as this interest can translate into conserving water in many aspects of daily life. It was also stated that it is important for cities to lead by example when pushing water conservation initiatives. One way this can be accomplished is through implementing efficient water infrastructure in city buildings and landscapes. A final useful action identified through the expert interviews was placing a greater focus on water conservation among larger water users such as commercial and industrial users which can be accomplished through policies.

From the interviews, the experts from each municipality stated that their water conservation strategies have all had significant impacts on water conservation. However, when asked about the barriers and nuances related to municipal water conservation one main response was the need for cities to take the long view for current investment in water conservation to be justified. Specifically, while it can be costly to invest in new initiatives, infrastructure, and resources to conserve water, it was stated that this view should be embedded in the fact that

current investments will save money in the future when new sources of water will need to be tapped into. Similar to this, it was also stated that costs shouldn't be seen as a barrier to conserving as it can instead be part of the strategy to maintain water supplies long-term. Hence, water conservation can be deemed to outweigh these costs due to the benefits it produces. Despite these facts, interviews also revealed that decreased revenue as a result of decreased water purchasing can be a barrier to conservation as this often leads to rising water rates.



SECTION 4 – LITERATURE REVIEW RESULTS

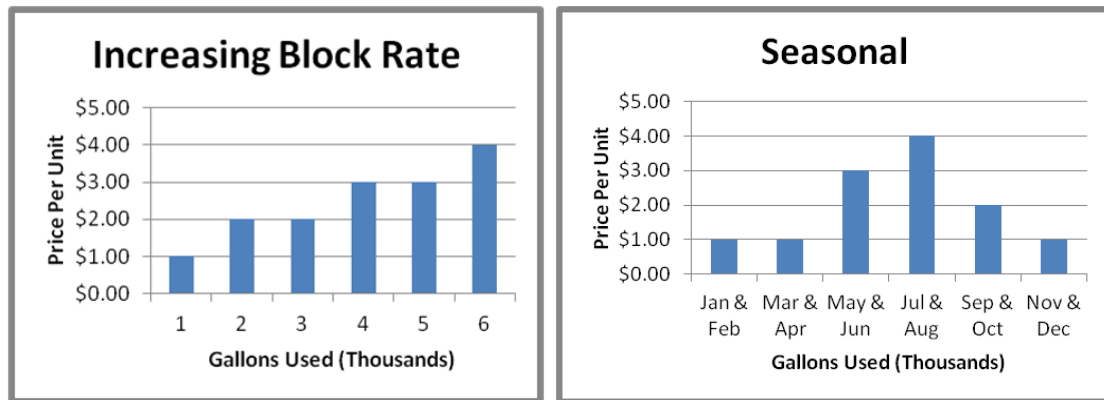
4.1 – Public Outreach

Public outreach and education can be effective tools for water conservation to create pathways for citizens to be knowledgeable, engaged, and more likely to pursue and support conservation strategies. Current literature on this topic has revealed that there are a variety of strategies for municipalities to utilize public outreach and education to increase water conservation. Public outreach is an important aspect of conservation as the “success of an urban water conservation program depends to a great extent on public support. By assessing consumer attitudes and opinions toward the many conservation alternatives available, a water utility can design a successful conservation program” (Flack et al. 1987). For water conservation programs to be implemented and successful, they must be supported by the public, which often requires outreach and education about conservation. Additionally, the EPA reported that “information and education are critical to the success of any conservation program. Information and education measures can directly produce water savings, as when customers change their water-use habits” and can enhance the effectiveness of other conservation measures (EPA 1998). There are four main public outreach strategies proven effective among sources evaluated which include water bill inserts, website information pages, and community events whose implementations are discussed later in this report.

