



FINAL DRAFT

City of Rockaway Beach

Source Water Protection Plan

April 2025



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Abbreviations and Acronyms

BLM	Bureau of Land Management
CERT	Community Emergency Response Team
cfs	cubic feet per second
City	City of Rockaway Beach
CPR	cardiopulmonary resuscitation
CSZ	Cascadia Subduction Zone
DEQ	Oregon Department of Environmental Quality
DWPP	Drinking Water Protection Plan
EJScreen	Environmental Justice Screening and Mapping Tool
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
FERNS	Forest Activity Electronic Reporting and Notification System
FPA	Forest Practices Act
FRIA	Forest Road Inventory and Assessment
GIS	Geographic Information Systems
IC	Incident Commander
IMT	Incident Management Team
MOU	Memorandum of Understanding
NHMP	Natural Hazards Mitigation Plan
NIMS	National Incident Management System
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
OHA	Oregon Health Authority
OWRD	Oregon Water Resources Department
PI	Palmer Index
PIO	Public Information Officer
Plan	Source Water Protection Plan
SDWA	Safe Drinking Water Act
SPPDAC	Sourcewater Protection Plan Development Advisory Committee
SWA	Source Water Assessment
SWPP	Source Water Protection Plan
SWSI	Surface Water Supply Index
USFS	U.S. Forest Service
WMCP	Water Management and Conservation Plan
WMP	Water Master Plan
WTP	water treatment plant

SECTION 1: Introduction

This Source Water Protection Plan (SWPP or Plan) focuses on the Jetty Creek watershed and was developed by GSI Water Solutions, Inc., on behalf of the City of Rockaway Beach (City) with guidance from a team of stakeholders and technical advisors, an Advisory Committee with City Council representatives, and public input. This SWPP provides a framework for Rockaway Beach to address risks to its primary drinking water source, Jetty Creek, in a manner that meets the criteria for state approval of a Drinking Water Protection Plan (DWPP). This SWPP is functionally equivalent to a DWPP.

1.1 Source Water Protection Goals

Source water protection refers to actions aimed at improving or safeguarding the quality and quantity of a water source used for drinking water. Source water protection helps communities provide clean, safe, high-quality drinking water to the public. Minimizing contaminants at the water source that threaten water quality helps reduce treatment costs and protects public health.

The primary goal of this SWPP is to protect the City's primary drinking water source, Jetty Creek, by documenting current and potential risks in the source water area, identifying strategies for eliminating or minimizing those risks, and establishing a detailed implementation plan to carry out the selected strategies, as funding allows. The SWPP also includes a contingency plan describing actions to be taken if the current water source becomes unavailable and considers future water sources.

This SWPP is one of several tools for the City to use to protect its drinking water source and improve water supply reliability. While this SWPP focuses on the City's Jetty Creek water source, the City is addressing its groundwater sources through other planning efforts, including the Water Master Plan (WMP), which is anticipated to be updated in the next few years.

This SWPP will enable the City to prepare for the future by addressing water quality and quantity issues associated with risks to its water source. As the City's population, development, and tourism grow, demands on the Jetty Creek water supply will increase, and strategies to minimize risks to the water source will be an increasing focus. An identified concern among the public and the City is management of the source watershed. In response, the City has set a goal of protecting the Jetty Creek watershed through acquisition, easement, or adjusted forest management.

Multiple stakeholders, including one of the two Jetty Creek watershed landowners who owns the lower portion of the watershed, and local members of conservation groups, formed the Jetty Creek Working Group in 2017 to facilitate conversations about the management of the source water area and explore land acquisition options. The Jetty Creek Working Group facilitated the completion of a Memorandum of Understanding (MOU) to create a collaborative solution for long-term, sustainable stewardship of the Jetty Creek watershed. The MOU includes objectives and agreed-upon actions from the parties involved to protect the City's drinking water source, including the landowner of the lower watershed agreeing to halt herbicide use on roadsides. In 2023, the landowner of the upper watershed and the City began attending the Jetty Creek Working Group meetings, and the City officially signed an updated MOU. Discussions between the City and landowners about potential acquisition or conservation easements have been occurring, and as of this SWPP's publication, one landowner has expressed interest, but no plans are finalized. The possibility of acquiring land in the Jetty Creek watershed was a major reason the City pursued funding for and initiated the development of the SWPP. This SWPP fits into the acquisition planning process and supports the City's efforts to achieve its land acquisition goal and source water protection goals.

1.2 Rockaway Beach Source Water Areas

Rockaway Beach is located in the North-Coast region of Oregon and has a maritime climate. The City operates a municipal water system (PWS 4100708) that serves approximately 2,558 customers within and around the city limits according to the Oregon Health Authority's (OHA's) Drinking Water Data Online system, which can be accessed at: <https://yourwater.oregon.gov/inventory.php?pwsno=00708>. The City's water system also serves the unincorporated communities of Nedonna Beach and Twin Rocks. The City is a popular summertime tourist destination. As a result, while the City's resident population is 1,499 according to the U.S. Census data from July 2022, during the summer months, the influx of visitors can increase the City's population to over 4,500, as described in the Rockaway Beach Water Management and Conservation Plan (WMCP), Section 2.1 (HBH, 2020). The City's water system service area, which extends beyond the city limits within the boundaries of its urban growth area, is approximately 2.7 square miles and is bounded on the east by the Coast Range and on the west by the Pacific Ocean.

The City's primary water supply source is Jetty Creek, which has a 1,300-acre source water area (i.e., watershed) located 3 miles north of the City. The City supplements the Jetty Creek supply with water from its groundwater wells in late summer as needed due to low flows in Jetty Creek. The City worked with the Oregon Department of Environmental Quality (DEQ) to obtain the updated maps provided as Exhibits 1-1 through 1-4. Exhibit 1-1 is a map showing the City's drinking water source areas and adjacent source areas. Exhibit 1-2 is a map delineating the City's Jetty Creek watershed surface water source area and intake and its groundwater source area and wells, and shows the locations of borrow pits in the Jetty Creek watershed. Exhibit 1-3 shows erosion potential in the Jetty Creek watershed. For Exhibit 1-3, DEQ used three different soil evaluation methods¹ for estimating soil erosion potential depending on the overall slope of the land surface and data availability. The red, orange, and yellow lines in Exhibit 1-3 represent the method and dataset used, not the level of erosion potential. Exhibit 1-3 shows that the majority of the stream miles in the watershed have high soil erosion potential. Exhibit 1-4 shows the surface water sources authorized on the City's municipal water rights.

¹ DEQ used the following datasets to map the erosion potential:

- a. The red lines represent areas within 300 feet of streams with greater than 75% soil disturbance, based on the United States Department of Agriculture (USDA) Natural Resource Conservation Services (NRCS) Revised Universal Soil Loss Equation -2 (RUSLE2), and lower slopes. These areas have moderate to very high erosion vulnerability, according to the RUSLE2 data.
- b. The orange lines represent areas within 300 feet of streams with up to 75% soil surface disturbance (bare soils) after disturbance activities that expose the soil, based on the USDA NRCS "off-road/off-trail erosion hazard rating" data.
- c. The legend includes a key for streams represented by yellow lines; however, these areas are not present in the City's Drinking Water Source Area on this map. Typically, DEQ uses yellow lines to represent areas within 300 feet of streams with high soil erodibility ratings, and with slopes greater than 30%, based on Soil Resource Inventory (SRI) data from the United States Forest Service (USFS) and Soil Survey Geographic Database (SSURGO) data. SSURGO data was unavailable for the area on this map. No yellow lines (aside from the Drinking Water Source Area Boundary, a dotted black line with a yellow highlight) are shown on this map.

Exhibit 1-1. Rockaway Beach Drinking Water Source Areas and Adjacent Source Areas

