



CITY OF WILSONVILLE

Water Management and Conservation Plan

January 2023

Water Management and Conservation Plan

City of Wilsonville

January 2023

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Portland, OR 97204

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Executive Summary

Executive Summary

The previous Water Management and Conservation Plan (WMCP) was approved by the Oregon Water Resources Department (OWRD) in 2013. This WMCP updates the previous plan.

Prior to April 2002, the City's water was supplied by wells drawing from the Columbia River Basalt Aquifer. Production from these wells was unable to keep pace with the City's growing demand. Despite highly effective, and mandatory, conservation efforts, the static water level in the local aquifer had been dropping four to five feet annually.

While efficient use of water is still encouraged by pricing and other voluntary methods, water supply is now plentiful in Wilsonville. The state-of-the-art Willamette River Water Treatment Plant (WRWTP) came online on April 29, 2002, with a treatment capacity of 15 million gallons per day (MGD). This rate of withdrawal represents less than one percent of the volume of the Willamette River at the point of diversion, even during the most extreme low flow conditions in the river.

Since April 2002, the City's eight wells have been relegated to backup status. They have not been used other than pumping as part of weekly exercising. As a result, there has been a dramatic recharge in the aquifer with a significant "rebound" measured several miles beyond the City limits.

The sections of this document address the following topics.

- Description of Water Supply: This includes a discussion of supply sources, service area, water usage, adequacy and reliability of supplies, water rights, and other information.
- Water Conservation Element: This includes a discussion of how water usage is monitored and billed. It also describes the City's leak detection/repair program and includes an extensive listing of public education and technical assistance provided by the City. This section also outlines "benchmarks" or activities the City will continue or initiate within the next five years.
- Water Curtailment Element: A curtailment program is provided that includes three stages of alert, triggers for implementing each stage, and a list of curtailment actions to reduce water usage in the event of a water supply shortage.
- Water Supply Element: This includes a discussion of projected water demand and steps planned to meet that demand.

The City believes that this document fully complies with the requirements of Oregon Administrative Rules (OAR) Chapter 690 Division 86. For convenience of the OWRD staff in reviewing this WMCP, **Section 1** contains a cross-reference chart indicating where each required item can be found in this document.



Section 1

Section 1

Introduction

The previous Water Management and Conservation Plan (WMCP) was approved by the Oregon Water Resources Department (OWRD) in February 2013 and per the OWRD requirements, a WMCP Progress Report was submitted in 2018. This WMCP updates the previous plan and was submitted to OWRD in August, 2022.

1.1 Overview of Existing System and Community Served

In April 2002, the City of Wilsonville (City) began using a new state-of-the-art water treatment plant using the Willamette River as its source for municipal water supply. This treatment also provides finished water to the City of Sherwood. Prior to the new water treatment plant, the City relied on eight local wells as its sole source for municipal water supply. Now these wells are exercised weekly and kept in reserve as a backup supply for use in emergencies. In 2018, the Willamette Intake Facility (WIF) Commission was created between the cities of Wilsonville, Sherwood, Tigard, Beaverton and Hillsboro along with Tualatin Valley Water District. The WIF Commission has shared ownership of the raw water intake pipe and raw water pump station building. Raw water from this location will be used for both the WRWTP and the Willamette Water Supply System.

The City's service area essentially coincides with the City limits, which includes Charbonneau District. The system also includes five storage reservoirs, two booster stations, over 107 miles of distribution pipeline, three pressure zones, and eight wells. As of 2021, the City's current population is 27,186 and it also has a diverse commercial and industrial base, which accounts for almost half of all water usage.

Current City of Wilsonville water demand averages approximately 3 million gallons per day (MGD), but can reach nearly 9 million gallons (MG) on peak summer days. The physical treatment capacity at the water treatment plant is 15 MGD, with construction currently ongoing to increase the total capacity to 20 MGD by May 2024. Storage capacity for treated water totals 8.7 MG. The current combined pumping capacity of the six preferred backup wells is 3.4 MGD.

Located along Interstate 5, midway between Portland and Salem, the City continues to be a growing community. The combination of Population estimates from the PSU Population Research Center and Oregon Metro Forecast provide the basis for growth projections and forecasts of water demand. The data and methodology behind the population projections is included in **Appendix A**.

1.2 Proposed Dates for Future Submittals

The City anticipates submitting its next WMCP update 10 years from now, in 2032. As required under OAR 690-086, a progress report will be submitted five years from now, in year 2027.

1.3 Plan Organization

In accordance with Oregon Administrative Rules (OAR) 690-086, this WMCP is organized into the following Sections.

- Section 1: Introduction
- Section 2: Description of Water System
- Section 3: Water Conservation Element
- Section 4: Water Curtailment Element
- Section 5: Water Supply Element
- Appendices: Contain additional background documentation

The following elements required in the Division 86 Rules are included in this document.

Table 1-1 | Cross-References Between WMCP Sections and Division 86 Requirements

Item	OAR Reference	Section No.
WMCP Elements		
✓ Notice to affected local government(s)	690-086-0125(5)	Appendix G
✓ Proposed WMCP update schedule	690-086-0125(6)	1.2
✓ Additional time to implement conservation benchmarks	690-086-0125(7)	N/A
Water Supplier Description		
✓ Description of supplier's source(s)	690-086-0140(1)	2.1
✓ Map/Delineation of current service area	690-086-0140(2)	2.2
✓ Assessment of adequacy and reliability of existing supplies	690-086-0140(3)	2.3
✓ Present and historic water use	690-086-0140(4)	2.4
✓ Water rights inventory table	690-086-0140(5)	2.5
✓ Customers served and water use summary	690-086-0140(6)	2.6
✓ Interconnections with other systems	690-086-0140(7)	2.1.5
✓ System schematic	690-086-0140(8)	2.7
✓ Quantification of system leakage	690-086-0140(9)	2.8
Water Conservation Element		
✓ Progress report on implementation of conservation measures	690-086-0150(1)	3.7
✓ Water use measurement and reporting program	690-086-0150(2)	3.8
✓ Currently implemented conservation measures	690-086-0150(3)	3.5
✓ Annual water audit	690-086-0150(4)(a)	3.2

	Item	OAR Reference	Section No.
✓	Full metering of system	690-086-0150(4)(b)	3.1
✓	Meter testing and maintenance program	690-086-0150(4)(c)	3.1
✓	Rate structure	690-086-0150(4)(d)	3.4
✓	Leak detection program	690-086-0150(4)(e)	3.3
✓	Public education program	690-086-0150(4)(f)	3.5
✓	Technical and financial assistance programs	690-086-0150(5)(b)	3.5
✓	Retrofit/replacement of inefficient fixtures	690-086-0150(5)(c)	3.5
✓	Rate structure & billing practices to encourage conservation	690-086-0150(5)(d)	3.4
✓	Reuse, recycling, and non-potable opportunities	690-086-0150(5)(e)	3.6
✓	Other proposed conservation measures	690-086-0150(5)(f)	3.5
Water Curtailment Element			
✓	Water supply assessment and description of past deficiencies	690-086-0160(1)	4.1
✓	Stages of alert	690-086-0160(2)	4.2
✓	Triggers for each stage of alert	690-086-0160(3)	4.3
✓	Curtailment actions	690-086-0160(4)	4.4
Water Supply Element			
✓	Current/future service area and population projections	690-086-0170(1)	5.1
✓	Schedule of fully exercise each permit (i.e., certification)	690-086-0170(2)	5.2
✓	Water demand forecast	690-086-0170(3)	5.4
✓	Comparison of projected need to available sources	690-086-0170(4)	5.5
✓	Analysis of alternative sources	690-086-0170(5) & (8)	5.6
✓	Quantification of maximum rate and monthly volume	690-086-0170(6)	N/A



Section **2**

Section 2

Water System Description

2.1 Sources

The City's primary water supply is treated water from the Willamette River. As a backup supply, the City has maintained eight wells capable of drawing water from the Columbia River Basalt Aquifer. In addition, the City has an intertie with the City of Tualatin. Each of these sources is discussed in further detail below.

2.1.1 Surface Water (Primary Supply)

On April 29, 2002, the City placed in service its new Willamette River water treatment plant (WRWTP). Since that time, treated water from the Willamette River has supplied 100 percent of the City's needs. Located at river mile 39, the intake structure for the WRWTP is 100 feet offshore. River water enters through two cylindrical screens situated in the water column 8 feet above the bottom of the river and 20+ feet below typical water levels. During the lowest historical flow of record the river's water surface would be 11 feet above the top of the screens. The size of these screens (6.5 feet in diameter and 25.4 feet long) allows a large volume of water to enter the structure while maintaining intake velocities slow enough for nearby fish to swim freely without being drawn to the screens. With openings of only 0.07 inches, these fine-meshed screens provide added benefit by preventing debris and/or suspended materials from entering the water treatment plant.

Once the raw water passes through the screens it flows into a 72-inch diameter pipe/tunnel structure located on the bottom of the river and beneath the bank. This pipe/tunnel has a free connection to a subterranean inland concrete-lined caisson (54-foot inside diameter) that serves as a wet well for the water treatment plant. As the water level of the river rises and falls seasonally, so does the water level within the caisson. Atop the caisson are four raw water pumps. These pumps lift the water to the head of the treatment works where it then flows by gravity through the processes described below.

The first in the series of treatment steps is an enhanced sedimentation process called "Actiflo." Coagulants and polymers added to the raw water cause suspended or colloidal materials to adhere to one another forming larger, heavier "floc" particles that settle out of the water. By adding very fine sand to the mixture, the weight of the "floc" is increased, thereby causing the settling process to occur much more quickly and completely than in conventional water treatment. The sand is then cleaned, recycled, and reused.

The partially treated water is then disinfected using ozone gas. This process is more effective than conventional chlorine disinfection in that ozone not only inactivates bacteria and viruses, but also inactivates parasites such as Cryptosporidium. Further advantages of ozone include breakdown of dissolved organic chemicals including taste/odor-causing compounds. After bubbling through the water, the ozone quickly decomposes into harmless oxygen gas.

Following ozone disinfection, the water is filtered through six feet of granulated activated carbon to further remove turbidity, pathogens, and dissolved organic chemicals. As a “polishing” step, the water then passes through a conventional sand filter. After sand filtration, the finished water flows into a 2.49 MG underground storage tank called the clearwell. In the clearwell, a small amount of chlorine is added for secondary disinfection to prevent bacterial contamination as the treated water flows through the distribution system to customers. Atop the clearwell are four pumps that deliver the treated water into the City’s distribution system and to the City of Sherwood.

The City’s treatment facility is “overdesigned” in the sense that drinking water standards can be met without such extensive treatment. Nonetheless, the plant is operated using all these steps at all times - whether or not they are all needed to meet drinking water standards. In addition, the treatment plant has redundant systems for all of the critical processes, as well as a diesel generator for auxiliary power.

2.1.2 Groundwater (Backup supply)

Prior to April 29, 2002, the City’s water was supplied by wells drawing from the Columbia River Basalt Aquifer. Production from these wells, however, was unable to keep pace with the City’s growing demand. Despite major conservation efforts described in **Section 3** and **Section 4**, the static water level in the local aquifer had been dropping four to five feet annually.

Information about each of the City’s eight wells is contained in **Table 2-1**. Each well is equipped with systems to chlorinate the water.

Once the City’s WRWTP came online, the wells were allowed to rest. To track changes in the water table caused by this inactivity, the OWRD installed measuring devices in numerous City and private wells. Since the development of the Willamette River supply, the groundwater levels in the aquifer underlying the City have experienced a significant recovery. This “rebound” in the aquifer has also been noticed in wells several miles beyond the City limits.

In prior years, one of the wells, called the “Nike” well, had functioned as an artesian well. As the water table declined, this well lost its artesian properties. However, since the City shifted to its new surface water source, the Nike well again became artesian. To meet the requirement of an August 18, 2006 Final Order approving an Extension of Time for Permit G-10515, the Nike well was valved to prevent water flow when the water was not being applied to beneficial use.

City personnel continue to inspect and regularly exercise City wells so they remain in a state of readiness if needed for backup water supply.

Table 2-1 | Water Rights Summary

Facility Name	Application Number	Permit Number	Certificate Number	Transfer Number	Priority Date	Certificate Date	Authorized Completion Date	Allowed Rate		Max Rate Diverted/Produced (cfs)	Max Annual (MG)	Daily Average (MG)	Monthly Average (MG)	Use	Source	Comments
								cfs	gpm							
Elligsen	G-4968	G-4551	64750	N/A	8/21/1969	8/23/1990	N/A	1.00	449	1.16	195	0	0.05	Municipal	Columbia River Basalt Aquifer	Groundwater limited
Wiedeman	G-10843	G-9958	63707	N/A	11/23/1982	12/29/1989	N/A	1.60	718	1.48	254	0	0.6	Municipal	Columbia River Basalt Aquifer	Groundwater limited
Canyon Creek	G-11806	G-10923	N/A	T-7686	12/30/1988	N/A	10/1/2040	2.22	996	1.33	185	0	0.01	Municipal	Columbia River Basalt Aquifer	Groundwater limited
Boeckman			N/A	T-8550	12/30/1988	N/A	10/1/2040	2.22	996	0.98	176	0	0.01	Municipal	Columbia River Basalt Aquifer	Groundwater limited
Gesellschaft	G-10842	G-9957	N/A	N/A	11/23/1982	N/A	10/1/2040	3.34	1,499	1.44	261	0	0.06	Municipal	Columbia River Basalt Aquifer	Groundwater limited
Nike	G-11344	G-10515	N/A	N/A	5/7/1985	N/A	10/1/2040	2.23	1,000	1.46	187	0	0.01	Municipal	Columbia River Basalt Aquifer	Groundwater limited
Charbonneau 2	G-10844	G-9959	63708	N/A	11/23/1982	12//29/1989	N/A	0.67	301	0.67	63	0	0.02	Municipal	Columbia River Basalt Aquifer	Flow rates limited 0.67 cfs from well 2. Groundwater limited
Charbonneau 3	G-10844	G-9959	63708	N/A	11/23/1982	12/29/1989	N/A	0.11	49	0.17	10	0	0.01	Municipal	Columbia River Basalt Aquifer	Flow rates limited 0.11 cfs from well 3. Groundwater limited
Memorial Park	G-6364	G-6021	45368	N/A	12/6/1973	4/12/1978	N/A	0.07	31	0.07	0	0	0	General Park	Columbia River Basalt Aquifer	Not in service. Groundwater limited
Willamette River	S-51780	S-46319	N/A	T-8444	3/27/1974	N/A	10/1/2042	30.00	13,465	10.90	1,177	2.97	90.00	Municipal	Willamette River	Water quality limited (see Section 2.3)
Total								43.46	19,504							

2.1.3 Storage

The City's distribution system includes five enclosed storage tanks with a combined total capacity of 8.7 MG. These storage facilities are described below and are shown in **Figure 2-3**.

- 2.49 MG (effective volume) underground concrete clearwell located at the water treatment plant in the central part of town
- 0.75 MG underground concrete reservoir located in the Charbonneau District in the southern part of town ("A" Level)
- 2.0 MG steel above-ground tank located at Elligsen in the north part of town. ("B" Level, Tank B-1)
- 3.0 MG steel above-ground tank located at Elligsen in the north part of town. ("B" Level, Tank B-2)
- 2.0 MG steel above-ground tank located outside the City limits to the north of Elligsen Road ("C" Level). (Note: This particular reservoir has an emergency intertie with the adjacent water storage tank owned by the City of Tualatin.)

2.1.4 Intergovernmental Agreements

The City's water system is self-contained and self-sufficient as it does not obtain water from other jurisdictions. The City has intergovernmental agreements with other partners utilizing infrastructure associated with the Willamette River Water Treatment Plant (WRWTP) and intake, and is a partner agency in the Willamette Intake Facility Commission. The City of Sherwood has executed a number of Intergovernmental Agreements with the City for the delivery of this water through jointly owned transmission pipelines. The City of Sherwood currently receives approximately up to 5 MGD.

2.1.5 Interconnections with Other Suppliers

The City has a self-sufficient water system. The WRWTP has redundant systems, the wells are maintained as a backup supply, and there is approximately 8.7 MG of storage capacity. The only interconnection the City has with other water suppliers is the small intertie between the City's "C" level water storage tank and the adjacent storage tank owned and operated by the City of Tualatin. This intertie is capable of transferring up to 1 MGD in either direction. It was installed to provide a small supplemental water supply to either city in the event of a short-term emergency.

2.2 Current Service Area

The City supplies water to residential and non-residential developments within the City limits. The City also supplies water to the Baldock Rest Area owned by the Oregon Department of

Transportation (ODOT) along Interstate 5 just south of the City. As a policy the City does not supply water to any private users or developments outside the City limits.

2.2.1 Area Served

The current City limits are shown **Figure 2-1**. In total the service area encompasses approximately seven square miles of land.

2.2.2 Population Served

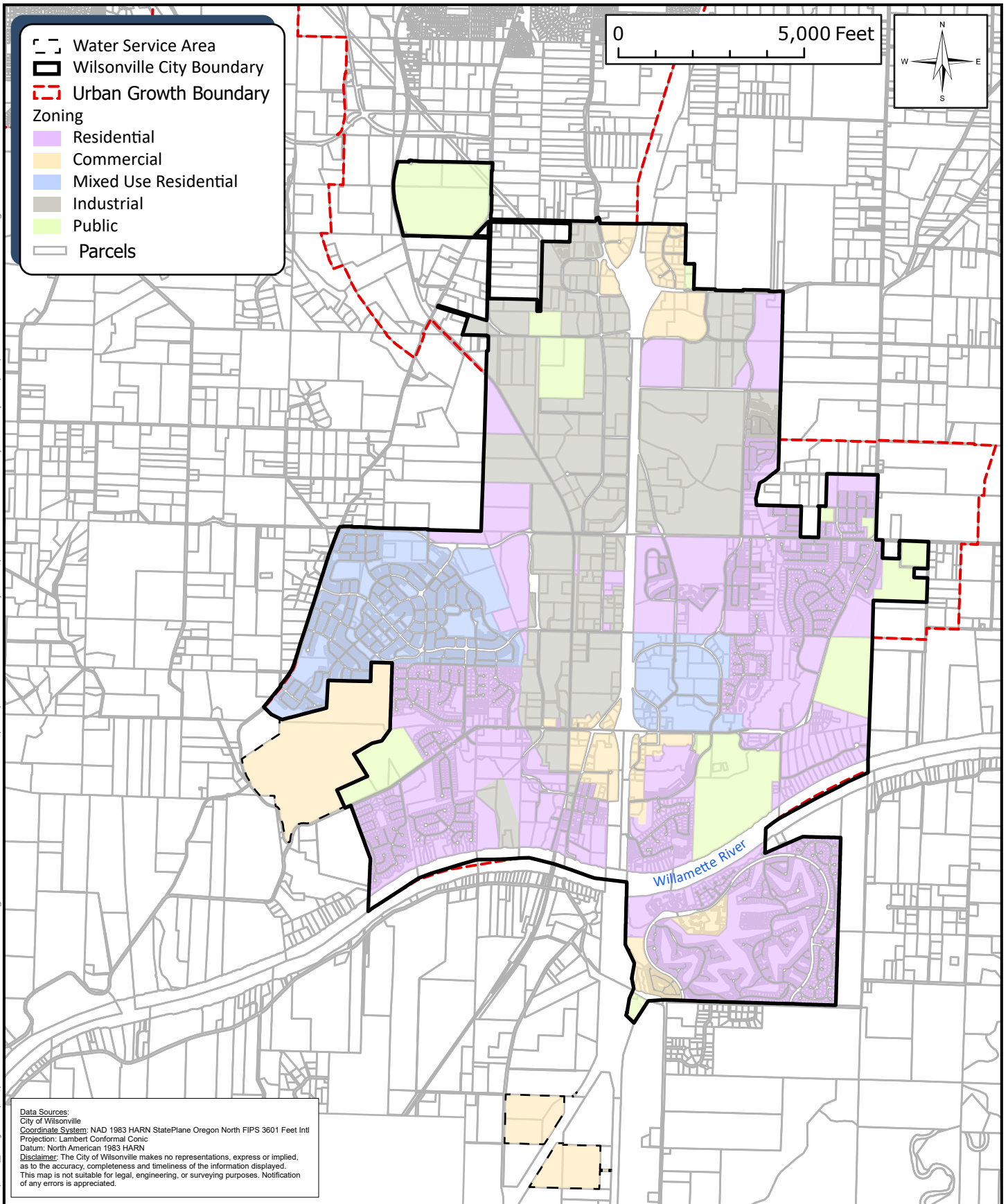
According to demographic information provided by the 2020 US Census, the population of the City is 27,186. In addition, the City provides water for numerous commercial and industrial uses, as well as schools, churches and municipal facilities. For a more detailed breakdown of water usage among different categories of customers, please refer to **Section 2.6**.

2.3 Adequacy and Reliability of Existing Supplies

A summary of the City's water rights is shown in **Table 2-1**. The City holds surface water rights on the Willamette River for 30 cubic feet per second (cfs), which is the equivalent of 19.4 MGD. These rights have a priority date of 1974, which the City considers to be reliable for purposes of municipal water supply. Furthermore, even during the most extreme low flow conditions, a withdrawal of 30 cfs represents less than one percent of the volume of the Willamette River at the point of diversion. As noted in **Section 2.1.1**, all components of the WRWTP have built in redundancy and there is a backup diesel generator capable of powering the plant to meet average daily demands. Thus, the City's surface water supply is considered to be both adequate and reliable for the planning timeframe covered by this WMCP.

The location of the WRWTP's intake is along a stretch of the Willamette River that is water quality limited and contains streamflow dependent species listed by state or federal agencies as sensitive, threatened, or endangered (STE), but does not contain spawning/rearing habitat for threatened or endangered species. Water quality limitations for this portion of the Willamette River includes 303(d) listings for the following parameters: Aldrin, Dieldrin, DDE 4,4', DDT 4,4', Polychlorinated Biphenyls (PCBs), BioCriteria, Aquatic Weeds, and Temperature. In addition, the Oregon Department of Environmental Quality has approved Total Maximum Daily Loads for the following parameters: Dioxin 2,3,7,8-TCDD, and Methylmercury. STE species identified by Oregon Department of Fish and Wildlife in the vicinity of the City diversion point include:

- Upper Willamette River Chinook Salmon [*Oncorhynchus tshawytscha*]
 - State of Oregon Listing Status: N/A
 - Federal Listing Status: Threatened



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**Figure 2-1
 City Limits and
 Land Use**

- Upper Willamette River Steelhead [*Oncorhynchus mykiss*]
 - State of Oregon Listing Status: Sensitive-Vulnerable (winter run)
 - Federal Listing Status: Threatened

- Pacific Lamprey [*Entosphenus tridentatus*]
 - State of Oregon Listing Status: Sensitive
 - Federal Listing Status: N/A

Water quality limitations and the presence of STE species does not impact withdrawals or operation of the WRWTP.

In addition to surface water, the City holds groundwater rights totaling 13.46 cfs, which equates to approximately 8.7 MGD. The wells provide backup and emergency supply if needed to supplement the WRWTP. The City intends to preserve and enhance the production capacity of the wells through ongoing maintenance and rehabilitation of well facilities. (see also **Section 5.6**).

As noted in **Section 2.1.3**, one of the City’s water storage tanks (the “C” level tank) has a connection to an adjacent storage tank owned and operated by the City of Tualatin. In an emergency, this interconnection could be activated (by either party) to transfer approximately 1 MGD. However, the City has generally discounted this source of water for emergency planning purposes, because of challenges related to the mechanics of the system. Even so, this interconnection could be important in meeting short-term emergencies and/or facilitating maintenance of the “C” level tank.

2.4 Present and Historical Use

As shown in **Table 2-2**, water use in the City has remained fairly steady since 2013. This summary does not include the City of Sherwood usage. The annual average flow remained relatively constant from 2013-2021 despite an increasing number of water users indicating a downward trend in per capita consumption. Maximum day water demands also peaked in 2020 at 8.97 MGD.

Table 2-2 | City of Wilsonville Finished Water Production Summary

	2013	2014	2015	2016	2017	2018	2019	2020	2021	5-Year Average (2017-2021)
Annual Production (MG)	1,207	1,202	1,310	1,311	1,302	1,401	1,211	1,137	1,253	1,261
Average Day (MGD)	3.31	3.29	3.59	3.59	3.57	3.84	3.32	3.11	3.43	3.45
Max Average Month (MGD)	5.53	6.00	6.76	6.55	7.10	6.81	5.67	5.64	6.05	6.25
Min Average Month (MGD)	2.14	2.14	2.20	2.29	2.20	2.33	2.08	1.96	2.02	2.12
Max Day (MGD)	6.28	7.09	8.46	8.61	8.88	7.89	6.75	8.97	8.80	8.26

This information is compiled from production records at the WRWTP. A more detailed breakdown of water use data is included in **Appendix B**.