4.2 – Tiered Water Rates

Tiered water rates or inclining block rate structures are methods of water pricing that include a set of different tiers with varying per-unit costs. Two main methods of water pricing applicable to conserving water in Chehalis include an increasing block rate structure and a seasonal water rate. According to the EPA, “Increasing Block Rates is a rate structure in which the unit price of each succeeding block of usage is charged at a higher unit rate than the previous block(s). Increasing block rates are designed to promote conservation and are most often found in urban areas and areas with limited water supplies” (EPA). On the other hand, “Seasonal Rates are rates that cover a specific time period. They are established to encourage conservation during

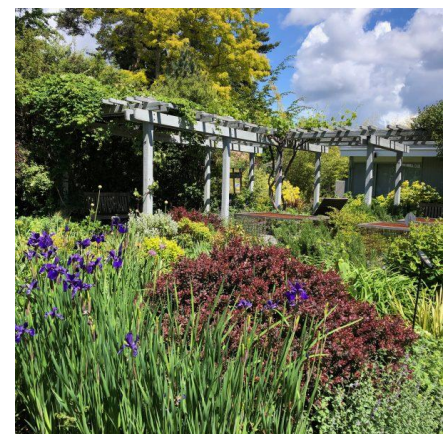
peak use periods. Examples of seasonal rates may have lower rates for the winter season and higher rates for the summer season due to increased water demand associated with lawn watering and outside activities" (EPA). Both of these policy strategies can be effective options to reduce overall water use by charging greater water users using non-essential amounts of water at higher rates while providing low rates for customers using efficient amounts.



One source found that in an evaluation of current research on tiered water rates, “academic research findings and practical efforts by the agencies have shown that tiered rates are an extremely valuable tool for reducing inefficient use of water and helping in more water savings” (Mukherjee 2016). Tiered water rates are discussed as viable options for water conservation which economically incentivize the reduction of unnecessary water use. It has been found that an “inclining block rate provides more of an incentive to conserve because the marginal cost of water increases with increased usage. The block rate structure has been successful in droughts for purveyors to achieve conservation goals” (Flat et al. 1987). Tiered water rates are a common water conservation method discussed within conservation research and are depicted as an effective policy strategy for conserving water.

4.3 – Demonstration Gardens

Demonstration gardens of native, water-saving plants are another strategy that can be used for water conservation in Chehalis. These gardens can be developed on city property to serve as a model for residents to promote the use of water-efficient landscapes. Through a literature review, it was also discovered that studies have found positive impacts of demonstrating native and water-saving plant gardens and related education. According to one source, “education of the water consumer on the types of native and drought resistant vegetation available and a public display of these plants as part of an innovative landscape design may convince the



water user that a more natural environment can be as pleasing as the “green look” (Flat et al. 1987). These demonstration gardens are widely implemented and in many cases provide residents with information and inspiration to create their own water-efficient landscapes and increase their water conservation.

SECTION 5 – WATER CONSERVATION STRATEGY IMPLEMENTATION

5.1 – Water Conservation Plans

One of the main ways conservation strategies can be implemented in municipalities is through developing a water conservation plan. According to one study, “the most effective way for a water system to improve its water use efficiency is to develop and implement a water conservation plan. A water conservation plan is a document written by a public water system that discusses information about current and future water supply and demand, infrastructure, management practices, and related actions (MDE 2003). This is often the basis for which municipalities evaluate water availability and develop further actions to meet conservation goals and maintain water supplies.

5.2 – Public Outreach and Giveaways

In terms of implementing public outreach as a conservation strategy, there are a variety of opportunities for which this can be accomplished. As discovered through expert interviews, one way this can be done is through creating a webpage to provide citizens with accessible information and resources for water conservation. Additionally, based on the strategies used by the municipalities interviewed, cities can distribute water-saving kits and provide an online page where citizens can customize and order these kits.



Another way to implement public outreach and education is by providing water customers with flyers about water-saving kits and water-saving plants with their water bills. Water “systems can include inserts in their customers’ water bills that can provide information on water use and costs. Inserts also can be used to disseminate tips for home water conservation” (USEPA 1998). Providing citizens with the means to reduce water use in this manner can allow them to put this information into perspective with their water use and expenses.