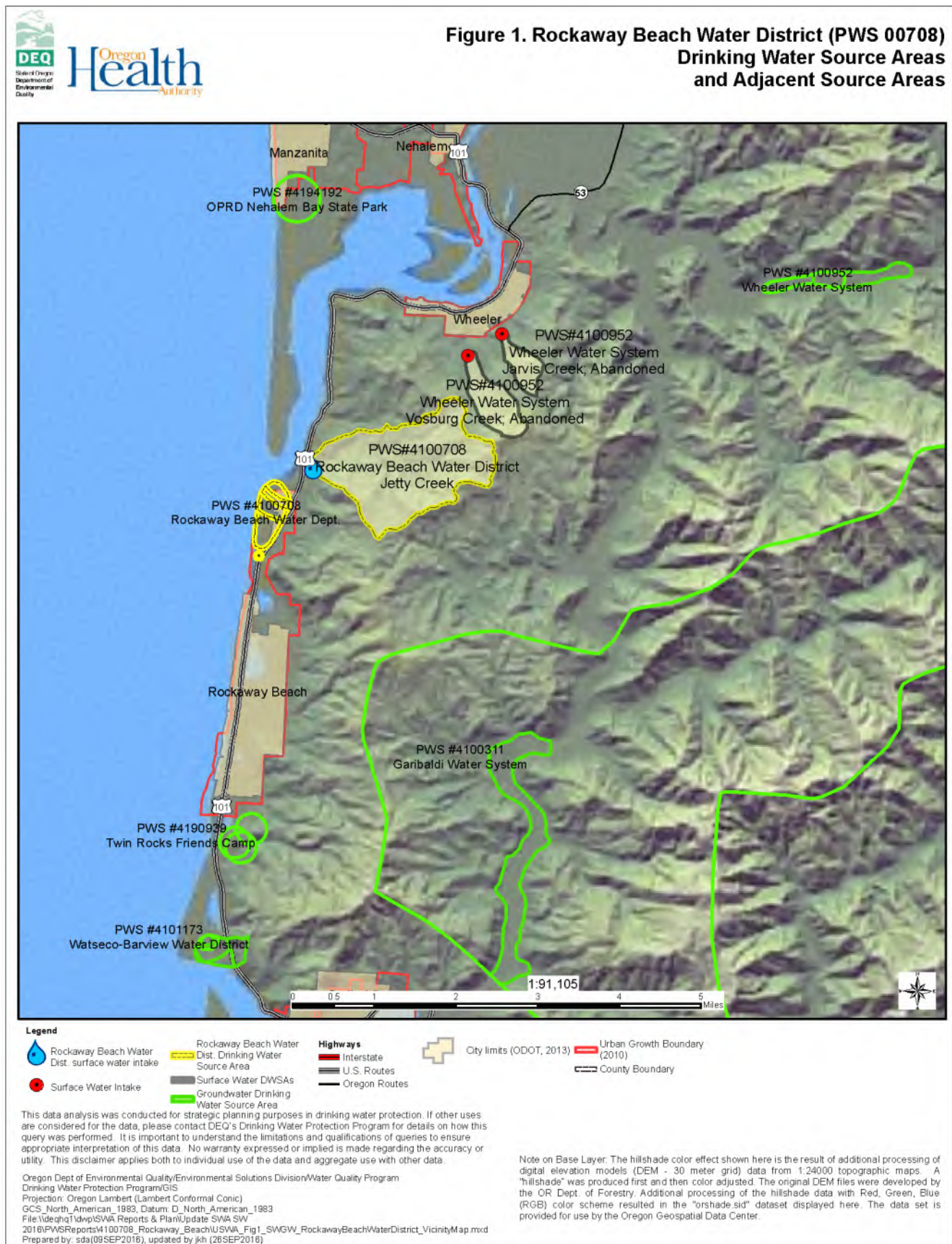


Exhibit 1-2. Rockaway Beach Source Water Areas

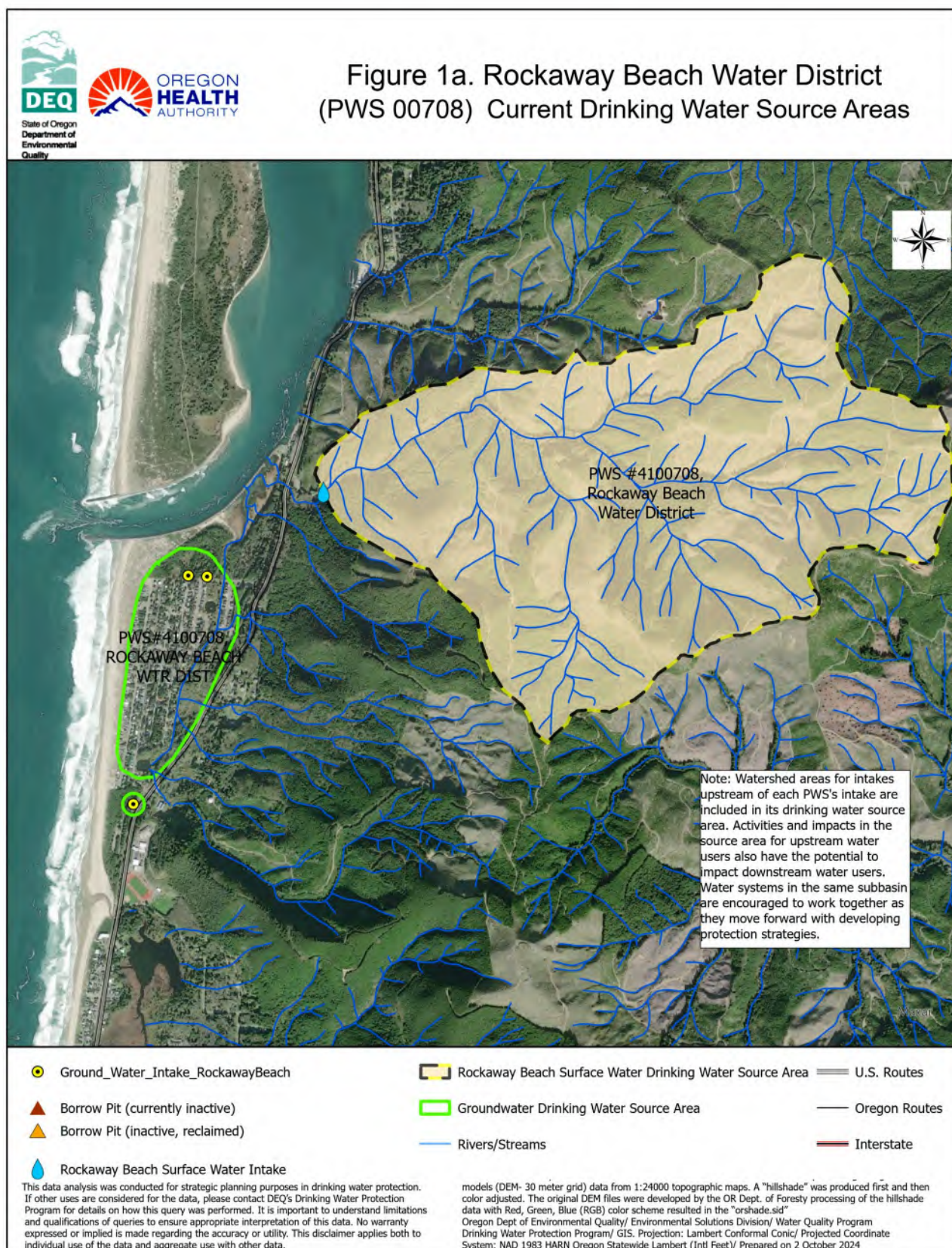


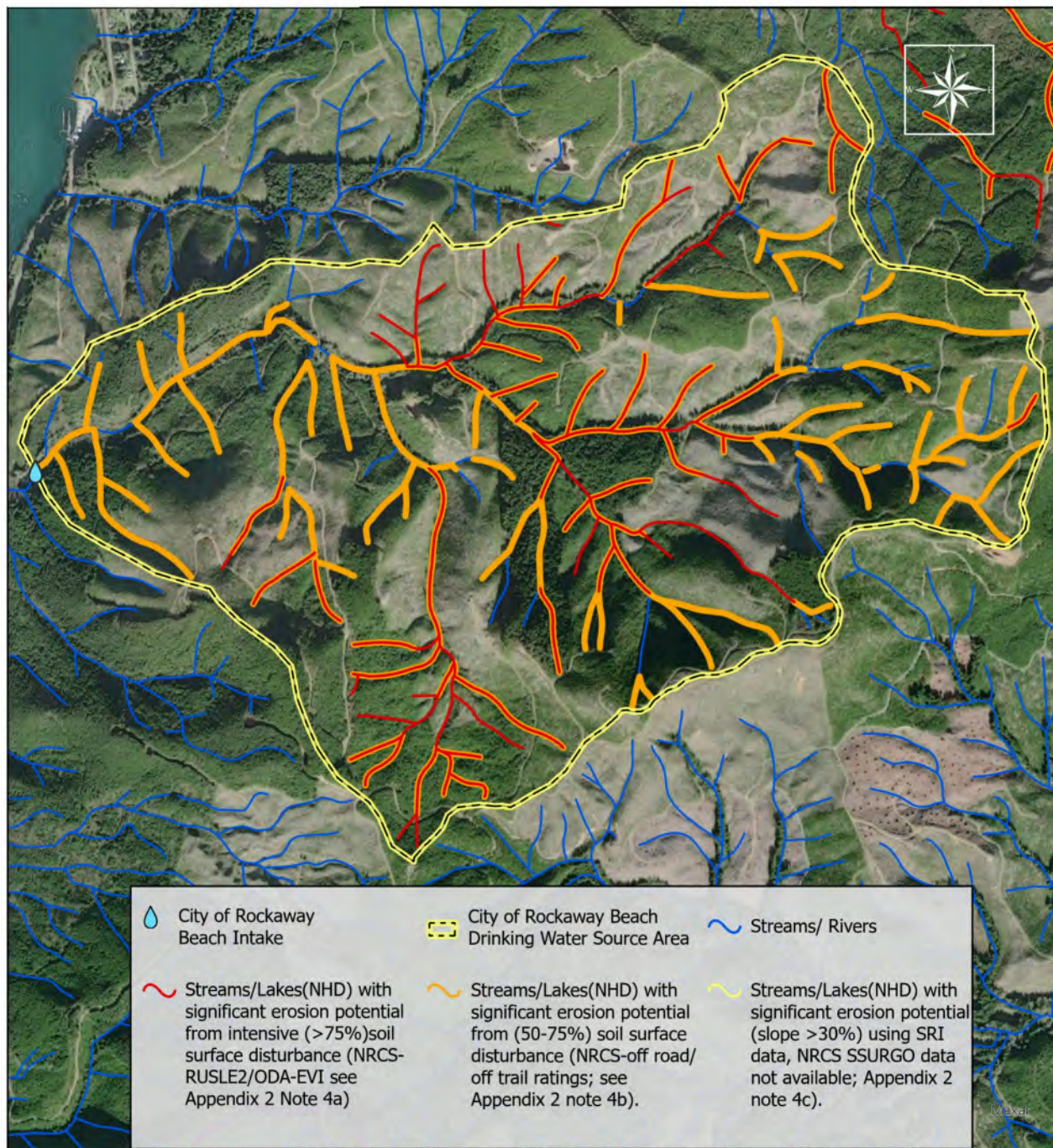
Exhibit 1-3. Rockaway Beach Source Area Erosion Potential



OREGON
HEALTH
AUTHORITY



**Figure 2 City of Rockaway Beach (PWS 4100708)
Drinking Water Source Area Erosion Potential
(See Appendix 2 for key to map details and metadata)**



0 0.2 0.4
Miles

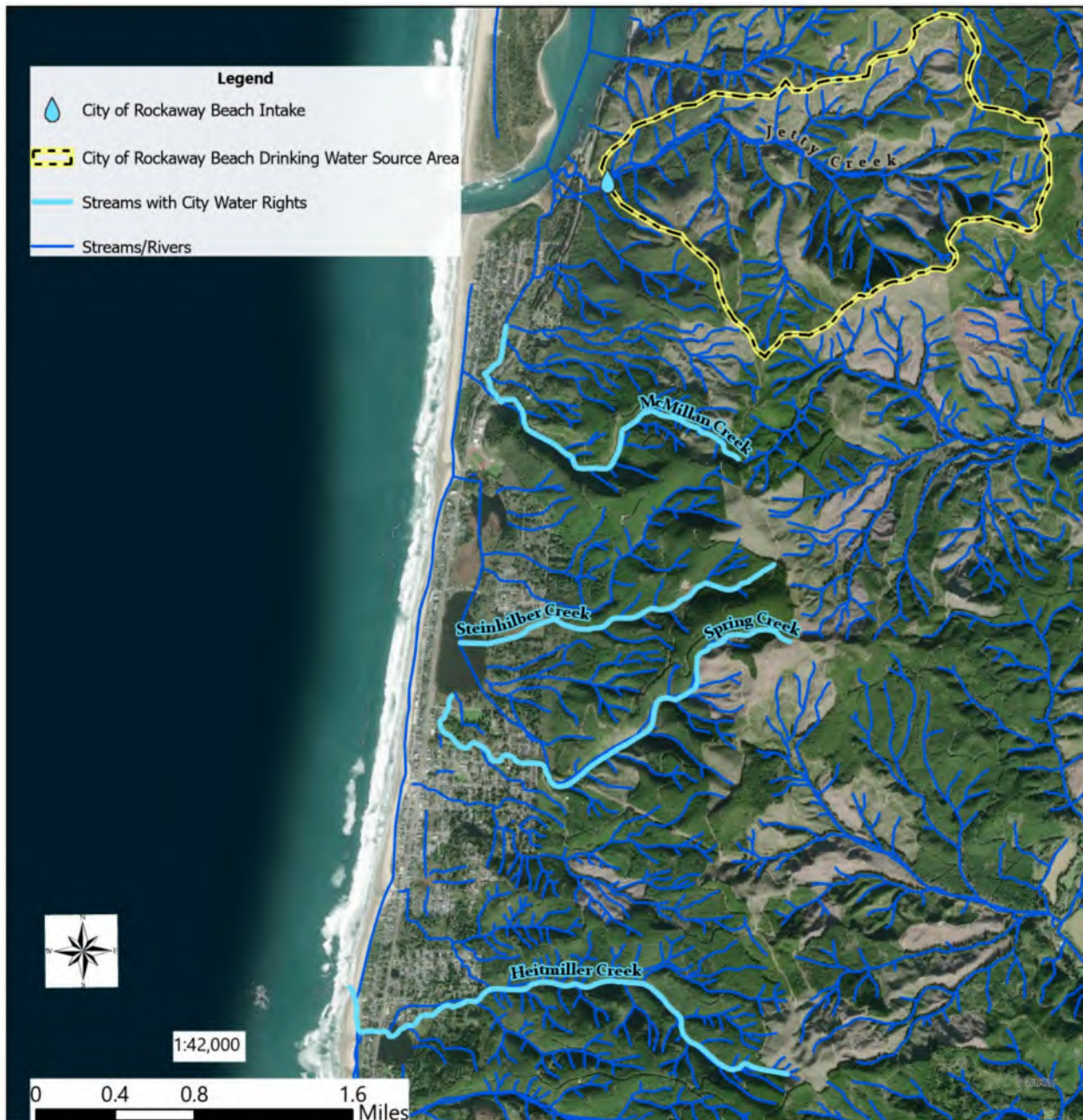
Oregon Department of Environmental Quality/ Drinking Water Protection Program
Projection: Oregon Lambert (Lambert Conformal Conic), GCS_North_American_1983
File: \DEQH\Q1\DW\SWA Reports & Plan\Update_SWA_SW_2024\4100708_RockawayBeach

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Exhibit 1-4. Water Rights Held by City of Rockaway Beach



Figure 3a. City of Rockaway Beach (PWS#4100708)
Water Rights Held by City of Rockaway Beach
(See Appendix 2 for Key to map details and metadata)



This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering or surveying purposes. Users of this information should review and consult the primary data and information sources to ascertain the usability of the information. DEQ's Drinking Water Protection Program can provide information on how the queries were performed. It is important to understand the limitations and qualifications of queries to ensure appropriate interpretation of this data. No warranty expressed or implied is made regarding the accuracy or utility. This disclaimer applies both to individual use of the data and aggregate use with other data.

Oregon Department of Environmental Quality/ Drinking Water Protection Program \\DEQ\HQ1\DW\PSWA Reports & Plan\Update_SWA_SW_2024\Templates

1.2.1 Water Rights

The City currently uses Jetty Creek as its primary municipal water supply source and holds water rights collectively authorizing the use of up to 2.0 cubic feet per second (cfs) from Jetty Creek. Water diverted from Jetty Creek is treated at the City's water treatment plant (WTP), which has a treatment capacity of 861,120 gallons per day (1.3 cfs). The City holds two groundwater rights that authorize 1.003 cfs from three groundwater wells, the West and East Wells and the Manhattan Well. As discussed previously, the wells are used to supplement supply from Jetty Creek in the late summer when streamflows are too low to meet peak demands. In addition, the City has water rights on several other surface water sources that it holds in reserve; they are not currently in use. Exhibit 1-4 lists and summarizes information about the City's water rights.

Exhibit 1-3. City of Rockaway Beach Water Rights

Source	Application	Permit	Certificate/ Transfer	Priority Date	Type of Use	Authorized Rate (cubic feet per second)	Comments
Surface Water							
Jetty Creek	S-46578	S-34498	97180	12/8/1969	Municipal	1.0	<ul style="list-style-type: none"> Flow restrictions (due to instream water right Certificate 59625) In use as main source of supply
Jetty Creek	S-61833	S-46245	97181	6/24/1981	Municipal	1.0	<ul style="list-style-type: none"> Flow restrictions (due to instream water right Certificate 59625) In use as main source of supply
McMillan Creek	S-21838	S-17176	26097	7/31/1946	Municipal	0.26	<ul style="list-style-type: none"> Not currently in use
McMillan Creek	S-32194	S-25396	30421	3/17/1958	Municipal	0.26	<ul style="list-style-type: none"> Not currently in use
McMillan Creek	S-33260	S-26296	30423	7/30/1959	Municipal	0.50	<ul style="list-style-type: none"> Not currently in use
Spring Creek and Steinhilber Creek	S-2085	S-1081	936	2/15/1912	Municipal	0.5	<ul style="list-style-type: none"> Not currently in use
Heitmiller Creek	S-37408	S-27861	38987	2/16/1962	Municipal	0.5	<ul style="list-style-type: none"> Not currently in use
Heitmiller Creek	S-1785	S-925	2201	10/18/1911	Domestic, including municipal supply	2.50	<ul style="list-style-type: none"> Not currently in use
Rockaway Creek	S-153	S-51	2386	6/28/1909	Domestic	5.0	<ul style="list-style-type: none"> Not currently in use

Source	Application	Permit	Certificate/ Transfer	Priority Date	Type of Use	Authorized Rate (cubic feet per second)	Comments
Groundwater							
Two Wells in the Nehalem Bay Basin (East Well and West Well)	G-9809	G-9365	82449	6/10/1981	Municipal	0.78	<ul style="list-style-type: none"> Used to supplement Jetty Creek water supply in summer The East Well has water quality issues
A well in McMillan Creek Basin (Manhattan Well)	G-15716	G-15325	None	2/28/2002	Municipal	0.223	<ul style="list-style-type: none"> The Manhattan Well has water quality issues and is only used to supplement the City's Jetty Creek water supply in summer. The authorized rate from this permit is currently limited to 0.156 cubic feet per second (cfs) out of 0.223 cfs, per an Oregon Water Resources Department Water Management and Conservation Plan Final Order dated 2/26/2020 The permit development completion deadline was extended to 10/1/2057

1.3 Source Water Protection Plan Development

1.3.1 Background

The 1996 amendments to the federal Safe Drinking Water Act (SDWA) established new requirements and allocated resources to DEQ and OHA to assist communities with drinking water protection. In Oregon, a public water system can voluntarily develop a DWPP and submit it to DEQ and OHA for approval (for surface water sources) or for certification (for groundwater sources). DEQ administers the approval process for these plans for surface water and OHA for groundwater sources. Both agencies participate in the Plan review process.