2.5 Water Rights Held

As previously mentioned, a summary of the water rights held by the City is contained in **Table 2-1**. The annual quantity of water diverted under each right, along with the average monthly and average daily diversions under each right are found in **Appendix B**.

The City holds water rights on eight groundwater wells and on the Willamette River. The priority dates for the groundwater rights range from 1969 to 1988 and allow for a total combined withdraw rate of 13 cfs. Approximately half of the groundwater wells are certificated and the other wells have permit extensions to the year 2040. The Willamette River surface water right has a priority date of 1974 with a permitted rate of 30 cfs. The Willamette River water right has a permit extension valid up to the year 2042.

2.6 Customers Served and Water Use Summary

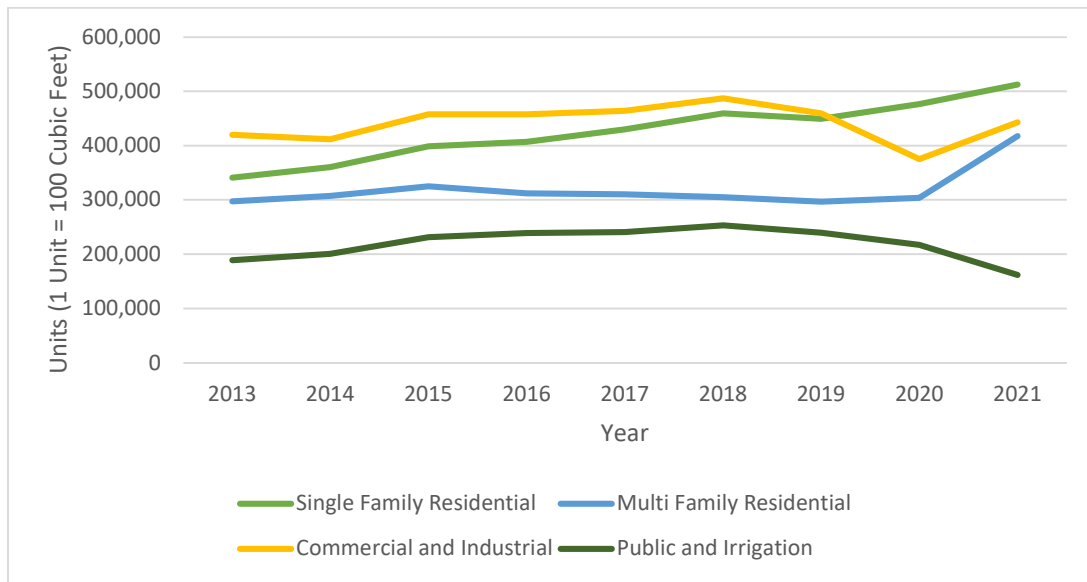
The City's customer base is quite diverse. From its rural origins, the City has become home for 27,186 residents as well as headquarters for some of Oregon's largest corporations. The City also has sizeable retail shopping areas, industrial development, and other non-residential land uses.

A breakdown of annual water use by customer category is shown in **Figure 2-2**. This breakdown compares usage from calendar year 2013 to usage in calendar year 2021. It should be noted that **Figure 2-2** does not include "unaccounted water" for such things as: fire hydrant testing/maintenance, street sweeping, draining storage reservoirs for inspection/maintenance, filling/testing water lines serving new developments, or leakage.

As of December 2021, the estimated number of accounts in each of the different customer classes is as follows: Single Family Residential: 5,772, Multi-Family Residential: 608, Commercial/Industrial: 502, and Public: 108.

In 2021, the city switched from separating irrigation use in its own category to including the irrigation totals in the property type. This caused the Public and Irrigation category to decrease in 2021 and the Single Family Residential, Muti Family Residential, and Commercial and Industrial categories to increase while total overall water use remained steady.

Figure 2-2 | Annual Water Usage by User Category



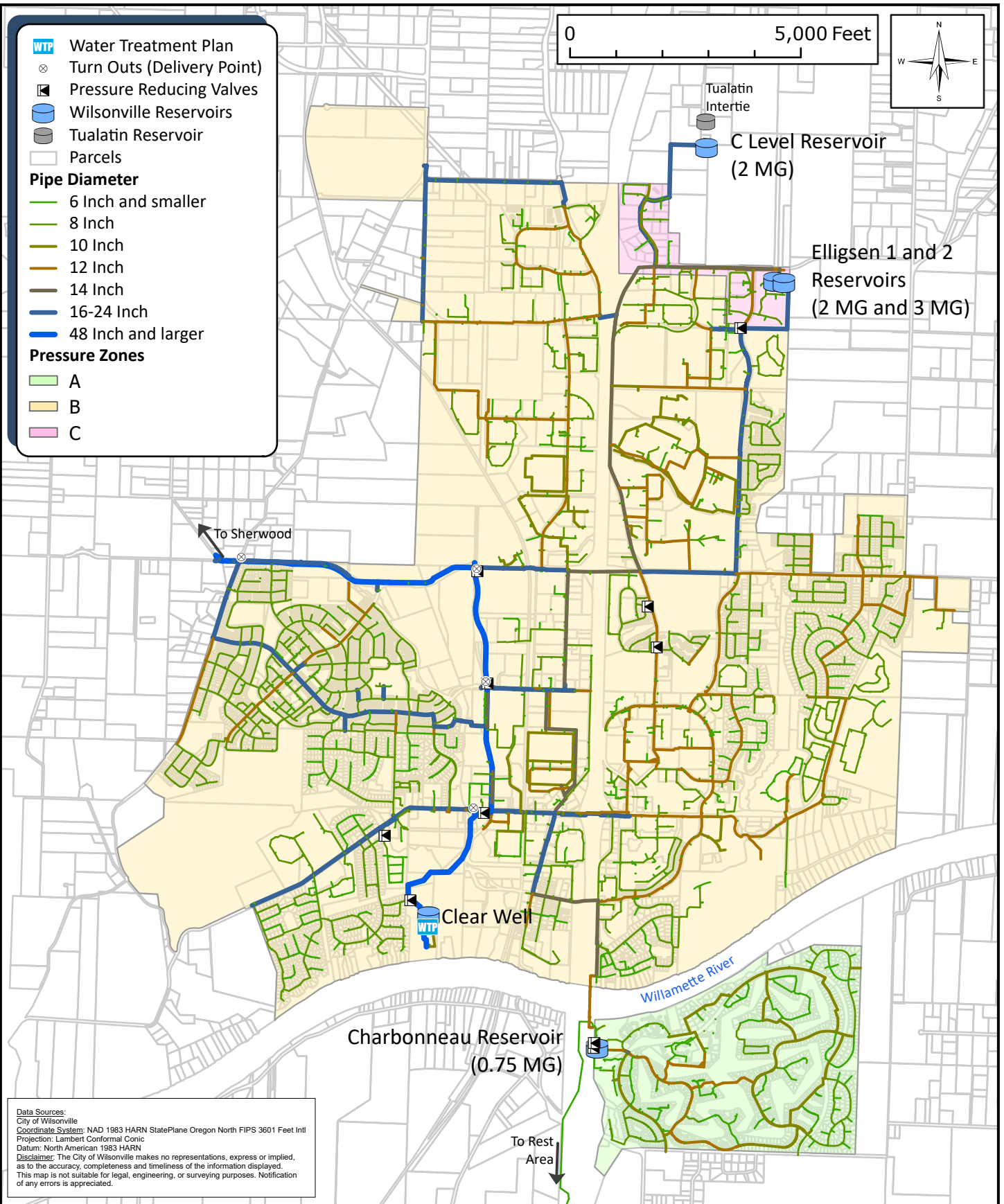
2.7 System Schematic

Figure 2-1 shows the current service area, which is denoted by the City limits, and planned future service areas are outside the City limits and within the study area. Figure 2-3 is a map showing the City’s storage facilities, treatment plant, distribution pipelines, and interconnection with Tualatin’s storage tank. Figure 2-4 shows the City’s sources of water.

2.8 System Leakage

The results of the City’s water audits for 2013 through 2021 are included in Table 3-2. The data in this table are discussed in further detail in Section 3.2. In summary, the amount of unaccounted water for 2021 was estimated to be approximately 7.3 percent which is less than the 10 percent standard set forth in OAR Div. 86. While the City’s water infrastructure is of relatively young age, the City nonetheless maintains an active leak detection program covering approximately 25 percent of the distribution system each year. When a leak is discovered, repairs are promptly made.

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Data Sources:
 City of Wilsonville
Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Int
Projection: Lambert Conformal Conic
Datum: North American 1983 HARN
Disclaimer: The City of Wilsonville makes no representations, express or implied, as to the accuracy, completeness and timeliness of the information displayed. This map is not suitable for legal, engineering, or surveying purposes. Notification of any errors is appreciated.



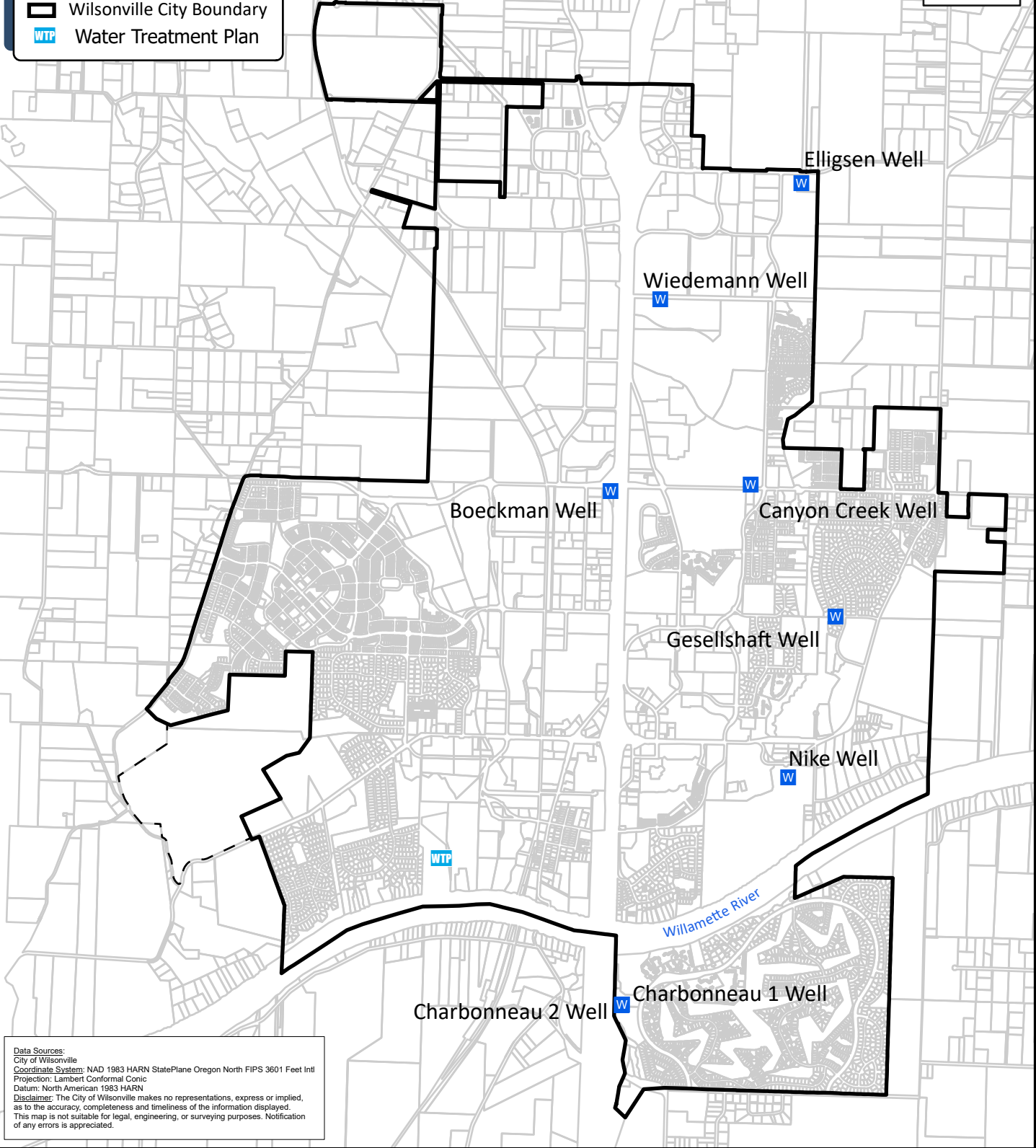
City of Wilsonville Water Management and Conservation Plan

Figure 2-3 Existing City Distribution System

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-  Groundwater Wells
-  Parcels
-  Water Service Area
-  Wilsonville City Boundary
-  Water Treatment Plan

0 5,000 Feet



Data Sources:
 City of Wilsonville
 Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Int
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**City of Wilsonville
 Water Management
 and Conservation Plan**

**Figure 2-4
 City Water
 Sources**



Section **3**

Section 3

Water Conservation Element

3.1 Metering Program

A major tool in the City's conservation program is the ability to measure how much water is produced and how much water is used by each customer. To do this the City has a fully metered water system, which is described below.

3.1.1 Source Meters

Water produced at the WRWTP is metered at several points along the transmission/distribution network. These include the point of delivery from the clearwell to the finished water transmission pipeline, two active turnouts/pressure reducing valve (PRV) stations from the transmission pipeline to the City's distribution system, and a metering vault at the connection to the pipeline to the City of Sherwood. Thus, the primary metering system is designed to track how much water is delivered to the City's service area, as well as the amount of water that is "exported" outside the City's service area.

The WRWTP's finished water meter, which measures the amount of water delivered into the City's water transmission system, was replaced in May 2019 and is calibrated annually. The meters at the turnouts and the Sherwood vault are also calibrated annually. Meters are also located at each of the City's wells, which are now held in reserve for emergency and backup supply. These meters have not been serviced or calibrated since 2003 when the wells were placed on reserve.

3.1.2 Customer Meters

All water customers, including public buildings and parks, have meters to measure the quantity of water used. Each single-family home has one water meter which monitors total water usage at that site. Most multi-family residential developments and non-residential developments have separate meters for indoor water usage (i.e., for domestic/commercial/industrial purposes) versus outdoor usage (i.e., for landscape irrigation). As noted in other sections of this report, separate metering of indoor and outdoor consumption provides additional capabilities for pricing and/or curtailing water usage during the peak season or emergency conditions.

The meter replacement goal stated in this plan calls for the City to replace customer meters on a 20-year cycle. With approximately 7,000 meters in service, to meet this goal, the City should replace 250 to 300 meters a year. In general, meters are replaced based on age and condition. However, if a water customer or City Finance Staff notice an unexplained change in consumption, a customer's meter may be tested and replaced. In the past couple years, the City has been unable

to reach its replacement goal because of supply chain issues and the difficulty in obtaining new meters. In addition to the residential meter program, the City plans to test all of the larger customer meters (3-inch and above) every year and repair and replace on an as needed basis. The City also calibrates compound meters three inches and larger annually.

Table 3-1 | Meter Testing and Replacement Benchmarks

Benchmark	New Program?	Target Frequency
Calibrate source meters	No	1-year cycle
Small customer meter testing and repair	No	Ongoing
Small customer meter replacement	No	20-year cycle
Large customer meter testing/replacement	No	1-year cycle

3.2 Annual Water Audit

The results of the City’s water audits for 2013 through 2021 are included in **Table 3-2**. This calculation is a comparison between the amount of water produced from the City’s treatment plant and the amount of water sold and used for other purposes such as flushing. The City’s raw and finished water use is summarized in **Appendix B**.

Table 3-2 | Water Production vs. Loss (MG)

	2013	2014	2015	2016	2017	2018	2019	2020	2021
Produced	1,207	1,202	1,310	1,311	1,302	1,401	1,211	1,137	1,253
Sold	933	957	1,056	1,059	1,080	1,125	1,081	1,027	1,148
Bulk Water	3.58	3.58	3.58	3.58	3.58	5.70	7.49	3.47	9.18
Non-Revenue*	0.80	0.80	0.80	0.80	0.80	0.80	1.86	1.98	3.33
Unaccounted	270	240	249	248	217	270	120	105	92
% Unaccounted	22.3%	20.0%	19.0%	18.9%	16.7%	19.3%	10.0%	9.2%	7.3%

Note:

* Includes estimated water usage for flushing, sampling, chlorine injection pump operation, street sweeper, and combination line cleaner

In 2018, the City began using Cartegraph, an asset management system, to approximate the volume of water used during hydrant flushing. The City believes the more accurate hydrant flushing volume starting in 2018 led to the decrease in unaccounted for water in later years. The most recent water audit in 2021 estimates that 7.3 percent of the City’s finished water is unaccounted for.

The City regularly tracks their water usage and takes active efforts to identify and minimize unaccounted for water. City staff recognize the complexities and challenges of this task and are currently focusing their efforts on understanding and reducing the unaccounted for water.

Potential sources of unaccounted for water in the City’s system and their potential for occurrence include the following.

<u>Source</u>	<u>Potential</u>
▪ Unmetered water users	Low
▪ Water theft	Low
▪ Leaky pipes, valves, hydrants, services	Moderate
▪ Older individual water meters	Moderate
▪ Meter inaccuracies	High

Table 3-3 | Water Audit Benchmarks

Benchmark	New Program?	Target Frequency
Conduct water audit	No	Annually

3.3 Leak Detection/Repair Program

Each year the City hires an outside contractor to conduct leak detection work on approximately 25% the City’s water distribution system. The entire system is inspected over the course of four years. Priority is given to newly installed water lines (i.e., within the 1-year warranty period), and to older water lines. In addition to these scheduled inspections, members of the City’s Field Crew occasionally identify leaks. Similarly, when citizens report wet conditions suggestive of a leak, a member of the Field Crew is dispatched to investigate. As leaks in the City’s water distribution system are found, repairs are promptly made.

The City also has a program to help property owners identify and correct leaks that may exist in their (i.e., private) systems. Each billing cycle, the City’s Finance Staff makes a list of single-family residential accounts where water usage is substantially higher than it was during the same month the prior year. The Field Crew then contacts the affected resident(s) to conduct site inspections to determine whether or not leaks exist. If a leak is found, the Field Crew provides technical assistance on how it can be fixed. The City also has a “Leak Adjustment Policy” that provides customers a financial incentive to promptly repair leaks in their systems. A copy of this policy is found in the City’s Utility-Water Operations Manual, which is included in **Appendix C**.

In addition, the City distributes leak detection dye tablets, drip gauges, and leak detection brochures at various public events.

Table 3-4 | Leak Detection and Repair Benchmarks

Benchmark	New Program?	Target Frequency
Leak detection studies	No	1-year cycle
Leak repair and line replacement	No	As needed
Distribution of leak detection dye tablets	No	Annually
Distributions of drip gauges	No	Annually
“House calls” for unusually high water usage	No	Ongoing

3.4 Rate Structure

Customers are billed monthly according to the amount of water used. Also, sanitary sewer fees are based on the volume of domestic (i.e., indoor) water used. Thus, conserving water not only reduces a customer’s water bill, it also reduces that customer’s sanitary sewer bill. Furthermore, the City’s water rate structure has additional incentives for efficient water use. Single-family customer accounts are on an “inverted block” structure. In other words, the cost per unit increases as a customer’s water usage reaches higher levels. For multi-family and for non-residential customer accounts, outdoor water usage is metered separately from indoor water usage, with billing rates higher for outdoor landscape irrigation water than for indoor domestic water use. In combination, these features of the rate structure reward people all year long for conserving water, and such incentives are particularly significant during the season of peak demand. A more detailed breakdown of the City’s billing rates for water supply is included in **Appendix D**.

Table 3-5 | Rate Structure Benchmarks

Benchmark	New Program?	Target Frequency
Conservation inserts w/utility bills	No	Once per peak season
Include customer usage history on bills	No	Every billing period

3.5 Public Education & Technical Assistance

The City has a multi-faceted program to inform the public of water supply issues, and to provide technical assistance. These include:

The Monthly Utility Bill – Each bill provides a comparison of the customer’s current consumption with that customer’s consumption for the same month the prior year. In addition, printed inserts are included from time to time with the utility bill. These inserts give information about timely topics ranging from water conservation tips to updates on water rates and other items of potential interest to customers.

Consumer Confidence Report – In accordance with federal requirements, the City prepares an annual report describing the municipal water supply and providing data regarding drinking water quality. This report is distributed to all customers (residential and non-residential) within the service area and posted on the City’s website.

City’s Website – The City’s website contains information about the treatment processes used at the water treatment plant. The website also displays extensive laboratory results for the water quality monitoring in relation to federal drinking water standards. As previously mentioned, the annual Consumer Confidence Report is also posted on the City’s website. There is a section on the website devoted to water conservation as well. The website also has a section on water leaks, which steps through the process on how to check for leaks, information on the City’s leak policy, and a leak adjustment form.

Articles in Newspapers and Newsletters – Water supply has been, and continues to be, a topic of interest in this community and in this region. Articles appear frequently in the local weekly newspaper, The Wilsonville Spokesman. In addition, the City publishes the “Boones Ferry Messenger,” a monthly newsletter sent to all mailing addresses within the service area. This newsletter frequently contains articles regarding the City’s water supply. The Wilsonville Chamber of Commerce also publishes a newsletter that, from time to time, includes articles about the City’s water supply.

Water Conservation Kits and Brochures – These materials include practical tips on how to use water efficiently. The City distributes these materials at various public events. In the past 5 years, the City has distributed approximately 60 water conservation kits. The kits may contain:

- Toilet Flush Volume Calculator
- Drip Gauge
- Leak Detector Tablets
- Shower Flow Meter
- Conservation Booklets and Brochures
- 5-Minute Shower Water Timers
- Low Flow Shower Heads and Faucet Aerators
- Conservation Stickers, Bag Tags, and Bookmarks
- Kids Activity Books with Conservation Themes
- Rain Barrels & Water Conservation Brochures
- Rain Garden Posters
- Water-Efficient Plants for the Willamette Valley

Plant Guide – The City distributes a plant guide entitled “Water-Efficient Plants for the Willamette Valley” at various public events. This guide describes seven principles of designing drought-tolerant landscapes. This reference document also discusses how to install and use efficient irrigation systems, and there is a list of drought-tolerant plants that can be incorporated into landscape designs. The handbook also contains a bibliography, a list of resources, and demonstration gardens.

Water Treatment Plant Tours – Tours are typically offered twice a month. However, due to the Covid-19 pandemic and recent plant construction, tours have been on hold for the past 2 years. Tours are anticipated to resume once construction is completed in 2024. The tour route is in full compliance with ADA accessibility requirements, and the City continues to schedule tours regularly throughout the year. Visitors include interested residents, community organizations, school groups, professional associations of engineers, visiting water plant operators, and others.

Outreach – The City has been an active member of the Regional Water Provider Consortium. As part of this involvement, the City provides water conservation materials to residents at public events. The City sponsors several outreach events per year. Water conservation kits and educational information are distributed at these events.

Cable Telecasts – City Council meetings (hence budget and policy issues associated with water supply) are broadcast on local cable television.

City Library – At the City Library there is a section containing reference information and handouts. This section of the Library includes materials pertaining to water supply.

Radio and TV “Spots” – As a member of the Regional Water Provider Consortium, the City contributes funding and information for professionally produced “spots” that are aired on radio and television stations throughout the Portland metropolitan area. These messages emphasize the importance of water conservation and provide tips on how to use water efficiently. Some of the local TV stations where the messages air includes KGW, KATU, KUNP, and KOIN. Radio spots are aired on local stations such as KXL and KINK.

“House Calls” – The City has an extensive technical assistance program. Members of the water distribution crew are frequently dispatched to individual homes and businesses to provide information and/or to lend assistance addressing water issues. While the City does not determine the location of a leak, fix a leak, or troubleshoot problems on private property, other assistance includes helping customers contact landscape professionals to properly set irrigation controllers; checking for faulty meters; replacing freeze plates on water meters; offering advice on water conservation; etc. The City sometimes initiates these “house calls.” For example, the City’s utility billing system automatically compares each customer’s water usage for the current billing period with the same billing period for the prior year. If a large increase is seen, the billing system generates a work order and a member of the water crew contacts the homeowner to offer conservation advice. “House calls” are also initiated when customers contact the City with a question or concern about their water consumption, or when neighbors call to report a leak or problem observed in the neighborhood.