5.3 – Policy and Water Pricing Structures

The expert interviews conducted through this internship also identified that passing an ordinance for regulations and requirements can be a first step to implementing actions and policies. It was also identified that it is important when implementing conservation initiatives to create opportunities for every customer type including residential, commercial, and industrial

users at every time of year. A common barrier to the implementation of municipal water conservation strategies is revenue loss. However, even though “[c]onservation plans for the demand side (i.e. reductions in consumer usage) may result in lost revenues, a well-designed pricing program can offset potential losses in revenue” (MDE 2003).

Similarly, current literature suggests implementing tiered water rates through one method which includes “setting rates based on the cost of different sources of water, isolating different types of costs involved in supplying water, incorporating the cost of conservation into the rates, considering the time frame involved in setting up infrastructure for new supply or distribution, including fixed cost as a higher percentage of the rate, adding penalties for excessive water use, and strongly justifying the rates cost structure” (Mukherjee et al. 2016). Municipalities researched through this project that are currently pursuing a system of water pricing include Centralia, Olympia, and Thurston PUD. Information about their conservation plans and water pricing can be found at the end of this report.

Additionally, “policy rationales for water conservation and proposals for specific conservation measures would likely benefit from taking into account the complex mix of factors revealed by integrated social and natural science research” (Gilligan et al. 2018), meaning that developing water conservation policy in Chehalis should be done by considering the factors associated with social and natural science to determine the best fit for the city both hydrogeologically and socially. Considering the climate and current water availability in Chehalis, this might be instituting tiered water pricing during peak summer months to incentivize lower use.

5.4 – Demonstration Gardens

An important action for Chehalis’ municipal water conservation previously identified in the first WaterSmart report was a demonstration garden of native, water-saving plants. This could be created on city property to provide citizens with an example of a lawn alternative to conserve water in their landscaping. This report seeks to build off of this by providing how the demonstration garden could be implemented. Following what other municipalities have done to implement these gardens, suggestions for Chehalis include developing a Waterwise garden using a variety of curated tools. Creating a demonstration garden with native, water-saving plants requires a variety of steps before executing the project. Planning for this demonstration garden will require understanding soil quality, the sun levels the area will get, and water needs based on environmental characteristics.



	 Water / Maintenance	 Sun	 Soil
Lawns (kept green in summer)	High.	Full sun to partial shade.	6-12" fertile and well drained.
Vegetables and Fruit	High.	Full sun to partial shade.	8-12" fertile and well drained.
Annual flowers	Most high.	Varied. Mostly full sun to partial shade.	6-12" fertile and well drained.
Perennial flowers	Most moderate.	Varied.	6-12" fertile and well drained.
Deciduous shrubs and groundcovers	Low to moderate.	Varied.	Varied.
Evergreen shrubs and groundcovers	Low to moderate.	Varied.	Varied.
Decks, pavers, wood chips and gravel	Low maintenance, no water.	None.	None.

To understand soil depth and quality, it is suggested to dig several one-foot-deep holes around the area to understand soil conditions (Bellevue Utilities 2014). Sun amounts in landscapes can be understood as full sun, partial sun, or shade. To understand the irrigation and size needs for a specific demonstration garden, the EPA's Water Budget Tool can be used. The [Water Budget Quick Start Guide](#) accompanying [excel tool](#) are the two resources needed for this. Additionally, Appendix A of the first Chehalis WaterSmart Report identifies plants for a Chehalis demonstration garden as well as resources to purchase plants. The plants can be selected from this catalog based on the environmental characteristics from above. Many other demonstration gardens include drip irrigation for trees and plant beds that require water. Drip irrigation or soaker hoses can save 50% or more water in comparison to hoses (King County 2008). In addition to this, it can be useful to provide signs detailing the importance of this landscaping for water conservation as well as information about the plant types for citizens. Paths may also be needed for visitors and maintenance in the demonstration garden.

SECTION 6 – DISCUSSION AND NEXT STEPS

Based on citizen support from surveys, information from expert interviews, and findings from a literature review, the strategies of public outreach, tiered water pricing, a demonstration garden, and a giveaway of water-saving devices are plausible water conservation strategies for the City of Chehalis and can be implemented through the methods stated in this report. From this project, it has been discovered that two of the main obstacles to carrying out water conservation strategies in municipalities include a lack of citizen support and decreased revenue due to conservation. Despite these barriers, solutions do exist to enable strategy implementation.