The DEQ prepared a Source Water Assessment (SWA) for Rockaway Beach in 2002 to fulfill one of the requirements of the amended SDWA. The SWA includes a delineation of the drinking water source area supplying the City's water system, identification of areas that may be most vulnerable to contamination, and an inventory of potential contaminant sources. DEQ developed an updated SWA in 2016 (see the updated SWA in Appendix A) that includes the source area map (Exhibit 1-1) along with maps showing soil erosion potential, areas prone to landslides, local land uses and ownership, and potential anthropogenic sources of pollution. The updated SWA acknowledges groundwater as a backup source of supply for Rockaway Beach, and identifies risks associated with the City's wells. The updated SWA was used as a starting point for the risk assessment described further in Section 2.

1.3.2 Plan Development Process

OHA awarded Rockaway Beach a Drinking Water Source Protection Fund grant in 2023 to develop a SWPP. The City selected a consultant, GSI Water Solutions, Inc., to facilitate the development of the SWPP, which included organizing meetings. The SWPP development process began with the City forming a Sourcewater Protection Plan Development Advisory Committee (SPPDAC)² made up of interested community members and a SWPP Team consisting of technical experts, including the two landowners in the Jetty Creek watershed, government agencies, and conservation groups. Exhibit 1-5 lists the SPPDAC members and Exhibit 1-6 lists the SWPP Team members and their affiliations. The SWPP Team met about SWPP content prior to SPPDAC meetings, which enabled the SPPDAC to discuss SWPP materials that had been informed by technical experts. Meetings for both groups were held throughout the SWPP development process. In addition, public engagement was an important component of the SWPP development process, as described in Section 1.3.3. The City Council of Rockaway Beach reviewed and approved the SWPP in May 2025 and then the City submitted the Final Draft SWPP to DEQ and OHA for approval.

² The formal name of the SPPDAC uses "Sourcewater Protection Plan" rather than "Source Water Protection Plan", which is what is used throughout the rest of this document.

Exhibit 1-4. Sourcewater Protection Plan Development Advisory Committee (SPPDAC) Members

Name	Role
Sandra Johnson	Appointed SPPDAC Member Position 1
Jason Maxfield	Appointed SPPDAC Member Position 2
Lydia Hess	Appointed SPPDAC Member Position 3
Ron Cleman	Appointed SPPDAC Member Position 4
Jay Udelhoven¹	Appointed SPPDAC Member Position 5
Alesia Franken	City Council Member Liaison
Charles McNeilly	Mayor (Ex Officio)

Note

¹ Jay Udelhoven resigned from the SPPDAC on December 13, 2024, and therefore did not provide input on the SWPP after that date.

Exhibit 1-5. Source Water Protection Plan Team Members

Name	Affiliation
Luke Shepard	City Manager, City of Rockaway Beach
Dan Emerson	Public Works Superintendent, City of Rockaway Beach
Alyssa Leidel	Department of Environmental Quality (DEQ)
Erick Finnell	Oregon Department of Forestry
Robert Bradley	Oregon Department of Fish and Wildlife (ODFW)
Derek Wiley	ODFW
Nikki Hendricks (Watermaster)	Oregon Water Resources Department
Daniel Wear	Sustainable Northwest
Mark Garrigues	Nuveen Natural Capital
Mike McKibbin	Stimson Lumber Company
Jacob Hilger	Stimson Lumber Company
Morgan DeMoll	North Coast Land Conservancy
Zac Mallon	Nehalem Bay Watershed Council

1.3.3 Public Outreach and Engagement

Community members had opportunities to learn about the development of the SWPP and provide feedback at two public meetings. In November 2024, the City held a public meeting that discussed potential contaminant sources and risks identified in the SWA (DEQ, 2016) by the SWPP Team, as well as information about additional potential risks and priority rankings based on the likelihood of occurrence and severity of impact on the City's water source. A second public meeting took place in March 2025, where attendees learned about and provided feedback on proposed strategies for drinking water protection, implementation plans, and the contingency plan for using water from Jetty Creek. Information about the planning process and draft documents was available for public review at the meetings and online. Both in-person and remote attendance options were offered for the meetings, and recordings were posted on the City's website for those unable to attend. The City promoted the meetings through its website, social media posts, flyers, press

releases, and communication from the SWPP Team with the stakeholders and constituents they represented. Appendix B includes examples of public outreach materials. The SWPP Team and local stakeholders shared vital local knowledge about potential contaminant sources, projects already completed or planned, and risk reduction strategies tailored to local conditions and resources.

1.4 Organization of the Source Water Protection Plan

The remainder of this SWPP is organized into the following sections:

- **Section 2:** Risk Assessment
- **Section 3:** Strategies to Address Risks
- **Section 4:** Implementation Plan
- **Section 5:** Contingency Plan
- **Section 6:** Future Water Sources
- **Section 7:** References

SECTION 2: Risk Assessment

2.1 Introduction to Risk Assessment

Identifying and prioritizing potential risks formed the foundation for developing strategies to protect drinking water quality. The City identified and prioritized potential risks with guidance from its SWPP Team and the SPPDAC. The City's SWA (DEQ, 2016) and DWPPs for other water providers in the coast region also informed the risk identification process.

Risks can be prioritized based on the likelihood of their occurrence affecting drinking water sources and the severity of their impacts to drinking water sources and infrastructure. The approach to scoring risks is to define "risk likelihood" as the likelihood of the identified risk affecting the water source and causing the impacts as described. "Risk impact" is defined as the severity of the impact of those risks on the water source. For example, highly erodible soils are likely to increase turbidity and contribute sediment to the water source, so the risk likelihood was ranked a 4 (likely), and the impacts of that risk were ranked as a 4 (severe) because it severely impacts the water source. The scale of 1 to 5 shown in Exhibit 2-1 below was used to rate likelihood and impact of risks for Jetty Creek. A 20-year planning period was used for prioritizing risks.

Exhibit 2-1. Risk Rating Scale

Likelihood		Impact	
1	Rare/very unlikely	1	Insignificant
2	Unlikely	2	Minor
3	Possible	3	Moderate
4	Likely	4	Severe
5	Almost certain	5	Catastrophic

The two aspects of risk were then combined into an overall risk rating of high, medium, and low, as shown in Exhibit 2-2.

Exhibit 2-2. Risk Prioritization Matrix

Likelihood	Impact				
	Insignificant (1)	Minor (2)	Moderate (3)	Severe (4)	Catastrophic (5)
Rare/very unlikely (1)	Low	Low	Low	Low	Medium
Unlikely (2)	Low	Low	Medium	Medium	Medium
Possible (3)	Low	Medium	Medium	Medium	High
Likely (4)	Low	Medium	Medium	High	High
Almost certain (5)	Medium	Medium	High	High	High

The final risk assessment incorporating SWPP Team expertise, SPPDAC advising, and public feedback is shown below. Risks are divided into five general categories with associated subcategories:

- Natural Processes
 - Drought and low streamflows
 - Climate change
 - Highly erodible soils
 - Landslides
 - Earthquakes
 - Tsunamis
 - Severe storms
 - Wildfire
 - Volcanic ashfall
- Forestry
 - Clearcut harvesting
 - Pesticides (including herbicides)
 - Access roads
 - Riparian impacts
 - Borrow pits
- Municipal
 - Vandalism
- Land Use
 - Unauthorized camping
 - Recreation

- Demands on Water Supply (outside of watershed)
 - Development
 - Tourism

Sections 2.2 to 2.6 provide an overview of the risk assessment findings, detailing the identified risks along with their corresponding risk ranking (high, medium, or low) and risk scores. Each score consists of two numbers: the first indicates the likelihood of occurrence, while the second reflects the anticipated severity of the impact on water quality and/or quantity. Section 2.7 describes potential risks to the City's groundwater sources. The City included groundwater risks in the SWPP to track risks for all current water sources, but did not rank groundwater risks or include them in the strategies and implementation plan sections given that the focus of this SWPP is the Jetty Creek watershed. Section 2.8 outlines the process for identifying and managing new risks that may emerge within the Jetty Creek watershed as a result of new activities or changes in the intensity or spatial distribution of current activities.

2.2 Natural Processes

Natural processes as well as anthropogenic activities can affect water quality and quantity and can be influenced by human activities. Understanding the biological and geological processes occurring within the source watershed helps the City prepare for the potential hazards these processes pose and become a more resilient public drinking water system. Many natural processes interact with each other, and while this SWPP separates the risks, understanding the natural processes within the watershed as a whole will help the City effectively manage and address the natural hazards to its drinking water source.

2.2.1 Drought and Low Flows (high: 5, 5)

Lower streamflows, such as from a drought event during a given summer or a longer-term climatic trend, may result in temporary water shortages or the need to implement conservation measures to ensure that available water supply can meet demands. Impacts on water supply are exacerbated because the City's water demand is the highest in summer when streamflows are at their lowest. A drought in 2022 stressed the City's water supply and required the City to issue water curtailment notices. Low flows may lead to water quality issues, such as increased water temperatures, decreased dissolved oxygen, increased algae and bacteria counts, and higher concentrations of contaminants or nutrients. Climate change is projected to cause more frequent and severe droughts and lower streamflows, further exacerbating those effects of low streamflows (also see Section 2.2.2).

2.2.2 Climate Change (high: 5, 5)

Climate change exacerbates existing risks to the drinking water source. Climate change is projected to cause more frequent and severe droughts and lower streamflows, which amplify the risks described in Section 2.2.1. Lower streamflows reduce water supply when municipal water demand is highest. Increasing temperatures and droughts also increase the risk of wildfires in the watershed. Climate change is projected to increase the severity and frequency of storms, leading to increased risk of flooding and sediment transport to streams. In just the past 15 years, Oregon coastal communities have seen increased storm intensity in the winter and extended drought and dry conditions in the summer months. The continued impact of climate change on the Northern Oregon coast will continue to exacerbate these discrepancies.

Communities on the Oregon Coast, including Rockaway Beach, are federally designated as disadvantaged due in large part to the projected impacts of climate change. Rockaway Beach is considered disadvantaged by the U.S. Environmental Protection Agency (EPA) Disadvantaged Community Environmental and Climate Justice Program Map (EPA, 2024) and Environmental Justice Screening and Mapping Tool (EJScreen) (EPA, n.d.), and the Climate and Economic Justice Screening Tool (CEJ, 2024) with a predominantly low-income

and aging population. The EPA EJScreen reports the area in the 97th national percentile for risk of heart disease among adults, along with the 98th national percentile for cancer risk (EPA, n.d.).³

2.2.3 Highly Erodible Soils (high: 4, 4)

Eighty percent of the stream miles (18.58 mi) within 500 feet of the stream in the source water area contain soils with high erosion potential (DEQ, 2016). Highly erodible soils contribute sediment and potential contaminants at a higher rate to the water source, increasing turbidity and decreasing water quality. Steep slopes are present in the watershed and significant rain events exacerbate soil erosion on the slopes. High stream turbidity impacts water supply operations and active management is required annually to mitigate the impacts. The City has experienced sediment build-up in front of the fish screen at the off-channel settling pond upstream of the WTP. High turbidity events in Jetty Creek have required the City to shut off the WTP and the fish screen for brief periods in the past. Between 2020 to 2023, the City was forced to stop diverting water from Jetty Creek for eight days due to high rates of sediment and turbidity. Beyond this, the City commonly diverts water during periods of slightly elevated turbidity. To do this safely, the City adds chemicals, such as aluminum chloralhydrate and chlorine, to treat the water coming into the facility.

2.2.4 Landslides (high: 4, 3)

Landslide deposits (non-rock material) are mapped near the intake and in the mid-watershed in the SWA (DEQ, 2016). Landslides can increase turbidity in the water. There are many steep slopes in the watershed, and several small landslides have been observed. Landslides closed a road near the watershed in 2015 and impacted the Rockaway Beach water system temporarily. Nearby water systems have had their infrastructure impacted by landslides in recent years, as well.

2.2.5 Earthquakes (high: 3, 5)

The entire Oregon Coast is at risk of a severe Cascadia Subduction Zone (CSZ) (The CSZ is the fault that runs along the Oregon Coast) earthquake. Less severe earthquakes could also occur. The effects of a major earthquake could include, but are not limited to, destruction of water system infrastructure, landslides, erosion, and soil liquification that could impact streams. An earthquake could trigger a tsunami that could exacerbate these impacts and could produce additional impacts (see tsunami risk description below).

2.2.6 Tsunamis (high: 3, 5)

Rockaway Beach is at a higher risk of a tsunami than Tillamook County as a whole (Tillamook County, 2023). The WTP and public works building are in the tsunami inundation zone (for a CSZ M9.0-med tsunami) and have a greater than 50 percent probability of moderate to complete damage from a CSZ earthquake (Tillamook County, 2023). A tsunami could destroy vital infrastructure and result in water supply shortages, potential saltwater intrusion, and other contamination of drinking water.

2.2.7 Severe Storms (medium: 4, 3)

Severe storms increase the likelihood of rapid runoff, erosion, flooding, and high stream turbidity, which puts drinking water quality at risk. As discussed in the highly erodible soils risk description, high turbidity has

³ The national percentile indicates how Rockaway Beach compares to the rest of the U.S. population. A national percentile of 98 percent for cancer means that the portion of the community's population with cancer is an equal or higher percentage than where 98 percent of the U.S. population lives. The health disparity percentiles used in the EJScreen are based on CDC PLACES data which are available at the Census tract level. The percentiles specifically compare heart disease prevalence among adults aged 18 years or older (includes several types of heart conditions) and cancer (excluding skin cancer) prevalence among adults aged 18 or older.

been a continual concern for the City given how it impacts the City's ability to run the WTP. The impacts of severe storms may be more severe in combination with other risks, such as areas prone to landslides, recent timber harvest, or burned areas.

The area has experienced severe storms in recent years. December 2015 storms caused significant riverine flooding east of Highway 101. A combination of sand blocking outlets and high tides meeting large volumes of runoff from the land caused road closures. January 2021 saw coastal flooding events, landslides, and debris flows in the area.

Climate change is projected to increase winter precipitation as well as lead to more frequent and severe storms, which could increase runoff and streamflow during these events.