Table 3-6 | Public Education Benchmarks

Benchmark	New Program?	Target Frequency
Update website with conservation info	No	As needed
Tours of the water treatment plant	No	Annually, when available
Update cable TV programming regarding the City's water system	No	As needed
Attend or sponsor several outreach events	No	Annually
Conservation inserts w/utility bills	No	Once per peak season
Advertising of water conservation program	No	Annually/at outreach events
Distribute water conservation kits	No	Annually/at outreach events
Distribute water conservation brochures	No	Annually/at outreach events
Distribute Water Efficient Plant Guide	No	Annually/as needed
Distribute Water Resource Program Guide	No	Annually/as needed

Table 3-7 | Technical and Financial Assistance Benchmarks

Benchmark	New Program?	Target Frequency
Field crew assistance on how to fix leaks	No	Ongoing
Financial incentive to promptly repair leaks	No	Ongoing
Provide free copies of Water-Efficient Plant Guide	No	Annually
Distribute water conservation kits	No	Annually

Table 3-8 | Retrofit/Replacement of Inefficient Fixtures Benchmarks

Benchmark	New Program?	Target Frequency
Offer residential indoor conservation kits	No	Annually/as needed

3.6 Water Reuse

The City’s wastewater treatment plant is designed for effluent reuse. Currently, reuse is occurring only on site where approximately 160 MG per year of treated effluent is used (in lieu of municipal drinking water) for operation of various wastewater treatment processes, including “washdown”, and for landscape irrigation at the site. While the facility could be used to “export” treated effluent for reuse, currently the only area where this might be practical and cost-effective is for landscape irrigation at the City’s nearby Boones Ferry Park. During periods of water shortage, however, the City has determined it is more practical and cost-effective to simply reduce (or at times eliminate) irrigation of the park rather than reuse effluent from the wastewater treatment plant. Should local conditions and/or reuse economics change, effluent reuse remains an option in the future.

In partnership with the Clackamas County Soil and Water Conservation District, the City has promoted xeriscaping and rainwater harvesting through workshops. At these workshops and other public events, the City has distributed comprehensive full color publications called “Water Efficient Plants for the Willamette Valley”, rain barrel brochures, rain garden posters, and more.

In addition, the Lowrie Primary School, constructed in 2013, incorporates a rainwater reclamation system capable of storing up to 15,000 gallons in a cistern, which is used for flushing the school’s toilets.

Table 3-9 | Reuse, Recycling, and Nonpotable Opportunities Benchmarks

Benchmark	New Program?	Target Frequency
City wastewater treatment plant effluent reuse	No	Ongoing
Distribute rainwater reclamation brochures	No	Annually
Encourage largest commercial and industrial users to evaluate opportunities for water reuse	No	Annually

3.7 Progress Report Related to Previous WMCP

Table 3-10 is a progress report on the conservation measures scheduled for implementation, otherwise known as benchmarks in the City’s previous WMCP (approved by the OWRD on February 2013).

Table 3-10 | Progress Report

Benchmark Activity from 2004 WMCP	Progress Report Comments
Conduct water audit	The City has been conducting annual water audits.
Calibrate source meters	The water treatment plant’s finished water meter was calibrated in February 2021 and is tested on an annual basis. Meters are also located at each of the City’s wells, which are now held in reserve for emergency and backup supply. These meters have not been serviced or calibrated since 2003 when the wells were placed on reserve.
Customer meter replacement	The City has a total of 7,199 meters. Residential meters are replaced on a 20-year cycle. All individual flow meters 3 inches in size and larger have been tested, calibrated, and are either repaired or replaced if they are no longer accurate.
Calibrate compound meters	The City calibrates compound meters three inches and larger every two to three years.
Leak detection/repair	Leak detection studies are completed for the water system annually by an outside contractor, and identified leaks are fixed soon thereafter. Approximately 25% of the system is looked at each year so the entire system is inspected over the course of four years.
Consumer Confidence Reports	In accordance with federal requirements, the City prepares an annual report describing the municipal water supply and providing data regarding drinking water quality. This report is made available to residents within the service area and posted on the City’s website.
Update website information	The City’s website includes a water conservation section, which has tips for indoor and outdoor conservation, as well as links to other water conservation websites such as the Regional Water Providers Consortium, which update their website quarterly. The City’s website also has a section on water leaks, which steps through the process on how to check for leaks, info on the City’s leak policy, and a leak adjustment form.
Tours of the water treatment plant	Several tours of the WRWTP are carried out every year to all types of groups during a typical year. Groups that tour the plant range from water users within the plant’s service area to local school groups. Tours have been on hold because of the pandemic and plant construction. As of May, four tours have been provided in the year 2022.
Develop and broadcast cable TV programming regarding the City's water system	City Council meetings and policy change information regarding water supply are broadcast on local cable television.

Benchmark Activity from 2004 WMCP	Progress Report Comments
"House calls" for unusually high water usage	Members of the water distribution crew are dispatched to residencies and businesses several times a month to look into unusually high water uses or to provide technical assistance. The water distribution crew works closely with citizens to solve water related issues, such as helping customers contact landscape professionals to set their landscape irrigation controllers and distributing information on how to prevent leaks.
Prepare/submit Emergency Response Plan	In compliance with the American Water Infrastructure Act, the City developed and submitted an Emergency Response Plan in November 2021.

3.8 Water Use Measurement & Reporting

As noted in **Section 3.1.1**, source meters are located at the water treatment plant and at each of the City’s wells. The City’s water use reporting is done in compliance with OAR 690-085. The report is submitted annually by December 31st.

The WRWTP operates seven days a week. The wells, however, are held in reserve as a backup and emergency supply. While the wells have not delivered water to the distribution system since the City switched to its surface water supply, the wells are nonetheless inspected and exercised weekly. Thus in **Appendix B**, the small amount of water “use” attributed to wells is merely a reflection of this weekly exercising program.



Section 4

Section 4

Water Curtailment Element

4.1 Curtailment Assessment

While water supply conditions prior to the completion of the WRWTP in 2002 required curtailment, the City's water supply is now plentiful and highly reliable. It is not anticipated that curtailment measures will be needed in the foreseeable future, however, authority to implement curtailment measures remain on the books under City Resolution No. 1630 (see **Appendix E** for copy of resolution).

The City is also a part of the Willamette Intake Facilities Commission (WIFC) which owns and manages the intake facilities at the Willamette River. The WIFC manages a common point for multiple water suppliers and each partner has their own individual curtailment plan. The WIFC curtailment plan is to be used as a plan to initiate the partners individual curtailment plans. A draft curtailment plan for the WIFC was released in January 2021. The plan is not expected to be finalized until 2025. A copy of the draft WIFC curtailment plan can be found in **Appendix E**.

The City's winter season water demand is approximately 2 MGD. During the summer season, demand increases to about 5 MGD, with peak days approaching 7 MGD. On a year-round basis, the overall annual average demand in the City is currently about 3 MGD. To put these figures in perspective, most of the water treatment plant is currently capable of producing 15 MGD, with portions capable of handling 70+ MGD. The facility also has redundant components, thus the production level of 15 MGD can be achieved even with the largest pump out of service. The treatment plant is currently under construction to increase the capacity 20 MGD and is expected to be completed in May 2024.

To provide further reliability, the City's water system has 8.7 MG of storage capacity. The City has plans to construct an additional 3.0 MG storage reservoir near the intersection of Tooze and Baker Road, bringing total reservoir storage capacity to 11.7 MG. This reservoir will provide sufficient storage for the City's needs provided that the City continues to maintain the majority of the existing backup wells (i.e., all but Nike and Canyon Creek wells) to offset emergency storage needs.

As an added reliability measure, the City's wells are inspected and exercised weekly so that they may be placed back in service should the need arise. The current combined pumping capacity of the six preferred backup wells is 3.4 MGD. An intertie between the the City and Tualatin water systems is also available to transfer up to 1 MGD in the event of an emergency. Finally, it should be noted that the City's water treatment plant as well as five of the City's wells are equipped with diesel generators for backup power.

In terms of vulnerability to contamination, the City's water system is equipped with several features to provide protection to consumers. The WRWTP is "over-designed" in the sense that the process is enhanced above and beyond what is necessary to meet federal/state drinking water standards. The Actiflo process removes suspended materials more effectively and more completely than does conventional coagulation/flocculation treatment. The ozone process assures better disinfection/inactivation of potentially pathogenic agents than does conventional chlorination. The use of six feet of granular activated carbon in addition to one foot of sand provides not only physical filtration of suspended particles, but also chemical adsorption of dissolved materials. Pilot studies have demonstrated that even when highly contaminated water was intentionally introduced into this enhanced treatment process (to simulate a massive spill of the herbicide atrazine), the resulting finished water quality still met drinking water standards. The water treatment plant has now operated over a decade without a single drinking water violation.

The City's security features also reduce the water system's vulnerability. All reservoirs are covered, fenced, and equipped with alarms. Water treatment plant security features include motion detectors, cameras, and staffing 24 hours a day, seven days a week. In accordance with federal homeland security requirements, the City has completed a vulnerability assessment and has recently updated their emergency response plan for the City's water system as of November 2021.

In short, the City now has a highly "robust" water supply system. In the unlikely event emergency conditions arise which cannot be handled by the above-mentioned provisions, the following curtailment measures are available for implementation.

4.2 Stages of Alert

The City's curtailment program involves three levels of curtailment:

- 1) Voluntary reductions in water usage.
- 2) Mandatory water rationing for outdoor irrigation.
- 3) Official declaration of an emergency, whereby nonessential uses are prohibited.

Appendix E contains a copy of Resolution No. 1630, which describes each of these stages in more detail.

4.3 Triggers for Alert

Circumstances dictate on a case-by-case basis what types of curtailment are most appropriate. Nevertheless, the following pre-determined levels are used as triggers for the City's actions:

- 1) Voluntary conservation is always encouraged.
- 2) If treated water in storage falls below 50 percent of the overall system reservoir storage capacity, then the second level of curtailment is triggered.

- 3) If it appears storage is dropping to the point where it jeopardizes the minimum reserve of 3 MG, then the highest level of curtailment is triggered.

4.4 Curtailment Actions

Table 4-1 displays the implementation actions associated with each level of curtailment. The City’s Public Works Director (in consultation with the City Engineer and Water Treatment Plant Manager) has primary responsibility for coordinating water curtailment activities.

Table 4-1 | Wilsonville Curtailment Plan

Stage	Trigger	Implementation Measures
1	Ongoing Conservation	<ul style="list-style-type: none"> ▪ Code requirements for water-efficient fixtures ▪ Public information and technical assistance ▪ Financial incentives for prompt leak repair ▪ Consumption history printed on utility bills ▪ Increase block billing
2	Storage drops below 50% capacity	<ul style="list-style-type: none"> ▪ Continue ongoing conservation measures ▪ Curtailment notices posted and announcement placed in newspaper ▪ Curtailment notices placed on city website ▪ Implement mandatory restrictions regarding days of the week when landscape irrigation is allowed ▪ Prohibit outdoor watering during daytime hours between 9:00 a.m. and 5:00 p.m. ▪ Limit landscape sprinkling to 20 minutes per sprinkler zone ▪ Cease watering turf and landscaping at all City parks ▪ Encourage customers to avoid using water for non-essential uses (contact the largest commercial/industrial customers) ▪ Other measures as deemed appropriate to maintain storage above 50% capacity
3	Storage drops below 3 MG	<ul style="list-style-type: none"> ▪ Formally declare an emergency and post notices accordingly ▪ Prohibit landscape irrigation, except watering of newly planted landscaping ▪ Prohibit using water for washing vehicles, pavement, buildings, and equipment ▪ Discontinue use of ornamental fountains ▪ Prohibit use of water for swimming pools or hot tubs ▪ Prohibit use of water for construction projects ▪ Prohibit water served in restaurants unless specifically requested by customers ▪ Other measures as deemed appropriate to maintain storage above 3 MG

Table 4-2 shows the triggers and actions for each level of curtailment at the WIFC. As with the City’s alerts, the actions are best decided on a case by case basis and are therefore listed as potential actions in the following table.

Table 4-2 | WIFC Curtailment Plan

Stage of Alert	Potential Triggers	Potential Actions
Level 0 Awareness	<ul style="list-style-type: none"> ▪ A series of indicators suggest that a flow limitation is possible; these may include drought related conditions, low river level, or adverse water quality event. 	Awareness of pending supply limitations, ongoing water conservation messaging (through partners)
Level 1 Mid	<ul style="list-style-type: none"> ▪ Minor mechanical or electrical malfunction of fish screens, intake pipe, caisson, pump station building or related equipment (impact is less than one day) ▪ Sustained demand reaches 95% of intake capacity 	Voluntary curtailment, begin planning for how curtailment will be allocated per partner
Level 2 Moderate	<ul style="list-style-type: none"> ▪ Moderate mechanical or electrical malfunction of fish screens, intake pipe, caisson, pump station building, or related equipment (likely impact is days) 	Mandatory short-term curtailment
Level 3 Severe	<ul style="list-style-type: none"> ▪ Extensive mechanical or electrical malfunction of fish screens, intake pipe, caisson, pump station building (likely impact is weeks) ▪ Less frequent natural disaster (landslide, earthquake) ▪ Intentional acts or fire, contamination of source, or any other event resulting in an immediate, sustained deprivation of water supply 	Mandatory long-term curtailment
Level 4 Critical	<ul style="list-style-type: none"> ▪ Critical mechanical or electrical malfunction of fish screens, intake pipe, caisson, pump station building (likely impact is months) ▪ Earthquake, extensive damage to intake facilities caused by natural disaster ▪ Intentional acts or fire, contamination of source, or any other event resulting in an immediate, sustained deprivation of water supply, including imminent terrorist threat against intake facility 	Mandatory long-term curtailment
Water Availability Limitations	<ul style="list-style-type: none"> ▪ General recognition of drought conditions in the Willamette Basin either by OWRD or Governor declaration ▪ Willamette River level below 5,630 cfs between July 1 and October 31 or below 6,000 cfs between November 1 and June 30 ▪ Sustained demand reaches 100% of intake capacity 	Mandatory curtailment (for all partners except the City)



Section **5**

Section 5

Water Supply Element

5.1 Current and Future Service Areas

The current service area is defined by the City limits as shown in **Figure 2-1**. The only area outside the City limits served by the City is the nearby Baldock Rest Area along Interstate 5 owned by ODOT. In the future, it is anticipated that water service will be extended to areas defined by and approved by Metro for future urban growth. The potential future service areas would be between the existing City limits and the study area boundary, as shown in **Figure 2-1**.

5.2 Population Projections

The residential population projections were estimated using the Oregon Metro 2045 Population Housing Forecast. For years in between projections, a linear interpolation was used to estimate the population. A more detailed explanation of the methodology used is described in the Wilsonville Population Projections Methodology, a copy of which can be found in **Appendix A**.

For nonresidential development, the number of employees in the study area was projected (per previous METRO and City planning studies) to double over a 20-year period. This equates to an annual average nonresidential growth rate of 3.5 percent. In addition, three future large users totaling 1 MGD were assumed.

5.3 Schedule to Fully Exercise Permits

Based on the information presented in the Master Plan, the City's anticipated schedule for full utilization of its Willamette River municipal water right may not occur until buildout of the study area. The actual date will depend on how demand materializes over time. In the event that the City does not fully perfect this 30 cfs (i.e., 19.4 MGD) water right prior to the 2042 date specified in the permit extension, an additional extension may be required.

As noted previously in **Table 2-1**, certificates have been issued for four of the City's eight wells. Extensions for the remaining four permits were approved to year 2040. With all the wells now relegated to backup status, use of the full quantity of water allowed under each permit would only be for brief periods of time until the Willamette River water rights are fully utilized. The water rights for the four permitted wells may not be fully perfected prior to their extension date of 2040 and an additional extension may be required.

5.4 Demand Forecasts

The year 2021 was considered representative of normal usage and was used to estimate future water use projections. Three large future industries (one at 0.5 MGD, and two at 0.25 MGD) were also included in future water usage projections.

The existing treatment plant and the City transmission system provides supplemental potable water supply to the City of Sherwood under a separate water right.

Table 5-1 summarizes the future demands for residential and nonresidential users and future industry. Demand for the City of Sherwood is not included in this analysis.

Table 5-1 | Future Water System Demands

Scenario	2021	2025	2030	2035	2040	2045
Population	27,186	28,328	29,756	30,026	30,296	30,566
Residential						
Average (MGD)	1.90	1.98	2.08	2.10	2.11	2.13
Minimum Month (MGD)	1.10	1.15	1.20	1.22	1.23	1.24
Maximum Month (MGD)	3.64	3.79	3.98	4.01	4.05	4.09
Peak Day (MGD)	5.33	5.56	5.60	5.38	5.38	5.38
Nonresidential (increase of 3.5% per year)						
Average (MGD)	1.23	1.42	1.68	2.00	2.37	2.82
Minimum Month (MGD)	0.63	0.72	0.85	1.02	1.21	1.43
Maximum Month (MGD)	2.20	2.52	2.99	3.56	4.22	5.02
Peak Day (MGD)	3.47	3.98	4.73	5.61	6.67	7.92
Other Miscellaneous						
Future Large Industries (MGD)	0.00	0.50	0.75	1.00	1.00	1.00
Total System						
Average (MGD)	3.13	3.39	3.76	4.09	4.49	4.95
Minimum Month (MGD)	1.73	1.87	2.06	2.23	2.43	2.67
Maximum Month (MGD)	5.83	6.31	6.97	7.57	8.27	9.10
Peak Day (MGD)	8.80	9.53	10.33	10.99	12.05	13.30

5.5 Projected Need versus Available Sources

The City will have increased water demands during the next 20 years that will be met by the City's Willamette River source (Permit S-46319), with emergency backup supply provided by existing ground water sources (multiple permits). To comply with OAR 690-086-0170(5)(a)(b) & (c), this section and the following **Section 5.6** provide an analysis of water needs and alternative available sources.

As shown in **Table 5-1**, the City's projected need at year 2040 will average 4.5 MGD (excludes City of Sherwood demand), with peak days reaching 12 MGD. Both of these rates are well within the current allowed production rate and water right for Permit S - 46319. Since the WRWTP is currently capable of producing 15 MGD and only 10 MGD are allocated to the City, upgrades to the treatment plant will be needed to meet future demand. The treatment plant is currently under construction and expected to be completed in May 2024 with a total capacity of 20 MGD. The treatment plant is also planned to be expanded in 2034 to reach a total capacity of 30 MGD. The City also has plans to construct an additional 3.0 MG storage reservoir near the intersection of Tooze and Baker Road, bringing total reservoir storage capacity to 11.7 MG. This reservoir will provide sufficient storage for the City's needs provided that the City continues to maintain the majority of the existing backup wells (i.e., all but Nike and Canyon Creek wells) to offset emergency storage needs.

Additionally, the City's wells are currently capable of producing 3.4 MGD (six preferred wells) to 4.6 MGD (all wells), based on pump tests. With planned well improvements to increase current yield, the wells can produce the full value of the City's water rights totaling 8.7 MGD.

The combination of the treatment plant plus 11.7 MG of storage capacity will enable the City to easily handle average daily demand projected for the year 2040. The wells plus tanks are also expected to be able to meet average day demand for the year 2040, but can not meet peak day demand of 12 MGD in year 2040 if the treatment plant is down for any length of time. Should peak demand exceed the current production capacity of the wells of 6.7 MGD with the treatment plant not in operation, the City could implement one or more of the following strategies:

- Institute water conservation/curtailment measures. (see **Section 4**)
- Pump the wells at a higher production rate, matching the 8.7 MGD water rights.
- Temporarily purchase up to 1 MGD through the intertie between the City and Tualatin storage tanks.

In summary, available sources can meet projected average daily needs for the foreseeable future under both normal and emergency operation modes. However, to meet emergency needs under future peak demands, curtailment and/or additional emergency supply will be needed. *Water savings alone from identified conservation and curtailment measures cannot fully meet the City's projected emergency water demands.*

Since expansion of diversion of water allocated under existing permits is necessary to meet future emergency needs, and to comply with OAR 690-086-0170(6), the City is providing the following expected maximum instantaneous flow rates and monthly volumes for various permits that are not fully certificated:

- Permit S-46319 (Willamette River)
 - Max instantaneous rate: year 2020: 10.60 cfs, year 2030: 14.50 cfs

- Max monthly volume: year 2020: 252 Mgal, year 2030: 342 Mgal
- Permit G-9957 (Gesellschaft Well)
 - Max instantaneous rate: year 2020: 3.34 cfs, year 2030: 3.34 cfs
 - Max monthly volume: year 2020: 68.7 Mgal, year 2030: 68.7 Mgal
- Permit G-10515 (Nike Well)
 - Max instantaneous rate: year 2020: 2.23 cfs, year 2030: 2.23 cfs
 - Max monthly volume: year 2020: 43.5 Mgal, year 2030: 43.5 Mgal
- Permit G-10923 (Canyon Creek and Boeckman Wells)
 - Max instantaneous rate: year 2020: 4.44 cfs, year 2030: 4.44 cfs
 - Max monthly volume: year 2020: 86.7 Mgal, year 2030: 86.7 Mgal

5.6 Analysis of Alternative Sources

The WRWTP is the primary source of supply for the City. The WRWTP became operational in April 2002 and has been in continuous operation since then. Years of technical analyses, water quality monitoring, and public debate went into the evaluation of supply options preceding its construction. In addition to the Willamette River, other alternatives considered included: water conservation; continued use of local wells drawing from the Columbia River Basalt Aquifer; purchasing water from Portland’s Bull Run/Columbia Wellfield system; aquifer storage and recovery (ASR); purchasing water from the Clackamas Basin; pumping water from the Troutdale Aquifer; re-use of treated wastewater; re-use of “gray water”; use of the Willamette River for non-potable needs; cisterns to collect rainwater; and impoundments on local creeks. In the end, the Wilsonville City Council enacted Resolution No. 1557 selecting the Willamette River as the City’s long-term source for water supply, and the voters of the City approved a financing plan to pay for the needed capital improvements.

Appendix F, which is a re-print of Appendix H from the approved 2004 WMCP, contains a copy of Resolution 1557 and accompanying staff report describing the alternatives in more detail, including feasibility analyses and cost/benefit analyses. The findings of this staff report remain valid today.

5.7 Mitigation Actions

Per federal and state requirements, mitigation actions have already been approved and implemented for the City’s water supply system. In terms of groundwater, heavy use of the City’s wells has ceased and, as noted in **Section 2**, the water table has recovered. To comply with an August 18, 2006 Final Order approving an extension of time for Permit G-10515, the artesian Nike well was valved and capped to prevent water flow when the well was not being applied to beneficial use. Even if the wells are temporarily activated for emergency or backup supply,

pumping at maximum production for a limited amount of time, as identified in Section 5.5 above is no longer expected to cause problems for the aquifer.

With regard to surface water, several measures have been implemented to protect the environment as well as in-stream uses. The Willamette basin is home to certain fish covered by the Federal Endangered Species Act. While some of these fish migrate past the intake for the City's water treatment plant, this portion of the river is not a spawning or rearing habitat for such species. Relative to total river volume, full utilization of the City's 19.4 MGD water right represents less than one percent of the river's flow at the intake (even during drought conditions based on lowest flow of record). Furthermore, the intake structure itself is screened with a mesh having openings approximately the diameter of a toothpick. The structure has been designed to assure intake velocities are slow enough that even the smallest fish can swim away from the intake's "current" and avoid becoming trapped on the screen.

The intake screens are located offshore, eight feet above the bottom of the river. Depending on seasonal flow conditions, the screens are typically 20 to 40 feet below the surface of the river. From the screens, water reaches the headworks of the treatment plant by passing through a tunnel beneath the bank of the river. Thus even during construction there was minimal disruption to shoreline or riparian habitat as the tunnel was bored under the vegetation. In addition, the intake structure and tunnel were built to full-development capacity so there will be no disruption to the shoreline or the river as future increments of treatment capacity are installed at the site.

In short, mitigation measures have been implemented to assure the long-term viability of the local groundwater aquifer, and to protect the Willamette River's aquatic/riparian habitat and in-stream uses.



Appendix

Technical Memorandum

Date: June 6, 2022

Project: City of Wilsonville Water Management and Conservation Plan

To: Matt Palmer, PE
Civil Engineer
City of Wilsonville

From: Mr. Brian Ginter, P.E.

Re: Wilsonville Population Projections Methodology

Background

The City of Wilsonville's (City) water rights permit include conditions to prepare and maintain a Water Management and Conservation Plan (WMCP). The last WMCP update was completed in 2012 and approved by Final Order from the Oregon Water Resources Department (OWRD) in February 2013. In March 2022, the City authorized Murraysmith to prepare the WMCP update as required by OWRD to be submitted by August 1, 2022.

