

FINAL

Water Management and Conservation Plan Progress Report

Joint Water Commission

Joint Water Commission



Hillsboro
•
Forest Grove
•
Beaverton
•
Tualatin Valley
Water District

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Appendix A – Conservation Benchmark Table

Appendix B – Percentage of Annual Water Supply from the JWC

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Executive Summary

The Joint Water Commission (JWC) is the primary water supplier in Washington County, Oregon. The JWC has implemented numerous programs and activities to support effective water management and to promote water conservation. The Oregon Water Resources Department (OWRD) approved the JWC's most recent Water Management and Conservation Plan (WMCP) on February 24, 2021. The final order approving the WMCP requires the JWC to submit a WMCP progress report by February 24, 2026.

Joint Water Commission

The JWC is made up of four member agencies: the Cities of Hillsboro, Forest Grove, and Beaverton, and the Tualatin Valley Water District (TVWD). The member agencies have varying levels of ownership in the JWC's water supply and water infrastructure, and they also manage their individually-owned water supply and water infrastructure. The JWC water supply includes water from the Tualatin River including its tributaries Sain Creek and Scoggins Creek, the Middle Fork of the North Fork of the Trask River, and stored water from Barney Reservoir (Trask River watershed) and Scoggins Reservoir (Tualatin River watershed). Water is diverted from the Tualatin River at the Spring Hill Pumping Plant intake south of Forest Grove and treated at the JWC Water Treatment Plant.

Progress Report Contents and Highlights

This progress report consists of five sections.

- Section 1 is an introduction that describes the JWC and the organization of the progress report.
- Section 2 describes the status of the 5-year water conservation benchmarks established in the 2021 JWC WMCP for each member agency. Accomplishments include:
 - Hillsboro: The "Hometown Tap" water filling station has grown from a traveling mobile unit to a broader initiative with three "Seasonal Hometown Taps" that are installed in high-traffic, event-heavy areas from April through October. The City has established a new Water Conservation Program Coordinator position to support efforts in water loss reduction and public education and outreach.
 - Forest Grove: The City installed a new raw water flow meter at the Forest Grove Water Treatment Plant and replaced the flow meter for the JWC water's entry point into the City's system, greatly improving tracking and management of water supplies.
 - Beaverton: The City has been working to support water reuse through development of a non-potable irrigation system in a residential area using stormwater and through installing 75,000 feet of purple pipe to supply residential irrigation systems and a high school irrigation system.
 - TVWD: The District is evaluating use of the latest American Water Works Association Water Audit Software and manuals for future water audits, and it has been using the Alliance for Water Efficiency's Water Conservation Tracking Tool to evaluate water

conservation programs and measures.

- Section 3 summarizes the average daily and monthly diversions under the JWC water rights and additional member agency water rights.
- Section 4 describes consumption by customer class for each JWC member agency.
- Section 5 presents the annual water loss audits for each JWC member agency. Hillsboro, Beaverton, and TVWD all maintained water loss below 10 percent in recent years. Forest Grove's water loss has been declining since 2021, reaching 10.5 percent in 2024.

1. Progress Report Elements

1.1 Introduction

On February 24, 2021, OWRD issued a final order approving the JWC's most recent WMCP and authorizing the diversion of up to 44 cfs under Permit S-54737. The final order also requires the JWC to submit a WMCP progress report by February 24, 2026 and an updated WMCP by August 24, 2030.

OWRD requires WMCP progress reports submitted by municipal water suppliers to include the following elements:

- a) A list of water conservation benchmarks described in the most recent WMCP and a description of the municipal water supplier's progress in implementing the associated conservation and other measures
- b) Average monthly and daily diversions under each water right held by the water supplier for the previous five years
- c) A description of the results of the required annual water audit that includes a systematic and documented methodology for estimating any unmetered authorized and unauthorized uses
- d) A comparison of the quantities of water used in each sector (i.e., customer category) described in the most recent WMCP with the quantities of water used in each sector for the previous five years

OWRD reviews progress reports to determine whether conservation benchmarks established in a WMCP are being met, whether the agency will authorize additional diversion of water under extended permits with development limitations, and/or if schedule changes proposed in updated plans are reasonable and appropriate.

1.2 Joint Water Commission

The JWC is the primary drinking water supplier in Washington County, Oregon. The JWC is comprised of four member agencies: the Cities of Hillsboro, Forest Grove, and Beaverton, and the Tualatin Valley Water District (TVWD). Each member agency has individually-owned water infrastructure plus varying levels of ownership in the JWC and its water supply, water treatment plant, storage reservoirs, and transmission facilities. The JWC is governed by a Board of Commissioners with three commissioners from each agency, and the City of Hillsboro serves as the managing agency. The JWC has two wholesale customers, the City of North Plains and Westside Lutheran.

The JWC water supply comes from two surface water sources: the Tualatin River including its tributaries Sain Creek and Scoggins Creek, and stored water from the Middle Fork of the North Fork of the Trask River. In the summer months, the JWC uses "live" or natural flow from the Tualatin River, as well as released stored water from Barney Reservoir on the Middle Fork of the North Fork of the Trask River, and Scoggins Reservoir (Hagg Lake) on Scoggins Creek. The JWC diverts its water supply from the Tualatin River at the Spring Hill Pumping Plant, located at River Mile 56.3 south of Forest Grove, and

treats the water at the JWC Water Treatment Plant located on SW Fern Hill Road adjacent to the intake. The JWC also holds an aquifer storage and recovery (ASR) Limited License (LL-019), which is in the pilot-testing and build out phase, with one well currently online. JWC Member Agencies have their own water sources in addition to the JWC sources, which are described in the 2021 JWC WMCP.

1.3 Progress Report Organization

This progress report is organized into the following sections to address OWRD's requirements for WMCP progress reports:

Section

Section 1 – Progress Report Elements

Section 2 – Water Conservation Benchmarks

Section 3 – Water Right Diversions

Section 4 – Water Consumption

Section 5 – Annual Water Audit

Sections 2 through 5 each provide the required information broken out by the four JWC member agencies.

2. Water Conservation Benchmarks

This section lists the benchmarks established in the 2021 WMCP for each water supplier and describes progress implementing each water conservation benchmark.

2.1 Introduction

This section of the progress report describes actions that the JWC member agencies have undertaken to meet five-year water conservation benchmarks established in the JWC's 2021 WMCP. Information from this section is also available in table format in Appendix A.

Individual JWC member agencies' water conservation programs are strengthened by regional partnerships and involvement in the American Water Works Association (AWWA), including the Pacific Northwest Section and Northwest Oregon Subsection. The JWC Events and Education Committee (EEC) coordinates JWC member agencies' outreach efforts in conservation and water science, and all JWC member agencies are also members of the Regional Water Providers Consortium (RWPC), which supports regional coordination of water conservation, public education, source water protection, and emergency planning. More information about these partnerships can be found in the JWC's 2021 WMCP.

2.2 City of Hillsboro: Water Conservation Benchmarks

2.2.1 Annual Water Audit

Benchmarks. The City will continue to conduct annual water audits. The City will integrate an AWWA M36 water loss analysis into its water auditing practices.

Status.

- The City continues to conduct annual water loss audits.
- The City has incorporated the AWWA Free Water Audit Software into its annual water loss audit, supplementing its standard in-house spreadsheet. This enhances accuracy and aligns the City's processes with AWWA M36 best practices, allowing the City to benchmark key indicators like Non-Revenue Water and Infrastructure Leakage Index. The combined approach improves data reliability and supports better planning and reporting.

2.2.2 System-wide Metering

Benchmarks. The City will continue to install meters at all new connections.

Status.

- The City continues to install meters at all new connections.

2.2.3 Meter Testing and Maintenance

Benchmarks. The City will continue to implement its meter testing and maintenance program and will continue to follow manufacturer protocols for maintenance and calibration of newly installed Automated Meter Reading (AMR) meters.

Status.

- The City continues to implement its meter testing and maintenance program.
- The City tests meters 3 inches or larger annually, and it has a large meter replacement program that replaces 3 to 5 meters per year. Any meters that fail testing are promptly rebuilt or replaced. The City proactively replaces meters when they reach 18 years of age (20-year life expectancy).
- The City worked with Neptune, the AMR manufacturer, to establish a reliable maintenance and calibration program for the Neptune AMR meters and annual testing for meters 3 inches or larger.

2.2.4 Water Rate Structure

Benchmarks. The City will continue to bill customers based on the volume of water consumed, with pricing structures set to encourage conservation, especially during peak season. The City will continue to regularly conduct rate studies.

Status.

- The City continues to bill customers based on the volume of water consumed using a four-tiered rate structure for single-family residential customers and a higher cost per unit when a base volume is exceeded for multi-family, commercial, industrial, public entities, and non-profit customers. Under the residential pricing structure, customers pay a higher unit cost for water use above what is considered essential to life and basic needs, encouraging water conservation. The higher per-unit cost for other customer categories encourages those customers to reduce water use during the summer peak.
- The City completed its most recent rate study in August 2024, and the new rates took effect on January 1, 2025.

2.2.5 Water Loss Analysis

Benchmarks. The City will continue conducting leak surveys and utilizing its AMR meters in an effort to minimize water loss. The City will continue to budget for replacement of high priority aging infrastructure and will continue to inspect all four distribution reservoirs for cracks and leaks every five years.

Status.

- The City continues to actively conduct leak surveys as part of its comprehensive leak detection and repair efforts, utilizing its AMR program. A dedicated team operates year-round using City-owned leak detection equipment and a specially equipped vehicle to identify and address

potential water system leaks.

- Between January 1, 2020, and December 31, 2024, the City responded to 99 mainline repairs, 149 service line repairs, and completed 25,771 leak survey tasks. The AMR program is designed to detect both intermittent and continuous leaks occurring on the customer side of the water meter.
- To support timely repairs and reduce water loss, the City notifies customers of potential leaks. In addition, the City launched a Leak Notification Postcard Program to alert customers when continuous water usage is detected, indicating a possible leak. These postcards provide helpful information and encourage customers to take prompt corrective action.
- The City continues to budget for replacement of high priority aging infrastructure, with a target allocation of \$2.1 million per year in funded depreciation projects to replace high priority aging infrastructure.
- The distribution reservoirs were inspected for cracks and leaks in 2025, and the City will continue to inspect them every 5 years.

2.2.6 Public Education

Benchmarks. The City will continue its extensive public education and outreach programs. The City will explore the feasibility of developing a permanent Hometown Tap with educational displays at Gordon Faber Recreation Complex, a 7,000-seat multipurpose sports complex that has seven full size baseball fields.

Status.

- The City has continued to implement its water conservation program. This program includes print and digital media, youth education, and community outreach, in English and in Spanish.
- The City is a member of the Regional Water Providers Consortium, which develops water conservation materials for the use of its members, which include print pieces, social media, e-newsletters, and a robust website (www.regionalh2o.org).
- The City's Water Department website contains indoor and outdoor water conservation information, descriptions of the City's water conservation programs, water-efficiency rebate information, a weekly watering tool and other irrigation best practices, water-wise landscaping options, tips to locate and fix leaks at home, and teacher resources for water conservation education.
- The City's youth education program consists of classroom lessons about water resources that integrate water conservation and source water protection messaging. The City tailors these lessons to match students' developmental stages to ensure the lessons meet state benchmarks, curriculum guidelines, and STEM requirements.
- In its community outreach, the City puts a high priority on educational programs focused on reducing peak season use. The Water Department has partnered with the Parks Department to run a community garden program, which encourages community gardeners to use water-wise

gardening practices and provides information on the “how-to” of water-wise gardening at the gardeners’ yearly kick-off meeting. The City also provides incentive equipment and supplies for water-wise gardening, distributes a “Seven Steps to Water Efficient-Gardening” guide that promotes water-wise planting at summer events, installed a water-wise demonstration garden at the Jackson Bottom Wetland Preserve site, contributes to the Children’s Clean Water Festival, constructed a Tualatin River Watershed Display for outreach events, and produced videos in English and Spanish for customers to learn how to read their water meters and locate leaks. The City is also active in several diverse public events throughout the year and has a new language access policy for a large number of languages.

- The Hometown Tap water filling station has grown from a traveling mobile unit to a broader initiative with three “Seasonal Hometown Taps.” These taps are installed in high-traffic, event-heavy areas from April through October, providing easy access to clean drinking water. During heat waves, additional units are deployed to support public health and hydration. The Hometown Tap can also be requested through the City’s website for large events. Each station features educational displays ranging from watershed information to local children’s artwork promoting water conservation.

2.2.7 Technical and Financial Assistance Programs

Benchmarks. The City promotes itself as a water efficiency resource for the community, and will continue to set aside budget each year to offer technical and financial incentives to both residential and non-residential customers (known as the ICI Program). The City will continue to offer water saving devices to all classes of customers. The City will continue to offer residential water audits and will explore offering water audits to additional customer classes. Staff will work closely with its ICI customers, including multi-family customers, to find innovative ways to reduce water use at those facilities through improved technology and maintenance. The City will continue to seek opportunities to promote water-wise gardening techniques at community garden events and to develop new water-wise community and school gardens and outdoor areas, such as parking strips. The City will continue to provide financial and technical assistance to City Parks to support irrigation improvements.

Status.

- The City includes conservation assistance for residential and non-residential customers in its annual budget.
- The City continues to provide water audits and water-saving devices to all customer classes, including low-flow faucet aerators, efficient showerheads, and toilet leak detection dye tablets. In addition, the City offers technical support and conservation materials to schools and community gardens, helping promote sustainable water use across the community.
- The City offers free indoor and outdoor water audits to residential customers. These audits include leak detection, providing water-efficient showerheads and faucet aerators, and a review of their Utility Bill to identify water saving opportunities. Irrigation customers are eligible for a free landscape irrigation audit and may qualify for rebates toward upgrades.
- The City continues to work closely with non-residential customers to find ways to reduce water

use. This work has included partnerships with apartment complexes, the Hillsboro School District, religious institutions, and homeowner associations and has resulted in immediate water savings.

- The City continues to promote water-wise gardening techniques, and supports several demonstration gardens. The City also works with community gardens to implement water conservation techniques, and maintains water-wise planting strips surrounding parking lots.
- The City continues to work with the Parks Department to implement water-efficient practices in City parks, including upgrading irrigation systems, providing mulch, and posting educational signs about water conservation improvements.

2.2.8 Supplier Financed Retrofit or Replacement of Inefficient Fixtures

Benchmarks: The City will continue to explore the feasibility and effectiveness of offering Smart Water Monitors to their residential customers. The City will continue to offer rebates to customers for replacement of high water use fixtures and/or devices with those that are engineered to be more water-efficient. (The rebate program operates with some flexibility regarding what market transformations are needed to increase the availability of water efficient devices, along with consistency in Washington County with other water providers.) The City will continue to offer free water saving devices, such as low-flow faucet aerators and low-flow showerheads.