2.2.8 Wildfire (medium: 2, 3)

Wildfires remove vegetation and damage soils, which increases runoff and erosion and decreases water infiltration and retention in the soils. Firefighting chemicals could potentially impact water quality. Per- and polyfluoroalkyl substances are components of some firefighting foams used to extinguish liquid fires but are not a concern for forest firefighting. Water used for fire suppression could be taken from Jetty Creek, reducing the City's available drinking water supply.

Accumulated slash piles from forest harvesting have been burned by landowners in the past, reducing the fire hazard. There will be little to no fire use associated with forest harvest in the years prior to 2043. Current forest landowners have their own firefighting crews and contractors to aid in suppression of any potential fires.

Anticipated increases in the annual number of hot, dry days due to climate change could increase the risk of wildfires in the watershed.

2.2.9 Volcanic Ashfall (low: 1, 3)

Volcanic ashfall from a Cascade volcanic eruption is identified as a low risk to Tillamook County in the Natural Hazards Mitigation Plan (NHMP) (Tillamook County, 2023), but it could affect Rockaway Beach. The effects of volcanic ash would be significant for water quality and could damage water infrastructure (Tillamook County, 2023).

2.3 Forestry Activities

The entire Jetty Creek watershed is privately owned by two industrial forestry companies. Oregon's Forest Practices Act (FPA) sets standards for commercial forestry operations, including harvest, reforestation, access roads, chemical applications, and riparian area protections, among other issues. Under the Private Forest Accord, forestry and conservation groups agreed to recommend changes to the FPA. Among the intentions of the new rules are increasing protection for streams, improving forest road design standards, retaining more trees on steep slopes, protecting fish and amphibian habitat, and funding mitigation projects to help aquatic species. The Oregon Department of Forestry (ODF) is investing in compliance monitoring and reporting for the FPA rules.

2.3.1 Clearcut Harvesting (high: 5, 3-4)

The source watershed is 100 percent private forest land with two landowners (DEQ, 2016). The SWA (DEQ, 2016) identified clearcut harvesting with a rotation of under 35 years as a potential risk in the source water area. The SWA specified clearcuts southeast of the City's intake as a risk. Aerial imagery from 2000 to 2024 shows that nearly the entire drinking water source area has been clearcut within the 24-year time period. Some portions of the Jetty Creek Watershed will reach a harvesting age in approximately 15 to 20 years.

Forest thinning or partial harvesting typically does not occur in this watershed because it leaves stands vulnerable to blowdown from high coastal winds. Clear cut timber harvest is the common industrial forest management approach on the Oregon Coast, and likely to be the approach taken by the current landowners when the forest returns to mature age, without engagement from the City or other conservation partners.

Clearcut harvesting may impact runoff and streamflow (and thereby stream temperatures), soil properties and moisture retention, sediment transport, and stream turbidity. Factors such as elevation, slope steepness, and direction of slope can influence the degree of impact of timber harvesting. Jetty Creek has a history of erosion and high stream turbidity post-harvest. The impacts on streamflow vary depending on the season of the year, the length of time since harvest, and the specific harvesting location and practices used. The period during regrowth when streamflow would be reduced during the summer low-flow season is a primary concern. Shorter harvesting rotations (e.g., 35 years) would be more likely to impact water quantity than longer rotations (e.g., 80 years) due to the higher frequency of soil disturbance within the watershed.

2.3.2 Pesticides (including herbicides) (high: 5, 4)

Pesticides, herbicides, and fertilizers used in forestry may enter waterways and contaminate water quality. DEQ has reported detections of herbicide residue (sulfometuron-methyl) in Rockaway Beach's drinking water before treatment at the WTP (DEQ, 2016).

The method and timing of chemical applications influence the level of risk to drinking water. For example, applications on steep slopes in sparsely vegetated areas increase the risk of contaminating the creek. Aerial spraying is potentially a greater risk to water quality than other application methods. Fertilizers are not used by landowners in the Jetty Creek watershed.

Pesticides/herbicides would typically be used 1-2 times in a 40- to 50-year rotation. Chemical applications are regulated by several public agencies, and applications are not allowed within required buffers of streams. The revised FPA rules include provisions to restrict spraying near streams.

The current landowner of the lower watershed agreed in the MOU with the City to exclude herbicide applications from its routine road maintenance activities. The current landowner of the upper watershed surveys roads in the watershed ahead of roadside chemical applications and flag streams and wet areas with a 10-to-50-foot buffer depending on water type. The City is also notified ahead of time so that it can shut off the intake during the operation. The upper watershed landowner has verbally agreed to negotiate with the City to share the costs for manual clearing of the roads.

2.3.3 Riparian Impacts (medium: 3, 3)

Timber harvesting activities could affect soils and vegetation along streams, resulting in increased erosion and stream turbidity. Reduced vegetation could lead to an increase in stream temperatures and potentially an increase in algae growth and bacteria counts. Invasive plant species on streambanks could affect erosion susceptibility and water quantity. Timber harvesting near streams can increase the likelihood of blowdown that could impact riparian areas. The updated Oregon FPA rules increase riparian buffer zones based on stream classifications and add protections for non-fish-bearing streams. While new standards may reduce riparian impacts, legacy impacts from previous timber harvests may be present.

2.3.4 Access Roads (low: 2, 2)

Building, maintenance, and usage of forestry access roads, particularly wet weather haul, may contribute to erosion and stream turbidity. Pesticide/herbicide use on roadsides may contribute contaminants to the stream. Roadside applications would typically occur on a 3- to 4-year cycle in the upper watershed.

Updated requirements for road management in the Oregon FPA rules and best management practices can help reduce the impacts of roads on the water source. Heavy use of access roads to borrow pits in the watershed, described under Section 2.3.5, also poses a risk to water quality. The roads in the Jetty Creek watershed are frequently maintained by current landowners.

2.3.5 Borrow Pits (low: 1, 1)

A small, likely inactive (identified as inactive in the 2002 SWA developed by the DEQ) borrow pit (gravel quarry) east of the intake used for local logging roads is a potential risk to drinking water. The landowner in the lower watershed has effectively reclaimed a borrow pit that was last active in 2018 and has another borrow pit that was last used in 2022 (the locations of the borrow pits are shown on Exhibit 1-2). The landowner used both borrow pits for road maintenance and construction on the property. Spills or leaks of waste or chemicals from mining operations could impact water quality. There may be another active borrow pit in or near the watershed that poses a potential risk to water quality, but more information is needed to determine whether the pit is within watershed, and if so, to characterize the risk from this pit.

2.4 Municipal

Drinking water source protection is aided by municipal management practices that prioritize protecting infrastructure along with the water quality and quantity of streams and conditions in the source water area.

2.4.1 Vandalism (medium: 2, 4)

Vandalism or sabotage would include deliberate damage to the intake or the water treatment facility and deliberate destruction or contamination in the watershed that impacts the water source. Vandalism could impact water quality or quantity.

2.5 Land Use

Land uses in the source watershed other than activities by landowners pose risks that could impact water quality and quantity.

2.5.1 Unauthorized Camping (medium: 3, 2)

Camping is not allowed on the properties within the watershed, but it can be difficult to prevent people from accessing and camping on the land. Improper disposal of garbage and human and animal waste and vehicle pollution can impact water quality. Human activity, such as building campfires, increases the risk of wildfires.

2.5.2 Recreation (medium: 3, 2)

Hiking, horseback riding, and possibly other recreational uses in the source water area pose potential risks to drinking water, such as erosion and water contamination from garbage and human and animal waste.

2.6 Demands on Water Supply (outside of watershed)

The City identified risks outside of the watershed that increase water demand, thereby challenging the City's ability to supply sufficient drinking water. Climate change will affect the water supply during the summer when demands peak because of tourism and outdoor water use. While these risks are outside of the source watershed, they can be targeted with some of the same strategies the City will use to address risks within the watershed.

2.6.1 Development (high: 4, 4)

New development will increase water demand. Ensuring the City will have an adequate water supply to support new development in the future is a growing concern.

2.6.2 Tourism (high: 4, 4)

Tourism increases water demand substantially in the summer. Climate change may increase tourism further as a result of Willamette Valley residents visiting the coast more frequently to escape hotter and drier summer conditions in the Willamette Valley. Providing adequate water supply to support increasing tourism is a growing concern. In addition, short-term rentals are growing in popularity outside of the summer season.

2.7 Risks to Groundwater Drinking Water Source

The City also has groundwater wells that supplement the water supply during late summer when Jetty Creek flows are low. The SWA (DEQ, 2016) identified several risks to groundwater sources, including sewer lines, septic systems in areas of residential high-density housing, transportation corridors, and sites with potential chemical contaminants. Other risks to groundwater include saltwater intrusion, aging infrastructure, and chemical use. Groundwater could also be impacted by potential natural hazards identified in Section 2.2 including earthquakes, tsunamis, climate change, and storms. This SWPP focuses on the City's primary source of supply, Jetty Creek, but the City plans to investigate its groundwater wells more extensively in other future planning processes. For this reason, the groundwater risks were not ranked in order of priority. The following table describes each groundwater risk identified.

Exhibit 2-3. Groundwater Drinking Water Source Risks

Risk Category	Risk	Description and Impacts
Natural hazards	Saltwater intrusion	The Oregon Health Authority has issued at least three alerts of sodium detections in the City's groundwater (DEQ, 2016). Sodium from seawater impacts water quality. In addition to introducing salt, seawater can transport other pollutants to groundwater. With sea level rise predicted due to climate change, this risk is likely to increase.
Municipal	Sewer lines	Sewer lines through residential areas pose a contamination risk to groundwater.
Municipal	Septic systems	Above-ground storage tanks and large-capacity septic systems serving more than 20 people are potential sources of contamination. Septic systems, particularly aging ones, can leach contaminants into the groundwater.
Municipal	Residential high-density housing	High-density housing with septic systems can result in a higher concentration of contaminants leaching into groundwater in these areas.
Municipal	Aging infrastructure	Aging wells, pipelines, and other components of drinking water infrastructure put the ability to provide groundwater at risk.
Municipal	Dike	A dike between Nedonna and the Nehalem River has likely not been maintained in several years, which could put groundwater quality at risk if the dike failed.

Risk Category	Risk	Description and Impacts
Transportation	Roads, highways, and railroads	Several transportation corridors (e.g., Port of Tillamook Bay Railroad, Highway 101, and a few roads owned by the Bureau of Land Management, Oregon Department of Transportation, the City, and the County) present risks to groundwater sources. Vehicles may deposit contaminants that can infiltrate into groundwater sources via stormwater runoff. Herbicide use along highways, roads, and railroads has also been identified in the groundwater source area, which could potentially contaminate groundwater.
Industrial	Mercury storage site	Mercury is possibly stored at a site uphill from Nedonna Beach, posing a potential risk to the groundwater in Nedonna Beach if a leak were to occur. More information is needed.
Other	Stormwater	The Source Water Assessment identified stormwater from Nedonna Wave Planned Unit Development as a potential source of pollution in its Site Information System. Stormwater runoff has the potential to transport pollutants to the groundwater.
Other	Chemical use	Herbicides used in residential yards, runoff from waste, etc. could impact groundwater quality.

2.8 Identifying and Addressing New Risks

The City will review the risks identified in the SWPP at least annually to determine whether to adjust implementation of strategies or seek new information on risks. DEQ reviews SWPPs approximately every 5 years for progress toward water source protection and renews approval of the SWPP. At this time, the City will consider whether any potential emerging risks to drinking water need to be assessed and whether any changes to management strategies are needed. Any updates to the SWA provided by DEQ will also be incorporated into future plan updates and implementation.

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SECTION 3: Strategies to Address Risks

3.1 Introduction to Strategies

The SWPP Team evaluated the risks identified in Section 2 and created strategies to minimize or manage those risks. The development of these strategies utilized technical expertise and local insights from the SWPP Team members, successful drinking water protection methods from other water providers, and guidance from state agencies, like DEQ. The SWPP Team sought to identify synergies among the proposed strategies to streamline implementation and ensure comprehensive risk management. The strategies have been organized into several key categories:

- Critical Area Protection
- Data Collection and Monitoring Programs
- Watershed Restoration
- Sediment and Erosion Control
- Water Supply and Emergency Planning
- Communications and Public Engagement
- Water Conservation Measures

Exhibit 3-1 shows how each of the identified strategies addresses one or more identified risks to the drinking water source watershed. The remainder of Section 3 describes the strategies.

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Exhibit 3-1. Overview of Risks Addressed by Strategy

Risk Category	Specific Risks	Risk Level ¹	Critical Area Protection	Data Collection and Monitoring Programs	Watershed Restoration	Sediment and Erosion Control	Water Supply and Emergency Planning	Communications and Public Engagement	Water Conservation Measures
Natural Processes	Drought and low flows	High (5, 5)	●	●	●		●		●
	Climate change	High (5, 5)	●	●	●	●	●		●
	Highly erodible soils	High (4, 4)	●	●	●	●	●	●	
	Landslides	High (4, 3)	●	●	●	●	●	●	
	Earthquakes	High (3, 5)			●	●	●	●	
	Tsunamis	High (3, 5)			●	●	●	●	
	Severe storms	Medium (4, 3)		●	●	●	●		
	Wildfire	Medium (2, 3)		●	●	●	●	●	
	Volcanic ashfall	Low (1, 3)					●		
Forestry	Clearcut harvesting	High (5, 3-4)	●	●	●	●		●	
	Pesticides (including herbicides)	High (5, 4)	●	●	●			●	
	Riparian impacts	Medium (3, 3)	●	●	●			●	
	Access roads	Low (2, 2)		●		●		●	
	Borrow pits	Low (1, 1)		●				●	
Municipal	Vandalism	Medium (2, 4)					●		
Land Use	Unauthorized camping	Medium (3, 2)	●	●				●	
	Recreation	Medium (3, 2)	●	●				●	
Demands on Water Supply (outside of watershed)	Development	High (4, 4)					●		●
	Tourism	High (4, 4)					●		●

Note
¹ Numbers in parentheses refer to the likelihood and consequence of each risk, respectively. These components of risk are presented on a scale of 1 to 5, with 5 being the highest.