The City of Wilsonville does not maintain population projection data and, as such, Murraysmith anticipated utilizing the population projections developed by the Regional Water Providers Consortium (RWPC) to develop 20-year water demand forecasts as part of the WMCP Update. The RWPC is a collaborative and coordinating organization that works to improve the planning and management of municipal water supplies in the greater Portland, Oregon Metropolitan region. The RWPC, in collaboration with Portland State University's (PSU) Population Research Center, develops population and household estimates and updates them on an annual basis with the next update planned for the Fall of 2022. Since the OWRD requires the updated WMCP to be submitted by August 1, 2022, the Fall 2022 population updates will not be able to be utilized. Further, the last RWPC population projection update was completed in 2018, however, the City of Wilsonville recently re-joined the RWPC and was therefore not part of the 2018 update. In order to keep to the project schedule and OWRD August Deadline, a different methodology was utilized to obtain updated Population Projections to continue with the report update. The development of the 20-year population projections and the alternative data they were sourced from is outlined within this technical memo.

Population Forecast Source Data

The combination of Population estimates from the PSU Population Research Center and Oregon Metro Forecast were used as the basis for the population projections from 2021 to 2045 for the purposes of this WMCP update.

Population forecasts were sourced from the Oregon Metro 2045 Population Housing Forecast (Metro, 2021) and are summarized in **Table 1** below.

Table 1 – Oregon Metro 2045 Population Forecasts for City of Wilsonville

	Population Forecast		
	2020	2030	2045
Wilsonville	25,945	29,756	30,566

The PSU Population Research Center provides population estimates up to 2021 from the Census Counts. The 2021 population estimate for Wilsonville was 27,186 (PSU, 2022).

Population Projections

Using the populations sourced from the above entities, the populations for the years between 2021 and 2045 were calculated using standard methods of interpolation to create a linear population projection.

Standard Interpolation is a type of estimation that involves constructing new data points based on the range of a discrete set of known data points. In this case, the population values from the Oregon Metro and PSU were known and therefore used to estimate the population values from the years that were unknown.

Estimated population projections are included in **Table 2** below.

Table 2 – Wilsonville Population Projections

Year	Projected Wilsonville Population
2020	26,664
2021	27,186
2022	27,472
2023	27,757
2024	28,043
2025	28,328
2026	28,614
2027	28,899
2028	29,185
2029	29,470
2030	29,756
2031	29,810
2032	29,864
2033	29,918
2034	29,972
2035	30,026
2036	30,080
2037	30,134
2038	30,188
2039	30,242
2040	30,296
2041	30,350
2042	30,404
2043	30,458
2044	30,512
2045	30,566

Note: Bold values indicate known population estimates from PSU and Oregon Metro

Ultimately, the population data listed above was utilized in updating the City's 20-year water demand forecast in order to properly compare existing and future water supply needs with the City's existing and future water capacity.

Sources

Oregon Metro (Metro). (February 25, 2021). *Portland-area 2045 population and housing forecasts by city and county*. Retrieved from <https://www.oregonmetro.gov/sites/default/files/2021/03/26/2045-regional-population-housing-forecast-by-city-county.pdf>

Portland State University Population Research Center (PSU). (April 15, 2022). *2021 Annual Oregon Population Report Tables*. Retrieved from <https://www.pdx.edu/population-research/sites/g/files/znlchr3261/files/2022-04/2021%20Annual%20Population%20Report%20Tables.pdf>

Month/Year	Willamette River Total Raw Water (gal)	Wilsonville Raw Water Usage (gal)	Sherwood Raw Water Usage (gal)	City of Wilsonville Finished Flow (gal)	City of Sherwood Finished Flow (gal)	Beckman Well (gal)	Canyon Creek Well (gal)	Charbonneau Well (gal)	Eliggen Well (gal)	Gesellschaft Well (gal)	Nike Well (gal)	Weideman Well (gal)	Total Raw Water Usage by the City of Wilsonville (gal)
Jan-11	59,545,838	59,545,838	0	60,331,424	0	6,560	8,960	36,000	54,000	64,680	10,240	59,400	59,785,678
Feb-11	60,532,731	60,532,731	0	61,664,183	0	6,560	8,960	36,000	54,000	64,680	10,240	59,400	60,772,571
Mar-11	61,636,633	61,636,633	0	63,238,891	0	6,560	8,960	36,000	54,000	64,680	10,240	59,400	61,876,473
Apr-11	60,748,644	60,748,644	0	62,762,311	0	6,560	8,960	36,000	54,000	64,680	10,240	59,400	60,988,484
May-11	70,418,257	70,418,257	4,295,750	68,390,815	4,443,120	6,560	8,960	36,000	54,000	64,680	10,240	59,400	68,362,342
Jun-11	84,298,477	84,298,477	1,861,200	86,120,176	1,948,560	6,560	8,960	36,000	54,000	64,680	10,240	59,400	84,338,317
Jul-11	124,190,337	127,550,169	1,640,168	126,588,225	1,694,220	6,560	8,960	36,000	54,000	64,680	10,240	59,400	127,990,009
Aug-11	144,152,325	140,985,642	3,166,683	148,594,065	3,337,576	6,560	8,960	36,000	54,000	64,680	10,240	59,400	141,225,482
Sep-11	132,034,427	127,452,938	12,581,489	126,304,921	13,303,180	6,560	8,960	36,000	54,000	64,680	10,240	59,400	119,672,368
Oct-11	71,863,127	66,835,522	5,027,605	69,045,655	5,191,868	6,560	8,960	36,000	54,000	64,680	10,240	59,400	67,075,362
Nov-11	61,885,646	61,885,646	0	63,911,047	0	6,560	8,960	36,000	54,000	64,680	10,240	59,400	62,125,360
Dec-11	65,249,799	62,808,291	2,441,509	63,846,443	2,481,864	6,560	8,960	36,000	54,000	64,680	10,240	59,400	63,048,131
Jan-12	67,189,641	65,920,906	1,268,735	63,776,778	1,227,468	6,560	8,960	36,000	54,000	64,680	10,240	59,400	66,160,746
Feb-12	64,462,683	59,254,456	5,208,227	60,191,670	5,290,604	6,560	8,960	36,000	54,000	64,680	10,240	59,400	59,494,296
Mar-12	98,709,514	95,199,709	3,509,805	96,180,334	3,013,804	6,560	8,960	36,000	54,000	64,680	10,240	59,400	95,439,549
Apr-12	94,877,291	95,770,893	23,106,498	67,899,855	30,048,656	6,560	8,960	36,000	54,000	64,680	10,240	59,400	96,010,733
May-12	125,745,737	79,731,898	46,013,839	83,142,214	47,981,956	6,560	8,960	36,000	54,000	64,680	10,240	59,400	79,971,738
Jun-12	140,798,830	98,689,799	42,109,031	103,564,210	44,188,848	6,560	8,960	36,000	54,000	64,680	10,240	59,400	98,929,639
Jul-12	200,649,502	132,142,410	68,507,091	140,464,492	72,821,540	6,560	8,960	36,000	54,000	64,680	10,240	59,400	132,382,750
Aug-12	243,519,310	174,021,349	69,497,961	186,574,568	71,171,272	6,560	8,960	36,000	54,000	64,680	10,240	59,400	174,761,189
Sep-12	210,028,785	140,715,083	69,313,794	149,984,897	71,877,716	6,560	8,960	36,000	54,000	64,680	10,240	59,400	140,954,022
Oct-12	130,856,230	81,512,482	49,343,748	85,678,362	51,865,572	6,560	8,960	36,000	54,000	64,680	10,240	59,400	81,752,322
Nov-12	99,011,372	62,882,750	36,128,622	63,996,800	36,768,688	6,560	8,960	36,000	54,000	64,680	10,240	59,400	63,122,990
Dec-12	93,985,067	65,085,388	28,899,679	67,184,487	29,831,736	6,560	8,960	36,000	54,000	64,680	10,240	59,400	65,325,228
Jan-13	104,884,804	61,805,342	42,879,461	56,819,466	59,420,848	6,560	8,960	36,000	54,000	64,680	10,240	59,400	67,045,182
Feb-13	91,444,245	64,885,971	31,992,074	63,992,074	37,200,272	6,560	8,960	36,000	54,000	64,680	10,240	59,400	64,811,811
Mar-13	98,354,494	67,562,559	30,792,935	70,738,203	32,240,296	6,560	8,960	36,000	54,000	64,680	10,240	59,400	67,802,399
Apr-13	100,778,250	60,003,757	40,274,493	62,883,531	42,207,396	6,560	8,960	36,000	54,000	64,680	10,240	59,400	60,243,597
May-13	158,764,710	108,833,419	49,931,291	116,838,524	53,603,924	6,560	8,960	36,000	54,000	64,680	10,240	59,400	109,073,259
Jun-13	177,580,499	120,992,028	56,588,471	130,080,803	60,839,238	6,560	8,960	36,000	54,000	64,680	10,240	59,400	121,231,988
Jul-13	240,689,471	170,501,112	91,790,626	190,291,836	100,893,876	6,560	8,960	36,000	54,000	64,680	10,240	59,400	190,939,852
Aug-13	228,960,942	176,608,973	52,351,969	189,278,161	56,107,480	6,560	8,960	36,000	54,000	64,680	10,240	59,400	176,848,813
Sep-13	146,495,122	91,784,708	54,710,414	97,633,368	58,196,644	6,560	8,960	36,000	54,000	64,680	10,240	59,400	92,024,548
Oct-13	116,784,304	83,988,502	32,795,802	86,996,643	33,970,420	6,560	8,960	36,000	54,000	64,680	10,240	59,400	84,228,342
Nov-13	99,006,545	63,185,713	35,620,832	66,398,595	37,113,980	6,560	8,960	36,000	54,000	64,680	10,240	59,400	63,625,553
Dec-13	110,028,785	71,385,975	39,513,794	80,544,897	40,283,764	6,560	8,960	36,000	54,000	64,680	10,240	59,400	71,939,025
Jan-14	98,636,505	68,170,832	30,465,673	70,014,774	31,288,840	6,560	8,960	36,000	54,000	64,680	10,240	59,400	68,410,672
Feb-14	86,307,340	56,689,676	29,616,644	59,453,151	31,061,448	6,560	8,960	36,000	54,000	64,680	10,240	59,400	56,929,516
Mar-14	98,058,665	63,769,630	34,289,028	64,913,194	34,903,924	6,560	8,960	36,000	54,000	64,680	10,240	59,400	64,009,470
Apr-14	99,645,922	66,238,472	33,407,450	69,236,743	34,019,632	6,560	8,960	36,000	54,000	64,680	10,240	59,400	66,478,312
May-14	170,651,112	79,050,112	42,920,216	81,661,666	50,960,086	6,560	8,960	36,000	54,000	64,680	10,240	59,400	79,939,852
Jun-14	193,645,359	128,948,785	64,696,574	136,899,933	68,685,848	6,560	8,960	36,000	54,000	64,680	10,240	59,400	129,188,625
Jul-14	249,126,626	147,076,993	102,049,633	157,967,364	109,605,936	6,560	8,960	36,000	54,000	64,680	10,240	59,400	147,316,833
Aug-14	259,530,647	192,097,814	67,433,833	205,722,790	72,215,660	6,560	8,960	36,000	54,000	64,680	10,240	59,400	192,337,654
Sep-14	198,957,210	127,907,635	73,040,575	136,602,507	78,879,364	6,560	8,960	36,000	54,000	64,680	10,240	59,400	128,147,475
Oct-14	117,230,618	79,230,546	37,590,866	81,280,388	39,289,984	6,560	8,960	36,000	54,000	64,680	10,240	59,400	79,392,384
Nov-14	92,544,445	60,108,347	32,433,098	63,287,403	34,148,444	6,560	8,960	36,000	54,000	64,680	10,240	59,400	60,348,187
Dec-14	99,037,739	67,501,729	31,536,010	69,864,199	32,639,728	6,560	8,960	36,000	54,000	64,680	10,240	59,400	67,741,569
Jan-15	103,015,640	69,715,866	33,299,774	68,919,687	32,919,480	6,560	8,960	36,000	54,000	64,680	10,240	59,400	69,955,706
Feb-15	92,086,764	61,926,542	30,142,222	60,307,355	30,568,516	6,560	8,960	36,000	54,000	64,680	10,240	59,400	62,166,382
Mar-15	101,896,916	67,410,570	34,412,216	69,229,216	35,138,112	6,560	8,960	36,000	54,000	64,680	10,240	59,400	67,714,000
Apr-15	101,171,376	69,996,158	31,175,218	72,201,104	32,157,268	6,560	8,960	36,000	54,000	64,680	10,240	59,400	70,235,998
May-15	149,641,568	106,424,693	43,216,875	109,892,135	44,624,932	6,560	8,960	36,000	54,000	64,680	10,240	59,400	106,664,533
Jun-15	250,145,463	155,386,881	94,758,582	166,162,920	71,301,064	6,560	8,960	36,000	54,000	64,680	10,240	59,400	155,626,721
Jul-15	304,463,820	184,475,000	119,988,820	197,686,799	128,551,032	6,560	8,960	36,000	54,000	64,680	10,240	59,400	184,714,940
Aug-15	273,468,830	187,948,830	87,960,830	207,718,216	90,385,904	6,560	8,960	36,000	54,000	64,680	10,240	59,400	189,832,109
Sep-15	179,783,137	120,986,886	58,796,251	127,996,921	62,202,932	6,560	8,960	36,000	54,000	64,680	10,240	59,400	121,226,726
Oct-15	133,007,612	89,051,549	43,956,063	92,803,973	45,808,268	6,560	8,960	36,000	54,000	64,680	10,240	59,400	89,291,389
Nov-15	104,386,375	66,195,058	38,191,317	67,538,318	38,966,312	6,560	8,960	36,000	54,000	64,680	10,240	59,400	66,434,898
Dec-15	106,001,814	64,299,559	41,702,255	65,401,351	42,416,836	6,560	8,960	36,000	54,000	64,680	10,240	59,400	64,539,999
Jan-16	102,459,994	71,190,938	39,145,932	69,080,268	31,283,984	6,560	8,960	36,000	54,000	64,680	10,240	59,400	71,399,778
Feb-16	98,459,178	61,163,415	37,295,673	63,568,158	38,762,108	6,560	8,960	36,000	54,000	64,680	10,240	59,400	61,403,255
Mar-16	104,227,953	68,830,720	35,396,871	72,002,991	37,028,244	6,560	8,960	36,000	54,000	64,680	10,240	59,400	69,070,560
Apr-16	110,777,479	70,413,650	35,363,229	79,161,229	37,426,180	6,560	8,960	36,000	54,000	64,680	10,240	59,400	75,653,490
May-16	159,566,620	103,527,055	56,038,815	110,797,584	59,973,892	6,560	8,960	36,000	54,000	64,680	10,240	59,400	103,767,645
Jun-16	230,145,711	136,107,464	65,409,216	143,460,216	70,229,704	6,560	8,960	36,000	54,000	64,680	10,240	59,400	136,317,394
Jul-16	251,828,001	171,897,055	79,930,946	184,587,420	85,831,878	6,560	8,960	36,000	54,000	64,680	10,240	59,400	172,136,895
Aug-16	271,342,902	191,738,995	79,603,907	206,740,080	85,831,878	6,560	8,960	36,0					



City of Wilsonville-Utility Billing
 29799 SW Town Center Loop East
 Ph: 503.570.1610 Fax: 503.682.1015
 E-mail: utility@ci.wilsonville.or.us

Dear Utility Customer,

The City of Wilsonville will consider adjusting a customer’s bill for half the excess usage due to an underground water leak that occurs between the City water meter and the line to the customer’s home up to a maximum of \$1,500.00.

GENERAL PROCESS

- Notify the City of any leak that has been discovered.
- Repair the leak within 5 working days from the time of discovery.
(You may ask for an extension based on extenuating circumstances)
- Submit the completed form on the reverse side along with proof of repair within 30 days
- A 2nd leak within a 12 month period will only be considered if it is unrelated to the first. The customer must provide the Utility Billing department documentation noting the different locations of the first and second leaks.
- The Utility Billing staff will contact the customer once the review is completed.

Water adjustments will not be granted for leaking toilets, dripping faucets, valves left open, sprinkler systems, and problems with automatic fillers on swimming pools or water features.

If a non qualifying leak occurs during the winter months (November through March) you may still submit the form on the reverse side to request we manually adjust your winter average. This will prevent your sewer bill from going up in April due to the leak during the winter.

ADJUSTMENT CALCULATIONS

- The credit will be based on the average usage for the same period in the previous two years. (If history is unavailable, staff will determine a fair amount based on occupancy or current use)
- We will only credit 2 consecutive months even if the leak affected more than 2 months. Staff will pick the months that provides the higher credit to the customer.

	October	November	December	January
Current Year Consumption	7	12	36	10
Prior Year Consumption	7	6	7	6
2 Years Ago Consumption	8	6	9	8
Average Use		6	8	7

In this example, the customer would receive a credit for 17 units at the rate during the month(s) the leak occurred.

	November	December
Actual Use	12	36
Average Use	-6	-8
Units to Credit off	Half of 6	Half of 28

LEAK ADJUSTMENT REQUEST FORM

PLEASE NOTE: Completion of this request does not guarantee an adjustment will be made to your bill. The account must remain current to avoid additional service charges. The utility billing staff will contact you once the review is complete. Please allow 2-4 weeks to process.

Customer Information

Date: _____ Account Number: _____

Name on the account: _____

Mailing Address: _____

Service Address: _____

Phone Number: _____ Email Address: _____

Requesting adjustment of Water Sewer Winter Average
(Non-Residential) (Sewer for Residential)

Leak Repair Information

Date leak was discovered: _____ Repair date: _____

Location of the leak: _____
(If this is a 2nd leak please provide details that prove it is unrelated to the 1st leak)

Description of repairs:

*****Don't forget to attach proof of repair*****

This could be a copy of plumber's bills, receipts for parts, or pictures & additional information as to why receipts were not obtained for the repair of the leak.

City of Wilsonville, Utility Billing
29799 SW Town Center Loop E
Wilsonville, OR 97070
utility@ci.wilsonville.or.us

City of Wilsonville Utility Billing

Office hours: Monday - Friday from 8:00 am - 5:00 pm, excluding holidays

Phone: (503) 570-1610 or Email utility@ci.wilsonville.or.us

Before you dig call 811

UTILITY RATES

Vacant homes will be charged base fees even if the water service is off.

Water Base Fees (includes the first 2 units)

Meter Size	1/1/2017	5/1/2020	5/1/2021	5/1/2022
5x8" or 3/4"	20.45	16.59	17.09	17.61
1"	22.58	19.18	19.76	20.34
1 1/2"	25.40	23.50	24.21	24.93
2"	33.18	28.68	29.54	30.43
3"	67.14	42.49	43.77	45.08
4"	111.70	58.03	59.77	61.56
6"	161.21	101.19	104.22	107.35
8"	217.80	152.98	157.57	162.30
10"	269.09	213.40	219.81	226.40
Bulk Water	33.18	28.68	29.54	30.43

Sewer Base Fees (includes the first 2 units)

Water Meter Size	1/1/2019	1/1/2020	1/1/2021
Residential/Multifamily	19.84	19.84	19.84
Commercial 5x8" or 3/4"	31.94	31.94	31.94
1"	50.08	50.08	50.08
1 1/2"	80.33	80.33	80.33
2"	116.60	116.60	116.60
3"	201.25	201.25	201.25
4"	322.21	322.21	322.21
6"	624.53	624.53	624.53
8"	987.34	987.34	987.34
10"	1761.37	1761.37	1761.37

Water Consumption Fees (per unit)

1 unit = 100 cubic feet or approximately 748 gallons

	1/1/2017	5/1/2020	5/1/2021	5/1/2022
Residential				
Tier I	3.44	4.23	4.23	4.23
Tier II	5.76	6.13	6.13	6.13
Multifamily	3.70	3.89	3.99	4.08
Commercial	3.59	3.90	4.07	4.25
Industrial	3.65	3.89	4.10	4.32
Public	3.59	3.86	4.06	4.27
Irrigation	5.76	6.13	6.46	6.80
Bulk Water	4.52	4.91	5.12	5.35

Residential: The tiered rate structure used to be based on each home's individual winter average. As of 5/1/2020 Tier I rates are for units 3-8 and Tier II rates are for any additional units.

Additional Sewer Units

	1/1/2019	1/1/2020	1/1/2021
Additional units	8.85	8.85	8.85

Residential sewer charges are based on the winter average water use. The winter average is based on the November through March consumption as this most accurately reflects indoor water use. New customers are based on system wide residential average. Averages are re-calculated each April.

Multifamily and Commercial is based on monthly water use as irrigation is separately metered.

Road Maintenance Fee: used to maintain existing streets

	12/1/2019	1/1/2020
Residential	8.60	9.08
Multifamily	5.59	5.90

Road fee subject to change November 1st of each year.

Multifamily: (rate) x (# of dwelling units)

Commercial: based on the # of trips per the Institute of Transportation Engineers Manual divided by 9.45 trips to determine the rate group and then multiplied by the residential rate.

Storm Water Fee: supports the storm water system to comply with state and federal environmental protection laws

	1/1/2018	1/1/2019	1/1/2020	1/1/2021
Residential	9.95	10.60	11.25	11.90

All other accounts: Are equal to (the impervious surface area ÷ 2750 sqft) and then multiplied by the residential rate.

Delinquent accounts bear interest of 9% per annum with a minimum of \$5.00 per month.

PAYMENT OPTIONS

In Person: The City accepts cash, check, Visa, Mastercard, or Discover for utility billing payments.

Drop Box: Located at City Hall in the round-about for drive by access.

Mail: Payments with remittance stub should be mailed to City of Wilsonville, PO Box 5310, Portland, OR, 97228-5310.

Auto Pay by Checking or Savings: Submit an ACH form & the City will deduct the payment on the last day of the month.

Auto Pay by Credit Card: Sign up on our website & the City will bill your credit card on the last business day of the month.

On-Line Payments: www.ci.wilsonville.or.us Choose online payments and then utility bill. Payments can be made by Visa, Mastercard, or Discover. The payment will post immediately to your account.

Personal On-line Banking: If you use your bank's bill pay option **please reference the first 8 digits of your customer number** and have the payment mailed to City of Wilsonville, 29799 SW Town Center Loop E, Wilsonville, OR, 97070. Please be aware your bank will deduct the amount from your account before the payment is received and processed by the City.

By Phone: Call 1-877-212-3067 with your account # and credit card. We accept Visa, MasterCard, or Discover.

If you need to make an address change please send a separate note in writing.

RESOLUTION NO. 2788

A RESOLUTION OF THE CITY OF WILSONVILLE ESTABLISHING AND IMPOSING JUST AND EQUITABLE USER FEES FOR THE CITY WATER SYSTEM; AMENDING RESOLUTION NOS. 1624 AND 2447; AND REPEALING RESOLUTION NOS. 1713, 1829, 1957, AND 2204.

WHEREAS, Wilsonville Code Section 3.100 requires all users of the City of Wilsonville's ("City") water system to conform to applicable ordinances and resolutions related to the use and distribution of water; and

WHEREAS, Wilsonville Code Section 3.108 allows the City Council to set, by resolution, water service rate, connection charges, and other fees, charges, and deposits, as is reasonable and prudent; and

WHEREAS, on March 20, 2000, the City Council approved Resolution No. 1624 that established system development charges and user fees relating to connection to and use of the City's water system; and

WHEREAS, the City Council approved Resolution Nos. 1713, 1829, 1957, and 2204 to periodically update the water user fees originally approved in Resolution No. 1624; and

WHEREAS, the City Council amended provisions of Resolution No. 1624 on December 2, 2013 pursuant to Resolution No. 2447; and

WHEREAS, Resolution No. 2447 also updated the water user fees, with the last rate increase under that Resolution effective in January 2017; and

WHEREAS, in May 2018, the City contracted with Financial Consulting Solutions Group, Inc. ("FCS Group") to review and revise the City's water user rates through a cost of service analysis, among other services; and

WHEREAS, the City currently charges a residential tiered rate structure separated into summer rate and winter rates; and

WHEREAS, other cities in the Portland-metro area generally do not employ water rate structures currently used by the City and the City's new Enterprise Resource Program Munis software does not support the City's current water rate structures; and

WHEREAS, through several work sessions, the City Council prefers one rate structure; and

WHEREAS, in order for water user rates to be consistent with increased costs and expenditures incurred, it is necessary to approve water user rates for the next four (4) years, through fiscal year 2022-23, and

WHEREAS, to cover capital and operations and maintenance costs of the City's water system, a system wide rate increase based on the cost of service analysis equal to an overall three (3) percent each May 1, beginning May 1, 2020, is appropriate and necessary; and

WHEREAS, in reviewing the findings and implementation provisions in Resolution No. 1624, as amended by Resolution No. 2447, further amendments are necessary to reflect current practices for imposing, collecting, and otherwise managing water user rates.