Status:

- The City now offers residential customers a rebate of \$150 for installing a Smart Water Meter monitoring device that can help customers monitor and manage their home water use.
- The City offers residential customers a rebate of \$50 for an Energy Star qualified washing machine, a rebate of \$75 for a WaterSense labeled high-efficiency toilet (up to two rebates per household), and a rebate of up to \$200 for a WaterSense weather-based irrigation controller. Businesses, nonprofits, schools, and homeowner associations are eligible for rebates for indoor and outdoor projects that will increase water efficiency.
- The City continues to offer free low-flow faucet aerators and showerheads.

2.2.9 Rate Structure and Billing Practices

Benchmarks: The City will continue to have a three-tiered water rate system for single family residential customers to promote water use efficiency and to bill customers monthly. The City will continue to include graphs showing past usage and to include water conservation information in water bills. The City will also continue to explore the best ways to help customers understand their water bills.

Status:

- As of 2025, the City uses a four-tiered water rate structure for single family residential customers, charging a higher cost per unit when a threshold volume is exceeded to promote water use efficiency.

- Customers are billed monthly, and bills include graphs of past water usage and water conservation messaging.
- The City's utility billing website provides information about the services, charges, and rates on utility bills; shows a sample bill; describes the City's rate studies and the rate adjustment schedule and processes; and includes videos in English and Spanish on how to read and understand customer bills.

2.2.10 Water Reuse, Recycling, and Non-potable Opportunities

Benchmarks. The City will continue to actively seek out opportunities for water recycling and non-potable uses. The City will review newly acquired non-municipal water rights for potential non-potable water use opportunities.

Status.

- The City has reviewed currently owned non-municipal water rights for non-potable water use opportunities. There are examples of existing and potential applications. The Parks Department's water rights at Jackson Bottom are currently used for non-potable purposes. Additionally, the South Hillsboro fire station well may serve as a future non-potable source to reduce demand on the drinking water system during emergencies.
- The City supports Clean Water Services' and industrial customers' efforts to reuse water where practical.

2.2.11 Other Conservation Measures

Benchmarks. The City will continue to be a member of the Regional Water Providers Consortium, the Alliance for Water Efficiency, and the Conservation Committee of the Pacific Northwest Section (PNWS) of the AWWA. The Conservation Program Specialist will continue to attend trainings and conferences that provide education and insight to potentially grow and enhance existing City conservation programs. The City will use GIS to map locations of rebate approvals in the City. As part of this effort, the City will complete a process to integrate data among different departments, such as Planning, Finance, and Water.

Status.

- The Conservation Program Specialist continues to attend trainings and conferences, such as the PNWS Section Conference, AWWA WaterSmart Conference and the AWWA National Water Loss Conference.
- In 2025, the City established a new Water Conservation Program Coordinator position to support the program's growth and enhance efforts in water loss reduction tracking and public education and outreach.
- The City currently uses GIS mapping to track addresses of homes that have received rebates, helping to promote equity in program delivery. The City continues to be a member of the RWPC, the Alliance for Water Efficiency, and an active participant on the Conservation Committee of the PNWS of the AWWA.

2.3 City of Forest Grove: Water Conservation Benchmarks

2.3.1 Annual Water Audit

Benchmarks: Forest Grove will continue its annual water audits. The City will implement actions to improve the ease of accessing and reporting consumption data.

Status:

- The City continues to conduct annual water audits.
- To address consumption data accuracy, the City adjusted the temporal alignment of total monthly consumption data to total monthly demand data for a more accurate comparison.

2.3.2 System-wide Metering

Benchmarks: Forest Grove will continue to meter all connections. Forest Grove will finish replacing two master meters. Forest Grove will continue to explore the possibility of converting the City's system to Advanced Metering Infrastructure (AMI) meters.

Status:

- The City continues to meter all connections.
- The City installed a new raw water flow meter at the Forest Grove Water Treatment Plant in June 2021 and replaced the flow meter for the JWC water entry point into the City's system in May 2022.
- The City is still utilizing AMR and has not switched to AMI at this time due to cost constraints.

2.3.3 Meter Testing and Maintenance

Benchmarks: The City will continue its regular meter testing and replacement program.

Status:

- The City continues to implement its regular meter testing and replacement program. The City tests approximately 40 compound meters annually and has a meter replacement program scheduling all customer meters for replacement every 15 years.

2.3.4 Water Rate Structure

Benchmarks: Forest Grove will continue to use a volumetric rate for each customer class, and will continue its three-tiered rate structure for the single-family customer category.

Status:

- Customers are billed using a volumetric rate for each customer class, and the single-family residential customer category uses a three-tier increasing block structure to encourage water conservation.

2.3.5 Water Loss Analysis

Benchmarks. Within two years of approval of the WMCP, the City will provide OWRD with a description and analysis identifying potential factors for the water loss and selected actions for remedy. If the selected actions do not reduce water loss less than 10 percent within five years of approval of the WMCP, the City will either develop and implement a regularly scheduled and systematic program to detect and repair leaks in the transmission and distribution system, or develop and implement a water loss program consistent with AWWA standards.

Status.

- The City completed a replacement of the master meters used to calculate demand and improved the accuracy of its water loss calculations through better alignment of the timeframes used for its demand versus consumption data. Following these improvements, the City analyzed demand and consumption from June 2022 through August 2023 and calculated that its water loss was 8.1 percent. The City will continue to track water loss but does not need to take additional steps outlined in the benchmark at this time. The City reported the results of this water loss analysis to OWRD in a letter dated January 5, 2024.
- City Public Works conducted leak detection on 94,269 feet of water main in 2025.

2.3.6 Public Education

Benchmarks. The City will continue to hold its annual open house, actively participate in RWPC and JWC EEC events, and update its website when appropriate.

Status.

- The City most recently took part in the Public Services Open House on October 4, 2025 to provide information about water management. High-efficiency toilet rebate forms are available.
- Water conservation and rebate information is provided on a dedicated webpage on the City website, including links to RWPC water conservation tips and videos.

2.3.7 Technical and Financial Assistance Programs

Benchmarks. Forest Grove will evaluate expansion of the current home energy audit program to include more water conservation consultation. Forest Grove will continue to offer home energy audits that include fixture giveaways and will continue to offer free water conservation items.

Status.

- Forest Grove Light and Power offers energy efficiency and conservation programs including rebates for high-efficiency appliances. Rebates are available for residential customers who purchase high-efficiency clothes washers and heat pump water heaters.
- Home energy audits are available for customers interested in installing energy-saving measures in homes built before 2007. Free water conservation items are available from the City including toilet leak detection dye tablets, faucet aerators, outdoor watering gauges, and

shower timers.

2.3.8 Supplier Financed Retrofit or Replacement of Inefficient Fixtures

Benchmarks. Forest Grove will continue to provide rebates for water-efficient washing machines, water heater pumps, and toilets. Forest Grove will explore the feasibility of implementing a rebate program for weather-based irrigation controllers.

Status.

- Rebates are available for water-efficient toilets, washing machines, and heat pump water heaters. The City has not implemented a rebate program for weather-based irrigation controllers due to staffing and resource constraints.

2.3.9 Rate Structure and Billing Practices

Benchmarks. Forest Grove will continue to utilize its volumetric rate structure and continue to provide conservation messages with billing inserts.

Status.

- The City continues to use a volumetric rate structure and periodically includes conservation messages with billing inserts.

2.3.10 Water Reuse, Recycling, and Non-potable Opportunities

Benchmarks. Forest Grove will continue to forward customer and business inquiries on water reuse and recycling to Clean Water Services (CWS), as well as continuing to recycle backwash water. Forest Grove will seek non-potable water use opportunities.

Status.

- The City continues to direct customers interested in water reuse and recycling to Clean Water Services.
- The Forest Grove Water Treatment Plant recycles a portion of the backwash water. Other than water lost to evaporation, all backwash water and water removed from dewatered solids is retreated.
- Non-potable water use opportunities have not yet been identified.

2.3.11 Other Conservation Measures

Benchmarks. The City will continue to participate in the AWWA and RWPC.

Status.

- The City continues to participate in the AWWA and RWPC.

2.4 City of Beaverton: Water Conservation Benchmarks

2.4.1 Annual Water Audit

Benchmarks. The City will continue to conduct annual water audits.

Status.

- The City continues to conduct annual water audits.

2.4.2 System-wide Metering

Benchmarks. The City will continue to meter all connections. Over the next five years, the City will work towards the seven-year goal of converting all meters to AMI meters.

Status.

- All connections are metered.
- The City continues to work toward the goal of converting all meters to AMI, and has secured grant funding through the Water Infrastructure Finance and Innovation Act to install AMR and eventually an AMI system in the Cooper Mountain area. The City completed installation of AMI software and transitioned to in-house meter reading in August 2024. At that time, the City began replacing approximately 400 meters per month with AMI meters. Meter replacements have continued through 2025, and the City's goal is to complete the AMI project in 2028.

2.4.3 Meter Testing and Maintenance

Benchmarks. The City will follow manufacturer's specifications for AMI meter testing and maintenance. The City will track meter data for signs of malfunctioning meters and will replace any malfunctioning meters promptly.

Status.

- The City continues to follow the manufacturer's recommendations for AMI meter testing and maintenance.
- The AMI system flags unusually high water use, which could indicate a leak or a meter malfunction, as well as zero water use, which could indicate meter failure. The City investigates these potential issues and notifies the customer as soon as possible if a leak is suspected or replaces malfunctioning meters.

2.4.4 Water Rate Structure

Benchmarks. The City will continue to bill customers based, in part, on the volume of water consumed on a monthly basis. The City will continue to assess rate structure in the future for modification to adequately fund the operation and maintenance of its water system, including consideration of a progressive tiered-rate structure (i.e., inclining block rate) in the next five years.

Status:

- The City continues to bill customers based, in part, on the volume of water consumed on a monthly basis to promote water use efficiency.
- The City conducted a water rate study in 2024 that evaluated various rate structure options, including a tiered-rate structure for single-family residential customers. The City also conducted public outreach about the rate study in 2024 and early 2025. Beaverton City Council considered the results of the rate study and approved updated water rates in June 2025 (effective July 1, 2025) that include a uniform volumetric charge for all customer types rather than a tiered structure.

2.4.5 Water Loss Analysis

Benchmarks: The City will continue to conduct its leak detection program. The City will continue to budget for replacement of high-priority aging infrastructure.

Status:

- The City continues to conduct its leak detection program, including visual leak detection and use of acoustic leak detection equipment in areas where leaks are suspected.
- The City continues to implement its aging waterline replacement program and replaced 5,320; 2,662; 2,774; and 2,371 feet of waterline in 2021, 2022, 2023, and 2024 respectively.

2.4.6 Public Education

Benchmarks: The City will continue its public education program and continue to participate in the RWPC and JWC's EEC.

Status:

- The City continues to participate as a funding partner in the RWPC and JWC's Education and Event Committee, which maintains a water conservation website with information about efficient use of water for irrigation and other conservation-related information. The City continues to include conservation messaging in its Consumer Confidence Report. Water conservation outreach materials prepared by the RWPC, such as flyers and pamphlets, are stocked at the library, City Hall, and other locations for easy access by customers.

2.4.7 Technical and Financial Assistance Programs

Benchmarks: The City will continue to provide technical and financial assistance to residential and non-residential customers. Specifically, the City will continue to offer water saving devices (e.g., water gauges) and offer information that promotes water conservation self-assessments. The City will explore opportunities to offer additional technical assistance in the form of free irrigation audits to its multi-family customers.

Status:

- The City continues to offer free watering gauges and includes a link to the Weekly Watering

Number tool on its website to promote efficient irrigation. The water conservation webpage also includes information for households to conduct a self-assessment of indoor and outdoor water use.

- Due to staffing changes and funding constraints, the City has focused its resources on other water conservation measures, rather than irrigation audits.

2.4.8 Supplier Financed Retrofit or Replacement of Inefficient Fixtures

Benchmarks: The City will continue to offer rebates and incentives to retrofit or replace inefficient fixtures. The City will continue to offer water-saving devices.

Status:

- The City continues to offer rebates for customers to install high-efficiency toilets, washing machines, and WaterSense weather-based irrigation controllers. Since the 2021 WMCP was approved, the City has provided 553 toilet rebates, 100 washing machines rebates, and 100 irrigation controller rebates.
- The City continues to offer water-saving devices, such as free watering gauges.

2.4.9 Rate Structure and Billing Practices

Benchmarks: The City will continue to charge for water based on the volume of water used as a means to promote water use efficiency. The City will continue to bill customers monthly.

Status:

- The City's water rates continue to include a volumetric charge to encourage water use efficiency.
- The City continues to bill customers monthly.

2.4.10 Water Reuse, Recycling, and Non-potable Opportunities

Benchmarks: The City will continue to develop and pilot test a stormwater capture project with CWS and continue to develop the purple pipe project in the South Cooper Mountain area.

Status:

- Since 2021, the City has been installing a non-potable irrigation system in a 544-acre residential area to collect and treat winter stormwater, store this water in the aquifer, and recover the water for irrigation use during the summer. The Sterling Park Stormwater Treatment Facility was completed in Summer 2025 and treatment efficacy testing is occurring in the 2025/2026 rain season to ensure treated stormwater can be stored in the aquifer.
- The City has installed approximately 75,000 feet of purple pipe in the South Cooper Mountain area, supplying residential irrigation systems and a high school irrigation system. This summer, the purple pipe system was partially supplied by groundwater from ASR 3 and 3A at the Sterling Park Treatment Facility.

2.4.11 Other Conservation Measures

Benchmarks. The City will continue to be a member of the RWPC and offer services through membership to its customers. The Conservation Program Specialist will continue to attend trainings and conferences that provide education and insight to potentially grow and enhance existing City conservation programs. The City will consider performing a conservation measure cost-effectiveness analysis to identify new conservation measures for implementation. The City will consider implementing measures targeting customers in areas with higher peaking factors.

Status.

- The City continues to be a member of the RWPC. City customers benefit from the regional peak season water conservation campaign and other Consortium initiatives.
- Due to funding constraints, the Conservation Program Specialist position is not currently funded, and the City is focusing on other conservation measures.
- Due to staffing changes and funding constraints, the City has elected not to perform the conservation measure cost-effectiveness analysis or implement measures targeting customers in areas with higher peaking factors.

2.5 TVWD: Water Conservation Benchmarks

2.5.1 Annual Water Audit

Benchmarks. TVWD (i.e., the District) will continue to perform a comprehensive annual water audit in order to continually assess water loss from all potential causes. TVWD will continue to track usage by customer class to evaluate consumption trends.

Status.

- The District continues to perform its rigorous annual water audits. In 2025, the District began an evaluation of the latest AWWA Water Audit Software (version 6) and manuals (e.g., Manual M36) for use in future audits.
- The District continues to classify its customers into eight categories to evaluate consumption trends during its annual water audit.