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3.2 Critical Area Protection

Areas within the drinking water source watershed are classified as "critical areas" when a potential source of contamination or specific land use in those locations could significantly impact water quality or quantity. Strategies for protecting these critical areas aim to safeguard drinking water sources by limiting activities that might threaten water quality or quantity. These areas include places with highly erodible soils, steep slopes, riparian zones along Jetty Creek and its tributaries, regions susceptible to landslides, and zones with high runoff risk due to slow soil infiltration. The SWA (DEQ, 2016) identifies and maps many of these sensitive regions. ODF developed the Forest Practices Act Streams and Steep Slopes Viewer, an online tool that provides information about the presence of fish in stream segments and highlights where soil-disturbing activities on steep slopes could lead to increased sedimentation or debris flows. The online tool can be accessed at: <https://geo.maps.arcgis.com/apps/webappviewer/index.html?id=dde877f74cf84fdb53bd4b57204c2fe>. These and other tools will help prioritize critical areas for protection.

Critical area protection strategies focus on management of the Jetty Creek watershed for source water protection. Currently, the Jetty Creek watershed is owned by only two entities, making land ownership a significant factor when strategizing and planning which areas are feasible for acquisition. The City has been discussing land acquisition with both landowners. If the City were to acquire the watershed, it would gain management authority over drinking water source areas that are currently outside its jurisdiction. The City would then develop a Forest Stewardship Plan for any acquired lands, outlining specific activities needed to improve drinking water quality while incorporating financial and capacity planning. Planning could consider fire hazard mitigation strategies, including some used by the current landowners.

Strategies for lands that may continue to be held by other landowners focus on communication as a foundation for building partnerships to protect critical areas. Section 3.6 discusses different approaches to how the City and current landowners can work together to manage risks to the Jetty Creek watershed.

3.3 Data Collection and Monitoring Programs

Data collection and monitoring programs will be used to assess current watershed conditions and track water quality and quantity trends over time. The public has expressed an interest in being more informed about Jetty Creek watershed conditions and source protection efforts, so this strategy will incorporate public engagement. Members of the public also expressed concern that the SWA (DEQ, 2016) for Rockaway Beach was completed over 5 years ago, such that some risks may need to be reassessed. The City will utilize updated data to inform various other strategies, including watershed restoration and sediment and erosion control.

The City will identify, collect, and organize historical data on characteristics such as streamflow, water demand, water quality, and climate to identify gaps in information and assess the most significant concerns. Another component of these strategies involves education and learning regarding specific risks and regulations that impact management, such as the FPA rules and resources. Available streamflow data will be utilized to plan for climate change and understand the impacts of low flows and droughts on water supply.

The City conducts routine water quality testing at the WTP in compliance with all state and federal requirements. Turbidity readings are taken daily at the WTP. Future monitoring programs could involve collecting water quality, or other relevant data for source water protection as needed.

3.4 Watershed Restoration

Watershed restoration strategies can be used to address risks that impact water quality and quantity. Watershed restoration projects could include those that enhance water retention within the watershed, such as natural or built storage structures, or those that enhance water quality, such as planting riparian buffers and adding large woody debris to streams. Riparian planting has multiple benefits to water quality, including stabilizing banks, filtering contaminants, and providing shade that cools streams. Additional activities could include supporting beaver habitat and removing invasive plants. Specific watershed restoration goals and methods to measure restoration will be defined by the City and stakeholders.

3.5 Sediment and Erosion Control

Sediment and erosion control strategies have some overlap with watershed restoration projects, but they emphasize the need to address turbidity in Jetty Creek before it reaches the WTP. While erosion can occur anywhere in the watershed, activities under this strategy will be focused on preventing or reducing high turbidity in Jetty Creek by targeting areas most prone to contributing sediment, such as steep slopes and highly erodible soil types, as well as promoting healthy riparian buffers adjacent to Jetty Creek and its tributaries. Areas with highly erodible soils and high landslide potential will be identified and prioritized for projects. Built features within the watershed, such as culverts, trails, and borrow pits, will be assessed for erosion potential, and projects to improve these features will be identified. Drainage improvement projects, such as culvert upgrades and replacements or building natural retention areas, will be identified and implemented as needed. Bank stabilization projects, like riparian planting, will be identified and implemented in priority areas as well.

Roads in the watershed will be assessed for erosion impacts and project areas will be identified. For example, roads with heavy use, on steep slopes, or with maintenance issues may contribute more sediment to streams and be at risk of slides. Under the recently revised FPA rules, large forest landowners (which includes the landowners of the Jetty Creek watershed) will be required to complete a Forest Road Inventory and Assessment (FRIA) of their lands by 2029, with certain pre-inventory data on high conservation value sites submitted to ODF by 2025. Small forest landowners do not have to complete an inventory, but they are required to conduct Road Condition Assessments when they submit notifications of timber harvest operations.

Current landowners utilize sediment and erosion control strategies, like regularly inspecting road surfaces and infrastructure in Jetty Creek both during and after the harvest process to ensure they are operating effectively. During periods of heavy rainfall, culverts are checked to identify and clear any obstructions caused by landslides or increased stream flows. Additionally, log hauling and truck traffic are suspended during these high rainfall events. Cross drains and road surfaces are engineered to channel water away from stream systems, allowing it to be absorbed by the forest floor.

3.6 Water Supply and Emergency Planning

The City routinely updates plans, such as its WMP, WMCP, and Emergency Operations Plan (EOP). The City will continue to incorporate drinking water source risks and strategies into these plans through its emergency planning activities. Water supply planning will incorporate projected development, population, water usage, and water demand to assess water supply reliability. Water supply and emergency planning will address risks to drinking water supply, such as tourism and development, and will include planning for droughts and climate change. The next WMP update will include assessments of water infrastructure needs and recommend projects to reduce water loss in the water treatment and distribution system, increase water supply reliability, and protect water quality. Actions could include increasing water storage capacity inside and outside of the watershed. Disaster preparedness recommendations may be included in the WMP to help

the City prepare for protecting its water sources in an emergency. The Public Works Department implements and will continue to implement infrastructure projects.

3.7 Communications and Public Engagement

Communication is an important component of all strategies the City will implement to address risks to Jetty Creek. The City will continue to communicate with the current landowners to learn about forest management practices, landowners' plans to harvest, riparian zone management, FRIAs, and other activities within the watershed, such as recreation. This information can help the City identify critical areas for protection and implement source water protection measures, and if the City acquires the watershed, it could inform the City's own management plans. As an example of the benefits of communication for source water protection, the City has had productive communications with the landowners about pesticide/herbicide applications. One landowner has discussed the possibility of sharing the cost of manual clearing on roadsides with the City.

Rockaway Beach has strong community involvement in City issues and projects, especially around Jetty Creek. Public engagement will remain a part of each strategy the City implements, and the City will work to create appropriate forums for public involvement within the different drinking water protection processes.

As described in Section 1.1, the Jetty Creek Working Group was formed so that the City could collaborate with partners on some management strategies to reduce risks to drinking water. The City will continue to seek to work with the landowners on strategies to manage the watershed in different ownership scenarios, like on maintenance needs and forestry practices. The City will also encourage landowners to consider the impacts of forestry activities on water sources.

3.8 Water Conservation Measures

Actions to decrease demands on water supplies and use water more efficiently help protect source water quantity, which can also benefit water quality. Water conservation strategies will be used to reduce stress on water supply from Jetty Creek, particularly during the summer season when demands peak and streamflows are at their lowest. Water conservation efforts will address risks including climate change, droughts and low flows, tourism, and development.

The City implements many measures that conserve water and increase water use efficiency. The City has an active leak detection program and is replacing the mainlines throughout its service area. Additional conservation measures that the City could implement include encouraging the public to conserve water through outreach and education (e.g., distributing outreach materials, posting social media messages, and hosting booths at events) and providing free water conservation items (e.g., water-efficient showerheads and faucet aerators or leak detection tablets). The City will identify partnerships to help implement conservation measures. In addition to outreach to residents, the City will target outreach towards tourists and rental managers.

Water conservation measures may also include imposing limits on inefficient water uses through conservation ordinances or incentives. The City will investigate implementing conservation ordinances to address risks to water supply, including new development, tourism, population growth, and climate change. Potential conservation ordinances could, for example, require developers to use water-efficient fixtures and could limit unnecessary uses of water for new builds.

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SECTION 4: Implementation Plan

4.1 Introduction to Implementation Plan

This implementation plan describes activities that the City plans to implement as part of each strategy outlined in Section 3 to address risks identified in the Jetty Creek watershed. The implementation plan focuses on actions within the 20-year time frame of this SWPP. Actions may be initiated in the short term or longer term and may involve one step or many steps over time.

The implementation plan is divided into three phases based on the readiness of the measure to be implemented, the implementation steps involved, the anticipated efforts to secure funding, and the priority levels of the risks. Phase 1 includes activities that can be implemented immediately, such as planning and data collection tasks, establishing communications and partnerships, and strategies addressing high-priority risks. Phase 2 includes actions that may need further preparation, such as strengthening partnerships and obtaining funding. Lastly, Phase 3 includes activities that require more extensive planning or funding and address lower-priority risks, with implementation expected to occur at a later stage. Exhibit 4-1 presents an overview of the implementation plan, and the following sections provide detailed descriptions of each activity.

The ability to implement the plan will depend on the availability of funding. A non-exhaustive list of potential funding sources relevant to the proposed activities is included at the end of the implementation plan.

The SWPP Team guided the development of this implementation plan, and the City intends to continue collaborating with the SWPP Team and forming partnerships during implementation. The SWPP Team will meet annually to assess the progress of the implementation plan and to consider implementation activities for the next year. In the year following approval of this SWPP by OHA and DEQ, the City will focus on:

- Identifying any new or unanticipated potential sources of contamination or related issues;
- Outlining the plan for implementing management actions over the next year, which includes identifying responsible parties (such as lead and supporting partners), monitoring the progress of these activities, and establishing a timeline for meeting the annual goals and objectives;
- Developing a strategy for grant applications and other funding sources to accomplish desired future tasks.

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Exhibit 4-1. Implementation Plan Overview

Strategy Category	Phase 1 Activities	Phase 2 Activities	Phase 3 Activities	Potential Partners
Critical Area Protection	<ul style="list-style-type: none">Continue identifying critical areas for protection and negotiating/communicating with landownersContinue planning for potential acquisitions or easements (e.g., appraisals, due diligence, mapping)Identify funding sources for acquisitions or easements (suggestions can be included in this plan) and apply for fundingContinue to connect with land trusts or other organizations for supportResearch other communities’ strategies and best management practices for managing source water areasDevelop a broad Forest Stewardship Plan for critical areas<ul style="list-style-type: none">City has been awarded funding for developing a Forest Stewardship Plan that could be utilized for any land acquired in the Jetty Creek WatershedExplore developing additional MOUs or other agreements with landowners for management practices that help protect critical areasConduct community engagement efforts	<ul style="list-style-type: none">Complete a land acquisition or easement with willing landownersRefine and implement an active Forest Stewardship Plan aligned with any acquired lands that addresses various risks to source water and tracks source water protection activities. Work with partners to implement Forest Stewardship Plan.Continue conducting community engagement effortsConduct additional planning efforts as needed, such as road maintenance or infrastructure plans (including Forest Road Inventory and Assessments [FRIAs])	<ul style="list-style-type: none">Continue implementing activities identified in the Forest Stewardship PlanTrack management successes and needs and monitor forest conditionsDevelop a land use plan for Jetty Creek watershed that addresses unauthorized camping and recreation (e.g., consider requiring permits to access land) among other land usesExplore forming a public and private recreation management partnership in the watershed	<ul style="list-style-type: none">Public Works DepartmentLandownersLand trusts: North Coast Land Conservancy, Lower Nehalem Community TrustConservation Organizations: Sustainable NorthwestForesters (City could contract with foresters for FRIA and maintenance)
Data Collection and Monitoring Programs	<ul style="list-style-type: none">Inventory existing data and ongoing monitoring efforts and identify priority data needs.<ul style="list-style-type: none">Collect current/historical data (e.g., maps, watershed characteristics, water quality, streamflow, fire risk)Inventory the type, timing, and other details about current water quantity (i.e., streamflow) and quality monitoring effortsUse the inventory to identify water quality and water quantity data monitoring needs, such as changes to current monitoring approaches and new monitoring effortsDevelop monitoring approaches (e.g., plans) and data management approachesConduct detailed risk analyses of areas with particular concerns (e.g., erosion/landslide potential) as neededInvestigate funding sources for potential monitoring programsPartner with organizations for technical assistance and resources	<ul style="list-style-type: none">Continue existing monitoring efforts identified as needed during the monitoring inventory, such as recording turbidity at the Jetty Creek treatment plantApply for funding for potential monitoring programsImplement new and/or expanded monitoring programs as resources allowConduct outreach and community engagement effortsEvaluate City’s other surface water rights (not on Jetty Creek) for reliability and potential use as backup sources or other water rights strategies	<ul style="list-style-type: none">Continue implementing and tracking monitoring programsConduct public outreach to educate the community about monitoring programs and data findings/trends	<ul style="list-style-type: none">Public Works DepartmentLandownersState agencies: Oregon Department of Forestry (ODF) (resources for forest watershed stewardship: databases, funding, technical assistance, Forest Practices Act (FPA), Forest Practices Monitoring Program), DEQ, Oregon Health Authority (OHA), Oregon Water Resources Department (OWRD), Oregon Department of Fish and Wildlife (ODFW)Watershed councils: Nehalem Bay Watershed Council (WC) (formerly Lower Nehalem WC), Tillamook Bay WCTillamook Estuaries Partnership (TEP)