NOW, THEREFORE, THE CITY OF WILSONVILLE RESOLVES AS FOLLOWS:

1. The above findings and the accompanying staff report for this Resolution No. 2788 are incorporated as if fully set forth herein.

2. Resolution Nos. 1713, 1829, 1957, and 2204 are hereby repealed.

3. Resolution No. 1624, as amended by Resolution No. 2447, is hereby further amended as follows:

3.1. PART I. DETERMINATIONS & FINDINGS, third sentence of paragraph B, is deleted and replaced with the following:

“The City Council has reviewed the proposed annual water rate increase of three (3) percent per year for the next three (3) years, beginning May 1, 2021, with the last increase occurring on May 1, 2023, and finds the proposed rate increases to be rational based to cover capital and operations and maintenance costs of the City's water system.”

3.2. PART II, ARTICLE I, USER FEES FOR WATER SERVICE, Section 1 is deleted and replaced with the following:

“Section 1. USER FEES WITHIN CITY.

The rates for domestic water consumption for residential commercial, and industrial users, as adjusted on the effective dates each year, are set forth in Table II below:

**TABLE II
CITY OF WILSONVILLE
WATER USER FEES
EFFECTIVE MAY 1, 2020**

Date Effective		1/1/2017	5/1/2020	5/1/2021	5/1/2022	5/1/2023
MINIMUM CHARGES FOR ALL CUSTOMERS						
	Monthly Quantity Allowance (ccf)	MONTHLY MINIMUM CHARGE				
Meter Size						
5/8" x 3/4"	2	\$ 20.45	\$ 16.59	\$ 17.09	\$ 17.61	\$ 18.13
1"	2	\$ 22.58	\$ 19.18	\$ 19.76	\$ 20.34	\$ 20.96
1-1/2"	2	\$ 25.40	\$ 23.50	\$ 24.21	\$ 24.93	\$ 25.68
2"	2	\$ 33.18	\$ 28.68	\$ 29.54	\$ 30.43	\$ 31.34
3"	2	\$ 67.14	\$ 42.49	\$ 43.77	\$ 45.08	\$ 46.43
4"	2	\$ 111.70	\$ 58.03	\$ 59.77	\$ 61.56	\$ 63.41
6"	2	\$ 161.21	\$ 101.19	\$ 104.22	\$ 107.35	\$ 110.57
8"	2	\$ 217.80	\$ 152.98	\$ 157.57	\$ 162.30	\$ 167.17
10"	2	\$ 269.09	\$ 213.40	\$ 219.81	\$ 226.40	\$ 233.19
Bulk water		\$ 33.18	\$ 28.68	\$ 29.54	\$ 30.43	\$ 31.34
VOLUME CHARGES						
Customer Class	Volume Rate (\$/HCF)					
S-F Residential Tier 1	\$ 3.44	\$ 4.23	\$ 4.23	\$ 4.23	\$ 4.23	\$ 4.23
S-F Residential Tier 2	\$ 5.76	\$ 6.13	\$ 6.13	\$ 6.13	\$ 6.13	\$ 6.13
Multifamily	\$ 3.70	\$ 3.89	\$ 3.99	\$ 4.08	\$ 4.18	\$ 4.18
Commercial	\$ 3.59	\$ 3.90	\$ 4.07	\$ 4.25	\$ 4.45	\$ 4.45
Industrial	\$ 3.65	\$ 3.89	\$ 4.10	\$ 4.32	\$ 4.55	\$ 4.55
Irrigation	\$ 5.76	\$ 6.13	\$ 6.46	\$ 6.80	\$ 7.17	\$ 7.17
Public	\$ 3.59	\$ 3.86	\$ 4.06	\$ 4.27	\$ 4.49	\$ 4.49
Bulk water (Rate as of 1/1/20)	\$ 4.52	\$ 4.91	\$ 5.12	\$ 5.35	\$ 5.60	\$ 5.60
FIRE SERVICE CHARGES						
All Customers per inch diameter of pipe	\$ 8.21	\$ 8.33	\$ 8.45	\$ 8.58	\$ 8.71	\$ 8.71
Notes:	S-F Residential Tier 1 bills each ccf consumed between 3-8 ccf					
	S-F Residential Tier 2 bills each ccf consumed over 8 ccf					
All rates include 4% Franchise Fees						

3.3. The first sentence of PART II, ARTICLE I, USER FEES FOR WATER SERVICE, Section 2 is deleted and replaced with the following:

“Monthly services outside the City limits shall be billed at double the normal rate indicated in Table II except as modified by other agreements (i.e., French Prairie Rest Area and City of Sherwood).”

3.4. PART II, ARTICLE I, USER FEES FOR WATER SERVICE, Section 6 is deleted and replaced with the following:

“Section 6. FIRE PROTECTION SERVICE CHARGES

Except for single-family dwelling units, fire service risers for fire protection will be charged monthly at the rate as indicated in Table II.

3.5. The second sentence of PART II, ARTICLE I, USER FEES FOR WATER SERVICE, Section 7 is deleted and replaced with the following:

“The City Council may, from time to time, including, but not limited to, its annual review, increase rates for domestic water consumption, giving due consideration to the increase in labor, material, and supply costs and the All Urban Consumers for West-Size Class A Consumer Price Index (CPI-U), or other index that replaces this index, not seasonally adjusted for the twelve (12) month period ending in June. The City Council may take action not to increase fees in any year the City Council deems it appropriate to do so.”

3.6. The third sentence of PART II, ARTICLE I, USER FEES FOR WATER SERVICE, Section 8 is deleted. The fifth sentence of Section 8 is deleted and replaced with the following:

“If a deposit is deemed necessary and cost effective by the Finance Director or designee, the application must be accompanied by a deposit in the amount determined by the Finance Director or designee, which amount will not be less than one (1) month’s water rate and not more than two (2) month’s water rate.”

3.7. PART II, ARTICLE II, BULK WATER RATE, Section 1, is deleted and replaced with the following:

“Section 1. RATES

All applicants for bulk water meters must comply with Wilsonville Code 3.102. All bulk water sold after the effective date of this Resolution will be billed at the rate indicated in Table II. Deposits will not be returned until

the final bill is paid in full and the bulk water meter has been returned and inspected by the City. Bulk water meters may only be used for City-approved purposes such as construction and street sweeping. Bulk water meters cannot be used for pools, ponds, or any other unapproved uses. For billing purposes, the applicant must either provide the portable meter to the City or submit a picture of the read on the bulk water meter and its serial number on a monthly basis. Bulk meters must be returned to the City pursuant to Wilsonville Code 3.102, and City staff will inspect the equipment issued. The applicant will be responsible for any damage or issue with the equipment.”

3.8. The first sentence of PART II, ARTICLE II, BULK WATER RATE, Section 2, is deleted and replaced with the following:

“The deposit(s) required for the use of portable water meters, fire hydrant wrenches, and fire hydrant valves by the applicant are provided in Wilsonville Code 3.102, if applicable, and as established by the Finance Director or designee, as stated in the application.”

3.9. The first sentence of PART II, ARTICLE II, BULK WATER RATE, Section 3, is deleted and replaced with the following:

“If the items described in Section 2 above are returned in good condition, a portion or all of the deposit, as determined by the Finance Director or designee, will be returned to the applicant.”

3.10. The fourth sentence of PART II, ARTICLE II, BULK WATER RATE, Section 4, is deleted and replaced with the following:

“Permit fees are listed in the permit application.”

3.11. The first sentence of PART II, ARTICLE V, APPEALS, PAYMENT COLLECTION, ENFORCEMENT AND DISCONNECTION PROCEDURE, Section 1, is deleted and replaced with the following:

“Except for appeals subject to Wilsonville Code 11.150, any person aggrieved by a ruling under, or interpretation of, the provisions of this resolution may submit, within thirty (30) days of the occurrence, a written appeal to the City Manager.”

3.12. PART II, ARTICLE V, APPEALS, PAYMENT COLLECTION, ENFORCEMENT AND DISCONNECTION PROCEDURE, Section 3, paragraph C is deleted and replaced with the following:

“C. Delinquent water service and service connection accounts shall bear interest from the day of delinquency at a rate of nine percent (9%) per annum, with a minimum of \$5.00 per month.”


3.13. PART II, ARTICLE V, APPEALS, PAYMENT COLLECTION, ENFORCEMENT AND DISCONNECTION PROCEDURE, Section 3, paragraph D is deleted and replaced with the following:

“D. All returned payments by a bank will be subject to a handling fee as set forth in the Finance Administrative Charges Fee Schedule.”

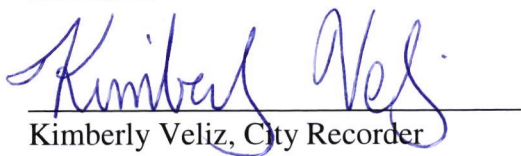
3.14. Reference to the “City’s Master Fee & Charges Schedule” in PART II, ARTICLE V, APPEALS, PAYMENT COLLECTION, ENFORCEMENT AND DISCONNECTION PROCEDURE, Sections 5, 6, 9, and 12 is deleted and replaced with “Finance Administrative Charges Fee Schedule.”

4. This Resolution becomes effective upon adoption.

ADOPTED by the Wilsonville City Council at a regular meeting thereof this 20th day of February 2020, and filed with the Wilsonville City Recorder this date.


TIM KNAPP, MAYOR

ATTEST:


Kimberly Veliz, City Recorder

SUMMARY OF VOTES:

Mayor Knapp	Yes
Council President Akervall	Yes
Councilor Lehan	Yes
Councilor West	Yes
Councilor Linville	Yes

RESOLUTION NO. 1630

A RESOLUTION REQUIRING WATER CONSERVATION AND MANDATORY RESTRICTIONS DURING TIMES OF WATER SHORTAGE OR IN OTHER TIMES OF EMERGENCY WHEN THERE MAY BE INSUFFICIENT WATER, AND REPEALING RESOLUTION NO. 919.

WHEREAS, the City by Resolution No. 919, dated June 15, 1992, established criteria for water conservation and prohibitions of nonessential water use during critical drought or other times of emergency; and

WHEREAS, since adoption of Resolution No. 919 there have been changes in the specified performance criteria for water fixtures in new construction and in the repair and/or replacement of fixtures; and

WHEREAS, since adoption of Resolution No. 919 the City has on several occasions implemented mandatory water restrictions in response to drought conditions and other periods of water shortages; and

WHEREAS, based on the experiences gained since adoption of Resolution No. 919; and

WHEREAS, an ongoing program of water conservation will help assure efficient use of the City's water resources; and

WHEREAS, the City needs to insure that water is available for fire protection and other essential uses.

NOW, THEREFORE, THE CITY OF WILSONVILLE RESOLVES AS FOLLOWS:

ARTICLE I

ONGOING WATER CONSERVATION PROGRAM

Section 1. The purpose of this Article is to encourage efficient water use without creating undo hardship for water users.

Section 2. In all new construction, fixtures or trim as well as landscaping shall conform to the efficient water usage requirements as described in, and as

periodically updated in, the City Code. All repair and/or replacement of fixtures or trim shall similarly conform to the applicable requirements in the City Code.

Section 3. The City shall foster public awareness of the benefits of water conservation and methods to use water efficiently. Such public information should include (but not be limited to) information regarding water-efficient methods for designing and irrigating outdoor landscaped areas, and suggestions for conservation associated with indoor water usage.

Section 4. In accordance with Resolution No. 901, water users who make prompt repairs will not be required to pay that portion of their water bill attributable to water leakage.

Section 5. On each customer's utility bill, the history of that customer's water usage shall be provided so that each customer is able to compare current consumption with the pattern of water usage during the prior twelve months.

ARTICLE II

MANDATORY CURTAILMENT DURING THE PEAK SEASON

Section 1. The purpose of this Article is to limit outdoor water use to assure fire flow and essential requirements can be met throughout the peak season.

Section 2. The provisions of this Article shall be implemented in the following manner:

- A. The Public Works Director shall inform the City Manager when water consumption threatens to exceed production and/or available water storage levels needed to meet fire protection and other essential requirements.
- B. Upon notification, the City Manager shall impose mandatory curtailment measures effective immediately upon posting notices in three (3) conspicuous places in the City and announcement in a newspaper of general circulation within the City when feasible.
- C. The restrictions shall stay in effect until such time as the City Manager finds that the conditions which gave rise to the restrictions no longer exist.

The City Manager may declare the curtailment measures terminated in whole or in part effective immediately upon announcement.

Section 3. Once notification of mandatory curtailment has been given, water usage will be restricted as follows:

- A. Landscape irrigation for all customers shall be limited. Such restrictions may be on an alternate day basis (i.e., even-numbered addresses may water on even-numbered days and odd-numbered addresses on odd-numbered days); or such restrictions may be on alternate days of the week (i.e., certain geographical areas may water on specified days of the week); or other limitations may be imposed, provided such restrictions are reasonable and are implemented on an equitable basis.
- B. In order to reduce unnecessary loss due to evaporation, no landscape watering shall be allowed between 9:00 a.m. and 5:00 p.m.
- C. Landscape sprinkling for each landscaped area (i.e., sprinkler zone) shall be limited to 20 minutes per day of allowed watering. This requirement is waived for new landscaping within 180 days of planting, but only to the extent that watering is necessary to sustain the viability of the newly installed landscaping.
- D. Watering with a hand held hose or with an efficiently functioning underground drip irrigation system is exempt from the restrictions of this Article.
- E. Though not required, customers will also be encouraged to avoid using water for other nonessential uses.

ARTICLE III

EMERGENCY WATER RESTRICTIONS

Section 1. The purpose of this Article is to restrict water use to essential service during times of critical water shortages due to severe drought, reduction in pumping or production capability, or other emergency situations where there may be an insufficient water supply.

Section 2. The provisions of this Article shall be implemented in the following manner:

- A. The City Manager shall declare an emergency by means of posting notice in three (3) public and conspicuous places in the City and by announcement in a newspaper of general circulation within the City when feasible. Such announcement shall prescribe the action taken by the City Manager, including the time it became or will become effective, and shall specify the particular activities for which the use of water will be prohibited.
- B. Whenever the City Manager finds that the conditions which gave rise to the emergency water restrictions no longer exist, the City Manager may declare the prohibition terminated in whole or in part, effective immediately upon announcement.
- C. The City Manager shall make or cause to be made a record of each time and date when any emergency declaration is announced to the public, and this includes the notice of termination, both in whole or in part.

Section 3. When a declaration of emergency is announced and notice has been given, the use and withdrawal of water by any person may be limited, including prohibition of some or all of the following:

- A. Sprinkling, watering or irrigation of shrubbery, trees, lawns, grass, ground covers, plants, vines, gardens, vegetables, flowers or any other vegetation. Upon request, the Public Works Director may approve exceptions for new landscaping that has previously been planted, but not established.
- B. Washing automobiles, trucks, trailers, trailer houses, motorbikes, boats, or any other type of mobile equipment.
- C. Washing sidewalks, driveways, parking lots, tennis courts, filling station aprons, porches and other hard surface areas.
- D. Washing the outside of dwellings, washing the inside or outside of office buildings.
- E. Washing and cleaning any business or industrial equipment and machinery.

- F. Operating any ornamental fountain, scenic or recreational ponds and lakes or other structure making a similar use of water, except for the minimum necessary to support fish life.
- G. Use of water to fill, refill or add to any swimming and wading pools or hot tub not employing a filter and recirculating system, and evaporation covers, or where the use of the pool is required by a doctor.
- H. Permitting the escape of water through defective plumbing.
- I. Use of water for construction projects.
- J. Water to serve customers in a restaurant unless requested.

ARTICLE IV
ENFORCEMENT

Section 1. Any police officer of Clackamas County or employee of the City may enter the premises of any person for the purpose of shutting off or reducing the flow of water being used contrary to the provisions of the prohibition.

Section 2. A person convicted of a violation of any provision of this Resolution shall be punished upon a first conviction thereof, and upon any subsequent conviction thereof, for a Class C Misdemeanor. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punished as such hereunder.

ARTICLE V
REPEAL OF PRIOR RESOLUTION

Upon adoption of this Resolution by the City Council, Resolution No. 919 enacted by the City Council on June 15, 1992, is hereby repealed.

ARTICLE VI
VALIDITY


The invalidity of any Section, clause, sentence or provision of this Resolution shall not affect the validity of any other part or Section of this Resolution which can be given effect without such invalid part(s).

ADOPTED by the City Council of the City of Wilsonville at a regular meeting thereof this 17th day of April, 2000, and filed with the Wilsonville City Recorder this same date.



CHARLOTTE LEHAN, MAYOR

Attest:



Sandra C. King, CMC, City Recorder

SUMMARY of Votes:

Mayor Lehan	<u>Yes</u>
Councilor Helser	<u>Yes</u>
Councilor Barton	<u>Yes</u>
Councilor Kirk	<u>Yes</u>
Councilor Holt	<u>Yes</u>



CURTAILMENT PLAN

January 2021

DRAFT

Willamette
Intake
Facilities
Commission

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List of Abbreviations and Acronyms

ASR	aquifer storage and recovery
Beaverton	City of Beaverton
cfs	cubic feet per second
Hillsboro	City of Hillsboro
I&C	instrumentation and control
IGA	Intergovernmental Agreement
JWC	Joint Water Commission
MGD	million gallons per day
NTL	North Transmission Line
OAR	Oregon Administrative Rules
OWRD	Oregon Water Resources Department
PWB	Portland Water Bureau
RWF_1.0	Raw Water Facilities Project
SCADA	supervisory control and data acquisition
STL	South Transmission Line
TBD	to be determined
TVWD	Tualatin Valley Water District
TWSA	Tigard Water Service Area
WIF	Willamette Intake Facilities
WMCP	Water Management and Conservation Plan
WRWC	Willamette River Water Coalition
WRWTP	Willamette River Water Treatment Plant
WWSP	Willamette Water Supply Program
WWSS	Willamette Water Supply System

1.0 INTRODUCTION

This curtailment plan provides guidelines to manage water supply in the event of a supply restriction or outage for the Willamette Intake Facilities (WIF) Commission. The goal of a curtailment plan, as defined by Oregon Water Resources Department, is to “accomplish a specific reduction in the amount of water used or lost within a specific time in response to an emergency or other short-term shortage.” This plan addresses progressive situations, such as prolonged drought, and more sudden and unexpected situations such as equipment failure, flooding, landslides, earthquakes, contamination, power outages, or intentional malevolent acts. The WIF curtailment plan provides five stages of response based upon increasing water shortage severity.

The WIF Commission is not currently, or planned to be, a major water user or supplier in the future. Therefore, the WIF Commission is not expecting to be issued a supplier identification number or required by OAR 690-86 to prepare a Water Management and Conservation Plan (WMCP). The WIF Commission’s purpose and regional importance are described in the following sections.

Because the WIF Commission will own and manage a common Point of Diversion for multiple major water suppliers, the WIF Partners will use this curtailment plan to initiate their individual curtailment plans. Each WIF Partner’s WMCP will address their specific water development needs and curtailment plans.

This document is the first draft of the WIF Curtailment Plan for Committee review and discussion. Implementation of this plan is not anticipated until 2025.

2.0 BACKGROUND

The WIF Commission is an ORS Chapter 190 entity created to own and manage the intake facilities (consisting of fish screens, intake pipe, caisson, pump station building, and other jointly owned equipment, further described in sections below) that enable six partners to draw water from the Willamette River at the Willamette River Water Treatment Plant located in Wilsonville, Oregon (3391 feet south and 495 east from NW corner of Section 23). The WIF Partners all hold water rights on the Willamette River and are major water suppliers in the Portland metropolitan region. The WIF infrastructure is a regional asset allowing for the development of a seismically robust water supply source for urban Washington and Clackamas Counties.

2.1 Intergovernmental Relationships

The WIF Intergovernmental Agreement was entered into by Tualatin Valley Water District (TVWD), and the cities of Wilsonville, Sherwood, Hillsboro, Tigard, and Beaverton. All members are local governments authorized to own, operate, and maintain municipal water supply systems. The cities and TVWD are referred to as “Partners” in this WIF curtailment plan.

The WIF Partners have a long history of cooperation, establishing water supplies and treatment facilities to serve the Portland metropolitan area. WIF Partners are also involved in the following organizations:

- Willamette River Water Treatment Plant. The Willamette River Water Treatment Plant (WRWTP), the water treatment plant located near the WIF, currently serves potable water to the cities of Wilsonville and Sherwood. TVWD co-owns land in the vicinity of the WRWTP and was involved in early intergovernmental agreements to develop the WRWTP.
- Joint Water Commission. The Joint Water Commission (JWC) includes four member agencies: the cities of Hillsboro, Forest Grove, and Beaverton, and TVWD. The JWC has been the major water supplier for Washington County since the mid-1970s, utilizing Tualatin River flows and stored water from Hagg Lake and Barney Reservoir provide water to the member agencies.
- Willamette River Water Coalition. In 2003 TVWD and the cities of Sherwood, Tigard, and Tualatin formed the Willamette River Water Coalition (WRWC) to administer a collection of water rights on the Willamette River for regional benefit.
- Willamette Water Supply System. In 2019 Hillsboro, Beaverton, and TVWD entered into the Agreement for Design and Construction of the Willamette

Water Supply System (WWSS), which will convey, treat, store, and deliver water from the WIF to Hillsboro, Beaverton, and TVWD service areas.

Figure 2-1 shows the inter-relationships in the wide-ranging intergovernmental partnerships described in this section.