2.5.2 System-wide Metering

Benchmarks. The District will continue to install AMR in all new meter installations or as metering devices fail to perform to specifications. Additionally, the District is evaluating the use of AMI for consideration in the development of a long-term meter reading strategy.

Status.

- The District stopped purchasing and installing new AMR meters due to the lack of production and product support by the manufacturer. The District is now planning to implement AMI-based metering within the next 10 years.

2.5.3 Meter Testing and Maintenance

Benchmarks. The meter testing program will continue to test large meters every 2 years or less and small meters (2-inch or less) upon request. The 12 remaining large, non-AMR meters will be replaced as they reach the end of their functionality, as parts become difficult to acquire, or as opportunity projects arise.

Status.

- The District continues to test and repair or replace large meters (greater than 2-inch diameter) at least every 2 years, with the goal of annual testing. Small meters (2-inch or less) are tested upon request or when the District identifies potential meter failures.
- The 12 remaining large, non-AMR or AMI meters continue to register within TVWD's specifications and have not been replaced. These meters are tested at least every 2 years.

2.5.4 Water Rate Structure

Benchmarks. The District will continue its current rate structure and bi-monthly billing schedule along with providing periodic conservation messages and recent water use in billing statements. The District is also in the process of procuring a new customer information system (i.e., billing software) with implementation scheduled for completion during the 2021-2022 fiscal year. This change is expected to offer increased flexibility and opportunity for improved customer billing and messaging.

Status.

- The District completed implementation of its new customer information system (i.e., billing software) and continues to use a volumetric-based structure to encourage conservation. The District conducts periodic rate structure reviews. Currently, the billing schedule remains bi-monthly, but monthly billing is being piloted and will be explored further as AMI technology is implemented. Current and historical water consumption are included on billing statements, and conservation messages are included seasonally on billing statements or as billing inserts.

2.5.5 Water Loss Analysis

Benchmarks. TVWD will continue its efforts to minimize water loss, including: conducting leak detection surveys, regularly inspecting fire hydrants with acoustical listening devices, repairing leaks, replacing mains and implementing other activities identified in TVWD's Capital Improvement Program, reviewing AMR data, implementing special messaging campaigns through newsletters and TVWD's website, and offering "Leak Kits."

Status.

- The District continues to perform its leak detection and repair program, including targeted leak detection surveys when leaks are suspected followed by immediate repair of identified leaks.
- The District implements infrastructure projects in its Capital Improvement Program through a variety of revenue sources.
- When a customer is experiencing high water usage and an AMR register has data-logging

capability, the District can download and analyze the data to evaluate usage. Customer usage that is significantly higher than historical usage is also flagged automatically during bill processing to identify and notify customers of potential leaks.

- As described above, the District has also initiated a water system audit analysis that will utilize the American Water Works Association water loss audit software to enhance its water loss management practices.
- The District continues to implement its public education messaging campaigns. “Welcome Kits” are available and include a rebate brochure, a “Practical Plumbing Handbook” that describes how to identify and repair common leaks, and toilet leak detection dye tablets.

2.5.6 Public Education

Benchmarks. The District will continue to use a variety of educational tools to reach customers, including bill inserts, website updates, various social media platforms, attending public events and facilitating tours, and youth education programming. The District will also remain an active member of the RWPC to enhance regional communications and work with local water providers on outreach strategies related to conservation and emergency preparedness.

Status.

- The District uses its website, newsletters, billing messages, postcards, emails, educational videos, and events to educate customers about water conservation and leak detection and repair.
- The District continues to use its Water Efficient Demonstration Garden to demonstrate landscaping irrigation best management practices.
- District staff continue to be involved in the RWPC and the Pacific Northwest Section AWWA Water Conservation Committee. Staff contribute to and work with the RWPC to create and support implementation of regional public education efforts around water conservation.

2.5.7 Technical and Financial Assistance Programs

Benchmarks. The District will continue to provide indoor and outdoor water use assessment upon request and promotion of these efforts. The District will continue the other elements of its technical and financial assistance program.

Status.

- The District continues to provide indoor and outdoor water use assessments upon request. During the assessments, District staff work with customers to address customers’ specific concerns, resolve high water use problems, provide education regarding best practices for efficient water use, and present resources and access to rebate incentives to make water-efficient purchase decisions.

2.5.8 Supplier Financed Retrofit or Replacement of Inefficient Fixtures

Benchmarks. The District will continue to fund all of the current rebate programs. As the WaterSense program continues to evolve and more products are added to the labeling program, the District will evaluate incorporation of these new products into rebate programs.

Status.

- The District continues to fund all rebate programs except the Customer Organized Proposal Rebate, which was terminated due to low participation.
- As of February 2025, the US Environmental Protection Agency paused work to develop specifications for new WaterSense-labeled products. When new products are added to the program, the District will evaluate incorporating them into rebate programs.

2.5.9 Rate Structure and Billing Practices

Benchmarks. The District will continue its current rate structure and bi-monthly billing schedule along with providing periodic conservation messages and recent water use in billing statements. The District is also in the process of procuring a new customer information system (i.e., billing software) with implementation scheduled for completion during the 2021-2022 fiscal year. This change is expected to offer increased flexibility and opportunity for improved customer billing and messaging.

Status.

- The District completed implementation of its new customer information system (i.e., billing software) and continues to use a volumetric-based structure to encourage conservation. The District conducts periodic rate structure reviews. Currently, the billing schedule remains bi-monthly, but monthly billing is being piloted and will be explored further as AMI technology is implemented. Current and historical water consumption are included on billing statements, and conservation messages are included seasonally on billing statements or as billing inserts.

2.5.10 Water Reuse, Recycling, and Non-potable Opportunities

Benchmarks. The District will continue to support regional efforts in developing innovative methods for reuse of water. The District will continue to work with customers to support projects that improve production water efficiency through reuse and recycling.

Status.

- The District continues to support projects and efforts that promote fiscally responsible water reuse and non-potable water use options for the region.
- On request, the District works with residential and commercial customers to investigate opportunities to improve water efficiency, including sharing resources to consider water reuse and recycling (e.g., state agency resources, RWPC materials).

2.5.11 Other Conservation Measures

Benchmarks. The District will continue its efforts to provide high quality customer service and facilitate customer engagement and participation in water conservation efforts. The District will continue its current efforts to market the use of advanced irrigation technology in landscape irrigation and promote best landscaping practices using its Water Efficient Demonstration Garden, as well as performing cost-benefit analyses of various conservation programs for customers and the District.

Status.

- The District continues its efforts to provide high quality customer service by facilitating customer participation in water conservation efforts.
- The District continues its efforts to promote the use of weather-based irrigation technology through its rebate program and continues to use its Water Efficient Demonstration Garden to demonstrate landscaping and irrigation best management practices.
- The District has been using the Alliance for Water Efficiency's Water Conservation Tracking Tool for conservation program and measure evaluation.

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3. Water Right Diversions

This section describes the average monthly and daily diversions under each right held by the water suppliers for the previous five years.

3.1 Introduction

This section of the progress report presents the average monthly and daily diversions under municipal water rights held by the JWC and its member agencies over the past 5 years. The JWC holds numerous water rights that authorize the use of water, including water rights for the use of live flow, storage rights, and secondary rights to use stored water. To avoid double counting the water stored and used by the JWC, the water rights table does not report average daily and monthly diversions under the storage rights, but does report the use of stored water under the secondary water rights. In addition to the JWC's water rights, the individual JWC member agencies hold surface water and groundwater rights for use outside of the JWC system but within the individual members' municipal water supply systems.

3.2 Terminology

The following terms are used in this progress report to describe system demands:

- Average daily diversion equals the total annual diversion (i.e., demand) under the given water right divided by 365 days, the typical number of days in a year.
- Average monthly diversion equals the total annual diversion (i.e., demand) under the given water right divided by 12 months.

Typically, water rights authorize a maximum instantaneous rate of diversion or appropriation expressed in units of cubic feet per second (cfs). Demand and consumption in municipal systems are also commonly expressed in units of million gallons per day (mgd) or gallons per minute (gpm). Annual and monthly values are usually expressed in units of million gallons (MG).

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Exhibit 3-1. JWC Average Daily and Monthly Diversions by Water Right for Municipal Storage and Use, 2020-2024

Source	Priority Date	Application and Permit	Certificate, Claim, Transfer, or Registration	Entity name on water right	Type of Beneficial Use	Authorized Rate (cfs)	Authorized Volume	Average Daily Diversion (mgd)					Average Monthly Diversion (MG)				
								2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
Sain Creek	1/22/1912	A: S-2016 P: S-1136	81026	City of Hillsboro	Municipal	3	n/a	34.10	36.29	33.87	37.59	36.58	1,037.2	1,103.9	1,030.3	1,143.4	1,112.5
Sain Creek	5/1/1915	A: S-4250 P: S-2443	81027	City of Hillsboro	Municipal	2	n/a										
Gales Creek	2/14/1947	A: S-22251 P: S-17549	~~85513~~ T-11677	City of Forest Grove	Municipal	4.46	n/a										
Tualatin River	8/15/1930	A: S-13681 P: S-10408	67891	City of Hillsboro	Municipal	9	n/a										
Tualatin River	2/6/1974	A: S-51643 P: S-46423	85913	City of Hillsboro	Municipal	43	n/a										
Tualatin River	7/15/1980	A: S-60357 P: S-45455	85914	City of Beaverton	Municipal	25	n/a										
Tualatin River	4/28/1976	A: S-54203 P: S-40615	85916	City of Forest Grove	Municipal	33	n/a										
Tualatin River	1/31/2018	A: S-88506 P: S-55563		Joint Water Commission	Municipal	44 ^a	n/a										
Scoggins Creek	6/9/1988	A: S-69637 P: S-54737		Joint Water Commission (City of Hillsboro, City of Forest Grove, City of Beaverton, and Tualatin Valley Water District)	Municipal	75 ^b	n/a										
Middle Fork of the North Fork Trask River and Barney Reservoir	6/26/1958	A: S-32421 P: S-32139	81020	City of Hillsboro	Municipal	38.7	n/a										
Barney Reservoir	6/24/1971	A: S-48359 P: S-37837	81022	City of Forest Grove	Municipal	n/a	500 AF										

Source	Priority Date	Application and Permit	Certificate, Claim, Transfer, or Registration	Entity name on water right	Type of Beneficial Use	Authorized Rate (cfs)	Authorized Volume	Average Daily Diversion (mgd)					Average Monthly Diversion (MG)				
								2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
Scoggins Reservoir/Henry Hagg Lake	2/20/1963	A: S-38447 P: S-35792	93873	Bureau of Reclamation	Municipal	n/a	500 AF										
Barney Reservoir	12/26/2017	A: S-88492 P: S-55219		Barney Reservoir Joint Ownership Commission	Municipal	30	8,734 AF										
Scoggins Reservoir/Henry Hagg Lake	2/20/1963	A: S-38447 P: S-35792	87304	Bureau of Reclamation	Municipal	70.0	13,000 AF										
Middle Fork of the North Fork Trask River (Barney Reservoir)	6/26/1958 & 12/10/1965	A: R-32420 P: R-4890	81024	City of Hillsboro	Storage for Municipal	n/a	12,600 AF & 7,400 AF	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Scoggins Creek (Scoggins Reservoir)	2/20/1963	A: R-38449 P: R-5777	81149	Bureau of Reclamation	Storage for Irrigation, Supplemental Irrigation, Municipal, Water Quality Control, Fish & Recreation	n/a	60,000 AF (13,500 AF for MU by JWC member agencies)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Sain Creek, Tualatin River, Scoggins Creek and the Bull Run River, tributaries of Scoggins Creek, Willamette River, and the Sandy River		AL-019		Joint Water Commission	Aquifer Storage and Recovery	Recovery: up to 28,000 gpm (40.3 mgd), from 14 wells, being up to 2,000 gpm (2.9 mgd) at each well	Storage: up to 2.1 billion gallons	0	0	0	0.21	0.24	0	0	0	6.3	7.2

cfs = cubic feet per second mgd = million gallons per day MG = million gallons AF = acre-feet n/a = not applicable

^a The use of up to 44.0 cfs of water under Permit S-55563 is limited to making up for a deficiency of supply available under Permit S-54737 or subsequent certificate. The use of water under Permit S-55563, in combination with any use under Permit S-54737, shall not exceed a total of 75.0 cfs.

^b Diversion of water under Permit S-54737 is limited to 44.0 cfs due to the development limitation in the extension of time and greenlight water authorized in the subsequent Water Management and Conservation Plan final order dated February 24, 2021.

Exhibit 3-2. City of Hillsboro Average Daily and Monthly Diversions by Water Right, 2020-2024

Source	Priority Date	Application and Permit	Certificate, Claim, Transfer, or Registration	Entity name on water right	Type of Beneficial Use	Authorized Rate (cfs)	Authorized Volume	Average Daily Diversion (mgd)					Average Monthly Diversion (MG)				
								2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
Willamette River	12/6/1976	A: S-55010 P: S-55045	Permit Amendment T-12512	City of Salem, City of Hillsboro	Municipal	200 (City of Hillsboro’s portion is 56 cfs) ^a	n/a	0	0	0	0	0	0	0	0	0	0
Crandall Reservoir ASR Well, Butternut Creek ASR Well, and Wood Street ASR Well		AL-027		City of Hillsboro	Aquifer Storage and Recovery	Recovery: up to 1,725 gpm per well for up to three wells	900 MG	0	0	0	0	0	0	0	0	0	0

cfs = cubic feet per second mgd = million gallons per day MG = million gallons n/a = not applicable

^b Diversion of water under Permit S-55045 is limited to 30.94 cfs due to the development limitation in the extension of time and greenlight water authorized in the subsequent Water Management and Conservation Plan final order dated August 28, 2017.