Strategy Category	Phase 1 Activities	Phase 2 Activities	Phase 3 Activities	Potential Partners
Watershed Restoration	<ul style="list-style-type: none">Identify high-priority areas for potential watershed restoration projects (e.g., riparian planting, invasive species removal, large woody debris installation)Coordinate with landowners and organizations, like watershed councils, about identifying projectsExplore partnerships for restoration projects	<ul style="list-style-type: none">Continue working with partners to plan and implement restoration projectsPursue funding for potential projects and implement projects in high-priority areas as funding allows	<ul style="list-style-type: none">Track success of project implementationContinue tracking needs for restoration work and coordinating with landowners and organizations	<ul style="list-style-type: none">Public Works DepartmentLandownersTillamook County Soil and Water Conservation District (SWCD)Watershed councils: Nehalem Bay WC (resource: Nehalem Strategic Action Plan for Coho Recovery document), Tillamook Bay WCOregon State University (OSU) ExtensionODFWTEP
Sediment and Erosion Control	<ul style="list-style-type: none">Identify high-priority areas for potential projects (e.g., steep slopes, highly erodible soils) using Geographic Information Systems (GIS) and ground observationsConduct studies as needed on erosion/landslide potential and impacts of activities in the watershedPursue projects for high-priority areas (e.g., road sediment reduction, erosion control, and culvert replacement projects)Communicate with landowners about projects for high-priority areas and about their FRIAIdentify technical assistance programs that could benefit landowners (including if City is a landowner)Identify ODF stream classificationsIdentify erosion impacts from different types of recreation	<ul style="list-style-type: none">Pursue funding for high-priority road sediment reduction, erosion control, and culvert replacement projects, and begin implementation once funding is securedIf land is acquired, create or build on existing road maintenance plans & inventoriesCoordinate with neighboring landowners	<ul style="list-style-type: none">Continue to implement road sediment reduction, erosion control, and culvert replacement projectsContinue to assess needs for sediment and erosion control projects and track progress made on implemented projectsMaintain road maintenance and assessments and inventories, either by communicating with landowners or updating City's plans if land is acquired	<ul style="list-style-type: none">Public Works DepartmentLandownersTillamook County Soil and Water Conservation DistrictWatershed councils: Nehalem Bay WC, Tillamook Bay WCOSU ExtensionODF (funding for erosion control projects, etc.)Potential contracted foresters

Strategy Category	Phase 1 Activities	Phase 2 Activities	Phase 3 Activities	Potential Partners
Water Supply and Emergency Planning	<ul style="list-style-type: none">Water supply planning:Update Water Master Plan (WMP) and Water Management and Conservation Plans (WMCPs)Assess future water needs, accounting for tourism and climate changeContinue pursuing opportunities to expand storage capacity in water system (City has applied for funding to expand storage capacity)Explore alternative water sourcesIdentify other infrastructure needs that can address water supply concernsEmergency planning:Review existing plans and identify emergency planning needs (e.g., develop or update plans and protocols for natural hazards, such as for providing water supply)Incorporate source water protection strategies and information, such as maps, in existing emergency plans for the City and for local agencies and authoritiesConsider the impacts of climate change in emergency planningIdentify partners for technical assistance and joint planning	<ul style="list-style-type: none">Implement infrastructure projects identified in WMP and measures to improve water supply reliability in and outside of the watershed such as expanding storage capacityEvaluate road infrastructure and develop a transportation plan that maintains access roads for firefighting and emergency accessAssess infrastructure and watershed access to identify any vandalism vulnerabilities to address	<ul style="list-style-type: none">Continue updating water supply and emergency plansFollowing an emergency event in the watershed, communicate with landowners and organizations about resources and restoration project	<ul style="list-style-type: none">Public Works DepartmentCity and/or County departments (e.g., Planning Department and Fire Department)State agencies: DEQ (Drinking Water Protection Program), OHA (emergency planning (e.g., workshops & resources), OWRDLandownersTillamook County SWCDWatershed councils: Nehalem Bay WC, Tillamook Bay WCSustainable Northwest
Communications and Public Engagement	<ul style="list-style-type: none">Continue communications with landowners about source water protection, maintaining or pursuing MOUs, land acquisition, and best management practices, and continue participating in the Jetty Creek Working GroupGather information from landowners about management activities in watershed, including FRIAsAnnually enroll in Forest Activity Electronic Reporting and Notification System (FERNs) pesticide notificationsCommunicate source water protection efforts to the community and relevant organizations	<ul style="list-style-type: none">Continue communicating source water protection efforts to the community and relevant organizationsConduct outreach about best recreation practices in the watershedCommunicate with wildfire response planners and managers about source water protectionMaintain FERNs enrollment	<ul style="list-style-type: none">Continue communication efforts with partners and the publicMaintain FERNs enrollment	<ul style="list-style-type: none">Public Works DepartmentLandownersFire managersSustainable NorthwestNorth Coast Land Conservancy

Strategy Category	Phase 1 Activities	Phase 2 Activities	Phase 3 Activities	Potential Partners
Water Conservation Measures	<ul style="list-style-type: none">Continue conducting water conservation measures and water loss reduction initiatives (incorporated into WMP and WMCP)Develop and distribute water conservation outreach messaging for residents, tourists, and businessesIdentify additional conservation measures the City could implement and a schedule for implementationExplore funding for water conservation measuresIdentify potential partnerships or resources that could support City in water conservation measures	<ul style="list-style-type: none">Implement additional water conservation measures identified in Phase 1Continue identifying and developing conservation partnershipsIdentify and implement ordinances to limit development or require water efficiency measures for new development	<ul style="list-style-type: none">Continue implementing infrastructure projects outlined in WMPContinue to implement water conservation measures, including outreach to water usersContinue identifying and developing conservation partnershipsAssess progress of implemented measures at the 5-year check in mark from the WMCP submittal	<ul style="list-style-type: none">Public Works DepartmentCity Planning Department

4.2 Phase 1 – Immediate Activities and Information Gathering

4.2.1 Critical Area Protection

Assessing and prioritizing critical areas in the source watershed is a necessary precursor to any protection actions. The City has been exploring options for acquisitions that would protect Jetty Creek as a water source with both landowners in the watershed, and one has expressed a willingness to sell to date. During Phase 1, the City will gather and utilize data, such as Geographic Information Systems (GIS) analyses, as needed to identify critical areas for protection and to help inform its land acquisition efforts. The City will continue communicating with landowners and planning with partners regarding potential acquisitions or easements. Activities during this phase related to land acquisition will likely include due diligence evaluations, appraisals, mapping, and pursuing funding for acquisitions, some of which have started.

The City will continue to work with partners to identify funding and will apply for funding if an agreement is reached to carry out an acquisition. Utilizing funding awarded by OHA to the City in 2024, the City will also create a broad Forest Stewardship Plan to support the forest management on any land acquired in the future, which will outline a planned management vision and strategies for the area it anticipates acquiring. The City will research best practices for managing drinking water source watersheds and may reach out to other communities who have acquired their source watersheds for information and resources.

The City will also communicate with current landowners about management practices that can protect water quality in critical areas identified on their lands. The City may explore adding to the existing MOU or creating new MOUs with landowners about management practices that protect critical areas, as a backup plan for acquisitions or easements. In addition, the City will conduct community outreach about its critical area protection efforts.

4.2.2 Data Collection and Monitoring Programs

During Phase 1, the City will identify existing monitoring efforts and data sources and create an inventory of historical and/or current data for Jetty Creek, such as streamflow and various water quality parameters. For example, the City currently takes daily turbidity measurements at the Jetty Creek treatment plant and will continue taking and recording turbidity measurements. An inventory containing the type, availability, time range, and other descriptors of existing data will help the City identify data gaps. The City can then investigate what data it can obtain from other entities or where the City's existing monitoring activities could be enhanced. The City will then develop monitoring and data management approaches as needed.

The City will seek assistance from state agencies for a re-assessment of watershed conditions and risks to the water source as needed, such as more detailed maps of high-density contaminant sources, or more detailed landslides and soil data. Upon the City's request, the DEQ provided an updated soil erosion map for this SWPP and DEQ could potentially assist with updating data and maps in the future. ODF publishes landslide hazard location data. Certain parts of the watershed could be evaluated more closely, such as areas with particular erosion concerns or a borrow pit, and a detailed analysis of risks could be done if needed. The City may need to seek advice from experts and connect with partners for technical assistance for these more detailed evaluations. The City will also investigate funding sources for potential monitoring programs. Other priority data needs will become apparent from the inventory the City will create during Phase 1 and as the City moves forward with land acquisition efforts.

4.2.3 Watershed Restoration

During Phase 1, the City will work to identify high-priority areas to implement watershed restoration projects in coordination with landowners and organizations, such as Oregon Department of Fish and Wildlife (ODFW)

and local watershed councils. Criteria for identifying these areas may consist of the presence of invasive plant species, sensitive or listed aquatic species, proximity to streams, the degree of human land-use impacts, erosion rates, and indications of contaminants based on available water quality data. Projects that benefit water quality could include invasive species removal and planting native species on riparian buffers. Projects that benefit water quantity could include encouraging beaver activity and building natural storage in the watershed. Water quantity projects can reduce evaporation around streams and expand water retention in the watershed. ODFW is currently planning large woody debris installation and fish passage barrier removal projects in the watershed that will be implemented in the next 5 years. The City will explore partnering with landowners and organizations to implement other identified projects.

4.2.4 Sediment and Erosion Control

Similar methods will be used to identify high-priority areas for both watershed restoration and sediment and erosion control projects. GIS assessments, testing results, expertise, stakeholder input, and ground-truthing (confirming data is accurate with field observations) will inform project site identification. Roads will be assessed based on their proximity to streams, steepness, known condition, and sediment issues. The City will communicate with landowners about road conditions and potential concerns identified in their FRIAs. Stream crossings will also be assessed to determine any maintenance or upgrading needs and whether ODFW needs to review fish passage requirements. The City will explore contracting studies in the Jetty Creek watershed to analyze soil erosion and landslide potential and to understand the impacts of activities in the watershed on these risks. Depending on the level of detail needed to be studied, this process may overlap into Phase 2. The City will connect with partners experienced in sediment and erosion control to pursue projects and resources, such as technical assistance programs. The City will also learn more about ODF stream classifications and expected management practices associated with those classifications.

During Phase 1, the City will assess the erosion impacts from various recreational activities in the watershed, which will likely be determined by site observations. This information will be used to identify sites for sediment and erosion control projects and will influence how recreation in the watershed is managed.

4.2.5 Water Supply and Emergency Planning

During Phase 1 of water supply planning strategies, the City will update its WMP and WMCP. Updating water supply plans will incorporate assessing future water needs for the community, considering the impacts of climate change and projected increased tourism and development on water supply. If funding for updating plans is needed, the City will pursue and secure funding sources during Phase 1. The City has applied for funding to expand water storage capacity in its system to provide more operational flexibility during peak periods of water demand or during emergencies. The City will continue exploring projects that can improve water supply infrastructure, such as constructing additional tanks or implementing water retention projects in the watershed, as described under watershed restoration strategies in Sections 3.4, 4.2.3, 4.3.3, and 4.4.3. The City will also explore alternative water sources.

During Phase 1 of emergency planning strategies, the City will review its existing emergency plans and identify needs for updating plans or protocols. The City will address hazards that put water sources at risk and incorporate source water protection strategies into updates of its emergency plans. Maps of the drinking water source area will be developed for emergency plans to show jurisdictions, access roads, and water infrastructure to be protected during an emergency. The City will also coordinate with local agencies and authorities about incorporating source water protection into their existing emergency management and response plans. This may include Wheeler/Manzanita, Tillamook County, the U.S. Forest Service (USFS), Bureau of Land Management (BLM), Oregon Department of Transportation, and any others that the City may identify. The City will identify partners, such as emergency response planners and conservation groups, for technical assistance and joint planning as needed.

OHA has a webpage dedicated to emergency preparedness: <https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/DRINKINGWATER/PREPAREDNESS/Pages/emergency.aspx>. The webpage includes a document called “Local Water Supply Emergency Planning Guidance for Emergency Managers” that provides a list of resources for community water system operators (see Appendix C).

4.2.6 Communications and Public Engagement

The City will strengthen communications with landowners, partners, and agencies in Phase 1. The City will continue participating in the Jetty Creek Working Group, which provides a forum for communications with landowners. Topics of discussion will include land acquisition, existing MOUs and exploring additional MOUs, best management practices, and source water protection projects. The City will request information from landowners about their management and observations of the watershed to inform determinations of high-priority areas for restoration or erosion control projects. The City will also request information from landowners about roads in the watershed, areas where forestry harvesting or chemical applications have occurred in recent years, areas of particular concern for erosion or landslides, and information about any active or inactive gravel quarries in or near the watershed. If landowners are required to complete FRIAs, the City will request copies of those assessments. Collaboration between the City and landowners is key to improving source water protection.

During Phase 1, the City will ensure it is enrolled in Forest Activity Electronic Reporting and Notification System (FERNS) pesticide notifications and will plan to re-enroll annually. These notifications will help the City adjust management of its Jetty Creek water supply, like shutting off the WTP temporarily to mitigate potential water quality impacts of particular chemical applications in the watershed.

The City will continue its public engagement program to inform the public about Jetty Creek source water protection efforts, such as through public meetings or social media and outreach campaigns. Outreach topics could include activities in the watershed, plans, agreements with landowners, and updates on land acquisition efforts. The City will also communicate with relevant organizations to share updates about source water protection projects.

4.2.7 Water Conservation Measures

During Phase 1, the City will continue water conservation activities already being implemented, including water loss reduction initiatives such as leak detection and water line replacement activities. These initiatives are ongoing, and planned infrastructure projects will be detailed in the WMP updates. The City’s WMCP requires it to implement water conservation measures, such as conducting annual water audits to identify water loss in the transmission and distribution system and conducting public water conservation outreach and education. The City will develop and distribute water conservation messages for residents, tourists, and businesses in an effort to reduce water demand. The City will identify additional measures to expand its water conservation program, such as providing free water conservation kits to customers that would include water-efficient devices like showerheads, faucet aerators, and toilet leak detection tablets, and develop a schedule for implementation. Funding may be needed to implement measures. Potential partnerships will be explored with any identified conservation organizations or other regional water providers who are interested in pooling resources and aligning water conservation messaging.

4.3 Phase 2 – Develop Partnerships and Continue Implementation

4.3.1 Critical Area Protection

Phase 2 will focus on completing a land acquisition or conservation easement with the willing landowner. Once land is acquired, the City will refine the Forest Stewardship Plan it developed during Phase 1 to align

with newly acquired lands, which will prepare the City for managing these lands for source water protection. The Forest Stewardship Plan will detail risks to water sources in specific critical areas and describe the vision and strategies for managing the forest and tracking source water protection activities. For example, the Forest Stewardship Plan may include an inventory and characteristics of natural resources in the watershed on the acquired lands, such as trees and understory vegetation. Baseline data can be gathered and used to determine desired future watershed conditions and track the results of source water protection management strategies. The City will work with partners, such as conservation organizations, to refine and implement a Forest Stewardship Plan.