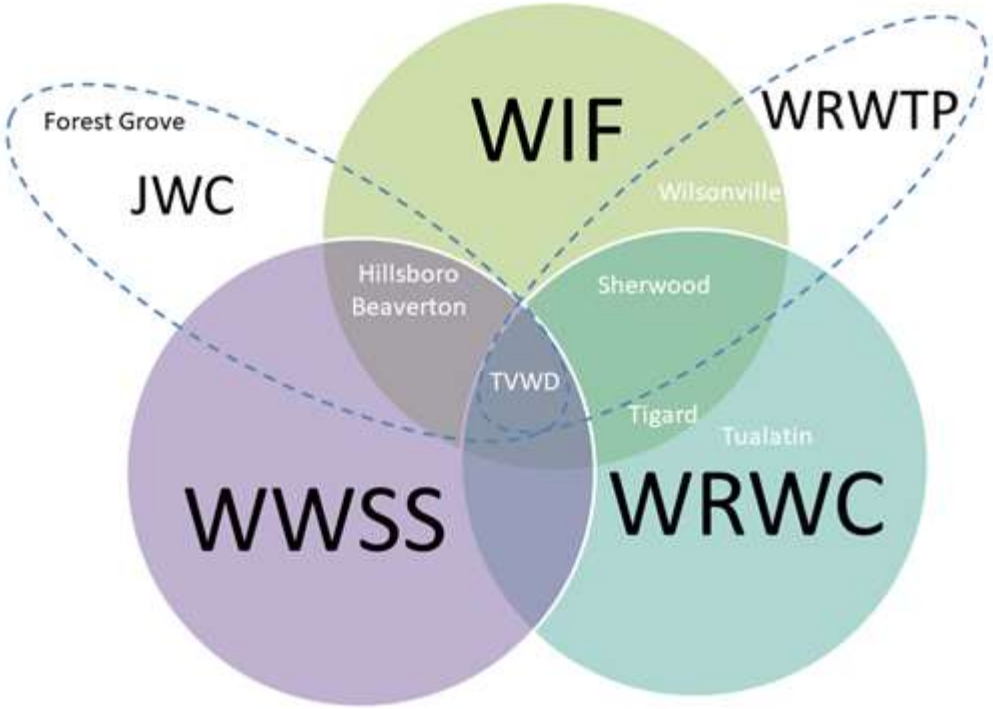


Figure 2-1. Intergovernmental Partnerships

Willamette Intake Facilities (WIF) Commission

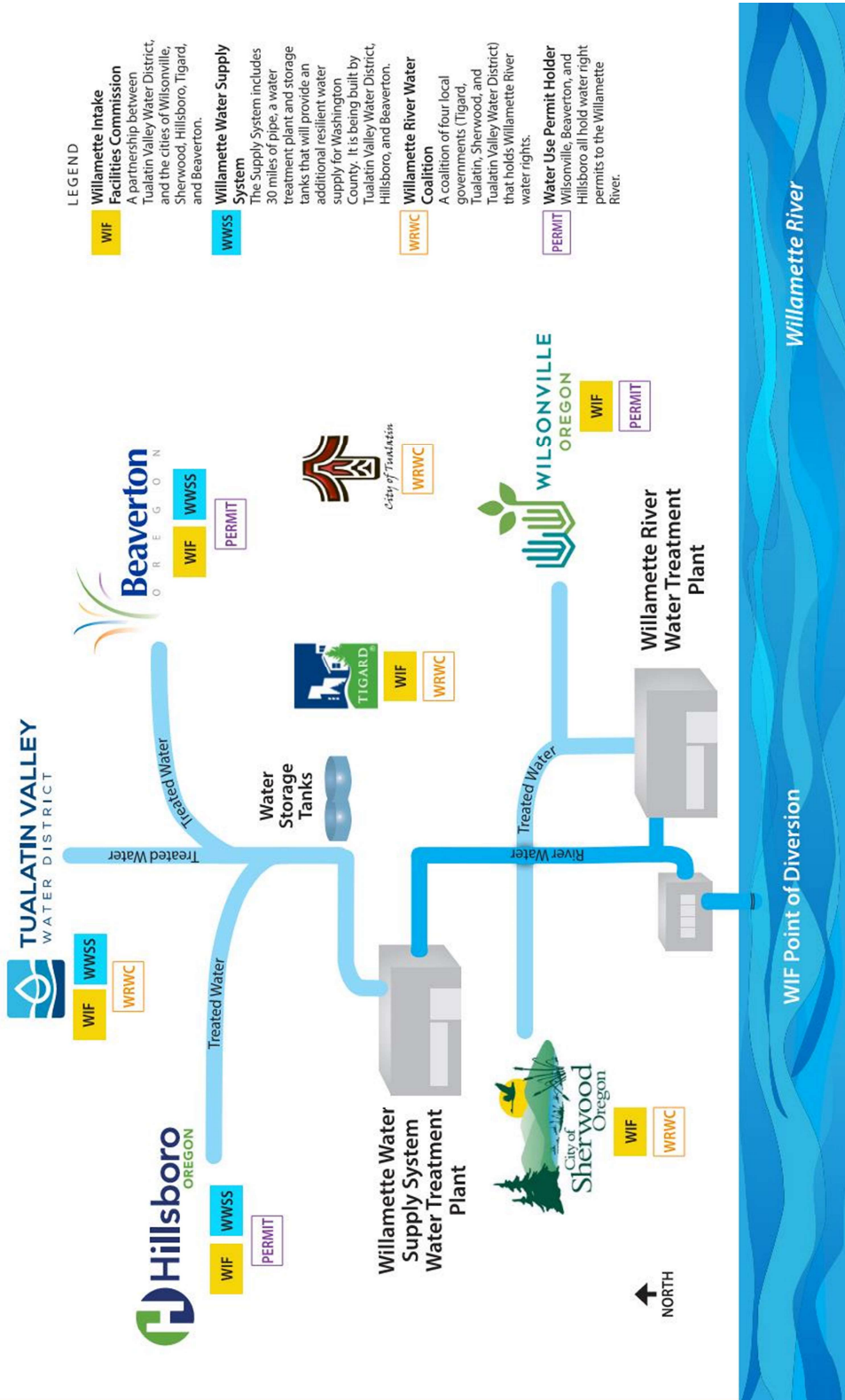


Figure 2-2. Water Intake Facilities Commission Overview

2.2 WIF Ownership

Individual Partner ownership percentages of the WIF are documented in the WIF IGA (as executed in 2018) and are based upon intake capacity. The total intake capacity is 150 MGD as confirmed through permit XYZ (*citation to be developed*). Each partner considered its own long-term water demand forecasts and available water rights for diversion when negotiating its share of the total WIF capacity. Ownership percentages are provided in **Table 2-1**.

Table 2-1. WIF Ownership per WIF IGA

Partner	Capacity Ownership (MGD)	Capacity Ownership (cfs)	Capacity Ownership (%)
Beaverton	5.0	7.7	3.3%
Hillsboro	36.2	56	24.1%
Sherwood	9.7	15	6.5%
Tigard	15.0	23.3	10.0%
TVWD	59.1	91.5	39.4%
Wilsonville	25.0	38.7	16.7%
TOTAL	150.0	232.0	100.0%

Note: Ownership per initial WIF IGA (2018)

2.3 Water Rights

The Willamette River water rights available for diversion at the WIF are shown in **Table 2-2**. Detailed water rights information is provided in Section 5.0.

Table 2-2. Water Rights Accessed through WIF

Water Right	Holder	Rate (cfs)	Rate (MGD)	Permit Holder's WIF Capacity (MGD)	Fish Persistence Conditions?
Permit S-49240	WRWC	202.0	130.6	83.8	Yes
Permit S-54940	Beaverton	33.7	21.8	5.0	Yes
Permit S-46319	Wilsonville	30.0	19.4	25.0	No
Permit S-55045	Hillsboro	56.0	36.2	36.2	Yes
Total		321.7	208	150	

The individual WIF Partners also hold surface and groundwater rights unrelated to the WIF system and the Willamette River. The WIF Partners' other existing or potential water supplies are generally shown in **Figure 2-3**. It summarizes the regional relationships between water suppliers in the western Portland metropolitan region and how the WIF will serve two independent water systems, the existing WRWTP and the WWSS (currently under development).

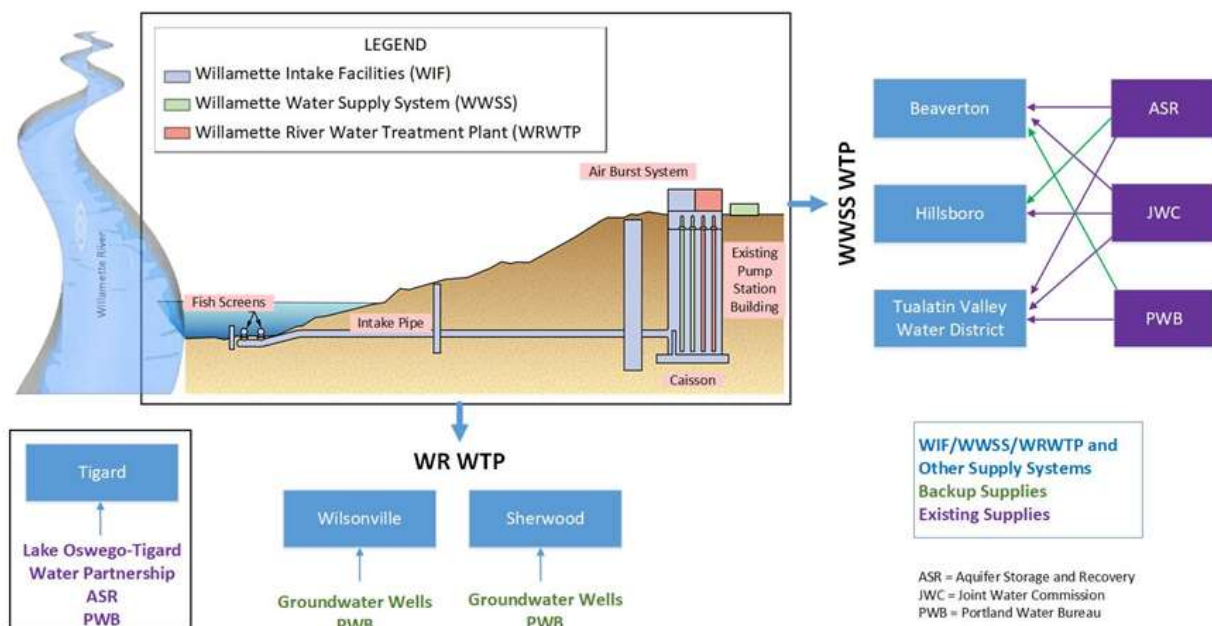


Figure 2-3. WIF Members Existing/Potential Water Sources

2.4 System Description

WIF is composed of intake fish screens, intake pipe, caisson, pump station building, and other jointly owned equipment, enabling partners to safely and reliably draw water from the Willamette River. **Figure 2-4** shows the major components of the WIF. The system separation point between the WIF and downstream WRWTP and WWSS systems is defined in the WIF IGA as the point where the raw water enters the raw water pumps, thereby leaving the WIF and entering the downstream systems.

- Intake screens – the existing screens will be replaced with larger capacity screens
- Intake bollards – two new bollards, in addition to the existing bollards, will be added to protect the screens
- Intake pipe – the intake pipeline joints will be welded for seismic resiliency
- Air burst system – the existing compressors will be replaced, and a new air receiver tank will be added to match the capacity of the new intake screens.

Existing equipment:

- Caisson
- WRWTP pumps, electrical, SCADA, and I&C equipment

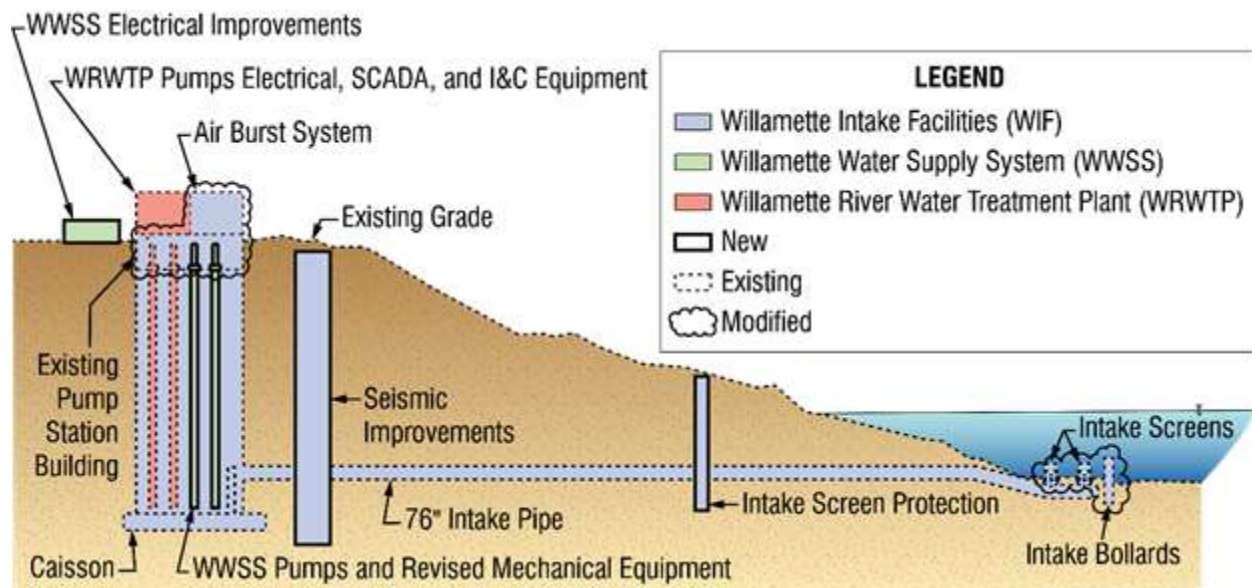


Figure 2-4. WIF Components

New equipment:

- Seismic improvements (including intake screen protection) – soil improvements, a combination of deep soil mixing and jet grout, will stabilize the ground in case of a seismic event and protect the existing infrastructure. A protection pile fence will be added to prevent soil from inundating the screens following a seismic event.
- WWSS pumps and revised mechanical equipment - new pumps will be added to divert water to the new WWSS WTP

3.0 WATER SUPPLY

Water resources for each partner including alternative sources for emergencies and affected local governments are included in **Table 3-1**. The WIF is critical to the operation of the WRWTP and future operation of the WWSS.

Table 3-1. Water Sources for Each Partner

Partners	Water Supply Sources	Notes
Wilsonville	<ol style="list-style-type: none"> 1. WRWTP (primary) 2. Sherwood through the transmission line (likely from JWC if WRWTP is offline) 3. Wells 	
Sherwood	<ol style="list-style-type: none"> 1. WRWTP (primary) 2. Wells 3. JWC or PWB through line connecting Tualatin and Sherwood 	Future: WWSS TBD
Tigard	<ol style="list-style-type: none"> 1. Lake Oswego Tigard Partnership (primary) 2. ASRs 3. PWB 	Future: WWSS at Friendly Lane
Beaverton	<ol style="list-style-type: none"> 1. JWC (primary) 2. ASRs 3. Interties <ol style="list-style-type: none"> a. TVWD b. PWB (emergency only) c. Tigard (emergency only) 	Future: WWSS
Hillsboro	<ol style="list-style-type: none"> 1. JWC (primary) 2. Upper System (Cherry Grove) slow sand filtration plant 	Future: WWSS, potentially ASR
TVWD	<ol style="list-style-type: none"> 1. PWB (co-primary) 2. JWC (co-primary) 3. ASR 4. Interties with Portland/Hillsboro 	Future: WWSS

4.0 SERVICE AREA

The six WIF Partners serve the majority of urban Washington County residents and Wilsonville, within Clackamas County. **Table 4-1** provides a brief description of each Partner’s service area. Additional information about the individual service areas can be found in each provider’s WMCP. A map is provided in Figure 4-1.

Table 4-1. Service Area Details

Partners	Service Area Details (will be developed into text)
Wilsonville (From 2017 Master Plan)	When the 2006 WRWTP Master Plan was completed approximately four years after plant startup, the City of Wilsonville was the only consumer of WRWTP finished water. In mid-2012, the City of Sherwood started using finished water from the WRWTP as its primary supply.
Sherwood (From 2018 Master Plan)	The City of Wilsonville’s primary water supply is from the Willamette River Water Treatment Plant (WRWTP). Sherwood operates three groundwater wells for back-up supply within the City’s water service area.
Tigard (From 2019 WMCP)	The city of Tigard owns and operates a public water system that supplies potable water to the Tigard Water Service Area (TWSA). TWSA includes most residents, business, and public institutions within the city limits, the Tigard Water District, all of King City, and Durham. The TWSA is currently expanding to include the River Terrace area as development occurs along the City’s western boundary. The City holds intergovernmental agreements with King City, Durham, and Tigard Water District to provide each of them with water.
Beaverton (From 2018 Master Plan)	The City of Beaverton’s municipal water supply is provided from three sources: (1) the Tualatin River and its tributaries (including natural flow and released stored water from Hagg Lake), (2) from impoundments on the Trask River (Barney Reservoir) and Scoggins Creek (Henry Hagg Lake) in the Coast Range, and (3) aquifer storage and recovery (ASR) wells. The City also maintains distribution system interties with the City of Tigard, the City of Portland Water Bureau (PWB), and TVWD, all of which currently are used only for emergencies. Beaverton’s current supply is described in more detail later in this section.
Hillsboro (From 2019 Master Plan)	The City of Hillsboro owns and operates two municipal drinking water systems that serve approximately 100,000 customers or about 25,600 accounts in Washington County, Oregon. Hillsboro’s water systems include both partial and full ownership of facilities and provide direct and wholesale water to two main service areas. These service areas include the primary service area (City System) and the secondary service area (Upper System). The City of Hillsboro also provides wholesale water to the City of Cornelius, City of Gaston and LA Water Cooperative. It is anticipated that only the City System will receive water from WIF via the WWSS.

Partners	Service Area Details (will be developed into text)
	<p>The City System is served by wholesale water purchased from the Joint Water Commission (JWC). The existing City System is situated approximately within the City’s municipal boundary and provides water to approximately 84,000 customers. The remainder of the City of Hillsboro population located on the northeast side of the City is served by TVWD.</p>
<p>TVWD (From 2018 Master Plan)</p>	<p>The District currently obtains its water supply from the Joint Water Commission (JWC) and the Portland Water Bureau (PWB). Beginning in 2026, the District intends to meet demands in the Wolf Creek Service Area (the larger TVWD zone shown in Figure 4-1) through a combination of water supply from the JWC, the District’s ASR program, and the WWSS supplied under extended permit S-49240. The District plans to serve its Metzger Service Area (the smaller TVWD zone shown in Figure 4-1) with supply from the WWSS beginning in 2026. The District may also elect to purchase wholesale water from the PWB to provide an emergency backup connection as an additional source of supply.</p>

Note: The operation of each service area is described in Partners’ individual WMCP.

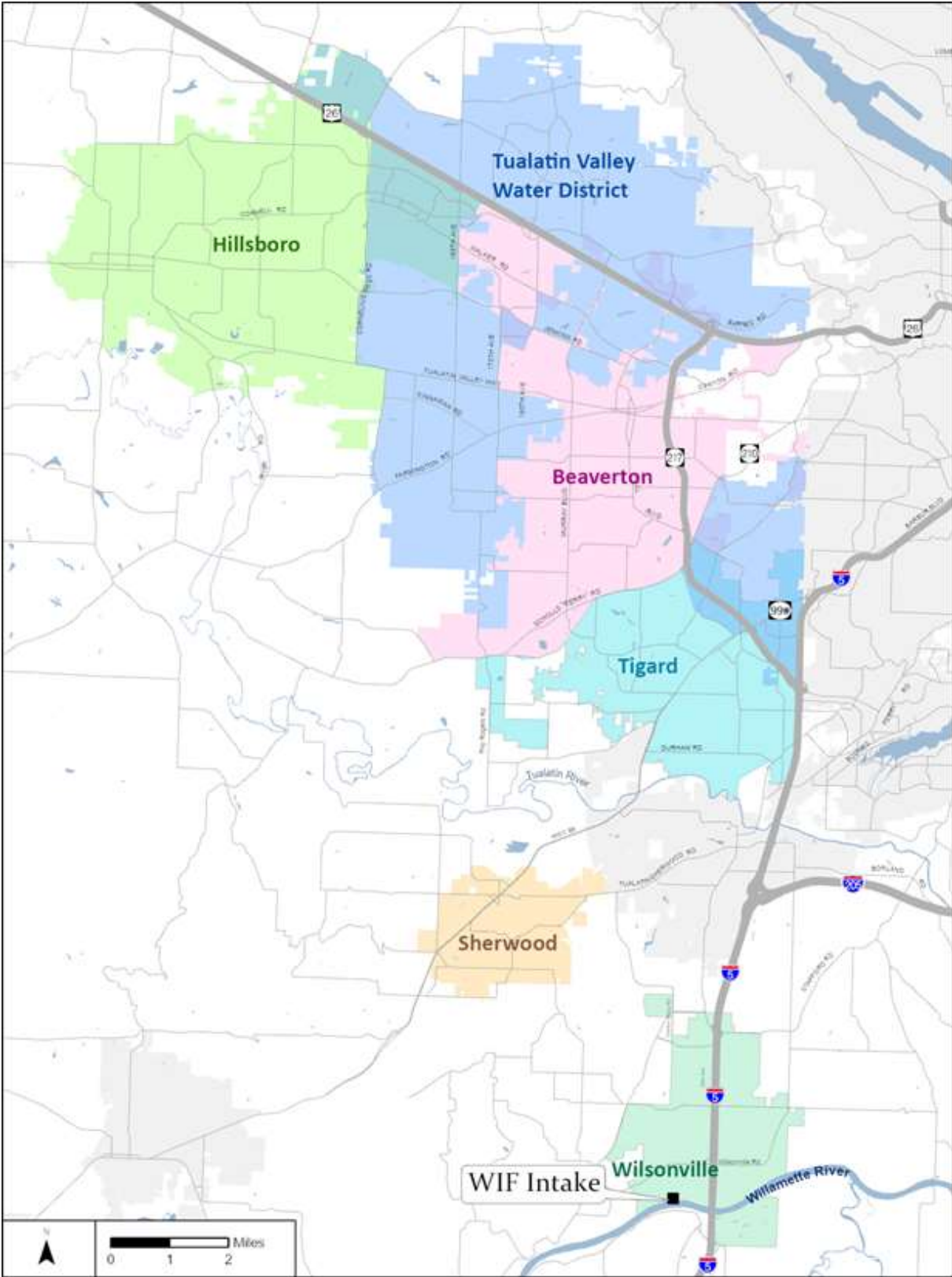


Figure 4-1. WIF Partners Service Area Overview Map

5.0 WATER RIGHTS AND LIMITATIONS

The WIF Partners hold individual and combined water rights associated with the Raw Water Intake at the WRWTP as the Point of Diversion. Table 5-1 provides the permit and rights held by each WIF Partner.

Table 5-1. Current Water Rights

Permit Number	Permit Holder	Current Water Rights
Permit S-46319	Wilsonville	Wilsonville’s Willamette River surface water right has a priority date of 1974 with a permitted rate of 30 cfs (19.4 MGD). The Willamette River water right has a permit extension valid up to the year 2042.
Permit S-55045	Hillsboro	Hillsboro holds a 56 cfs (36.2 MGD) portion of Permit S-55045. This permit authorizes the use of water from the Willamette River year-round for municipal purposes. The current development timeline for this permit is October 1, 2086. A Hillsboro Water Management and Conservation Plan approved in 2017 demonstrated a need for 30.94 cfs (20.0 MGD) to meet overall projected 20-year demands.
Permit S-54940	Beaverton	Beaverton acquired 33.7cfs (21.8 MGD) of water use with Permit S-54940, which authorizes the use of water from the Willamette River for municipal purposes.
Permit S-49240	WRWC	A coalition consisting of Tigard, TVWD, Sherwood, and City of Tualatin. (Tualatin does not hold currently water rights on the Willamette River and is not a member of WIF.) WRWC, which holds Permit S49240 (modified by Transfer T-10477) for use of the Willamette River. Permit S-49240 authorizes the use of up to 202.0 cfs (130 MGD) from the Willamette River for municipal and industrial use and has a priority date of June 19, 1973.
	Tigard	The WRWC First Restated Intergovernmental Cooperative Agreement states that Tigard is currently allocated 40 cfs (26 MGD) under Permit S49240.
	TVWD	The WRWC First Restated Intergovernmental Cooperative Agreement states that TVWD is currently allocated 91.6 cfs (59.1 MGD) under Permit S49240.
	Sherwood	The WRWC First Restated Intergovernmental Cooperative Agreement states that Sherwood is currently allocated 31 cfs (20 MGD) under Permit S49240. The Final Order approving the City’s first WMCP issued on December 19, 2008 by OWRD provided the City access to up to 23.20 cfs (14.99 MGD) under this permit.

In addition to mentioned water rights, each partner has separate fish persistence permit conditions (Table 5-2, Table 5-3, Table 5-4), excluding Wilsonville.

Table 5-2. WRWC Fish Persistence Permit Conditions

Minimum Fish Flow (cfs) Needs at Salem for Permit S-49240	
July 1 – October 31	5,630
November 1 – March 30	6,200
April 1 – May 31	15,000
June 1 – June 15	12,600
June 16 – June 30	8,500

Table 5-3. Beaverton Fish Persistence Permit Conditions

Minimum Fish Flow (cfs) Needs at Salem for Permit S-54940	
October 1 – October 31	5,630
November 1 – March 31	6,000
April 1 – April 15	15,000
April 16 – April 30	17,000
May 1 – May 31	15,000
June 1 – June 15	12,600
June 16 – June 30	8,500
July 1 – September 31	5,630

Table 5-4. Hillsboro Fish Persistence Permit Conditions

Minimum Fish Flow (cfs) Needs at Salem for Permit S-55045	
July 1 – October 31	5,630
November 1 – March 31	6,000
April 1 – April 15	15,000
April 16 – April 30	17,000
May 1 – May 31	15,000
June 1 – June 15	12,600
June 16 – June 30	8,500

The WIF operator will have the responsibility of recording water rights usage by the Partners and reporting it to OWRD. Such procedures will be detailed in the WIF Operations Plan (currently under development).

6.0 PERFECTING WATER RIGHTS

Perfecting, or certifying, a water right is defined in ORS 690-330 as proof of appropriation for the full amount or partial amount of a water right with documentation of the “beneficial use” of the right. If less than the full amount of the water right is requested for certification, a proposed certificate of water rights can be issued by the state. The process of fully perfecting a water right requires utilizing the full amount of water in the specific water right. This is addressed explicitly in the WIF IGA, Section 9.5 (Perfection and Certification), with the statement:

A Party’s certification or perfection of its individual Water Right through the Intake Facilities cannot exceed the Party’s owned Intake Facility Capacity unless the Board approves otherwise and such approval is not to the detriment to the other Parties’ Water Rights.

With this specific direction in the WIF IGA and support from the WIF Commission Operations Committee, the WIF Operations plan will document that flows through the WIF will be limited to each Partner’s owned capacity. Therefore, partial certification is available for each partner, but no Partner is able to fully appropriate their water right through the WIF in its planned 150 MGD capacity.

7.0 WATER CURTAILMENT

7.1 Overview

A curtailment plan provides guidelines for managing demand reductions when Willamette River water availability is limited. WIF does not have direct authority to regulate partners' actions within their own systems. Ultimately, on-the-ground curtailment implementation will be delegated to and implemented by the individual Partners according to their individual curtailment plans.