Exhibit 3-3. City of Forest Grove Average Daily and Monthly Diversions by Water Right, 2020-2024

Source	Priority Date	Application and Permit	Certificate, Claim, Transfer, or Registration	Entity name on water right	Type of Beneficial Use	Authorized Rate (cfs)	Authorized Volume	Average Daily Diversion (mgd)					Average Monthly Diversion (MG)				
								2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
Branches of Clear Creek	3/29/1917	A: S-5460 P: S-3318	2194	City of Forest Grove	Municipal	0.80	n/a	1.88	1.99	1.43	0.87	1.89	57.1	60.6	43.4	26.4	57.5
Four branches of Clear Creek	4/16/1935	A: S-15790 P: S-12034	13471	City of Forest Grove	Municipal	1.0	n/a										
Branches of Clear Creek	7/27/1939	A: S-18298 P: S-13944	13797	City of Forest Grove	Municipal	1.0	n/a										
Roaring Creek and Clear Creek	4/28/1976	A: S-54203 P: S-40615	92949	City of Forest Grove	Municipal	4.46, further limited to 2.43 cfs from Roaring Creek and 2.83 cfs from Clear Creek	n/a										

cfs = cubic feet per second mgd = million gallons per day MG = million gallons n/a = not applicable

Exhibit 3-4. City of Beaverton Average Daily and Monthly Diversions by Water Right, 2020-2024

Source	Priority Date	Application and Permit	Certificate, Claim, Transfer, or Registration	Entity name on water right	Type of Beneficial Use	Authorized Rate (cfs)	Authorized Volume	Average Daily Diversion (mgd)					Average Monthly Diversion (MG)				
								2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
Well 1, Well 2, ASR 2, ASR 3, ASR 4, ASR 5, Dernbach Well (ASR 6), ASR 7, ASR 5H, ASR 6K, ASR 3-IW1, ASR 3-IW2, ASR 3-IW3	1932 (Well 1), 1945 (Well 2)	n/a	GR-343, modified by T-10990 and T-13012	City of Beaverton	Municipal	3.01 (1,350 gpm), Original authorized rate is 400 gpm (0.89 cfs) for Well 1 and 950 gpm (2.12 cfs) for Well 2	n/a	0.69	1.10	0.66	1.34	1.15	20.8	33.4	20.2	40.8	35.1
Willamette River	3/11/2014	A: S-87964 P: S-54940		City of Beaverton	Municipal	33.7	n/a	0	0	0	0	0	0	0	0	0	0
Tualatin River and Bull Run		AL-002		City of Beaverton and TVWD	Aquifer Storage and Recovery	Recovery: up to 14.4 mgd from 13 wells	Storage: up to 1.5 billion gallons	0.36	0.93	0.70	1.09	0.93	11.0	28.3	21.3	33.1	28.3

cfs = cubic feet per second mgd = million gallons per day MG = million gallons gpm = gallons per minute n/a = not applicable

TVWD = Tualatin Valley Water District

Exhibit 3-5. Tualatin Valley Water District Average Daily and Monthly Diversions by Water Right, 2020-2024

Source	Priority Date	Application and Permit	Certificate, Claim, Transfer, or Registration	Entity name on water right	Type of Beneficial Use	Authorized Rate (cfs)	Authorized Volume	Average Daily Diversion (mgd)					Average Monthly Diversion (MG)				
								2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
Schuepbach Well, Grabhorn Well, Aloha Huber Well 1, 189 th Replacement Well, Kemmer Road Well, and Site 60 Well	1/21/1959	A: G-1351 P: G-1229	~~86081~~ T-11612	TVWD	Municipal	0.58 ^a	116 AF (Season of use limited to: May 1 – Sept. 30)	0	0	0	0	0	0	0	0	0	0
Aloha Huber Well 1, Schuepbach Well, Grabhorn Well, 189 th Replacement Well, Site 60 Well, and Kemmer Road Well	5/2/1957	A: G-637 P: G-588	~~36440~~ T-11612	TVWD	Municipal	1.10	n/a	0	0	0	0	0	0	0	0	0	0
Well 2, Schuepbach Well, Aloha Huber Well 1, 189 th Replacement Well, Kemmer Road Well, and Site 60 Well	2/23/1962	A: G-2242 P: G-2064	~~36441~~ T-11612	TVWD	Municipal	2.2	n/a	0	0	0	0	0	0	0	0	0	0
Willamette River	6/19/1973	A: S-50693 P: S-49240	Permit Amendment T-10477	Willamette River Water Coalition	Municipal and Industrial	202 ^b	n/a	0 ^c	0	0	0	0	0	0	0	0	0
Tualatin River and Bull Run		AL-002		City of Beaverton and TVWD	Aquifer Storage and Recovery	Recovery: up to 14.4 mgd from 13 wells	Storage: up to 1.5 billion gallons	0.40	0.43	0.12	0.12	0	12.25	12.95	3.59	3.76	0

cfs = cubic feet per second mgd = million gallons per day MG = million gallons AF = acre-feet n/a = not applicable

TVWD = Tualatin Valley Water District

^a Total diversion, in combination with the remaining irrigation right (Certificate 44119), is limited to 1.31 cfs.

^b Diversion of water under Permit S-49240 is currently limited to 80.1 cfs for TVWD due to the development limitation in the extension of time dated June 26, 2007, and the final order approving TVWD’s Water Management and Conservation Plan dated October 7, 2024.

^c Although the City of Sherwood has used water under Permit S-49240, TVWD has not diverted any water under this permit to date.

4. Water Consumption

This section presents a comparison of the quantities of water used in each customer category as identified in the 2021 WMCP with the quantities of water used in each customer category for the previous five years.

4.1 Introduction

This section of the progress report compares the consumption by customer category reported in the JWC's 2021 WMCP with consumption by customer category over the past 5 years. Each member agency's customer base and water use trends are different, and consumption information is presented separately for each member agency in Sections 4.2 through 4.5.

4.2 City of Hillsboro: Water Consumption

Exhibit 4-1 presents the City of Hillsboro's annual consumption from 2015 through 2024 in tabular form. Exhibit 4-2 shows annual consumption by customer category from 2015 through 2019 based on data presented in the 2021 JWC WMCP, and Exhibit 4-3 shows annual consumption by customer category from 2020 through 2024 for comparison.

Over the past 10 years, single family residential consumption has grown slightly while multi-family residential consumption has remained relatively stable. Industrial water use has generally increased over time, with a dip in 2020 when some industrial facilities paused operations during the pandemic. Sales of wholesale water to the Cities of Gaston and Cornelius and the LA Water Cooperative were stable from 2015 through 2019 and have been slowly increasing since 2020.

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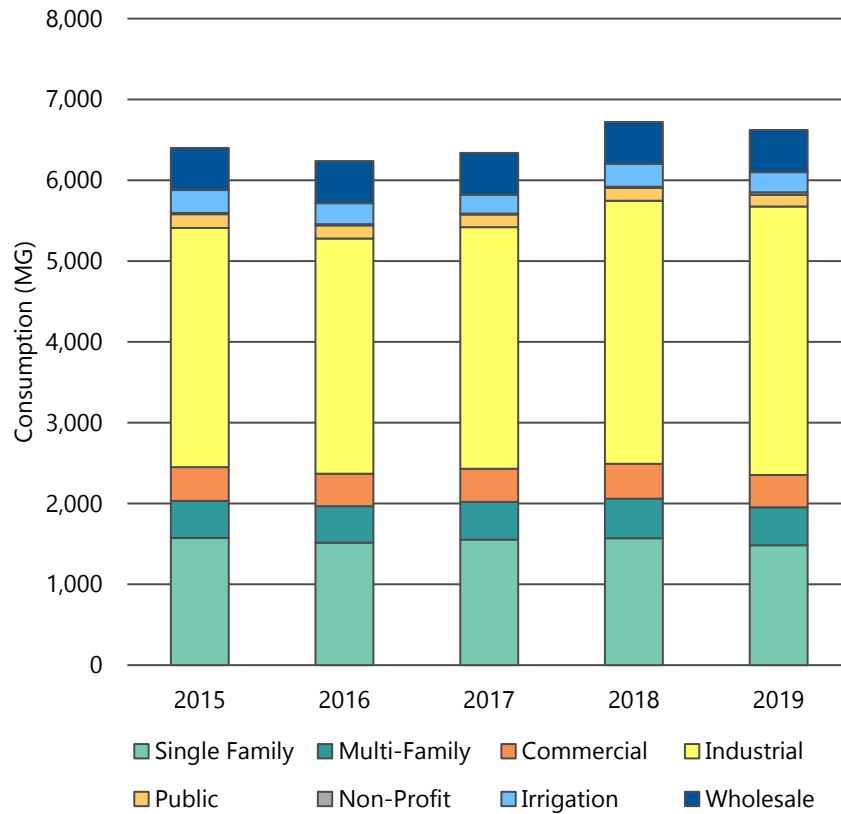
Exhibit 4-1. City of Hillsboro Annual Consumption by Customer Category, 2015-2024

Year	Metered Consumption by Customer Category (MG)								Total
	Single Family	Multi-Family	Commercial	Industrial	Public Entities	Non-Profit	Irrigation	Wholesale	
2015	1,573	458	418	2,961	169	16	283	521	6,399
2016	1,515	451	402	2,910	163	15	261	519	6,236
2017	1,552	469	408	2,991	155	13	234	516	6,338
2018	1,570	489	433	3,254	159	15	284	515	6,720
2019	1,484	469	400	3,321	145	31	251	519	6,620
2020	1,607	454	348	2,941	126	30	242	527	6,276
2021	1,686	473	374	3,322	154	34	338	541	6,923
2022	1,561	466	370	3,084	135	33	259	564	6,474
2023	1,625	481	396	3,298	153	38	329	599	6,918
2024	1,630	472	401	3,264	146	35	313	602	6,862

MG = million gallons

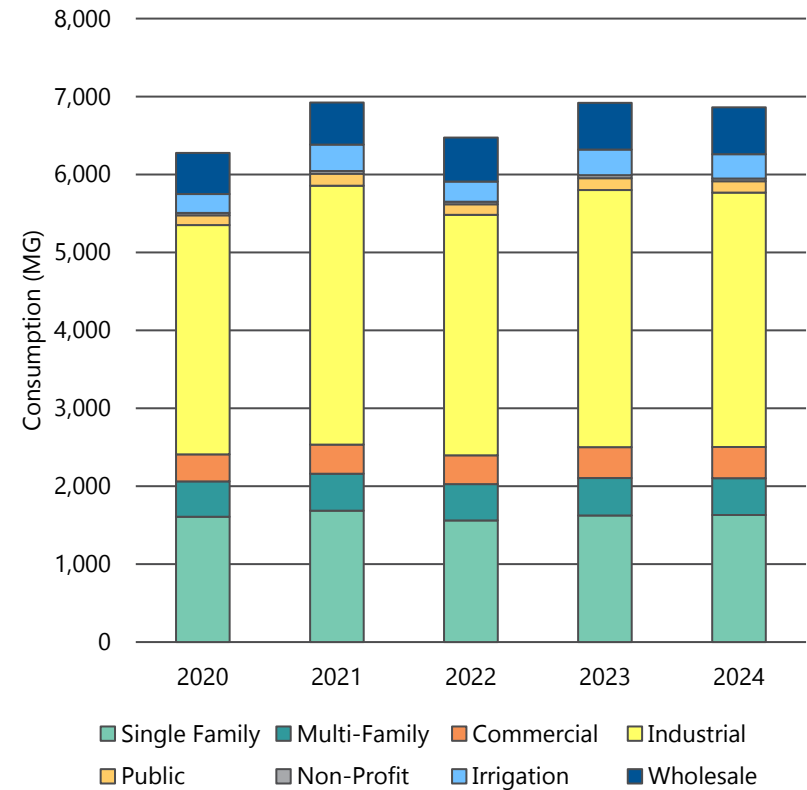
Data in shaded rows were presented in the 2021 Joint Water Commission Water Management and Conservation Plan.

Exhibit 4-2. City of Hillsboro Consumption, 2015-2019



MG = million gallons

Exhibit 4-3. City of Hillsboro Consumption, 2020-2024



MG = million gallons

4.3 City of Forest Grove: Water Consumption

Exhibit 4-4 shows the City of Forest Grove’s annual consumption from 2015 through 2024 in tabular form. Exhibit 4-5 presents annual consumption by customer category from 2015 through 2019 based on data included in the 2021 JWC WMCP, and Exhibit 4-6 shows annual consumption by customer category from 2021 through 2024 for comparison.

Consumption information by customer category was not available for 2020. Beginning in 2021, water use by schools was added to the Commercial category. Overall, all customer categories except for City water use have generally increased compared to the 2015-2019 data presented in the 2021 JWC WMCP, including substantial increases in Industrial water use.

Exhibit 4-4. City of Forest Grove Annual Consumption by Customer Category, 2015-2024

Year	Metered Consumption by Customer Category (MG)						Total
	Single Family	Multi-Family	Commercial	School ¹	Industrial	City	
2015	461	144	137	62	153	36	992
2016	453	141	130	66	139	35	965
2017	460	140	122	52	140	33	949
2018	468	138	149	57	127	34	972
2019	446	150	145	62	126	31	960
2020	<i>Consumption by customer category not available</i>						957
2021	493	149	164		190	33	1,029
2022	450	157	151		200	28	986
2023	488	156	160		191	40	1,034
2024	473	162	158		215	35	1,043

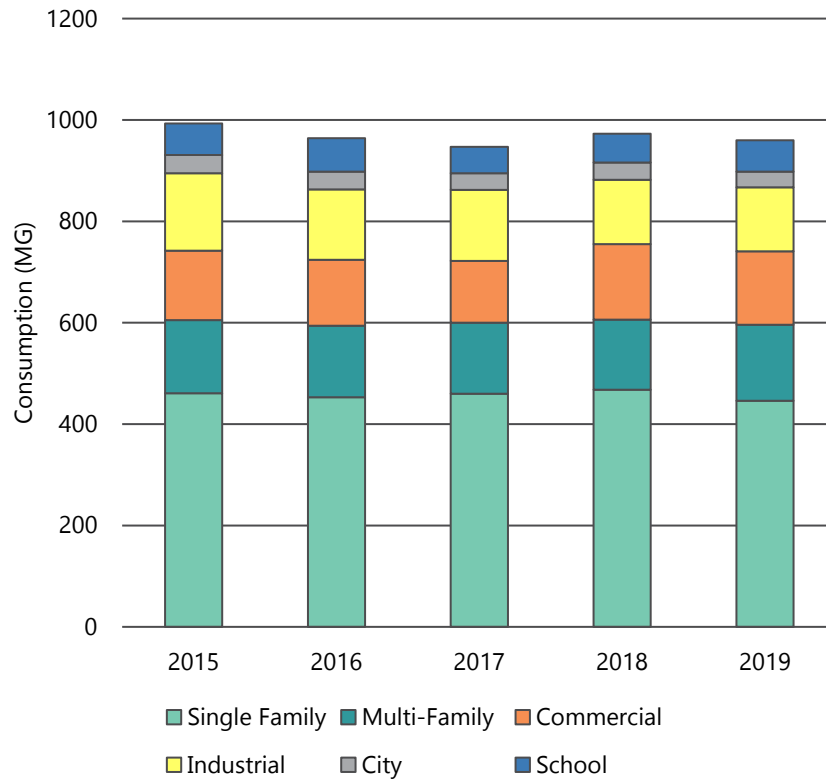
MG = million gallons

¹Beginning in 2021, the School category was combined into the Commercial category.

Data in shaded rows were presented in the 2021 Joint Water Commission Water Management and Conservation Plan.