Other planning efforts will likely be involved during Phase 2, including FRIAs and planning to transition maintenance of roads and any other infrastructure that will require active management. The City may choose to contract with foresters to develop FRIAs.

The City will continue conducting outreach to the community about the status of acquisition efforts, as well as source water protection projects that are implemented in acquired lands.

4.3.2 Data Collection and Monitoring Programs

During Phase 2, the City will continue its existing monitoring activities and data collection as identified in the monitoring inventory during Phase 1. For example, the City will continue taking turbidity measurements after storm events, particularly for the first storm of the season. The City will seek opportunities to improve upon its current program by implementing a regular schedule and tracking system for data collection. The City will further develop planned monitoring approaches and apply for funding to support new or expanded monitoring programs during Phase 2.

The City will conduct outreach and community engagement efforts to inform the community about the data collected, its intended use, and updates about monitoring programs, including grants, project designs, and project implementation.

The City will evaluate its other surface water rights, aside from Jetty Creek, for reliability and potential use as backup water supply sources. Water rights strategies will also be explored.

4.3.3 Watershed Restoration

During Phase 2, the City will continue to coordinate with landowners and partners to plan for and implement restoration projects. The City will pursue funding for identified watershed restoration projects in alignment with a Forest Stewardship Plan developed for any acquired lands. Depending on funding requirements and capacities, certain projects may involve additional planning steps, such as designing a methodology to track project activities, which would be done in Phase 2.

4.3.4 Sediment and Erosion Control

During Phase 2, the City will continue planning projects in high-priority areas and will pursue funding for potential road sediment reduction, erosion control, and/or culvert replacement projects identified in Phase 1. Early implementation of projects will also be part of Phase 2 once funding is secured.

The City plans to engage with forest landowners during this phase to explore available resources regarding sediment reduction practices and to collaborate on initiatives aimed at reducing sediment from roads. Discussions with landowners will cover the possibility of conducting road inventories and assessments on public lands to pinpoint further project requirements in key priority zones. If the City acquires land in the watershed, it will develop road inventories and maintenance plans or request plans from previous landowners and build upon those plans if they are available.

The City and potentially current landowners will identify and coordinate with neighboring landowners (outside of the source water area boundaries) about needs and areas of concern and potentially collaborate on sediment and erosion control projects.

4.3.5 Water Supply and Emergency Planning

During Phase 2, the City will implement projects to address risks to water supply identified during Phase 1 in the updated WMP and the WMCP. Projects to expand storage capacity in the water system will be implemented, including infrastructure or natural storage projects within and outside of the watershed. For example, Phase 2 may be the construction stage of projects included in the Capital Improvement Plan section of the WMP.

Road infrastructure will be assessed for accessibility by firefighters and other vehicles in the event of an emergency during Phase 2, and the City and/or landowners may plan maintenance of roads for emergency access as needed. Infrastructure and access points within the watershed will also be evaluated during Phase 2 to identify any areas that the City and/or landowners determine may be vulnerable to vandalism and attacks. These areas will be noted, and strategies to reduce vulnerabilities may be incorporated into future management plans.

4.3.6 Communications and Public Engagement

Phase 2 is focused on maintaining community engagement and outreach efforts and further developing partnerships. The City will continue conducting outreach to inform the public and partner organizations about source water protection efforts. Outreach and engagement methods could include social media and other digital platforms, distributing informational paper materials, public meetings, and events. The City will focus other outreach efforts on recreation in the watershed during Phase 2, educating the public about the potential impacts of different types of recreation and best practices to maintain a clean watershed (e.g., following only designated trails, not leaving litter or waste). Messaging about recreational practices could be communicated at meetings or with informational signs or postings at trailheads, for example.

The City will communicate with wildfire response planners and managers to convey that the Jetty Creek watershed is the City's primary water source and to describe the City's source water protection efforts. These communications are intended to result in more informed wildfire management decisions in the Jetty Creek watershed.

The City will maintain its enrollment in FERNs through Phase 2 if applicable.

4.3.7 Water Conservation Measures

During Phase 2, the City will continue its conservation program and will implement additional measures it identifies during Phase 1 as funding and resources allow. The City will devote additional effort during Phase 2 towards pursuing and establishing conservation partnerships that could be leveraged to share resources and accomplish outreach goals. In addition, the City will research and evaluate the possibility of implementing water conservation ordinances to decrease water use and minimize water waste. These ordinances may focus on indoor water usage, potentially mandating water-efficient plumbing fixtures in new constructions, or outdoor water usage, such as promoting or requiring the planting of drought-resistant, low-water-use plant species. The City will identify any potential ordinances that seem beneficial to adopt.

4.4 Phase 3 – Long-Term Implementation

4.4.1 Critical Area Protection

If the City completes a land acquisition or conservation easement with a willing private landowner in Phase 2, Phase 3 will focus on implementing recommended management activities from the Forest Stewardship Plan completed in Phase 2. Management activities focused on source water protection will be tracked, and forest conditions will be monitored to compare to baseline conditions established in Phase 2. For any land not acquired, the City will continue working with landowners to enhance critical area protection.

Management activities in Phase 3 will also include building upon existing plans and possibly developing a specific land use plan for the Jetty Creek watershed that addresses unauthorized camping and recreation, as well as other land uses, as needed. During Phase 3, the City may also explore forming a public and private recreation partnership, where an organization could manage recreation areas in the watershed, for example, through administering passes or entry.

4.4.2 Data Collection and Monitoring Programs

Water quality monitoring identified in earlier phases will continue during Phase 3 and beyond. Any data needs or new data that is obtained related to source water risks will be tracked, especially in preparation of the 5-year update to the SWPP. The City will continue conducting public outreach and engaging the community in education about its monitoring efforts and data findings or trends, at least as part of the SWPP 5-year update process.

4.4.3 Watershed Restoration

During Phase 3, the City and its partners will track activities completed, successes (i.e., accomplishments) of implemented projects, and needs for additional or long-term watershed restoration work. For example, the number of invasive species or the amount of riparian buffer cover gained since before implementation could be tracked. The City will continue collaborating with partners to stay coordinated on source water protection efforts, to share resources, and to meet grant requirements, as applicable.

4.4.4 Sediment and Erosion Control

The City will continue supporting implementation of sediment reduction, erosion control, culvert replacement, and ecosystem restoration and enhancement projects that may offer a range of benefits, as well as tracking progress on those activities. As conditions in the watershed change due to management changes, road construction, and severe storms or other natural events, the City will continue to assess the need for new sediment reduction projects. The City will coordinate with landowners in the watershed to understand the latest road maintenance activities and assessments of road conditions and to develop collaborations for new projects. For any land the City acquires, it will maintain road inventories and maintenance plans and continue implementing plans.

4.4.5 Water Supply and Emergency Planning

Long-term activities will include continuing to update water supply and emergency plans to consider source water risks as needed. When agencies arrange to update their emergency response plans, the City will participate in the update process in an effort to incorporate source water protection in those plans and take part in any related community engagement activities. For instance, the City might ask for the inclusion of maps showing its source area and contact details for its WTP in case of emergencies that could impact its water supply.

Following any emergency events affecting the Jetty Creek watershed, the City will communicate with landowners (if applicable) and restoration experts, such as nearby watershed councils and Tillamook County Soil and Water Conservation District, to assess the need for watershed restoration projects and then pursue needed projects. To address erosion and sedimentation impacts of disasters, like wildfires or landslides, projects in affected areas would be prioritized to reduce consequences to water sources.

4.4.6 Communications and Public Engagement

The City will maintain its communication with partners and public engagement efforts, particularly as it pertains to the management of acquired land in the source water area and facilitating the 5-year update to the SWPP. The City may establish a committee focused on forest stewardship that will hold public meetings, which could be initiated when revisiting the SWPP for the 5-year update and could be continued if there is interest. The City will maintain its enrollment in FERNs as long as it is necessary if any land remains owned and operated for forestry.

4.4.7 Water Conservation Measures

As funding allows, the City will continue implementing leak detection and infrastructure projects outlined in its WMP. The City will assess the need for any additional water conservation outreach programming and will work with any partners identified in Phase 2 on potential new focus areas. For any water conservation ordinances identified during Phase 2, staff will recommend their adoption to the City Council. They will also engage in outreach efforts to inform customers and developers about the new regulations and their advantages for water conservation.

At the 5-year check-in mark from the submittal of a WMCP, the City will evaluate its progress in implementing conservation benchmarks. The City will continue to implement conservation measures long-term, including conducting outreach to water users.

4.5 Potential Funding Sources

The following is a list of potential funding sources for supporting implementation of the SWPP. The City's SWA (DEQ, 2016) also contains a list of funding sources, as does DEQ's webpage on funding for water systems: <https://www.oregon.gov/deq/wq/dwp/Pages/DWP-Funding.aspx>. The funding opportunities below are well-aligned with the City's priorities for SWPP implementation.

Drinking Water Source Protection Fund, OHA

- Provides grants of up to \$50,000; grants can be received in 2 consecutive years, then there must be at least 1 year before another grant is awarded.
- Provides loans up to \$100,000 per project.
- Funding must be used within 2 years.
- Emergency grants are available to address threats to drinking water supplies outside of the standard Letter of Interest submission timeline.
- Letters of Interest due from January through March.
- **Example Projects:** land acquisition, incentive-based protection measures, community outreach, riparian restoration, waste collection, and watershed planning.
- <http://www.oregon.gov/oha/ph/healthyenvironments/drinkingwater/srf/pages/spf.aspx>

Drinking Water Provider Partnership Grants, Geos Institute

- Provides grants up to \$50,000.
- Project must be in a drinking water source area with a federal nexus (e.g., USFS and BLM).
- Funding must be used within 18 months.
- Proposals due in early January.
- Supports projects that restore and protect watersheds that provide drinking water while also benefiting aquatic and riparian ecosystems, including the native fish that inhabit them.
- **Example Projects:** develop native riparian reserves, road sediment analysis and road redesign, riparian planting, weed control, floodplain reconnection.
- <https://geosinstitute.org/initiatives/SPP/>

Clean Water State Revolving Fund, DEQ and EPA

- Provides below-market rate loans for planning, design, and construction projects that protect public health, restore natural areas, and promote economic development.
- Applications reviewed three times a year.
- **Example Projects:** establishing monitoring programs and outreach programs, watershed restoration, loans for septic system upgrades/replacements, land purchase and conservation easements, and nonpoint source control activities.
- <https://www.oregon.gov/deq/wq/cwsrf/pages/default.aspx>

Oregon 319 Nonpoint Source Implementation Grants, Oregon DEQ

- Provides grants up to \$50,000 and requires a 40 percent non-federal match (i.e., 40 percent of the total project cost must be covered by non-federal funds and/or in-kind services).
- Application period typically in spring.
- Supported activities include technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and monitoring.
- Projects that involve collaborative stakeholder partnerships are encouraged.
- Projects that protect or replace failing infrastructure on USFS or BLM roads or lands are not eligible.
- <https://www.oregon.gov/deq/wq/programs/pages/nonpoint-319-grants.aspx>

Oregon Watershed Enhancement Board Grants

- **Monitoring Grants:** eligible monitoring projects include status and trend, project effectiveness, landscape effectiveness, and Rapid Bio-Assessment; apply in the fall.
- **Restoration:** Priorities include altered watershed function affecting water quality, water flow, and fish production capacity; apply in the spring or fall.
- **Stakeholder Engagement:** Eligible projects increase awareness and understanding in watersheds to support implementation of specific restoration, monitoring, and conservation activities; apply in spring or fall.
- **Technical Assistance:** apply in spring or fall.
- **Land Acquisition Grants:** Eligible projects involve purchase of interests in land from willing sellers for maintenance and restoration of watersheds and fish and wildlife habitat; apply in fall.