Limitations in water availability do not automatically require curtailment measures but begin a discussion among the WIF Partners to determine the availability of alternate supplies for the duration of the shortage. Depending upon the situation, resolution of capacity limitation issues may be handled individually or jointly by agreement between the Partners.

- In an emergency situation, the General Manager may need to impose mandatory reductions in water availability for all Partners.
- River flow-based curtailment will be dependent upon each Partner's water use permit.

Management of the available water will be coordinated among the individual Partners required to curtail. Each Partner may need to share the status of its supply, projected demands, and alternative sources of available supply to allow the Partners to coordinate water use. Response actions will be determined and communicated to all Partners. The WIF Partners should coordinate the implementation of individual curtailment-related public communications to limit community confusion.

7.2 Curtailment Event Triggers

The Willamette River watershed covers a significant portion of northwestern Oregon. It reaches nearly 300 miles from the Cascade Range southeast of Eugene, flowing north to the confluence with the Columbia River, at Portland, Oregon.

In this broad basin, there are warning triggers that can assist the WIF Partners in forecasting water limitations related to local hydrology:

- Precipitation and snowfall
- Regional drought monitors
- River level and flow

In addition to the basin's hydrology, other conditions could create water limitations. The land uses in the basin are diverse and present many opportunities for events or incidents to occur that could limit water availability:

- Natural disasters including earthquake, landslide, fire, or others
- WIF equipment issues
- Terrorist attack or other intentional act including cybersecurity threats
- Contamination/water quality issues in the river resulting from agricultural, municipal, industrial, or other spills

The WIF Committees will track warning triggers and regional notifications to monitor events in the watershed that require active WIF mitigation.

7.3 Authority and Process

The Managing Agency is granted the authority to take prompt action as needed in response to a capacity limiting event (WIF IGA, Section 5.6.12). The Managing Agency is responsible for determining the curtailment severity and potential responses. The Managing Agency's representative is the WIF General Manager, who will coordinate with the WIF Committees to guide the response.

Decision Making Process

The following steps describe the general decision-making process:

- Determine event severity, assess curtailment stage, and typical response actions
 - Equipment failure - determine risk to WIF infrastructure with continuing operations
 - Water quality event - consult downstream WTPs for treatment concerns
 - TBD – existing sampling data, external notifications, SOPs/BMPs, etc?
- Report to Partners (all WIF Committee members) and Board as soon as possible
- Implement the curtailment plan
- Determine if a temporary water allocation arrangement is needed
- Monitor for compliance with the curtailment conditions
- Prepare an after-action review in the case of emergency events

For the two main types of curtailment events, different processes may be warranted. For example:

- For a water rights limitation, the condition has likely been forecasted, and a longer span of time is available to plan to address the reduced water availability and capacity allocation.
- For an equipment or operational issue, or other water quality or facility issue, the condition is likely immediate and severe, requiring prompt action and unexpected changes to each Partner's capacity.

Flow charts for each type of anticipated curtailment event are included in Appendix X and describe the high-level process for responding to events. Additional details regarding specific staff responsibility and notification procedures will be developed for the WIF Operations Plan, currently under development.

Committee and Board Communication Procedures

The WIF Operations Committee will be convened as soon as possible when dealing with a potential curtailment situation. They will meet in-person if there is time to organize a meeting, or can also meet virtually via conference call, if more timely or convenient. The Operations Committee will consult the appropriate curtailment flowchart (Appendix X). It will make operational recommendations to the WIF General Manager, who will then convene the WIF Management Committee (either by meeting or conference call) for a formal decision. WIF Board approval is not needed to approve decisions as long as the decisions are based on WIF-approved plans (Curtailment, Operations, or Emergency Response). If the proposed decisions are in conflict with WIF-approved plans, the WIF Board will be convened to approve them.

If the decision must be made immediately, the WIF General Manager will consult the appropriate curtailment flowchart (Appendix X) and make the necessary protocol decisions as Incident Commander. The WIF General Manager will then follow up with committees and protocols listed above as soon as feasible. Changes can be made as agreed upon, but disagreements on curtailment actions that cannot be settled through collaborative effort will be settled as outlined by the WIF IGA.

Allocation Procedures

The WIF IGA includes specific direction related to allocation procedures in general, as well as during a curtailment event:

- Each Partner is subject to the restrictions and conditions of their own water right
- Water use priority is given to the water right owner and if there is available permitted water, it can be leased to other Partners
- Specific conditions on use of the WRWC allocated water is described in that agreement

- Water allocated through interruptible leases can be “called back” to the owner in a curtailment event
- During a curtailment event, no official leasing agreement is required as long as there is agreement among the parties, IGA Section 9.2
- The surplus capacity pool is defined annually and an allowable use is to cover curtailment-related flow limitations (use of surplus capacity pool must be approved by the WIF General Manager, IGA Section 14.4 and Exhibit 10)

In the WIF IGA Section 14.2, the Partners may request the Board adopt an “equitable methodology for the leasing of Water Rights” which could include one of the following examples in Table 7-1.

Table 7-1. Example Allocation Approaches

Allocation Approach:	Supply-balanced	All partners curtailed (“share the pain”)	Water Trading or Exchange
Goals	Preserve WRWTP flows (has limited back up)	Allocate available water by capacity ownership	Access available unused water to supplement supply
Partner(s) protected from curtailment	Wilsonville and Sherwood	None	TBD
Capacity unavailable to remaining Partners	25 and 9.7 MGD	None	TBD
Capacity remaining for allocation	115 MGD	150 MGD	TBD

7.4 Curtailment Stages, Triggers and Potential Actions

The following table, Table 7-2, lists the curtailment stages of alert related to potential triggers and provides the potential curtailment response level that WIF will implement.

Specific curtailment response actions by the WIF Partners will be dictated by their individual WMCPs. WIF’s role is to manage the curtailment operations at the WIF facility and notify the Partners to implement their individual response actions and reduce water demand in their respective communities.

Table 7-2. WIF Curtailment Stages

Stage of Alert	Potential Triggers	Potential Actions
Level 0 Awareness	<ul style="list-style-type: none"> A series of indicators suggest that a flow limitation is possible; these may include drought related conditions, low river level, or adverse water quality event. 	Awareness of pending supply limitations, ongoing water conservation messaging (through partners).
Level 1 Mild	<ul style="list-style-type: none"> Minor mechanical or electrical malfunction of fish screens, intake pipe, caisson, pump station building, or related equipment (likely impact is less than one day) 	Voluntary curtailment
	<ul style="list-style-type: none"> Sustained demand reaches 95 percent of intake capacity 	Voluntary curtailment, begin planning for how curtailment will be allocated per partner
Level 2 Moderate	<ul style="list-style-type: none"> Moderate mechanical or electrical malfunction of fish screens, intake pipe, caisson, pump station building, or related equipment (likely impact is days) 	Mandatory short-term curtailment
Level 3 Severe	<ul style="list-style-type: none"> Extensive mechanical or electrical malfunction of fish screens, intake pipe, caisson, pump station building (likely impact is weeks) Less frequent natural disaster (landside, earthquake) Intentional acts or fire, contamination of source, or any other event resulting in an immediate, sustained deprivation of water supply 	Mandatory medium-term curtailment
Level 4 Critical	<ul style="list-style-type: none"> Critical mechanical or electrical malfunction of fish screens, intake pipe, caisson, pump station building (likely impact is months) Earthquake, extensive damage to intake facilities caused by natural disaster Intentional acts or fire, contamination of source, or any other event resulting in an immediate, sustained deprivation of water supply, including imminent terrorist threat against intake facility 	Mandatory long-term curtailment
Water Availability Limitations	<ul style="list-style-type: none"> General recognition of drought conditions in the Willamette Basin either by OWRD or Governor declaration Willamette River level below 5,630 (cfs) between July 1 and October 31 or below 6,000 (cfs) between November 1 and June 30 Sustained demand reaches 100 percent of intake capacity 	Mandatory curtailment (for all Partners except Wilsonville)

8.0 STRATEGIES FOR LEASING

The WIF IGA directly addresses leasing procedures in the following parts:

- Section 14 - Leasing
- Exhibit 10 - Lease Payment Formulas

These IGA sections include an overview of leasing provisions, procedures, payment, and definitions for the following types of leases:

- Firm lease
- Interruptible lease
- Surplus capacity pool

Leasing procedures will be coordinated by the Managing Agency through the WIF General Manager. Approval authority for the different types of leases depends upon the specific terms of the lease; in general, the firm and interruptible leases require approval from the WIF Management Committee and WIF Board. Leases from the surplus capacity pool are managed by the WIF General Manager and they are the Partners' mechanism for securing the additional water supply to manage curtailment conditions.

9.0 SUMMARY AND NEXT STEPS

This document is the first draft of the WIF Curtailment Plan for Committee review and discussion. Implementation of this plan is not anticipated until 2025.

This curtailment plan provides guidelines to manage water supply in the event of a supply restriction or outage for the WIF Commission. Because the WIF Commission will own and manage a common Point of Diversion for multiple major water suppliers, the WIF Partners will use this curtailment plan to initiate their individual curtailment plans. Each WIF Partner’s WMCP will address their specific water development needs and curtailment plans.

Table 9-1. WMCP Update Schedule for Each Partner

Partners	WMCP Update Years through 2030	Notes
Wilsonville		
Sherwood		
Tigard		
Beaverton		
Hillsboro	Progress report due by August 28, 2022; update submitted by February 24, 2027.	
TVWD		

Table 9-2. Curtailment Plan Review and Revision Schedule

Document Version	Reviewers	Timeline
Initial Draft	WIF Operations Committee WIF Finance Committee	Jan. 2020 – March 2020
Annual Updates	WIF Staff	Each year until ready to present to WIF Board
Draft	WIF Operations Committee WIF Finance Committee	TBD
Final Draft	WIF Management Committee	TBD
Proposed Final	WIF Board	TBD

10.0 APPENDICES

- A. GSI Memo on Water Rights
- B. Curtailment Flow Charts

11.0 REFERENCES

- 1- Intake permit (citation to be developed)
- 2- Permits S-46319, S-49240, S-54940, and S-45565
- 3- OWRD WIF memo

Appendix F
2012 Water Management and Conservation Plan

APPENDIX H

From 2004 WMCP

Resolution No. 1557 and Accompanying Staff Report

Re: Selection of Willamette River as Long-Term Source

RESOLUTION NO. 1557

A RESOLUTION SELECTING THE WILLAMETTE RIVER AS THE LONG-TERM SOURCE OF WATER FOR THE CITY OF WILSONVILLE, AUTHORIZING THE SALE OF UP TO \$25 MILLION IN WATER REVENUE BONDS AND REFERRING THE AUTHORIZATION TO ISSUE \$25 MILLION IN REVENUE BONDS TO TREAT AND USE THE WILLAMETTE RIVER AS A LONG-TERM WATER SUPPLY TO THE SEPTEMBER BALLOT FOR VOTER APPROVAL.

WHEREAS, the City has benefited from receiving and reviewing the following studies relative to future water supply:

- 1986 report entitled "Wilsonville Water System Plan" prepared by Westech Engineering for the City of Wilsonville.
- 1991-92 Phase I regional water planning effort conducted by a consulting team headed by CH2MHILL on behalf of 35 agencies, including the City of Wilsonville. This study evaluated 29 potential sources of water for this metropolitan area and culminated in a report entitled "Water Source Options Study."
- 1994 report entitled "Willamette River Water Treatment Pilot Study" prepared by Montgomery Watson for the Tualatin Valley Water District.
- 1993-96 Phase II regional water planning effort conducted by a consulting team headed by Barakat & Chamberlin on behalf of 28 agencies, including the City of Wilsonville. This study further evaluated 6 potential sources of water for this metropolitan area and culminated in a report entitled "Regional Water Supply Plan" that was formally endorsed by the participating agencies.
- 1996 report entitled "Willamette River Water Supply Study" prepared by Montgomery Watson for 6 agencies, including the City of Wilsonville.
- 1997 report entitled "Clackamas Basin Water Treatment and Supply Options" prepared by a consulting team headed by Black & Veatch on behalf of 10 agencies, including the City of Wilsonville.
- 1997 report entitled "Water Supply Study" prepared by Montgomery Watson for the City of Wilsonville.
- 1997 report entitled "Washington County Supply Line Capacity Analysis" prepared by a consulting team headed by Murray Smith & Associates on behalf of 7 agencies, including the City of Wilsonville.
- 1997 report entitled "Willamette River Raw Water Monitoring Program Annual Report 1994-1996" prepared by Montgomery Watson for the Tualatin Valley Water District.

- 1998 report entitled "Troutdale Aquifer Study" prepared by CH2MHILL for the City of Wilsonville.
- 1998 report entitled "Portland Water System Plan for Expanded Southwest Service" prepared by the Portland Water Bureau and submitted to 5 water providers, including the City of Wilsonville.
- 1998 report entitled "Willamette River Water Supply System" prepared by a consulting team headed by Murray Smith & Associates and submitted to 5 water providers, including the City of Wilsonville.
- 1999 report entitled "Estrogenicity of Willamette River Water" prepared for the Willamette Water Supply Agency (WWSA) by Consultants in Toxicology, Risk Assessment and Product Safety (CTRAPS) and Dr. Tim Zacharewski of the Department of Biochemistry at Michigan State University.
- 1999 report entitled "City of Tigard Willamette River Monitoring Program: Quarterly Report" prepared by Montgomery Watson; and

WHEREAS, in addition to the above referenced studies the City of Wilsonville has utilized extensive water quality data bases from years of monitoring conducted by the U. S. Geological Survey and by the Oregon Department of Environmental Quality; and

WHEREAS, on the basis of these studies and data bases the City Council has previously determined the Bull Run – Columbia Wellfield and the Willamette River to be the most suitable options for Wilsonville's future water supply; and

WHEREAS, the City has sought information from the following independent advisors with pertinent expertise:

- a professor of Environmental Science at Portland State University,
- a professor of Environmental and Molecular Toxicology at Oregon State University,
- a professor of Environmental Engineering at Oregon State University,
- a former Chief of the Pesticides and Toxic Substances Branch at EPA's National Enforcement Investigations Center,
- an Environmental Toxicologist at the Oregon Department of Environmental Quality,
- the Health Effects Specialist for Drinking Water at EPA Region 10,

WHEREAS, the City has implemented a multi-faceted and highly effective water conservation program over the past several years; and

WHEREAS, the City Council finds that neither water conservation alone nor in combination with the City's existing wells will be capable of resolving current or future water shortages facing this community; and

WHEREAS, the City Council finds that the City's existing wells can be an important supplemental source of water and can serve as an emergency back-up supply; and

WHEREAS, the City Council finds that on the basis of the studies conducted and information provided by independent experts, the Bull Run – Columbia Wellfield and the Willamette River options both afford adequate margins of safety to protect public health; and

WHEREAS, the City Council has received written and oral testimony and experts from a variety of sources, experts, consultants, citizen advocacy groups, and citizens and after weighing and balancing the evidence and arguments presented; and the City Council finds the Willamette River option to be the superior alternative in terms of reliability of supply, overall environmental stewardship, and cost; and

WHEREAS, the City possesses water rights to the Willamette River as well as suitably located land to develop those rights to meet the long-term water supply needs of Wilsonville; and

WHEREAS, the City has conducted an extensive multi-year public involvement program and public information effort relative to the planning of its future water supply, and the City Council has previously stated its desire to seek voter approval for the water source selected together with an implementing funding plan.

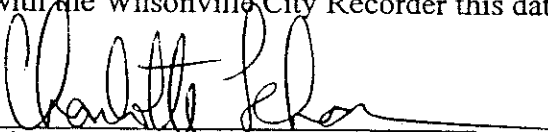
NOW THEREFORE, THE CITY OF WILSONVILLE RESOLVES AS FOLLOWS:

1. The City Council selects the Willamette River to be Wilsonville's primary source of water supply and directs City staff to develop the appropriate treatment and transmission facilities needed to accomplish this objective.
2. The City Council further directs City staff to establish a program for ongoing monitoring of water quality in the Willamette River pertinent to the City's use of this resource for purposes of municipal water supply.
3. The City Council further directs City staff to conduct water conservation efforts appropriate for wise and efficient use of our water resources.
4. Within its resources and authorities, the City Council wishes to support measures to assure that "raw water" quality in the Willamette River remains suitable for municipal water supply, and that "raw water" quality in the Willamette River improves even further over time.
5. The City Council further directs staff to maintain and operate the City's existing wells as a supplementary water supply and as an emergency back-up

supply, and to continue efforts with Department of Corrections, Tualatin Valley Water District, City of Tigard and the City of Tualatin to obtain a temporary source of additional water pending completion of developing the Willamette River as a long term water source.

6. The City Council authorizes the issuance of revenue bonds under the Uniform Revenue Bond Act in an amount sufficient to produce net proceeds of up to \$25 million for the construction of a water intake facility, water purification treatment plant, water transmission and distribution lines and related facilities for use of the Willamette River as a permanent, long-term water supply; and that the authorization of the issuance of the aforementioned revenue bonds for the use of the Willamette River as a permanent, long-term water source is hereby referred to a vote of the qualified electorate of the City of Wilsonville as set forth in paragraph 7 below.
7. The City Council approves the ballot title marked Exhibit "A" attached hereto and incorporated herein as fully set forth and directs the City Recorder to do all things necessary to refer the ballot measure to the qualified voters at the September 1999 special election.

ADOPTED by the city Council of the City of Wilsonville at a regular meeting thereof this 21st day of June, 1999, and filed with the Wilsonville City Recorder this date.


CHARLOTTE LEHAN, Mayor

ATTEST:


Sandra C. King, CMC, City Recorder

SUMMARY OF VOTES:

Mayor Lehan	Yes
Councilor Helser	Yes
Councilor Barton	Yes
Councilor Hold	Yes
Councilor Kirk	Yes

NOTICE OF CITY MEASURE ELECTION

CITY OF WILSONVILLE

Notice is hereby given that on Tuesday, September 21, 1999, a measure election will be held in Wilsonville, Clackamas County, Oregon.

The county clerk has advised us the election will be conducted by mail.

The following shall be the ballot title of the measure to be submitted to the city's voters on this date:

CAPTION (10 words)

Approves revenue bonds for Willamette River use for water supply.

QUESTION (20 words):

Shall Wilsonville issue \$25 million in revenue bonds to treat and use the Willamette River as a long-term water source?

SUMMARY (175 words):

Measure X-X authorizes the City of Wilsonville to issue revenue bonds pursuant to the Uniform Revenue Bond Act in a principal amount sufficient to produce net proceeds of up to \$25 million for construction of Phase I Willamette River water treatment plant inclusive of intake, filtration, transmission and related water system facilities. Treated Willamette River water would be used as the City's long-term water supply. Existing City wells would be used for emergency and peak-season back up. Bonded debt would be backed by revenues generated by the City's water utility and by water systems development charges.

The following authorized city official hereby certifies the above ballot title is true and complete.

Signature of authorized city official

Date signed

Sandra C. King, CMC

Printed name of authorized city official

City Recorder
Title

MEMORANDUM

DATE: JUNE 3, 1999

TO: HONORABLE MAYOR AND CITY COUNCILORS

FROM: JEFF BAUMAN, PUBLIC WORKS DIRECTOR

RE: RESOLUTION NO. 1557
FUTURE WATER SUPPLY

SUMMARY

Wilsonville's current source of water (i.e., the deep local aquifer) is incapable of supplying the City's needs on a sustained basis. Years of study and public discussion have enabled staff to extensively evaluate future water supply options. Throughout this evaluation, there has been one issue of foremost concern: adequate margin of safety for the potable water delivered to our customers. Only if that "threshold" criterion is satisfied do other factors play a role in comparing alternative supplies. Such factors include reliability of supply, environmental stewardship, and cost. As described in more detail in the following pages, staff believes treated water from the Willamette River is Wilsonville's best option for future water supply.

RECOMMENDATION

Adopt Resolution No. 1557. This provides Wilsonville with a safe, reliable long-term water supply while at the same time affording the City greatest certainty and control over program implementation and costs. Resolution No. 1557 calls for the following actions:

- develop treatment and transmission facilities to utilize the Willamette River as Wilsonville's primary source of water supply;
- establish ongoing water quality monitoring of the Willamette River;
- continue conservation efforts to use our water resources wisely and efficiently;
- encourage and support measures to assure "raw water" quality in the Willamette River remains suitable for municipal water supply, and improves even further over time;
- maintain and operate the City's existing wells as a supplementary water supply and as an emergency back-up supply;
- authorize the issuance of revenue bonds with referral of the proposed funding plan to the September ballot for voter approval.

Note: Resolution No. 1558 is also provided as an alternative course of action, should the Council wish to select the Bull Run-Columbia Wellfield option as the primary source for Wilsonville's future water supply.

BACKGROUND

History of Planning Effort:

Wilsonville has depended on groundwater from local wells to meet this community's need for water supply. More than two decades ago, however, it was evident the local aquifer would be unable to serve the growing needs of Wilsonville. It was anticipated the City's long-term supply would be treated water from the Willamette River. Accordingly, the State granted Wilsonville municipal water rights for nearly 20 million gallons per day (mgd) from the Willamette, with priority dating back to 1974.

In the past eight years the City's water shortage has intensified - - and so has planning for future water supply. In 1991-92 Wilsonville was one of 35 agencies in the Regional Providers Advisory Group which conducted Phase I of an evaluation involving 29 potential sources of water for the Portland metropolitan area. This study concluded that 6 of these options (including the Willamette) merited further consideration. From 1992-94 a pilot-scale water treatment facility was set up in Wilsonville to demonstrate how the Willamette River could be treated with readily available technologies to provide potable water meeting all existing and foreseeable drinking water standards. From 1993-96 Wilsonville was one of 28 agencies that prepared and endorsed the Regional Water Supply Plan, which further analyzed the 6 options recommended during Phase I of this study effort. This Regional Plan specifically identified Wilsonville as one of the localities facing imminent needs where new resource capacity would be needed prior to the year 2000. The Regional Plan goes on to say that construction of first phase supply facilities on the Willamette River is one of the suitable options to meet this imminent need. From 1996 to the present, additional engineering and water quality monitoring studies have been undertaken with regard to the Willamette River.

While considerable effort has gone into evaluating the Willamette River option, the search for a future water supply has by no means been limited to the Willamette. Other alternatives have included: water conservation; Portland's Bull Run-Columbia Wellfield system; groundwater from the so-called "Troutdale" aquifer; a technique called aquifer storage and recovery (ASR); the Clackamas River; re-use of "gray water" (i.e., water from sinks, dishwashers, washing machines, bathtubs, showers, etc.); cisterns to collect rainwater; and impoundments on local creeks. Having reviewed all these possibilities, the Wilsonville City Council in June of 1998 directed staff to expedite planning and development of the Troutdale Aquifer as the City's next increment of water supply. The Council further directed staff to continue evaluating both the Bull Run-Columbia Wellfield and Willamette options for the City's ultimate supply. By December of 1998 it became evident the Troutdale Aquifer was not a viable option, hence attention has focussed on the Bull Run-Columbia Wellfield and Willamette alternatives.

The Portland Option:

On December 15, 1998, the Portland Water Bureau issued a report entitled "Portland Water System Plan for Expanded Southwest Service." This document describes supply and transmission improvements that would be needed to meet the future needs of all Portland's existing customers plus the additional demands of Wilsonville, Tigard, and Sherwood. Table 2 of this report is provided as an attachment to this memo. Table 2 identifies the new facilities that would be needed between now and the year 2040 to provide water to all the customers, including Wilsonville. This option calls for increased use of the Columbia Wellfield; raising of two dams in the Bull Run watershed; construction of a filtration/disinfection facility for the Bull Run supply; three large-scale aquifer storage/recovery projects; and numerous water transmission lines. The report provides preliminary cost estimates and rate information, based on a generalized cost allocation formula that assumes 22 "wholesale" customers plus Portland itself will share the costs of these improvements. The actual cost allocation and rates to each jurisdiction would be the subject of negotiations between all the parties involved.

The Willamette Option:

In December of 1998, the consulting team headed by Murray Smith & Associates issued a report entitled "Willamette River Water Supply System." This document describes supply and transmission improvements that would be needed to meet the future needs of the cities of Wilsonville, Tigard, Sherwood, Tualatin, and the Tualatin Valley Water District. Essentially this alternative involves construction of water transmission lines and modular development of a Willamette water treatment facility. The report provides preliminary cost estimates and rate information, based on a generalized cost allocation formula that assumes up to 5 agencies would share the costs of the improvements. As with the Portland option, the actual cost allocation and rates to each jurisdiction would be the subject of negotiations between all the parties involved. The Portland and Willamette options will be compared in more detail below. But in general it can be said the Willamette option entails fewer projects, less cost, fewer agencies/approvals, and more controversy than the Portland option.