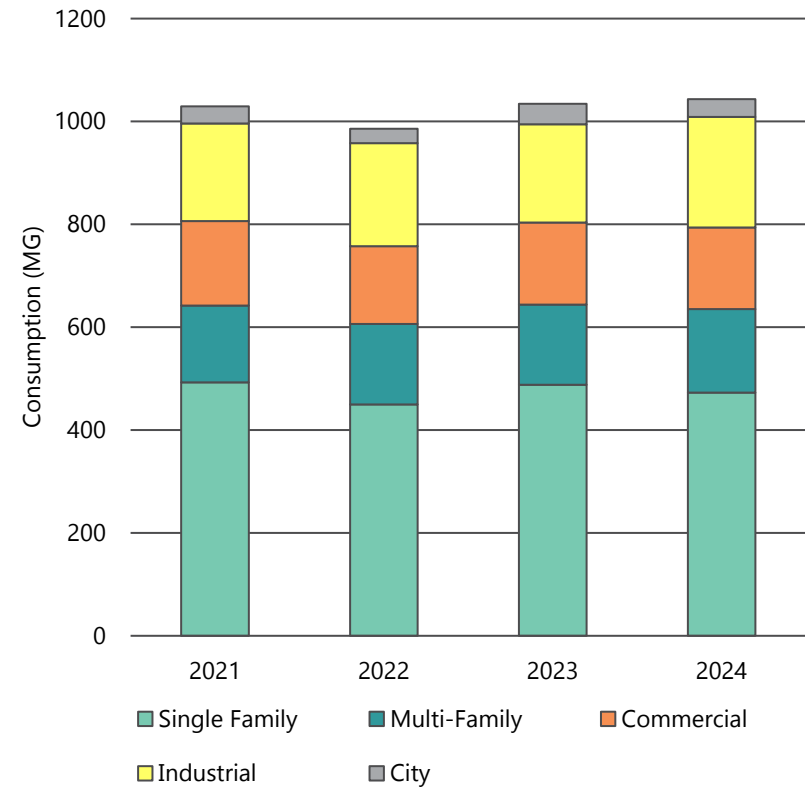
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Exhibit 4-5. City of Forest Grove Consumption, 2015-2019



MG = million gallons

Exhibit 4-6. City of Forest Grove Consumption, 2021-2024



MG = million gallons

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4.4 City of Beaverton: Water Consumption

Exhibit 4-7 presents the City of Beaverton's fiscal year (July 1 through June 30) consumption from 2014/15 through 2023/24 in tabular form. Exhibit 4-8 shows fiscal year consumption by customer category from 2014/15 through 2018/19 based on data presented in the 2021 JWC WMCP, and Exhibit 4-9 shows annual consumption by customer category from 2019/20 through 2023/24 for comparison.

For fiscal years 2019/20 through 2023/24, the City of Beaverton combined the Multi-Residential and Apartments categories into the Multi-Family category, and combined the previously separate Irrigation and Fire categories into one "Irrigation and Fire" category. Single-family and multi-family residential water use increased over time while Commercial/Industrial water use has fluctuated. Irrigation water use is also variable from year to year and has shown a slight increasing trend over the past few fiscal years.

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Exhibit 4-7. City of Beaverton Annual Consumption by Customer Category, FY 2014/15 – 2023/24

Fiscal Year	Metered Consumption by Customer Category (MG)							Total
	Single Family	Multi-Family	Apartments ¹	Commercial/ Industrial	Public Facilities	Irrigation	Fire ²	
2014/15	979	93	568	498	22	201	0	2,361
2015/16	1,053	88	591	523	23	249	0	2,527
2016/17	960	83	573	479	21	192	0	2,308
2017/18	1,005	82	568	686	60	255	0	2,657
2018/19	1,052	81	616	748	0	312	0	2,808
2019/20	1,195	814		576	67	252		2,904
2020/21	1,301	861		545	48	274		3,029
2021/22	1,282	862		588	76	272		3,080
2022/23	1,220	841		614	72	283		3,030
2023/24	1,217	854		607	81	298		3,057

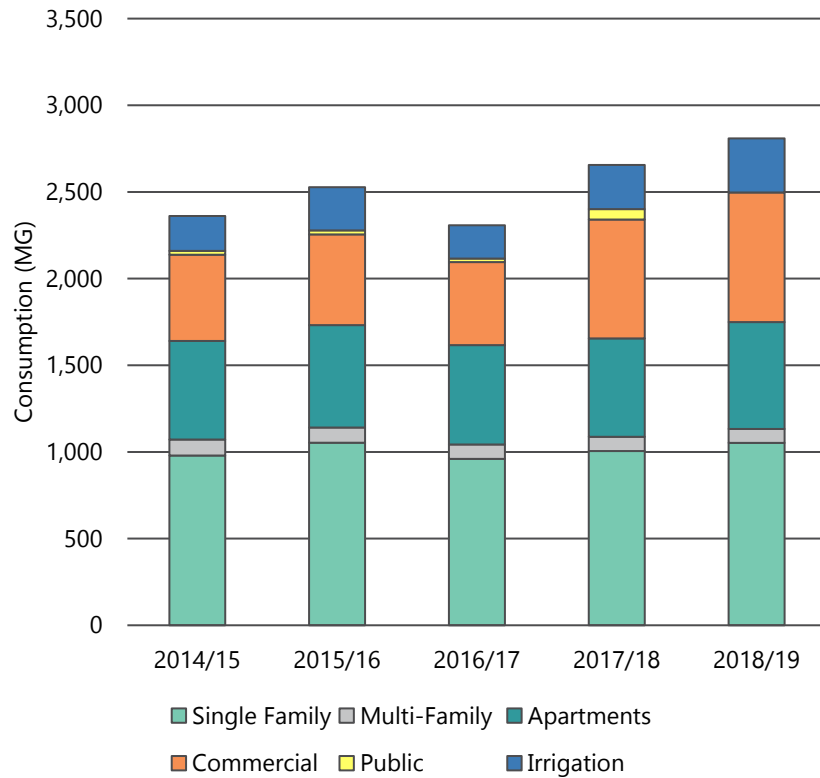
FY = fiscal year MG = million gallons

¹Beginning in fiscal year 2019/20, the Apartments category was combined into the Multi-Family category.

²Beginning in fiscal year 2019/20, the Irrigation and Fire categories were combined into one Irrigation and Fire category.

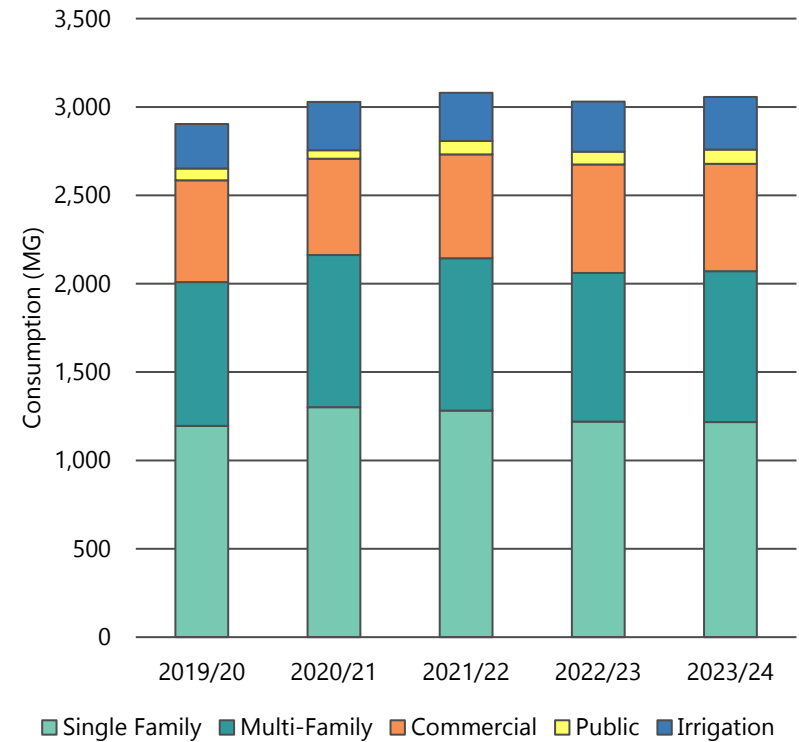
Data in shaded rows were presented in the 2021 Joint Water Commission Water Management and Conservation Plan.

Exhibit 4-8. City of Beaverton Consumption FY 2014/15 to 2018/19



FY = fiscal year MG = million gallons

Exhibit 4-9. City of Beaverton Consumption FY 2019/2020 to 2023/24



FY = fiscal year MG = million gallons

4.5 TVWD: Water Consumption

Exhibit 4-10 shows TVWD's annual consumption from calendar year 2015 through fiscal year 2023/24 in tabular form. Exhibit 4-11 presents annual consumption by customer category from 2015 through 2019 based on data included in the 2021 JWC WMCP, and Exhibit 4-12 shows annual consumption by customer category from fiscal year 2019/20 through 2023/24 for comparison.

Consumption data through 2019 were presented in the 2021 JWC WMCP by calendar year. More recent information on consumption by customer category is aggregated by fiscal year (July 1 through June 30). Total water consumption on a 12-month basis declined slightly in recent years, beginning in 2019. Single Family, Commercial, and Irrigation water use showed slight decreasing trends, while water usage in other customer categories remained relatively stable. Beginning in fiscal year 2023/24, TVWD no longer has Wholesale or NA customer categories.

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Exhibit 4-10. TVWD Consumption by Customer Category

Year	Metered Consumption by Customer Category (MG)									Total
	Single Family	Multi-Family	Commercial	Production	Irrigation	Fireline	Temporary Irrigation	Wholesale	NA	
2015	4,009	1,595	1,361	695	525	1	10	8	0	8,204
2016	3,805	1,570	1,273	692	466	2	10	1	0	7,819
2017	3,895	1,628	1,297	709	461	2	11	0	0	8,003
2018	3,927	1,644	1,364	723	506	1	10	5	0	8,180
2019	3,454	1,477	1,107	680	400	1	8	30	0	7,157
FY 2019/20	3,570	1,421	1,084	687	406	3	5	14	93	7,283
FY 2020/21	3,902	1,499	1,009	708	431	3	4	30	96	7,682
FY 2021/22	3,638	1,490	1,096	727	424	2	1	37	78	7,493
FY 2022/23	3,658	1,503	1,182	737	444	3	4	43	65	7,639
FY 2023/24	3,512	1,552	1,085	699	426	2	3	0	0	7,279

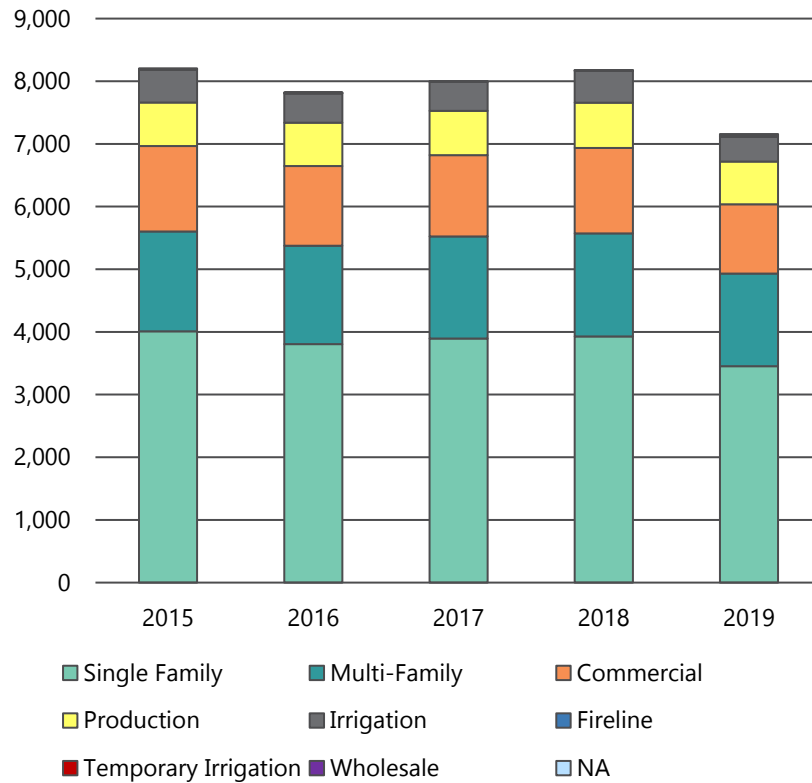
TVWD = Tualatin Valley Water District FY = fiscal year MG = million gallons

NA = TVWD temporarily stored rotating uncategorized customers as "NA" until these customers were categorized.

Beginning in fiscal year 2023/24, TVWD no longer has Wholesale and NA customer categories.

Data in shaded rows were presented in the 2021 Joint Water Commission Water Management and Conservation Plan.

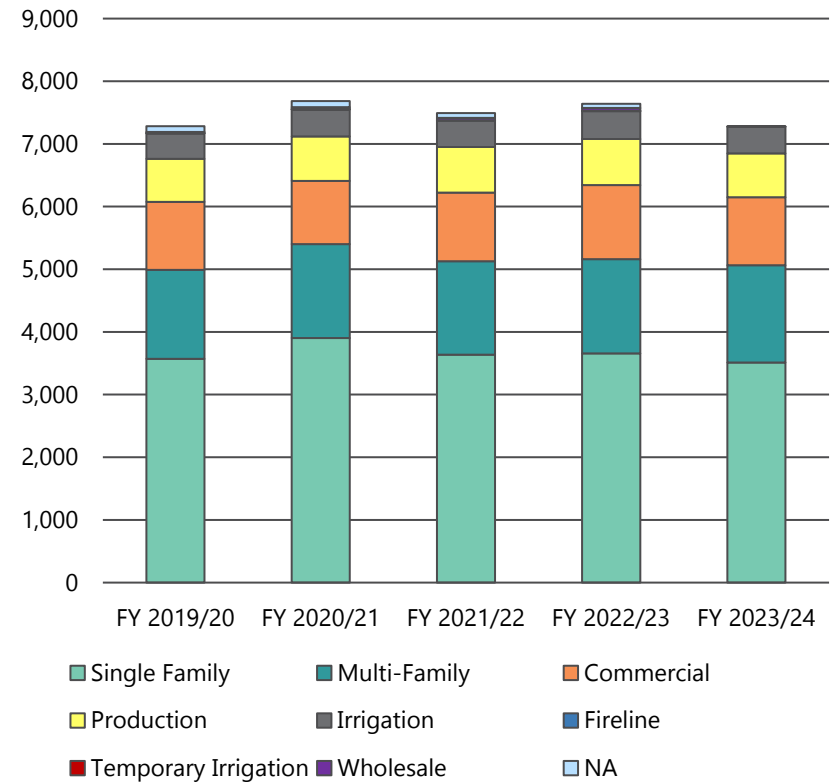
Exhibit 4-11. TVWD Consumption, 2015-2019



TVWD = Tualatin Valley Water District

FY = fiscal year MG = million gallons

Exhibit 4-12. TVWD Consumption, FY 2019/20 to 2023/24



TVWD = Tualatin Valley Water District

FY = fiscal year MG = million gallons

5. Annual Water Audit

This section describes the results of the annual water audits performed by each water supplier.