Research within this project has found that the implementation of water conservation strategies goes hand in hand with citizen support. In many cases, to implement such conservation actions, informed and supportive citizens willing to engage with conservation efforts are required

to ensure success. As previously discussed, many public outreach and education efforts are possible to engage citizens and increase support related to conserving water both at the individual and city levels. If citizens can develop a collective desire to conserve water for the sake of ecosystem health and future water availability, municipal water conservation strategy implementation can be far more achievable. Additionally, to combat the barrier of revenue loss, tiered water pricing can solve the dilemma of cities wanting to conserve water while also wanting to maintain revenues for water utilities.

A significant conclusion gained from expert interviews and citizen surveys was that municipal water conservation is both a collective and individual issue. While municipalities are often responsible for executing policies related to conserving water, individual citizens also can play a role in this issue. Individual actions such as conserving residential water use through a water-saving kit do not correlate to expansive savings in municipal water, however, engaging citizens and providing a means to act can help to generate support for greater conservation at the city level. This can also be important for achieving conservation within the commercial sector for companies that account for large amounts of municipal water use.

6.1 – Next Steps

This report was prepared to build off of the previous WaterSmart Conservation Report and the strategies the City of Chehalis expressed interest in. The work within this report provides further information and research regarding these strategies. Going forward, it is suggested that this information gained from the WaterSmart Conservation Program, Phase II can be used to assist the implementation of water conservation strategies in the City of Chehalis in line with the needs and preferences of the city and its water customers. This report is also intended to provide useful information to similar and surrounding areas to improve water conservation within the Chehalis Basin.

REFERENCES

- City of Bellevue Utilities. (2014). *Resources for inspiration and ideas - City of Bellevue. Garden Design*.
https://bellevuewa.gov/sites/default/files/media/pdf_document/Garden%20Design.pdf
- City of Chehalis. (2021). The City of Chehalis Annual Water Quality Report 2022.
https://www.ci.chehalis.wa.us/sites/default/files/fileattachments/public_works/page/6479/2023_ccr.pdf
- Flack, J. E., & Greenberg, J. (1987). Public Attitudes Toward Water Conservation. *Journal - American Water Works Association*, 79(3), 46–51.
<https://doi.org/10.1002/j.1551-8833.1987.tb02814.x>
- Gilligan, J. M. et al. (2018). Urban water conservation policies in the United States. *Earth's Future*, 6, 955–967. <https://doi.org/10.1029/2017EF000797>
- HDR Engineering, Inc., City of Chehalis 2011 Water System Plan (2012). Retrieved from
https://www.ci.chehalis.wa.us/sites/default/files/fileattachments/public_works/page/1072/chehalis_wsp_feb_2012.pdf.
- Howarth, D., & Butler, S. (2004). Communicating water conservation: how can the public be engaged? *Water Science & Technology. Water Supply*, 4(3), 33–44.
<https://doi.org/10.2166/ws.2004.0041>
- King County Department of Natural Resources and Parks. (2008). Natural Yard Care.
https://bellevuewa.gov/sites/default/files/media/pdf_document/Natural-Yard-Care-brochure.pdf
- League of Women Voters, Thurston County (2023). League of Women Voters Water Study
 Thurston County's Fresh Water Future: Adaptation
<https://www.lwvthurston.org/docs.ashx?id=1159981>
- Maryland Department of the Environment Water Supply Program. DEVELOPING AND IMPLEMENTING A WATER CONSERVATION PLAN.
https://mde.maryland.gov/programs/Water/WaterConservation/Documents/www.mde.state.md.us/assets/document/water_cons/WCP_Guidance2003.pdf
- Mukherjee, M., Mika, K., & Gold, M. (2016). Overcoming the Challenges to Using Tiered Water Rates to Enhance Water Conservation. *California Journal of Politics and Policy*, 8(3), 0_1,0_2,1-17. <https://doi.org/10.5070/P2CJPP8331954>
- Understanding Your Water Bill | US EPA. United States Environmental Protection Agency. (2023, June). <https://www.epa.gov/watersense/understanding-your-water-bill>
- United States Environmental Protection Agency. (1998). APPENDIX A: WATER

CONSERVATION MEASURES - U.S. Environmental Protection Agency

<https://www.epa.gov/sites/default/files/2017-03/documents/appendix-a-water-conservation-measures.pdf>

United States Environmental Protection Agency. (n.d.). Water budget tool | US EPA.