Water Quality and Public Safety:

The controversy alluded to above centers around the nature of the watersheds involved and the quality of the "raw" untreated water at each source. The Bull Run watershed is located entirely within a forest. Human access to the Bull Run watershed is tightly restricted. The Columbia Wellfield is located in part near an industrialized area with highly contaminated soils. Studies to date indicate this contamination has not reached the portion of the aquifer where municipal water is pumped. The Willamette watershed upstream of Wilsonville is predominantly forested but also includes significant urban, agricultural, commercial, industrial, and recreational activities. While chemicals of concern to human health are virtually undetectable in the "raw" water at the intake

structures for any of these potential supplies, there is no such thing as "risk free" tap water.

Some people have asked: Why even consider the large, unprotected Willamette watershed if the more pristine Bull Run supply is available? This is indeed a threshold question. If a water supply (Willamette or otherwise) does not include adequate margins of safety, it should not be pursued. Other factors or criteria are irrelevant if the water is not safe to drink. The following paragraphs discuss the extent to which risks to public health have been considered.

1. An enormous amount of water quality information has been generated in the course of this planning effort - - far more than other municipalities across the country generate when considering their potential water supplies with lesser "raw" water quality than any of the options Wilsonville has considered. In our planning, more than 8 years of water quality data have been utilized. These data have come not only from consultants hired by Wilsonville or Tigard to study the Willamette option, but also from the U. S. Geological Survey and the Oregon Department of Environmental Quality. The data bases are entirely consistent with one other, and have been reviewed by consulting teams hired by various regional and sub-regional entities. All have concluded the Willamette is a viable source for municipal water supply.

2. Our goal has never been to merely meet minimum health standards. In addition to chemicals regulated by drinking water standards, our water quality monitoring and treatment technologies have focussed on all chemicals subject to future drinking water regulations; on chemicals detected anywhere in the waters of the Willamette watershed no matter how infrequently or how dilute; and on chemicals suspected of causing endocrine disruption. The results indicate that in nearly every case the potentially harmful organic compounds are undetectable by the rigorous detection limits specified by federal health agencies for this purpose. Of the few detectable compounds, they are detected infrequently and in every case the concentration in "raw" untreated water is below (i.e., in compliance with) all existing and proposed drinking water standards.

3. Of the thousands of potentially harmful chemicals in the environment, drinking water is not a significant pathway for the vast majority of these compounds. Human exposure to chemicals in the environment is most often via ingestion of food, workplace exposure and/or breathing contaminated air. Hence drinking water standards focus more narrowly on the compounds most likely to be of potential concern in water supplies. And the drinking water standards themselves include a large margin of safety. The standards assume an individual will drink two liters of the affected water every day for a seventy-year life span. Additional adjustments are made to protect especially vulnerable populations (e.g., children). These models used by the EPA are considerably more conservative (i.e., protective) than most other schemas commonly used for risk estimation. The Oregon Division of Health (the lead regulatory agency for drinking water in this state) has indicated the multi-barrier treatment process proposed for the

Willamette option is more than adequate to satisfy health requirements. Mere conventional water treatment (i.e., flocculation and sedimentation) would be sufficient to meet drinking water standards. The Willamette option is designed to immediately produce potable water that is well below all existing and all anticipated regulatory requirements for drinking water. The Portland option meets all existing drinking water requirements, but would not fully address anticipated standards until the year 2020 when filtration and disinfection facilities are added to the Bull Run system.

4. For decades, municipalities across the nation have successfully used the proposed treatment technologies to produce potable water from rivers considerably more contaminated than the Willamette. To assure such treatment methods perform as desired here in Wilsonville, a pilot treatment plant was operated to document the effectiveness of these technologies locally. In addition to demonstrating the effectiveness of this treatment process on "raw" Willamette water, the pilot project went on to further evaluate the effectiveness of this technology under extreme conditions. The most widely used synthetic organic chemical in the Willamette watershed, atrazine, was added to the "raw" water in amounts which far exceed the concentrations that have ever been measured anywhere in the Willamette River. This test was to simulate the simultaneous occurrence of an atrazine spill and deferred maintenance of the water treatment equipment. As expected, the pilot plant produced potable water that consistently met all existing and anticipated drinking water requirements - - even under this extreme scenario.

5. We actively sought out independent experts to advise us on the health implications of the Willamette option. These experts included: a professor of Environmental Science at Portland State University, a professor of Environmental and Molecular Toxicology at Oregon State University, a professor of Environmental Engineering at Oregon State University, a former Chief of the Pesticides and Toxic Substances Branch at EPA's National Enforcement Investigations Center, an Environmental Toxicologist at the Oregon Department of Environmental Quality, the Health Effects Specialist for Drinking Water at EPA Region 10, and research team comprised of a Biochemist at Michigan State University and a consultant in Toxicology & Risk Assessment. The first five of these individuals were panelists for a public meeting before the Wilsonville City Council. The other two provided written materials for our deliberations. Without exception, these experts indicate the Willamette option can easily function within acceptable margins for public health and safety.

6. Existing water supplies throughout this region are successfully providing potable water to customers from sources as diverse as the Bull Run watershed, the Columbia Wellfield, the Clackamas River, the Trask/Tualatin River, and the Molalla River. For decades, the Willamette River itself has been used by the City of Corvallis as a water supply. Other than the Bull Run, these are unprotected watersheds subject to varying degrees of forestry practices, agricultural uses, recreational activities, storm runoff, industrial influences, and other potential sources of contamination. The treatment methods used for these water supplies vary according to the sources of "raw" water, but

in no case is there 100% removal of contaminants. Nonetheless, water providers and customers as well as health officials acknowledge all these systems to be operating within acceptable levels of risk. It should be noted that in the case of the Willamette option for Wilsonville, the level of risk is not measurably higher than any of these other water systems. Yet the level of treatment proposed for a Willamette treatment facility in Wilsonville greatly exceeds the level of treatment anywhere else in the state.

In short, we have not relied on one consulting firm, one agency, one health official, one year, one independent expert, one laboratory, one study, or one success story from elsewhere. For each of these important dimensions we have obtained multiple inputs - - and they all lead to the same conclusions:

- In terms of known risks to public health as reflected in drinking water standards, treated Willamette water would be superior in quality to any other water in the region - - including Bull Run.
- Health concerns regarding the Willamette option are essentially speculation about the unknown. There is no such thing as "risk free" drinking water, and there will always be "unknowns" of potential concern to any water supply. Nonetheless, the **extensive** amount of available information demonstrates that both the Portland and Willamette options are well within acceptable margins of safety for drinking water.

Since both options afford adequate margins of safety, it then becomes relevant to once again ask: Why consider the large, unprotected Willamette watershed if the more pristine Bull Run supply is available? The following sections of this memo address that question.

Reliability of Supply:

In part, this issue has to do with the facilities themselves. On the one hand, there is less likelihood of operator error or equipment failure with the Portland option because it involves little or no treatment. At least this is the case between now and the year 2020 when the Portland option calls for construction of filtration and disinfection facilities. But there's another, perhaps more significant way to evaluate the reliability of water supply. Water providers refer to this as the "robustness" or redundancy built into the system. In this regard, the Willamette option fares better than the Portland option. Currently, the Bull Run is the largest water supply in the region. If Wilsonville and others opt to be added to the Portland system, this reliance on Bull Run and the Columbia Wellfield will increase. The Portland supply can be (and has been) temporarily disrupted by such things as winter storms that stir up sediments in the reservoirs, and landslides that

take major transmission lines out of service. Less probable, but potentially more serious, are disruptions caused by earthquakes or volcanic eruptions or *Cryptosporidium* outbreaks or sabotage of the water system. The Willamette option, however, would further diversify the water supply network. Wilsonville (and the region as a whole) would be less dependent on any one source of water. For this reason the Regional Water Supply Plan rated the Willamette option as preferable to increased dependence on Bull Run in terms of the region's ability to respond to catastrophic events.

There's another aspect to reliability of supply. It involves the degree of involvement and control of decisions that determine the allocation, transmission and cost of water supply. In the case of the Willamette option, the City already possesses adequate water rights to meet long-term demand. These water rights date back to 1974. Construction of a municipal water treatment plant would perfect these rights, making the water available to Wilsonville in perpetuity. This is an exceptionally valuable asset which very few municipalities in the region have. Furthermore, the City owns sufficient land (sited in accordance with the Regional Water Supply Plan) to build all the needed water treatment facilities. While it would be advantageous for Wilsonville to partner with Tigard and others in a Willamette water supply system, it is also feasible for Wilsonville to implement the Willamette option on its own if for whatever reason it became necessary to do so. In fact it would be cheaper for Wilsonville to build a treatment plant all by itself than to lay 16 miles of pipeline needed to tie into Portland, and then assume a share of the costs for other improvements to the Portland system. Thus the Willamette option provides Wilsonville certainty of future supply; greater control over the timing and outcome of decision making; more assurance that the development moratorium may be permanently lifted; and the ability to own (rather than "rent") its water supply system.

On the other hand, the Bull Run-Columbia Wellfield option requires fourteen major projects (see attached Table 2) to be implemented over a 40-year period in order to assure adequate water supply for Wilsonville as a customer of the Portland system. If Wilsonville chooses this Portland option, a mutually agreeable contract would have to be negotiated among 23 agencies, assuming they all want to be supplied with Portland's water. Should one or more of those agencies have issues and/or time frames that differ from Wilsonville's, it could impact the implementation of needed facilities; the cost to Wilsonville; operational considerations such as what hours of the day water is available to refill each city's storage tanks; and potentially the ability to secure the desired amount of water when it is needed "at the end of the line" here in Wilsonville. For example, there is some question whether all the potential partners would be willing to accelerate their rate increases for major capital expenditures on behalf of the imminent needs of a few jurisdictions such as Wilsonville. There is also growing question whether Portland customers (and the Portland City Council itself) is willing to provide additional water to Wilsonville if it means everyone on the system would routinely be served blended Columbia Wellfield water as called for in the Portland option. Another question has to do with ownership of the resource. Portland indicates it has the authority to sell water to wholesale customers, and Commissioner Erik Sten has said that joint ownership is an

issue he is willing to put on the table for discussion. However at this point in time, Portland does not have the authority to relinquish or share ownership of its water supply. It would take an act of the full Portland City Council, and perhaps an amendment to the City Charter, to empower such a partnership. Despite Commissioner Sten's words of encouragement, shared ownership of water supply is far from a "done deal." These are but a few of the numerous issues to be worked out between all the participating agencies and their decision-making boards. As a practical matter, Wilsonville would be a relatively small voice among the 23 partners, particularly because several of the agencies use water far in excess of the amount needed by Wilsonville. Other jurisdictions are fully aware of Wilsonville's urgent need for water, and that under any scenario Wilsonville would have to commit tens of millions of dollars years in advance of Portland or the other potential partners. Hence Wilsonville would enter such negotiations with relatively little "clout" at the bargaining table.

The goal here is not to be isolated or provincial. Rather the issue is to be consistent with and supportive of a regional system, while maintaining each agency's ability to assure a reliable and cost-effective water supply to its respective customers. In Wilsonville's case, the Willamette option achieves this goal better than the Portland option.

Environmental Stewardship:

There are several aspects related to the overall environmental implications of the Portland and Willamette options. Such issues include: the immediate but relatively short-term impacts of construction activities for needed supply and transmission facilities; the habitat impacts of raising existing dams or building new impoundments; disruption to wetlands and wildlife; and fishery impacts associated with diverting large amounts of surface water for municipal water supply during the summer season when demand is at its highest and stream flows are at their lowest. The Regional Water Supply Plan took all these factors into account and rated the Willamette option as having the least damaging effect on the environment.

Cost:

Portland's Bull Run-Columbia Wellfield option, whether Wilsonville goes that route with partners or alone, will be substantially more expensive than the Willamette option, either with partners or alone.

(Note: Cost estimates for the Willamette River Water Treatment Plant are from a December, 1998, report by FCSG, Murray Smith & Associates, and Montgomery Watson entitled Willamette River Water Treatment Plant Preliminary Engineering Report. Cost figures for the Willamette option with partners are from that report. Cost figures for the

Willamette option alone and the Willamette option with Tigard are from an earlier report by Montgomery Watson. Cost estimates for the Portland option with Tigard, Tualatin and Sherwood are from a December 15, 1998, report from the City of Portland Water Bureau entitled Portland Water System Plan for Expanded Southwest Service. (Wilsonville staff modified these projections for the Portland alternative without partners.)

In order for Wilsonville to receive water from Portland, we would have to build new pipeline connections to the terminus of the Washington County Supply Line. These connections would have to bypass the City of Tigard, where the City Council has already voted to tap the Willamette River as a drinking water source. In addition, Wilsonville would have to pay a proportional share of the costs of a second Washington County Supply Line, as well as other improvements to the City of Portland system that are expected to occur over the course of the next 40 years at a total cost of \$550 million. These projects are listed in the attachment to this memo. Wilsonville's cost of capital improvements for transmission system improvements and connections to the Washington County Supply Line with partners would be \$62.5 million. The cost for those improvements without partners would be \$90.8 million. On top of this, Wilsonville's projected share of future improvements to the Portland system would be in the \$15 million to \$16 million range (1998 dollars). It's important to note, however, that for the Portland option to work, Wilsonville must make its investment in transmission system improvements immediately, with no assurance that Portland and its partners would make the future improvements that are necessary to guarantee continued supply in the quantities we need.

The cost information provided by Portland staff indicated that Wilsonville would pay a wholesale rate of \$0.50 per hundred cubic feet (ccf) of water. However this cost does not include pumping costs and "wheeling" charges to transport the water from the Powell Butte reservoir to Wilsonville. When these costs are included, the wholesale rate becomes \$0.87 per ccf. It is this cost that has been used in the rate projections shown below. However this is likely to be an underestimate of what the actual charges would be, in that it makes no provision for "peaking" charges that are typically assessed based on summer demand. For example, Portland is currently charging Tigard a wholesale rate of \$1.23 per ccf based on peak season usage during the summer of 1998.

Based on the preliminary engineering report prepared by Murray-Smith Associates, Wilsonville's capital cost for 20 million gallons a day from a Willamette River treatment plant with partners would be \$31.3 million. The capital cost without partners would be \$42 million. Using these figures, staff has calculated the rate and system development charge (SDC) impacts of each of the options. In addition to capital investment, the rate projections include operating expenses as well. The following table shows the average bi-monthly residential water bill, rounded to the nearest dollar, based on wintertime use of 18 ccf.

Year	Willamette River With Partners	Willamette River Alone	Portland With Partners	Portland Alone
Capital Only	\$31.3 million	\$42.2 million	\$62.5 million	\$90.8 million
Capital & Interest	\$56.8 million	\$73.8 million	\$104.3 million	\$148.8 million
2000	\$38.00	\$38.00	\$38.00	\$38.00
2005	\$64.00	\$59.00	\$86.00	\$97.00
2009	\$64.00	\$84.00	\$119.00	\$166.00
2015	\$56.00	\$74.00	\$101.00	\$142.00
2020	\$53.00	\$78.00	\$101.00	\$137.00
2025	\$43.00	\$57.00	\$65.00	\$77.00
2030	\$40.00	\$46.00	\$55.00	\$71.00
2035	\$46.00	\$50.00	\$60.00	\$60.00
2040	\$47.00	\$46.00	\$69.00	\$69.00

The cost implications are similar for systems development charges (SDC), as shown in the following table depicting this charge for a single family home.

Current	\$2,681			
	Willamette River Alone	Willamette River with Partners	Portland with Partners	Portland Alone
Proposed	\$3,834	\$2,761	\$4,585	\$5,711

(Note: SDCs would increase annually in proportion to increases in the Portland construction price index.)

A more complete table of rate and SDC impacts is included in your packet. The significance of this information is that under all circumstances the Willamette would be less expensive than the Portland option.

In terms of revenue bond financing, a couple of other issues are worth noting. Resolution No. 1557 (i.e., the Willamette option) is for a bond authorization up to \$25 million. This amount would be sufficient to fund an initial increment of 10 mgd treatment capacity (with partners) or 5 mgd (without partners), with oversized intake and transmission facilities to allow future expansion to 20 mgd. The \$25 million amount also covers bond issuance costs, which are above and beyond the capital and operating costs discussed above. Bond issuance costs include such things as bond rating fees, bond counsel fees,

financial advisor fees, and underwriter fees. Alternatively, Resolution No. 1558 (i.e., the Bull Run-Columbia Wellfield option) is for a bond authorization up to \$93 million. This amount is for needed transmission capacity to assure the system is capable of delivering 20 mgd from Powell Butte to Wilsonville. This includes immediate construction of a line from Wilsonville to the Washington County Supply Line in Beaverton, and when owners of the Washington County Supply Line need their capacity (after 2010) to construct a parallel line from Beaverton to Powell Butte. The \$93 million includes bond issuance costs, but does not include source or treatment improvements that will eventually be needed in the Portland supply system. Subject to negotiations, Wilsonville's share of the regional source/treatment projects is estimated to be in the \$15 million to \$16 million range, which would be on top of the \$93 million proposed in Resolution No. 1558.

Conservation:

Although mentioned toward the end of this report, conservation is not an afterthought. To the contrary, conservation should be an integral part of any water supply decision. Some people, however, have mistakenly characterized conservation as the near-term answer to the entire region's water supply. While other agencies can (and perhaps will) increase their conservation efforts, Wilsonville has for years been a leader in this regard. Attached to this memo is a listing of the City's water conservation program for the summer of 1998. A similar program will be in effect for the summer of 1999.

Despite all these conservation efforts, Wilsonville is in the midst of a water shortage so severe that the City Council in January of 1998 placed a moratorium on approval of new development applications. According to state law, this moratorium must be lifted no later than January, 2000. Whereas conservation efforts may be a way to postpone major capital investment elsewhere in the region, Wilsonville can no longer postpone investment in a future water supply. Whether Wilsonville chooses the Portland option or the Willamette option, it will be necessary to spend tens of millions of dollars in the immediate future to obtain enough water to sustain this city's existing development, not to mention growth. If Wilsonville decides to purchase its water from Portland, and if Portland along with the other wholesale partners wish to postpone major capital investments for expanded capacity, then Wilsonville would be dependent on the conservation efforts of the rest of the region to assure enough water is available at the "end of the line" in Wilsonville - - even if Wilsonville itself continues to meet its conservation target.

Public Involvement:

As the Council knows, a lengthy and comprehensive effort has occurred to inform and involve the public in this issue. There have been three special public forums of water supply. Numerous regular and special City Council meetings have been held at which the

water issue was discussed and public testimony was taken. The regular meetings of the City Council have been televised and rebroadcast on local access cable T.V. This issue has received more publicity than any other in the City's history. Well over 100 articles, "Point of View" pieces, and letters to the editor have been printed in the Wilsonville Spokesman, with additional articles published on numerous occasions in the Metro Southwest and Op/Ed sections of the Oregonian. There have been articles on this subject in virtually every issue of the City's newsletter (the Boones Ferry Messenger) for more than a year-and-a-half, with nearly as many articles in the City's regular mailing (the Seedling) sent to all members of the Chamber of Commerce. Hearings, meetings and water supply issues have been publicized via direct mail and utility bill stuffers. Staff provided briefings on the water issue to every one of the City's boards and commissions, as well as to numerous community groups. In an August 1998 survey of Wilsonville voters, 91% of respondents said they considered themselves somewhat or very well informed about the water issue, and our public information efforts have only intensified since then. Finally, the Council has repeatedly pledged to refer its decision to the voters in the September special election - - the ultimate form of public involvement.

Conclusions:

The City's water supply options have been extensively studied and thoroughly discussed with interested members of the community, as well as with independent experts. Conservation measures have postponed major capital investments as long as possible, but a new water supply is needed immediately. A lengthy public process has resulted in two options (the Bull Run-Columbia Wellfield and the Willamette) as being the best alternatives for Wilsonville's future water supply. Both of these options afford adequate margins of safety for potable water supply. Both of these options are fully consistent with the Regional Water Supply Plan. In terms of reliability of supply, environmental stewardship, and cost, the Willamette option is preferable for meeting the future needs of Wilsonville. I therefore respectfully recommend that you select the Willamette option and proceed as expeditiously as possible to implement this alternative. I recommend the City continue to emphasize wise and efficient use of water, and that the existing wells be maintained and operated as a supplemental/emergency back-up supply. I further recommend that Wilsonville continue to participate in ongoing monitoring of the Willamette River, and that the City support efforts to protect and enhance the quality of this important resource.



consor

APPENDIX G
RESPONSE FROM LOCAL GOVERNMENTS



Response from Local Governments

Pursuant to Oregon Administrative Rules (OAR) 690-086, a draft version of this Water Management and Conservation Plan (WMCP) was sent to local governments for review and comment relating to consistency with comprehensive land-use planning.

In July 2022, the City sent the draft WMCP to the local governments of the Oregon Metro and Clackamas County. Email Correspondence documentation is included on the following pages.

No comments were received.

Julia King

From: Andrew Barrett
Sent: Wednesday, July 20, 2022 9:01 AM
To: zoninginfo@clackamas.us
Cc: Bella Campbell; Julia King
Subject: RE: City of Wilsonville - Water Conservation Master Plan Review
Attachments: Wilsonville Water Management and Conservation Plan_DRAFT.pdf

Hello!

As described below, we have the final draft of our Water Conservation Master Plan. If you could please review and provide comments, that would be fantastic!

Our approach has changed where we are able to submit this draft to the state, and amend as needed based on your comments.

Please return comments to myself, Bella, and Julia in the next 3 weeks, by Friday 8/12/2022. If you have any questions, have comments, concerns, or need anything at all, feel free to reach out.

Thanks!

Andrew Barrett, PE
Capital Projects Manager
City of Wilsonville

503.570.1567
abarrett@ci.wilsonville.or.us
www.ci.wilsonville.or.us

From: Barrett, Andrew
Sent: Friday, July 8, 2022 8:20 AM
To: 'zoninginfo@clackamas.us' <zoninginfo@clackamas.us>
Subject: City of Wilsonville - Water Conservation Master Plan Review

Hello!

My name is Andrew Barrett, and I am working for the City of Wilsonville as a project manager for the City's Water Conservation Master Plan. We are completing the final of clean-up of this documents, and part of the State requirement for this document is to seek input from local area governments on the plan.

Clackamas County has been identified as one of these governments. We believe that early next week we will send out our final document for review. This is a courtesy email to give you a heads up a document will be coming your way shortly. We will have roughly 2 weeks to review the document. If there is someone at Clackamas County I should be sending this document to, please send their information to me when you have time.

In the short term, if you have questions, feel free to reach out to me.

Thanks in advance!

Thanks!

Andrew Barrett, PE
Capital Projects Manager
City of Wilsonville

503.570.1567
abarrett@ci.wilsonville.or.us
www.ci.wilsonville.or.us

Julia King

From: Andrew Barrett
Sent: Wednesday, July 20, 2022 9:01 AM
To: tim.o'brien@oregonmetro.gov
Cc: Bella Campbell; Julia King
Subject: RE: City of Wilsonville - Water Conservation Master Plan Review
Attachments: Wilsonville Water Management and Conservation Plan_DRAFT.pdf

Hey Tim,

As described below, we have the final draft of our Water Conservation Master Plan. If you could please review and provide comments, that would be fantastic!

Our approach has changed where we are able to submit this draft to the state, and amend as needed based on your comments.

Please return comments to myself, Bella, and Julia in the next 3 weeks, by Friday 8/12/2022. If you have any questions, have comments, concerns, or need anything at all, feel free to reach out.

Thanks!

Andrew Barrett, PE
Capital Projects Manager
City of Wilsonville

503.570.1567
abarrett@ci.wilsonville.or.us
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From: Barrett, Andrew
Sent: Friday, July 8, 2022 8:16 AM
To: 'tim.o'brien@oregonmetro.gov' <tim.o'brien@oregonmetro.gov>
Subject: City of Wilsonville - Water Conservation Master Plan Review

Hey Tim,

My name is Andrew Barrett, and I am working for the City of Wilsonville as a project manager for the City's Water Conservation Master Plan. We are completing the final of clean-up of this documents, and part of the State requirement for this document is to seek input from local area governments on the plan.

Metro has been identified as one of these governments. I have received your information from Bella Campbell with Murray Smith, our engineering consultant helping compile our document. We believe that early next week we will send out our final document for review. This is a courtesy email to give you a heads up a document will be coming your way shortly. We will have roughly 2 weeks to review the document. If this document is something someone else may want to review at Metro, please send their information to me when you have time.

In the short term, if you have questions, feel free to reach out to me.

Thanks in advance!

Andrew Barrett, PE
Capital Projects Manager
City of Wilsonville

503.570.1567

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