5.1 Introduction

This section of the progress report presents the results of the annual water audits conducted by the JWC member agencies. The purpose of a water audit is to determine the amount of water loss in a water distribution system. The OWRD administrative rules set a water loss target of 10 percent or less. In the 2021 JWC WMCP, water loss was calculated as the difference between the volumes of annual demand and annual metered consumption, and water loss as a percentage of total demand was calculated as the volume of water loss divided by annual demand. This definition of water loss includes actual water loss (e.g., system leakage), apparent water loss (e.g., meter inaccuracies), and unmetered authorized consumption (e.g., system flushing). The 2021 JWC WMCP and this progress report utilize annual demand from all sources, not solely JWC-supplied water, when calculating water loss. The JWC member agencies track the extent to which their demand is met using JWC-supplied water as part of their water auditing process. Appendix B presents the percentage of total demand supplied by the JWC to each of the JWC member agencies.

5.2 City of Hillsboro: Water Audit

The City of Hillsboro calculates water loss as the difference between total demand (JWC-supplied water and water from the City's Cherry Grove water treatment plant) and metered consumption. Exhibit 5-1 shows the City's water loss from 2015 through 2024 in tabular form, and Exhibit 5-2 shows a graph of the change in water loss over time. Water loss information for 2019 varies from the figures presented in the 2021 JWC WMCP because it has been updated with more accurate information from the City's 2019 internal water audit. Beginning in 2019, estimates of unmetered, authorized consumption are included in annual calculations of water loss. This includes system flushing, hydrant maintenance, and flow tests.

The City of Hillsboro's water loss was 6.5 percent in 2024. Between 2015 and 2024, water loss averaged 5.9 percent.

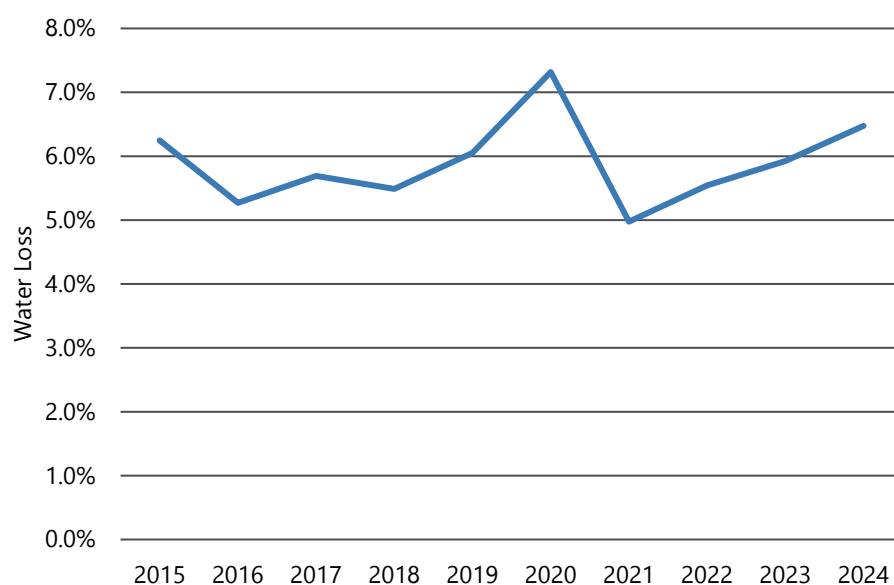
Exhibit 5-1. City of Hillsboro Water Loss

Year	Total Demand (MG)	Metered Consumption (MG)	Unmetered Consumption (MG)	Water Loss (MG)	Water Loss (%)
2015	6,825.0	6,398.6	-	426.4	6.2%
2016	6,583.1	6,236.1	-	347.0	5.3%
2017	6,720.7	6,338.2	-	382.5	5.7%
2018	7,109.9	6,719.8	-	390.1	5.5%
2019	6,638.2	6,236.5	1.2	401.7	6.1%
2020	6,773.0	6,276.2	1.2	495.6	7.3%
2021	7,285.9	6,923.2	0.2	362.5	5.0%
2022	6,853.5	6,473.5	0.2	379.8	5.0%
2023	7,356.3	6,918.3	2.2	435.8	5.9%
2024	7,338.2	6,862.0	1.1	475.1	6.5%

MG = million gallons - = not estimated

Data in shaded rows were presented in the 2021 Joint Water Commission Water Management and Conservation Plan.

Exhibit 5-2. City of Hillsboro Water Loss



The City of Hillsboro's percentage of annual supply from the JWC averaged 97.1 percent from 2020 through 2024.

5.3 City of Forest Grove: Water Audit

The City of Forest Grove calculates water loss as the difference total demand (JWC-supplied water and water from the City's Clear Creek water treatment plant) and metered consumption. Exhibit 5-3 shows

the City's water loss from 2015 through 2024 in tabular form, and Exhibit 5-4 shows a graph of the change in water loss over time.

The City of Forest Grove's water loss has fluctuated over time and has been declining since 2021, reaching 10.5 percent in 2024. Water loss has averaged 13.7 percent over the past five years. As described in the City of Forest Grove's 2024 Conservation Benchmark Progress Report, the City has been implementing actions to address two major factors contributing to elevated water loss reported in the 2021 JWC WMCP: demand (i.e., production) meter accuracy and consumption data accuracy. To address demand meter accuracy, the City installed a new raw water flow meter at the Forest Grove Water Treatment Plant in June 2021 and replaced the flow meter for the JWC water entry point into the City's system at 10th Avenue in May 2022. Demand data are considered more accurate since May 2022. To address consumption data accuracy, the City adjusted the temporal alignment of total monthly consumption data to total monthly demand data for more accurate comparison. Specifically, consumption data is now reported on the month billed instead of the prior month recorded in the field. The City calculated that its water loss from June 2022 through August 2023 was 8.1 percent in the 2024 Conservation Benchmark Progress Report. The City continues to track water loss, which was only slightly over 10 percent in 2024.

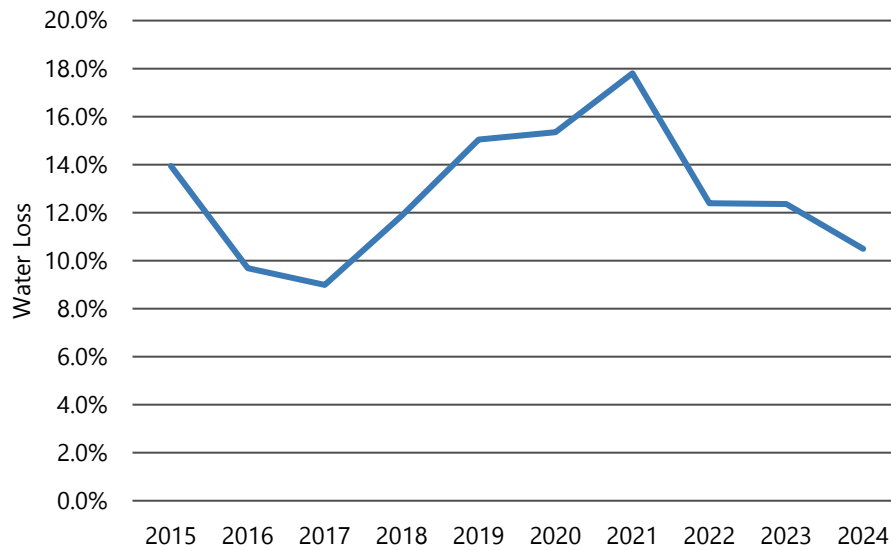
Exhibit 5-3. City of Forest Grove Water Loss

Year	Total Demand (MG)	Metered Consumption (MG)	Water Loss (MG)	Water Loss (%)
2015	1,153.1	992.3	160.8	13.9%
2016	1,068.6	965.1	103.5	9.7%
2017	1,042.3	948.6	93.7	9.0%
2018	1,103.4	972.4	131.0	11.9%
2019	1,130.1	960.1	170.0	15.0%
2020	1,153.0	976.0	177.0	15.4%
2021	1,252.2	1,029.3	222.9	17.8%
2022	1,125.3	985.9	139.4	12.4%
2023	1,180.1	1,034.3	145.9	12.4%
2024	1,165.7	1,043.4	122.3	10.5%

MG = million gallons

Data in shaded rows were presented in the 2021 Joint Water Commission Water Management and Conservation Plan.

Exhibit 5-4. City of Forest Grove Water Loss



Between 2020 and 2024, water supplied by the JWC accounted for an average of 50.1 percent of the City of Forest Grove’s water supply.

5.4 City of Beaverton: Water Audit

The City of Beaverton calculates water loss as the difference between total demand (JWC-supplied water, native groundwater, and water from the City’s ASR program) and metered consumption. Exhibit 5-5 shows the City’s water loss from fiscal year 2014/15 through 2023/24 in tabular form, and Exhibit 5-6 shows a graph of the change in water loss over time. Water loss is presented by fiscal year, consistent with the 2021 JWC WMCP and the City of Beaverton’s 2018 WMCP. Data for FY 2017/18 and 2018/19 have been updated to reflect revised information presented in the City of Beaverton’s 2023 WMCP progress report.

The City of Beaverton’s water loss has fluctuated, averaging 7.7 percent over the past five fiscal years. Water loss was 8.3 percent in fiscal year 2023/24.

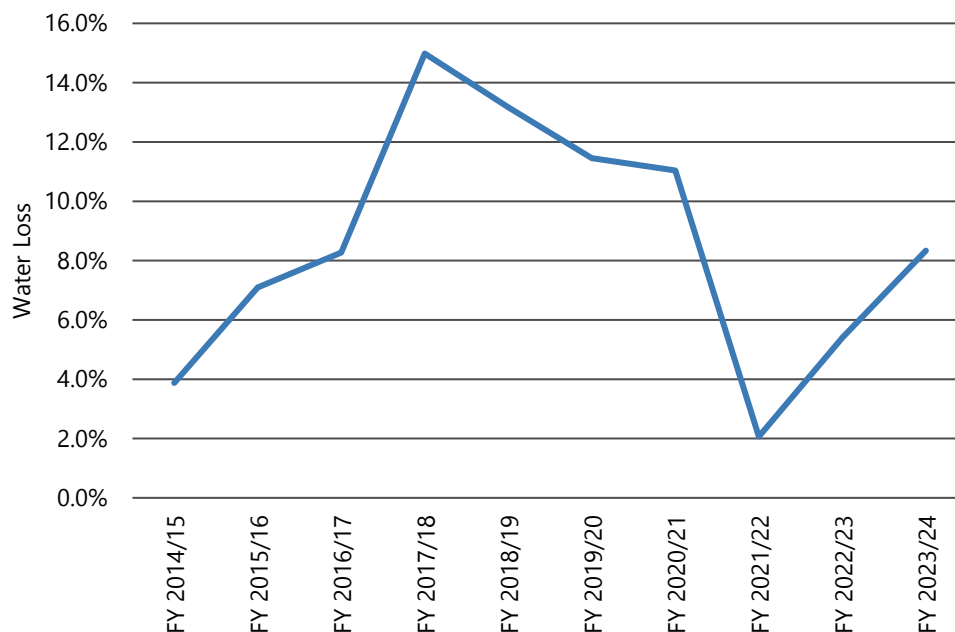
Exhibit 5-5. City of Beaverton Water Loss

Year	Total Demand (MG)	Metered Consumption (MG)	Water Loss (MG)	Water Loss (%)
FY 2014/15	2,456.0	2,360.8	95.2	3.9%
FY 2015/16	2,719.0	2,526.1	192.9	7.1%
FY 2016/17	2,516.0	2,307.9	208.1	8.3%
FY 2017/18	2,714.6	2,307.9	406.7	15.0%
FY 2018/19	3,005.7	2,609.8	395.9	13.2%
FY 2019/20	3,278.8	2,903.3	375.5	11.5%
FY 2020/21	3,404.9	3,029.1	375.8	11.0%
FY 2021/22	3,145.7	3,080.7	65.0	2.1%
FY 2022/23	3,203.0	3,030.0	173.0	5.4%
FY 2023/24	3,335.0	3,057.0	278.0	8.3%

FY = fiscal year MG = million gallons

Data in shaded rows were presented in the 2021 Joint Water Commission Water Management and Conservation Plan. Data for FY 2017/18 and 2018/19 have been updated to reflect the revised information presented in the City of Beaverton's 2023 Water Management and Conservation Plan progress report.

Exhibit 5-6. City of Beaverton Water Loss



FY = fiscal year

The City of Beaverton's percentage of annual supply from the JWC between fiscal year 2020/21 and 2023/24 averaged 95.5 percent.

5.5 TVWD: Water Audit

TVWD calculates water loss as the difference between total demand (JWC-supplied water, Portland Water Bureau-supplied water, and water from TVWD's ASR program; less water wheeled to other water providers) and total consumption, which includes metered customer consumption and estimates of unmetered authorized water uses. Exhibit 5-7 shows TVWD's water loss from fiscal year 2014/15 through 2023/24 in tabular form, and Exhibit 5-8 shows a graph of the change in water loss over time. Water loss is presented by fiscal year, consistent with the 2021 JWC WMCP and TVWD's 2024 WMCP. Data for FY 2018/19 have been updated to align with TVWD's 2024 WMCP.

TVWD's water loss has remained below 10 percent since fiscal year 2014/15 and was 3.3 percent in fiscal year 2023/24.

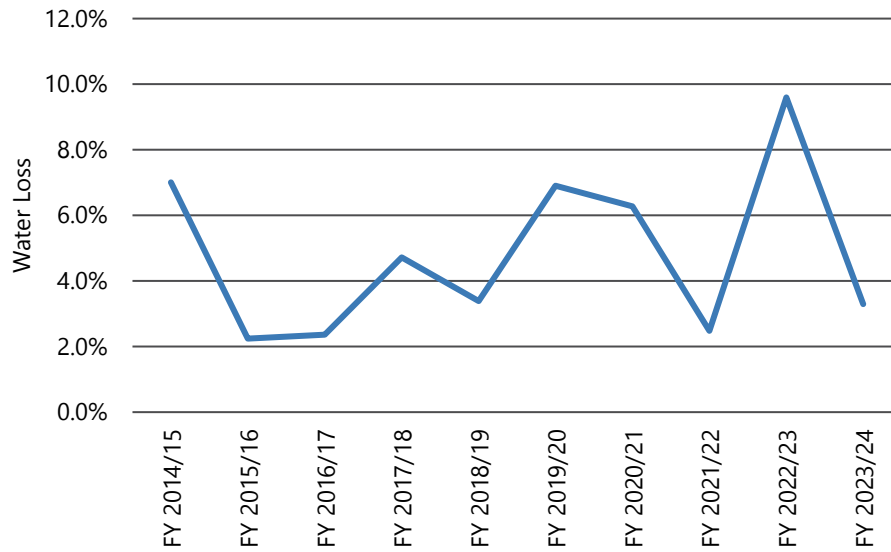
Exhibit 5-7. TVWD Water Loss

Year	Total Demand (MG)	Total Consumption (MG)	Water Loss (MG)	Water Loss (%)
FY 2014/15	8,485.8	7,891.3	594.5	7.0%
FY 2015/16	8,455.8	8,266.2	189.6	2.2%
FY 2016/17	8,008.3	7,819.3	189.0	2.4%
FY 2017/18	8,523.7	8,121.6	402.1	4.7%
FY 2018/19	8,313.2	8,031.6	281.6	3.4%
FY 2019/20	7,856.7	7,314.3	542.5	6.9%
FY 2020/21	8,238.5	7,721.6	516.9	6.3%
FY 2021/22	7,723.6	7,532.2	191.4	2.5%
FY 2022/23	8,499.6	7,684.0	815.6	9.6%
FY 2023/24	7,593.8	7,343.8	250.0	3.3%

TVWD = Tualatin Valley Water District FY = fiscal year MG = million gallons

Data in shaded rows were presented in the 2021 Joint Water Commission Water Management and Conservation Plan. Data for FY 2018/19 have been updated to reflect the revised information presented in TVWD's 2024 Water Management and Conservation Plan.