<https://www.epa.gov/watersense/water-budget-tool>

USEPA. (1998). USEPA Water Conservation Plan Guidelines. Water Conservation Plan Guidelines.

<https://www.epa.gov/sites/default/files/2017-03/documents/appendix-a-water-conservation-measures.pdf>

APPENDIX A – RESOURCES FROM OTHER MUNICIPALITIES

Water Conservation Plans:

- Tacoma: [Water Conservation Plan - Tacoma Public Utilities \(mytpu.org\)](https://mytpu.org/Water-Conservation-Plan)
- Olympia: [Comprehensive Plan](#) (Chapter 5 includes Water System Plan)
- Centralia: [2021 Water System Plan](#) (Chapter 4 addresses conservation)
- Thurston PUD: [Water System Plan: Part A](#)

Water Pricing Structures:

- Centralia: [15.04.110](#)
- Olympia: https://www.olympiawa.gov/services/utility_billing/rate_information/index.php
(scroll to the bottom and select drinking water)
- Thurston PUD: [2023 Rates, Fees, and Charges](#)

WaterWise Demonstration Gardens:

- Bellevue: <https://bellevuebotanical.org/the-gardens/>
- Eugene: <https://www.eugene-or.gov/DocumentCenter/View/1050/Water-Wise-Alton-Baker-Park?bidId=>
- Woodinville: <https://www.woodinvillewater.com/DocumentCenter/View/404/Waterwise-Demonstration-Garden-Plant-List-PDF?bidId=>
- Wenatchee: <https://extension.wsu.edu/chelan-douglas/gardening/ceg/>
- Seattle: <https://www.carkeekpark.org/demonstration-gardens-2/>

APPENDIX B – EXPERT INTERVIEW QUESTIONNAIRE

Interview Consent Script

Thank you for agreeing to participate in this interview. My name is Lauren Church and I am an undergraduate student at the University of Washington. I am currently conducting my Capstone project through the Program on the Environment. I will incorporate information from this interview into a final report and presentation as well as a case study for my research project. This interview is confidential and voluntary, but your participation is greatly appreciated. No direct quotations or personal identifiers will be used without explicit permission and you may skip any question you do not wish to answer. This interview will take approximately 30 minutes and, depending on the answers, may adjourn early. Do you have any questions at this time? I would like to make an audio recording of the interview to aid in note-taking. I will destroy the recording at the end of my project once I've transcribed pertinent details. Is this acceptable to you?

Questionnaire

1. What is your name and title? What is your connection to water conservation and in what geographic area?

2. What (if any) water conservation strategies and policies have been implemented in your municipality/county?

If yes:

- a. How were these water conservation initiatives implemented?
- b. What has the impact of such water conservation actions been?

If no:

- c. Why do you think your organization hasn't implemented any water conservation strategies or policies?

3. What are your opinions on tiered water pricing and policy incentives for water conservation?

4. What do you think are the barriers and nuances to water conservation policies? (i.e., how can water conservation be promoted without losing money within the municipality?)

5. In general, what do you feel are the most important actions or initiatives that should be taken to conserve municipal water?

6. *Question for municipalities with water-saving kits for residents: What has incentivized ____'s water customers to use water-saving kits? Has the city of ____ seen reductions in water use as a result? What advice would you give to municipalities considering similar initiatives?

7. Is there anything else you'd like to tell me about regarding municipal water conservation or anything that would be important for me to know?

8. Are there other people you think I should talk to about this topic?

APPENDIX C - SURVEY INSTRUMENT

My name is Lauren Church, and I am an undergraduate student at the University of Washington. I am currently conducting my Capstone project through the Program on the Environment. The purpose of this voluntary, anonymous survey is to gather data about water conservation perceptions and preferences among Chehalis water customers. There are 15 questions, which should take 3 minutes or less to complete. You can skip any question you do not wish to answer. Questions? Email churchl@uw.edu

1) Are you a Chehalis water customer/do you live in Chehalis?

Mark only one oval.

☐ Yes

☐ No

☐ Other: _____

2) How long have you lived in Chehalis?

Mark only one oval.

☐ 1-5 years

☐ 5-10 years

☐ 10-20 years

☐ 20-50 years

☐ 50+ years

3) Are you a homeowner or renter?

Mark only one oval.

☐ Homeowner

☐ Renter

☐ Other: _____

4) Do you have a lawn or garden?

Mark only one oval.

☐ Lawn

☐ Garden

☐ Both

☐ Other: _____

5) How strongly do you agree/disagree with the following statement: There is a trend in decreased water availability in the creeks and rivers in the Chehalis area in the summer.

Mark only one oval.

- ☐ Strongly agree
- ☐ Somewhat agree
- ☐ Neutral
- ☐ Somewhat disagree
- ☐ Strongly disagree

6) Where do you feel you use the most water in your household?

Mark only one oval.

- ☐ Shower
- ☐ Kitchen appliances
- ☐ Toilet
- ☐ Lawn/landscape
- ☐ Laundry
- ☐ Other: _____

7) I use only enough water to meet my basic needs in my home.

Mark only one oval.

- ☐ Strongly agree
- ☐ Somewhat agree
- ☐ Neutral
- ☐ Somewhat disagree
- ☐ Strongly disagree

Water conservation policy questions

Tiered pricing is a policy strategy that can be used to charge water customers at rates relative to the amount of water they use. Different water tiers can represent water amounts from basic necessity to non-essential amounts in order to charge customers rates that match their level of water use.

8) How strongly do you agree/disagree with the following statement: "I would support a system of tiered water pricing if I knew others supported it too"?

Mark only one oval.

- ☐ Strongly agree
- ☐ Somewhat agree
- ☐ Neutral
- ☐ Somewhat disagree
- ☐ Strongly disagree

Water conservation policy questions

Water conservation policies include strategies and regulations to manage water resources to sustain water availability for current and future demand. These policies can be implemented at various levels of government.

9) How likely are you to support water conservation policies if you knew others supported this?
Mark only one oval.

- ☐ Very likely
- ☐ Somewhat likely
- ☐ Neutral
- ☐ Somewhat unlikely
- ☐ Very unlikely

10) How likely are you to support domestic water conservation if you knew other sectors including industry, agriculture, and cities were reducing water use?
Mark only one oval.

- ☐ Very likely
- ☐ Somewhat likely
- ☐ Neutral
- ☐ Somewhat unlikely
- ☐ Very unlikely

11) Would you be interested in taking action to conserve water in your household if provided with water-saving kits?
Mark only one oval.

- ☐ Very interested
- ☐ Somewhat interested
- ☐ Neutral
- ☐ Somewhat disinterested
- ☐ Very disinterested

12) If provided with additional information and resources, how likely are you to be interested in planting native, water-saving plants in your yard to save water?
Mark only one oval.

- ☐ Very likely
- ☐ Somewhat likely
- ☐ Neutral

- ☐ Somewhat unlikely
- ☐ Very unlikely

13) What do you think are the best ways to conserve water?

Demographic Questions

Please respond to the demographic questions you feel comfortable answering.

14) What is your age?

Mark only one oval.

- ☐ Under 18
- ☐ 18-24
- ☐ 25-39
- ☐ 40-59
- ☐ 60-79
- ☐ 80 and above

15) What is your race/ethnicity?

Mark only one oval.

- ☐ American Indian or Alaska Native
- ☐ Asian or Asian American
- ☐ Black or African American
- ☐ Hispanic or Latino/a
- ☐ Native Hawaiian or Pacific Islander
- ☐ White or European
- ☐ Prefer not to disclose.
- ☐ Other: _____