Exhibit 5-8. TVWD Water Loss



TVWD = Tualatin Valley Water District FY = fiscal year

TVWD's percentage of annual supply from the JWC averaged 29.9 percent between fiscal year 2020/21 and 2023/24.

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Appendix A

Conservation Benchmark Table

City of Hillsboro

Conservation Measure	2021 WMCP Benchmarks	Benchmark Progress
Annual water audit	Continue to conduct annual water audits.	The City continues to conduct annual water loss audits.
	Integrate an AWWA M36 water loss analysis into its water auditing practices.	The City has incorporated the AWWA Free Water Audit Software into our annual water loss audit, supplementing our standard in-house spreadsheet. This enhances accuracy and aligns our processes with AWWA M36 best practices, allowing us to benchmark key indicators like Non-Revenue Water and Infrastructure Leakage Index. The combined approach improves data reliability and supports better planning and reporting.
System metering	Continue installing meters at all new connections.	The City continues to install meters at all new connections.
Meter testing and maintenance	Continue to implement meter testing and maintenance program.	The City continues to implement its meter testing and maintenance program. The City tests meters 3 inches or larger annually, and it has a large meter replacement program that replaces 3 to 5 meters per year. Any meters that fail testing are promptly rebuilt or replaced. In addition, the City has a proactive meter replacement program that replaces meters when they reach 18 years of age (20-year life expectancy).
	Continue to follow manufacturer protocols for maintenance and calibration program for newly installed AMR meters.	The City worked with Neptune to establish a reliable maintenance and calibration program for the Neptune AMR meters and annual testing for meters 3 inches or larger.
Water rate structure	Continue to bill customers based on the volume of water consumed, with pricing structures set to encourage conservation, especially during peak season.	The City continues to bill customers based on the volume of water consumed using a four-tiered rate structure for single-family residential customers and a higher cost per unit when a base volume is exceeded for multi-family, commercial, industrial, public entities, and non-profit customers. Under the residential pricing structure, customers pay a higher unit cost for water use above what is considered essential to life and basic needs, encouraging water conservation. The higher per-unit cost for the other customer categories encourages those customers to reduce water use during the summer peak.
	The City will continue to regularly conduct rate studies.	The City completed its most recent rate study in August 2024, and new rates took effect on January 1, 2025.
Water loss	Continue to conduct leak surveys utilizing AMR program meters in an effort to minimize water loss.	The City continues to actively conduct leak surveys as part of its comprehensive leak detection and repair efforts, utilizing its Automated Meter Reading (AMR) program. A dedicated team operates year-round using City-owned leak detection equipment and a specially equipped vehicle to identify and address potential water system leaks. Between January 1, 2020, and December 31, 2024, the City responded to 99 mainline repairs, 149 service line repairs, and completed 25,771 leak survey tasks. The AMR program is designed to detect both intermittent and continuous leaks occurring on the customer side of the water meter. To support timely repairs and reduce water loss, the City notifies customers of potential leaks. In addition, the City launched a Leak Notification Postcard Program that alerts customers when continuous water usage is detected, indicating a possible leak. These postcards provide helpful information and encourage customers to take prompt corrective action.
	Continue to budget for replacement of high priority aging infrastructure.	The City continues to budget for replacement of high priority aging infrastructure, with a target allocation of \$2.1 million per year in funded depreciation projects to replace high priority aging infrastructure.
	Continue to inspect all four distribution reservoirs for cracks and leaks every five years.	The distribution reservoirs were inspected for cracks and leaks in 2025, and the City will continue to inspect them every 5 years.

City of Hillsboro

Conservation Measure	2021 WMCP Benchmarks	Benchmark Progress
Public education	Continue extensive public education and outreach programs.	The City has continued to implement its water conservation program. This program includes print and digital media, youth education, and community outreach, in English and in Spanish. The City is a member of the Regional Water Providers Consortium, which develops water conservation materials for the use of its members, which include print pieces, social media, E-newsletters, and a robust website (www.regionalh2o.org). The City's Water Department website contains indoor and outdoor water conservation information, descriptions of the City's water conservation programs, water-efficiency rebate information, a weekly watering tool and other irrigation best-practices, water-wise landscaping options, tips to locate and fix leaks at home, and teacher resources for water conservation education. The City's youth education program consists of classroom lessons about water resources that integrate water conservation and source water protection messaging. The City tailors these lessons to match student's developmental stages to ensure the lessons meet state benchmarks, curriculum guidelines, and STEM requirements. In its community outreach, the City puts a high priority on educational programs focused on reducing peak season use. The Water Department has partnered with the Parks Department to run a community garden program, which encourages community gardeners to use water-wise gardening practices and provides information on the "how-to" of water-wise gardening at the gardeners' yearly kick-off meeting. The City also provides incentive equipment and supplies for water-wise gardening, distributes a "Seven Steps to Water Efficient-Gardening" guide that promotes water-wise planting at summer events, installed a water-wise demonstration garden at the Jackson Bottom Wetland Preserve site, contributes to the Children's Clean Water Festival, and constructed a Tualatin River Watershed Display for outreach events, and produced videos in English and Spanish for customers to learn how to read their water meters and locate leaks. The City is also active in several diverse public events throughout the year and has a new language access policy for a large number of languages.
	Explore the feasibility of developing a permanent Hometown Tap water system with educational displays at Gordon Faber Recreation Complex and highly attended event areas.	The Hometown Tap water filling station has grown from a simple mobile unit traveling to city events into a broader initiative that now includes three "Seasonal Hometown Taps". These taps are installed in high-traffic, event-heavy areas from April through October, providing easy access to clean drinking water. During heat waves, additional units are deployed to support public health and hydration. The Hometown Tap can also be requested for large events through the City's website. Each station features educational displays ranging from watershed information to local children's artwork promoting water conservation.
Technical and financial assistance	Continue to set aside budget each year to offer technical and financial incentives to both residential and non-residential customers.	The City includes conservation assistance to residential and non-residential customers in its annual budget.
	Continue to offer technical and financial assistance to all classes of customers including free indoor and outdoor water conservation devices.	The City continues to provide water audits and water-saving devices to all customer classes, including low-flow faucet aerators, efficient showerheads, and leak detection tablets. In addition, the City offers technical support and conservation materials to schools and community gardens, helping promote sustainable water use across the community.
	Continue to offer residential water audits, and explore offering water audits to additional customer classes.	The City offers free indoor and outdoor water audits to residential customers. These audits include leak detection, providing water-efficient showerheads and faucet aerators, and a review of their Utility Bill to identify water saving opportunities. Irrigation customers are eligible for a free landscape irrigation audit and may qualify for rebates towards upgrades.
	Work closely with ICI customers, including multi-family customers, to find innovative ways to reduce water use through improved technology and maintenance.	The City continues to work closely with non-residential customers to find ways to reduce water use. This work has included partnerships with apartment complexes, the Hillsboro School District, religious institutions, and homeowner associations that have resulted in immediate water savings.
	Continue to seek opportunities to promote water-wise gardening techniques at community garden events and to develop new community and school water-wise gardens and outdoor areas.	The City continues to promote water-wise gardening techniques, and supports several demonstration gardens. The City also works with community gardens to implement water conservation techniques, and maintains water-wise planting strips surrounding parking lots.

City of Hillsboro

Conservation Measure	2021 WMCP Benchmarks	Benchmark Progress
	Continue to provide City Parks with financial and technical assistance that supports irrigation improvements.	The City continues to work with the Parks Department to implement water-efficient practices in City parks, including upgrading irrigation systems, providing mulch, and posting educational signs about water conservation improvements.
Supplier financed retrofit or replacement of fixtures	Explore the feasibility and effectiveness of offering Smart Water Monitors to customers.	The City now offers residential customers a rebate of \$150 for installing a Smart Water Meter monitoring device that can help customers monitor and manage their home water use.
	Continue to offer rebates to customers for replacement of high water use fixtures and/or devices with those that are engineered to be more water-efficient.	The City offers residential customers a rebate of \$50 for an Energy Star qualified washing machine, a rebate of \$75 for a WaterSense labeled high-efficiency toilet (up to two rebates per household), and a rebate of up to \$200 for a WaterSense weather-based irrigation controller. Businesses, nonprofits, schools, and homeowner associations are eligible for rebates for indoor and outdoor projects that will improve water efficiency.
	Continue to offer free water saving devices.	The City continues to offer free low-flow faucet aerators and showerheads.
Rate structure and billing practices that encourage conservation	Continue to have a three-tiered water rate system for the single family residential class to promote water use efficiency, bill customers monthly, include graphs showing past usage, and include water conservation information in water bills.	As of 2025, the City uses a four-tiered water rate system for the single family residential class, charging a higher cost per unit when a threshold volume is exceeded to promote water use efficiency. Customers are billed monthly, and bills include graphs showing past usage along with water conservation messaging.
	Explore the best ways to help customers understand their water bills.	The City's utility billing website provides information about the services, charges, and rates on utility bills; shows a sample bill; describes the City's rate studies and the rate adjustment schedule and processes; and includes videos in English and Spanish on how to read and understand customer bills.
Water reuse, recycling, and non-potable water	Review newly acquired non-municipal water rights for potential non-potable water use opportunities.	The City has reviewed currently owned non-municipal water rights for potential non-potable water use opportunities. There are examples of existing and potential applications. The Parks Department's water rights at Jackson Bottom are currently used for non-potable purposes. Additionally, the South Hillsboro fire station well may serve as a future non-potable source to reduce demand on the drinking water system during emergency situations.
	Continue to actively seek out opportunities for water recycling and non-potable opportunities.	The City supports Clean Water Services' and industrial customers' efforts to reuse water where practical.
Other conservation measures	The Conservation Program Specialist will continue to attend trainings and conferences that provide education and insight to potentially grow and enhance existing City conservation programs.	The Conservation Program Specialist continues to attend trainings and conferences, such as the PNWS Section Conference and the AWWA National Water Loss Conference. In 2025, the City established a new Water Conservation Program Coordinator position to support the program's growth and enhance efforts in water loss reduction tracking and public education and outreach.
	The City will use GIS to map locations of rebate approvals in the City. As part of this effort, the City will complete a process to integrate data between different departments, such as Planning, Finance, and Water.	The City currently uses GIS mapping to track addresses of homes that have received rebates, helping to promote equity in program delivery. Moving forward, the City will expand this effort by mapping the locations of all rebate approvals. To support this, a process will be implemented to integrate data across departments, including Planning, Finance, and Water, ensuring a more coordinated and effective approach to water conservation outreach.
	Continue to be a member of the Regional Water Providers Consortium, the Alliance for Water Efficiency, and an active participant on the Conservation Committee of the Pacific Northwest Section of the AWWA.	The City continues to be a member of the Regional Water Providers Consortium, the Alliance for Water Efficiency, and an active participant on the Conservation Committee of the Pacific Northwest Section of the American Water Works Association.

City of Forest Grove

Conservation Measure	2021 WMCP Benchmarks	Benchmark Progress
Annual water audit	Continue annual water audits.	The City continues to conduct annual water audits.
	Implement actions to improve the ease of accessing and reporting consumption data.	To address consumption data accuracy, the City adjusted the temporal alignment of total monthly consumption data to total monthly demand data for a more accurate comparison. Consumption data is now reported on the month billed instead of the prior month recorded in the field.
System metering	Continue to meter all connections.	The City continues to meter all connections.
	Replace two master meters.	The City installed a new raw water flow meter at the Forest Grove Water Treatment Plant in June 2021 and replaced the flow meter for the JWC water entry point into the City's system in May 2022.
	Explore switching the City to an AMI system.	The City is still utilizing AMR (automated meter reading) and has not switched to AMI (Advanced meter infrastructure).
Meter testing and maintenance	Continue regular meter testing and replacement program.	The City continues to implement its regular meter testing and replacement program. The City tests approximately 40 compound meters annually and has a meter replacement program scheduling all customer meters for replacement every 15 years.
Water rate structure	Continue volumetric rate structure for each customer class, and continue using a three-tier rate structure for the single-family customer category.	Customers are billed using a volumetric rate for each customer class, and the single-family residential customer category uses a three-tier increasing block structure to encourage water conservation.
Water loss	Within two years of approval of this WMCP, the City shall provide OWRD with a description and analysis identifying potential factors for the water loss and selected actions for remedy. If the selected actions do not reduce water loss to less than 10 percent within five years of approval of the WMCP, the City will either develop and implement a regularly scheduled and systematic program to detect and repair leaks in the transmission and distribution system or develop and implement a water loss program consistent with AWWA standards.	The City completed a replacement of the master meters used to calculate demand and improved the accuracy of its water loss calculations through better alignment of the timeframes used for its demand versus consumption data. Following these improvements, the City analyzed demand and consumption from June 2022 through August 2023 and calculated that its water loss was 8.1 percent. The City will continue to track water loss but does not need to take additional steps outlined in the benchmark at this time. The City reported the results of this water loss analysis to OWRD in a letter dated January 5, 2024. City Public Works completed leak detection on 94,269 feet of water main in 2025.
Public education	Continue to hold its annual open house, actively participate in RWPC and JWC EEC events, and update its website when appropriate.	The City took part in the Public Services Open House on 10/4/25 to provide information about water management. High efficiency toilet rebate forms are available. Water conservation and rebate information is provided on a dedicated webpage on the City website, including links to RWPC water conservation tips and videos.
Technical and financial assistance	Evaluate expansion of the current home energy audit program to include more water conservation consultation.	Forest Grove Light and Power offers energy efficiency and conservation programs including rebates for high-efficiency appliances. Rebates are available for residential customers who purchase high-efficiency clothes washers and heat pump water heaters.
	Forest Grove will continue to offer home energy audits that include fixture giveaways and will continue to offer free water conservation items.	Home energy audits are available for customers interested in installing energy-saving measures in homes built before 2007. Free water conservation items available from the City include toilet leak detection dye tablets, faucet aerators, outdoor watering gauges, and shower timers.
Supplier financed retrofit or replacement of fixtures	Continue to provide rebates for low-water-use washing machines, water heater pumps, dishwashers, and toilets.	Rebates are available for water-efficient toilets, washing machines, and heat pump water heaters.
	Explore the feasibility of implementing a rebate program for weather based irrigation controllers.	The City has not yet explored the feasibility of implementing a rebate program for weather-based irrigation controllers due to focusing resources on other water conservation activities. The City plans to explore the feasibility in the next two years.
Rate structure and billing practices that encourage conservation	Continue to utilize a volumetric rate structure and continue to provide conservation messages with billing inserts.	The City continues to use a volumetric rate structure and periodically includes conservation messages with billing inserts.
Water reuse, recycling, and non-potable water	Continue to forward customer and business inquiries on water reuse and recycling to CWS, continue to recycle backwash water, and seek non-potable water use opportunities.	The City continues to direct customers interested in water reuse and recycling to Clean Water Services. The Forest Grove Water Treatment Plant recycles a portion of the backwash water. Other than water lost to evaporation, all backwash water and water removed from dewatered solids is retreated. Non-potable water use opportunities have not yet been identified.
Other conservation measures	Forest Grove will continue to participate in the AWWA and RWPC.	The City continues to participate in the AWWA and RWPC.

City of Beaverton

Conservation Measure	2021 WMCP Benchmarks	Benchmark Progress
Annual water audit	Continue to conduct annual water audits over the next 5 years.	The City continues to conduct annual water audits.
System metering	Continue to meter all connections.	All connections are metered.
	Over the next five years, the City will work towards the seven year goal of converting all meters to AMI meters.	The City continues to work toward this goal and has secured grant funding through the Water Infrastructure Finance and Innovation Act to install AMR and eventually an AMI system in the Cooper Mountain area.
Meter testing and maintenance	The City will follow manufacturer's specifications for AMI meter testing and maintenance.	The City completed installation of AMI software and transitioned to in-house meter reading in August 2024. At that time, the City began replacing approximately 400 meters per month with AMI meters. Meter replacements have continued through 2025, and the City's goal is to complete the AMI project in 2028. The City will continue to follow the manufacturer's recommendations for AMI meter testing and maintenance.
	The City will track meter data for signs of malfunctioning meters and will replace any malfunctioning meters promptly.	The AMI system flags unusually high water use, which could indicate a leak or a meter malfunction, as well as zero water use, which could indicate meter failure. The City investigates these potential issues and notifies the customer as soon as possible if a leak is suspected or replaces malfunctioning meters.
Water rate structure	Continue to bill customers based, in part, on the volume of water consumed on a monthly basis.	The City continues to bill customers based, in part, on the volume of water consumed on a monthly basis to promote water use efficiency.
	Continue to assess rate structure in the future for modification in order to adequately fund the operation and maintenance of the City's water system, including consideration of a progressive tiered-rate (i.e., including block rate) structure in the next 5 years.	The City conducted a water rate study in 2024 that evaluated various rate structure options, including a tiered-rate structure for single-family residential customers. The City also conducted public outreach about the rate study in 2024 and early 2025. Beaverton City Council considered the results of the rate study and approved updated water rates in June 2025 (effective July 1, 2025) that include a uniform volumetric charge for all customer types rather than a tiered structure.
Water loss	Continue to conduct leak detection program.	The City continues to conduct its leak detection program, including visual leak detection and use of acoustic leak detection equipment in areas where leaks are suspected.
	Continue to budget for replacement of high-priority aging infrastructure that contributes to leaks.	The City continues to implement its aging waterline replacement program and replaced 5,320; 2,662; 2,774; and 2,371 feet of waterline in 2021, 2022, 2023, and 2024 respectively.
Public education	Continue public education program and participation in the Consortium and JWC's EEC.	The City continues to participate as a funding partner in the Consortium and JWC's Education and Event Committee, which maintains a water conservation website with information about efficient use of water for irrigation and other conservation-related information. The City continues to include conservation messaging in its Consumer Confidence Report. Water conservation outreach materials prepared by the Consortium, such as flyers and pamphlets, are stocked at the library, City Hall, and other locations for easy access by customers.
Technical and financial assistance	Continue to provide technical and financial assistance to residential and non-residential customers. Specifically, continue to offer water saving devices (e.g., water gauges) and offer information that promotes water conservation self-assessments.	The City continues to offer free watering gauges and includes a link to the Weekly Watering Number tool on its website to promote efficient irrigation. The water conservation webpage also includes information for households to conduct a self-assessment of indoor and outdoor water use.
	Explore opportunities to offer additional technical assistance in the form of free irrigation audits to multi-family customers.	Due to staffing changes and funding constraints, the City has focused its resources on other water conservation measures.
Supplier financed retrofit or replacement of fixtures	Continue to offer rebates and incentives to customers to retrofit or replace inefficient fixtures.	The City continues to offer rebates for customers to install high-efficiency toilets, washing machines, and WaterSense weather-based irrigation controllers. Since the 2021 WMCP was approved, the City has provided 553 toilet rebates, 100 washing machines rebates, and 100 irrigation controller rebates.
	Continue to offer water saving devices.	Due to staffing changes and funding constraints, the City has focused its resources on other water conservation measures.
Rate structure and billing practices that encourage conservation	Continue to charge for water based on the volume of water used as means to promote water use efficiency.	The City's water rates continue to include a volumetric charge to encourage water use efficiency.
	Continue to bill customers monthly.	The City continues to bill customers monthly.

City of Beaverton

Conservation Measure	2021 WMCP Benchmarks	Benchmark Progress
Water reuse, recycling, and non-potable water	Continue to develop and pilot test a stormwater capture project with CWS.	Since 2021, the City has been installing a non-potable irrigation system in a 544-acre residential area to collect and treat winter stormwater, store this water in the aquifer, and recover the water for irrigation use during the summer. The Sterling Park Stormwater Treatment Facility was completed in Summer 2025 and treatment efficacy testing is occurring in the 2025/2026 rain season to ensure treated stormwater can be stored in the aquifer.
	Continue to develop the purple pipe project in the SCM area.	The City has installed approximately 75,000 feet of purple pipe in the South Cooper Mountain area, supplying residential irrigation systems and a high school irrigation system. The purple pipe system this summer was partially supplied by groundwater from ASR 3 and 3A at the Sterling Park Treatment Facility.
Other conservation measures	Continue to be a member of the Consortium and offer the services provided through membership to its customers.	The City continues to be a member of the Consortium. City customers benefit from the regional peak season water conservation campaign and other Consortium initiatives.
	The Conservation Program Specialist will continue to attend trainings and conferences that provide education and insight to potentially grow and enhance existing City conservation programs.	Due to funding constraints, the Conservation Program Specialist position is not currently funded, and the City is focusing on other conservation measures.
	Consider performing a conservation measure cost-effectiveness analysis to identify new conservation measures for implementation.	Due to staffing changes and funding constraints, the City has elected not to perform this analysis.
	Consider implementing measures targeting customers in areas with higher peaking factors.	During a recent water rate study completed in 2025, City Council decided not to move to a tiered usage or elevation based water rate.

Tualatin Valley Water District

Conservation Measure	2021 WMCP Benchmarks	Benchmark Progress
Annual water audit	Continue to perform a comprehensive, annual water audit in order to continually assess water loss from all potential causes.	The District continues to perform its rigorous annual water audits. In 2025, the District began an evaluation of the latest American Water Works Association (AWWA) Water Audit Software (version 6) and manuals (e.g., Manual M36) for use in future audits.
	Continue to track usage by customer class to evaluate consumption trends.	The District continues to classify its customers into eight categories to evaluate consumption trends during its annual water audit.
System metering	Install AMR in all new meter installations or as metering devices fail to perform to District specifications. Continue evaluating the use of Advanced Metering Infrastructure (AMI) for consideration in the development of a long-term meter reading strategy.	The District stopped purchasing and installing new AMR meters due to the lack of production and product support by the manufacturer. The District is now planning to implement AMI-based metering within the next 10 years.
Meter testing and maintenance	Continue to test large meters every two years or less and small meters (2-inch or less) upon request.	The District continues to test and repair or replace large meters (greater than 2-inch diameter) at least every 2 years, with the goal of annual testing. Small meters (2-inch or less) are tested upon request or when the District identifies potential meter failures.
	The 12 remaining large, non-AMR meters will be replaced as they reach the end of their functionality, as parts become difficult to acquire, or as opportunity projects arise.	The 12 remaining large, non-AMR or AMI continue to register within the District's specifications and have not been replaced. These meters are tested at least every 2 years.
Water rate structure and billing practices that encourage conservation	Continue current rate structure and bi-monthly billing schedule along with providing periodic conservation messages and recent water use in billing statements. The District is also in the process of procuring a new customer information system (i.e., billing software) with implementation scheduled for completion during the 2021-2022 fiscal year. This change is expected to offer increased flexibility and opportunity for improved customer billing and messaging.	The District completed implementation of its new customer information system (i.e., billing software) and continues to use a volumetric-based rate structure to encourage conservation and conducts periodic rate structure reviews. Currently, the billing schedule remains bi-monthly, but monthly billing is being piloted and will be explored further as AMI technology is implemented. Current and historical water consumption are included on billing statements, and conservation messages are included seasonally on billing statements or as billing inserts.
Water loss	Continue its efforts to minimize water loss, including: conducting leak detection surveys, regularly inspecting fire hydrants with acoustical listening devices, repairing leaks, replacing mains and implementing other activities identified in the District's Capital Improvement Program, reviewing AMR data, implementing special messaging campaigns through newsletters and TVWD's website, and offering "Leak Kits."	The District continues to perform its leak detection and repair program, including targeted leak detection surveys when leaks are suspected followed by immediate repair of identified leaks. The District implements infrastructure projects in its Capital Improvement Program through a variety of revenue sources. When a customer is experiencing high water usage and an AMR register has data-logging capability, the District can download and analyze the data to evaluate usage. Customer usage that is significantly higher than historical usage is also flagged automatically during bill processing to identify and notify customers of potential leaks. As described above, the District has also initiated a water system audit analysis that will utilize the American Water Works Association water loss audit software to enhance its water loss management practices. The District continues to implement its public education messaging campaigns. "Welcome Kits" are available and include a rebate brochure, a "Practical Plumbing Handbook" that describes how to identify and repair common leaks, and toilet leak detection dye tablets.
Public education	Continue to use a variety of educational tools to reach customers, including bill inserts, website updates, various social media platforms, attending public events and facilitating tours, and providing high-value youth education programming.	The District uses its website, newsletters, billing messages, postcards, emails, educational videos, and events to educate customers about water conservation and leak detection and repair. The District continues to use its Water Efficient Demonstration Garden to demonstrate landscaping irrigation best management practices.
	Remain an active member of the RWPC to enhance regional communications and work with local water providers on outreach strategies related to conservation and emergency preparedness.	District staff continue to be involved in the RWPC and the Pacific Northwest Section AWWA Water Conservation Committee. Staff contribute to and work with the RWPC to create and support implementation of regional public education efforts around water conservation.
Technical and financial assistance	Continue to provide indoor and outdoor water use assessment upon request, promote these efforts, and continue other elements of the technical and financial assistance program.	The District continues to provide indoor and outdoor water use assessment upon request. During the assessments, District staff works with customers to address customers' specific concerns, resolve high water use problems, provide education regarding best practices for efficient water use, and present resources and access to rebate incentives to make water-efficient purchase decisions.

Tualatin Valley Water District

Conservation Measure	2021 WMCP Benchmarks	Benchmark Progress
Supplier financed retrofit or replacement of fixtures	Continue to fund all of the current rebate programs.	The District continues to fund all rebate programs except the Customer Organized Proposal Rebate, which was terminated due to low participation.
	As the WaterSense program continues to evolve and more products are added to the labeling program, the District will evaluate incorporation of these new products into rebate programs.	As of February 2025, the US Environmental Protection Agency paused work to develop specifications for new WaterSense-labeled products. When new products are added to the program, the District will evaluate incorporating them into rebate programs.
Water reuse, recycling, and non-potable water	Continue to support regional efforts in developing innovative methods for reuse of water.	The District continues to support projects and efforts that promote fiscally responsible water reuse and non-potable water use options for the region.
	Continue working with CII customers to support projects that improve production water efficiency through reuse and recycling.	On request, the District will work with residential and commercial customers to investigate opportunities to improve water efficiency, including sharing resources to consider water reuse and recycling (e.g., state agency resources, RWPC materials).
Other conservation measures	Continue efforts to provide high quality customer service and facilitate customer engagement and participation in water conservation efforts.	The District continues its efforts to provide high quality customer service by facilitating customer participation in water conservation efforts.
	Continue current efforts to market the use of advanced irrigation technology in landscape irrigation and promote best landscaping practices using Water Efficient Demonstration Garden.	The District continues its efforts to promote the use of weather-based irrigation technology through its rebate program. The District also continues to use its Water Efficient Demonstration Garden to demonstrate landscaping and irrigation best management practices.
	Continue performing cost-benefit analyses of various conservation programs and methods for both customers and the District.	The District has been using the Alliance for Water Efficiency's Water Conservation Tracking Tool for conservation program and measure evaluation.

Appendix B

Percentage of Annual Water Supply from the JWC

Year	Total Annual Volume (MG)	JWC-Supplied Annual Volume (MG)	Percentage of Annual Supply from JWC (%)
City of Hillsboro			
2020	6,773.0	6,504.9	96.0%
2021	7,285.9	7,081.7	97.2%
2022	6,853.5	6,670.0	97.3%
2023	7,356.3	7,182.0	97.6%
2024	7,338.2	7,130.8	97.2%
City of Forest Grove			
2020	1,153.0	468.1	40.6%
2021	1,252.2	525.5	42.0%
2022	1,125.3	604.1	53.7%
2023	1,180.1	863.4	73.2%
2024	1,165.7	476.2	40.9%
City of Beaverton			
FY 20/21	3,404.9	3,321.4	97.5%
FY 21/22	3,145.7	3,135.4	99.7%
FY 22/23	3,203.0	3,056.6	95.4%
FY 23/24	3,335.0	2,978.5	89.3%
TVWD			
FY 20/21	8,238.5	2,095.3	25.4%
FY 21/22	7,723.6	1,919.8	24.9%
FY 22/23	8,499.6	2,976.4	35.0%
FY 23/24	7,593.8	2,594.8	34.2%
Wholesale			
2020	120.0	120.0	100.0%
2021	141.9	141.9	100.0%
2022	134.9	134.9	100.0%
2023	169.6	169.6	100.0%
2024	182.5	182.5	100.0%

MG = million gallons

JWC = Joint Water Commission

FY = fiscal year

TVWD = Tualatin Valley Water District