- **Water Acquisition Grants:** Eligible projects involve purchase of an interest in water from a willing seller to increase in streamflow for habitat and species conservation benefits and to improve water quality; apply in fall.
- **Drinking Water Source Protection Grant Program:** The program was established in June 2023. Grants are given to public water suppliers for acquisitions, covenants, easements, or similar agreements for lands within the supplier's drinking water source area for which an acquisition will benefit the drinking water source; apply in winter; \$5,000,000 available within the program, \$3,000,000 cap for individual grant requests.
- **Small Grants:** Provides up to \$15,000 for less complex, on-the-ground restoration projects.
- <https://www.oregon.gov/oeb/grants/Pages/grant-programs.aspx>

Feasibility Study Grants and Water Project Grants and Loans, OWRD

- Water Project Grants and Loans
 - Applications are due in April.
 - Supports projects that address instream and out-of-stream water supply needs now and into the future.
- Feasibility Study Grants
 - Reimburse up to 50 percent of the costs of studies to evaluate the feasibility of developing water conservation, reuse, and storage projects.
 - Applications are due in fall.
- <https://www.oregon.gov/owrd/programs/FundingOpportunities/Pages/default.aspx>

Private Forest Accord Grant Program, ODF

- Supports projects that benefit fish and aquatic wildlife species and habitats anticipated to be covered by the pending ODF Habitat Conservation Plan.
- Examples of supported project types include (but are not limited to) fish passage, riparian restoration, conservation easements or land acquisition, and invasive species removal.
- Applications are typically due in the fall, Administered by ODFW.
- Most projects typically request at least \$50,000 (no minimum or maximum set).
- https://www.dfw.state.or.us/habitat/PFA/grant_program.html#GrantProgram

Various Federal Financial Assistance Programs, U.S. Department of Agriculture Natural Resources Conservation Service

- **Environmental Quality Incentives Program (EQIP):** Financial and technical assistance to agricultural and forestry producers to address natural resources concerns and provide environmental benefits, such as water quality improvements, reduce soil erosion and sedimentation, and improved wildlife habitat.
 - <https://www.nrcs.usda.gov/programs-initiatives/eqip-environmental-quality-incentives>
- **Conservation Stewardship Program:** Encourages farmers, ranchers, and woodland owners to take the conservation a step further by implementing additional conservation activities and enhancements.
 - <https://www.nrcs.usda.gov/programs-initiatives/csp-conservation-stewardship-program>

- **National Water Quality Initiative:** Provides funding for a detailed watershed assessment and an outreach strategy to address agricultural-related impacts, and following completion, funding to implement projects becomes available through EQIP.
 - <https://www.nrcs.usda.gov/programs-initiatives/national-water-quality-initiative>
- **Watershed and Flood Prevention Operations Program:** Provides financial and technical assistance for erosion and sediment control, watershed protection, flood prevention, water quality improvements, water management, fish and wildlife habitat enhancement, hydropower sources, and rural, municipal, and industrial water supply; the project must have agricultural benefits.
 - <https://www.nrcs.usda.gov/programs-initiatives/watershed-protection-and-flood-prevention-operations-wfpo-program>
- **Emergency Watershed Protection Program:** Provides technical and financial assistance for communities following natural disasters that impair a watershed. Examples of activities that could be funded include removal of debris from stream channels and culverts, restoration of streambanks, establishing vegetative cover on critically eroding lands, repairing levees, and purchase of floodplain easements.
 - <https://www.nrcs.usda.gov/programs-initiatives/ewp-emergency-watershed-protection>

Environmental Education Grants Program, EPA

- Supports projects that promote environmental awareness and stewardship and help provide people with skills to protect the environment.
- Applicants must represent at least one of the following types of organizations: local education agency, state education or environmental agency, college or university, non-profit organization, tribal education agency, noncommercial educational broadcasting entity.
- Grant competition closes in January.
- <https://www.epa.gov/education/grants>

Various Grants, Oregon Office of Emergency Management

- **Emergency Management Performance Grant:** makes grants from the federal government available to state, local, and tribal governments to assist in preparing for all hazards.
- **Hazard Mitigation Assistance Grant:** Provides funds from the federal government to assist in hazard mitigation planning, projects, and other activities to reduce vulnerability to hazards.
- **Homeland Security Grant Program:** Provides funds from the federal government for planning, organizing, equipment purchasing, training, and exercises for emergencies.
- <https://www.oregon.gov/oem/emresources/Grants/Pages/default.aspx>

Forest Legacy Program, USFS

- Aims to identify and conserve environmentally important forest areas that are threatened by conversion to non-forest uses. Landowners may participate in the Forest Legacy Program by either selling their property outright or by retaining ownership and selling only a portion of the property's development rights; both are held by state agencies or another unit of government; conservation easements are another option.
- <https://www.fs.usda.gov/managing-land/private-land/forest-legacy>

Community Forest Funding, USFS

- Provides financial assistance to tribal entities, local governments, and qualified conservation non-profit organizations to acquire and establish community forests that provide community benefits (e.g., economic benefits through forest management, clean water, wildlife habitat, education, and public access for recreation).
 - Full fee title acquisition is required. Conservation easements are not eligible.
 - Community Forests can be owned by local governments, tribal governments, and qualified nonprofit entities.
 - The program pays up to 50 percent of the project costs and requires a 50 percent non-federal match.
 - Public access is required for Community Forest Program projects.
 - Lands acquired through the program are actively managed in accordance with a community forest plan to provide community benefits.
- <https://www.fs.usda.gov/managing-land/private-land/community-forest>

Coastal Zone Management Program, National Ocean and Atmospheric Administration

- Addresses the nation's coastal issues through a voluntary partnership between the federal government and coastal and Great Lakes states and territories. Supports efforts to protect, restore, and responsibly develop diverse coastal communities and resources.
- <https://coast.noaa.gov/czm/>

Community Change Grants, EPA

- [Inflation Reduction Act](#) funds were available for environmental and climate justice activities to benefit disadvantaged communities through projects that reduce pollution, increase community climate resilience, and build community capacity to address environmental and climate justice challenges. This opportunity closed in November 2024, and future opportunities are unknown.
- <https://www.epa.gov/inflation-reduction-act/inflation-reduction-act-community-change-grants-program>

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SECTION 5: Contingency Plan

A contingency plan for responding to the loss or substantial reduction of a drinking water source is a required element of a state-approved SWPP. Oregon Administrative Rule [333-061-0057\(5\)](#) specifies that a contingency plan must include the following elements:

1. Inventory/prioritize all threats to the drinking water supply
2. Prioritize water usage
3. Anticipate responses to potential incidents
4. Identify key personnel and develop a notification roster
5. Identify short-term and long-term replacement potable water supplies
6. Identify short-term and long-term conservation measures
7. Provide for plan testing, review, and update
8. Provide for new and ongoing training of appropriate individuals
9. Provide for education of the public
10. Identify logistical and financial resources

These elements are addressed below.

This contingency plan has been developed in coordination with the City of Rockaway Beach EOP (Rockaway Beach, 2023), the NHMP (Tillamook County, 2023), and City of Rockaway Beach WMCP (HBH, 2020).

5.1 Threats to the Drinking Water Supply

The City identified and prioritized several risks to its drinking water source area in Section 2 of this SWPP. Of the identified risks, the following could cause the potential loss or reduction of a drinking water source:

- Landslides
- Drought and Low Streamflows
- Climate Change
- Earthquake
- Tsunami
- Severe Storms
- Wildfire
- Infrastructure Leakage or Failures
- Vandalism

5.2 Prioritization of Water Usage

If an emergency results in an insufficient water supply to meet all needs, the City may need to prioritize water use. The prioritization may be as follows:

- Fire protection
- Medical facilities

- Residential
- Commercial and schools
- Parks
- Irrigation

5.3 Responses to Potential Incidents

The City's EOP describes how the City will respond to emergency events. The City's EOP (Rockaway Beach, 2023) is fully integrated into and supplemental to the Tillamook County EOP (Tillamook County Office of Emergency Management, 2017), which includes an Immediate Action Checklist, a Basic Plan, and Incident Annexes. The City's EOP is also compatible with the State of Oregon Emergency Management Plan (OEM, 2024) and the Tillamook County Multi-Jurisdictional NHMP (Tillamook County, 2023). The City's EOP consists of immediate direction and command structure in the event of an emergency, divisional structure, and contact information for appropriate emergency City staff.

The immediate direction and command structure is used to initiate the City's responses to incidents. It outlines appropriate personnel and organizations to contact, designated evacuation areas, and when and how to declare a state of emergency. A Declaration of Emergency must be forwarded immediately to the Tillamook County Office of Emergency Management.

The City's EOP (Rockaway Beach, 2023) divides City resources into six areas: (1) public works, (2) fire, (3) medical, (4) law enforcement, (5) communications, and (6) Community Emergency Response Team (CERT)/preparedness volunteers. For each division, the EOP outlines the incident mission, primary contact person, duties, and overall goal. The mission for incidents related to the public works division is:

Preserve life and safeguard the city assets. Prevent water contamination from sewage or other contaminants, maintain as large a water reserve as possible for both consumption and fire suppression, maintain the city infrastructure, open streets and roadways for emergency responders, and assist with rescue operations.

The "Duties" section provides an order of operations that supports the divisional mission. The Basic Plan section of the Tillamook County EOP (Tillamook County Office of Emergency Management, 2017) provides more information about the hazards and threats facing Tillamook County communities; and the Incident Annexes supplement the Basic plan by providing step-by-step guides to respond to and recover from specific incidents.

The City operates a Level 2 WTP that requires a certified operator and a Level 1 distribution system. The City has a WTP operations and maintenance manual, which provides instructions for operations and maintenance of the facility. This manual is intended for use by trained WTP operators. The manual is located at the WTP. The City also has a certified Cross Connection Control Specialist that helps the City comply with cross connection control requirements.

Information about the City's drinking water treatment and sampling is available through OHA's Drinking Water Online database. The database can be accessed by using the following link: <https://yourwater.oregon.gov/> and entering Rockaway Beach Water District in the Water System Search.

5.4 Key Personnel and Notification Roster

5.4.1 Key Personnel

The following positions are authorized to issue a Declaration of Emergency: 1) Mayor, 2) City Manager, 3) Emergency Manager, and The City Council, when a quorum is present.

The City's key personnel for emergency operations are identified in the City's EOP (Rockaway Beach, 2023) as:

- The Rockaway Beach National Incident Command Systems staff, which consists of the following: the Emergency Manager (Incident Commander [IC]), as well as the City Manager, Administrative Assistant, City Finance Officer, and a Public Information Officer (support staff)
- A Safety Officer provided by the Fire Department
- The Incident Management Team (IMT): the Public Works Director, Fire Chief, City Manager, Mayor, and City Council

The City divides up tasks between six divisions, and each of the six divisions is represented by a primary contact person on the IMT.

5.4.1.1 National Incident Command System Staff

Upon Declaration of Emergency, specified members of the IMT will gather and activate emergency response activities. This team will utilize the National Incident Management System (NIMS) and be headed by the Rockaway Beach Emergency Manager or their designate, IC. The IC determines staffing composition based on need. A list of potential staff is included in the City's EOP (Rockaway Beach, 2023).

5.4.1.2 Divisional Structure

The City's emergency response team is divided into six different divisions: public works, fire department, medical, law enforcement, communications, and CERT/volunteers (contact information in Section 5.4.2.1). The public works division is responsible for safeguarding the City's assets, including its water systems. The fire department is responsible for preserving public and private property and facilitating evacuation. The medical team assesses and treat injuries. Law enforcement is responsible for maintaining overall security and control. The communications division serves as a liaison between local emergency operations personnel and regional and/or state officials. CERT/volunteers help to preserve life and aid emergency responders.

5.4.2 Notification Roster

5.4.2.1 Key Personnel Contact Information

Primary contacts for each of the six City divisions are identified below. The City's main phone number is 503-374-1752, and direct line numbers are listed below where available.

- Public Works
 - Rockaway Beach Public Works Superintendent/Director
 - 503-374-0586
- Fire Department
 - Rockaway Beach Fire Chief
 - 503-374-0618

- Medical
 - Rockaway Beach Fire Rescue
 - 503-374-0612
- Law Enforcement
 - Rockaway Beach Patrol (Tillamook County Sheriff)
 - Non-emergency dispatch: 503-815-1911
 - Sherriff Office: 503-842-2561
 - Oregon State Patrol: 800-442-0776
- Communications
 - Rockaway Beach Radio Group
 - 503-374-1752
- CERT/Volunteers
 - Rockaway Beach Emergency Manager
 - 503-374-0618

In addition to the contacts for the six divisions, the following county and state agencies respond to emergencies:

- **Public Safety Answering Point (9-1-1 Dispatch)**
- **Tillamook County Emergency Management 503-842-3412**
- **OHA – Drinking Water Services 971-673-0405**
 - OHA-Drinking Water Services is the regulatory agency for public water systems operations, primarily related to water quality. It should be notified of water-related emergencies (e.g., shortages, line-breaks, loss of pressure, and water treatment failure) and it would directly respond and require notification of incidents.
- **DEQ – Drinking Water Program 503-229-5954**

5.5 Short-term and Long-term Replacement Potable Water Supplies

5.5.1 Short-term Actions

The City's WMCP (HBH, 2020) contains a water curtailment element that describes measures the City can implement to decrease demand following a reduction or loss of water supply, and thereby, avoid or delay the need for replacement potable water supplies. The Water Curtailment Plan consists of four stages of curtailment with identified conditions or events that would trigger each stage of curtailment and response measures (triggers and conservation measure examples are described further in Section 5.6.). The curtailment stage is based on specific emergency conditions related to supply, demand, and capacity, or by system manager assessment. Supply shortage indicators are based on streamflows, the Palmer Index, and the Surface Water Supply Index.

Stage 1 of the curtailment plan is a mild warning status intended to request voluntary reduction in water use during periods of high demand or equipment failure. Stage 2 is considered a moderate water emergency with mandatory conservation requirements, invoked when water shortages pose a serious threat to the ability of the water system to meet the demands of its customers. Stage 3 is a severe water emergency with additional mandatory requirements to Stage 2. Stage 4 is a critical water emergency, invoked when disaster conditions make it impossible for the water system to continue functioning as usual.

The City's peak summer water demand occurs during the period of lowest flow in Jetty Creek. As a result, supply during the low-flow period of late summer is regularly supplemented by groundwater from the City's wells. Extended periods of low flow, high usage, and/or infrastructure deficiencies could cause a water shortage necessitating curtailment, as well as other conditions identified in Section 5.1.

5.5.2 Long-term Actions

Section 5.3 of the City's WMCP (HBH, 2020) describes in detail the existing source capacity and new source development for Rockaway Beach. Currently, the City is vulnerable to a long-term interruption in the ability to withdraw water from Jetty Creek, given that Jetty Creek is the City's primary water supply source and that the City's supplemental groundwater sources have water quality issues and infrastructure limitations, as described in Section 2 of the WMCP (HBH, 2020).

As a result, the City evaluated several alternatives as potential new water sources: 1) develop existing water rights, 2) develop interconnection, and 3) increase raw water storage. The City will be exploring potential new water sources in the coming years. Until existing sources are sufficiently restored, or new water sources are identified and developed, the City will likely need to implement curtailment measures in the event of a loss or significant reduction in water supply.

5.6 Short-term and Long-term Conservation Measures

The City's Water Curtailment Plan describes the following water conservation measures required under the four different stages of curtailment.

Alert Stage 1: Mild Water Emergency

Stage 1 will be imposed if a water shortage or equipment failure poses a potential threat to the ability of the water system to meet the demands of its customers. Indicators of a Stage 1 emergency include: Jetty Creek flows recede to less than 1.5 cfs, demand reaches 60 percent of capacity, Palmer Index (PI) values between -2.0 to -3.0, and Surface Water Supply Index (SWSI) values between -1.5 to -2.5.

The objective of Stage 1 is to inform the public of water supply issues and request voluntary water use reduction. Measures associated with Stage 1 include:

- Institute a voluntary restricted watering schedule based on odd/even address numbers for residential and business customers. The voluntary schedule shall apply to all residential and commercial lawn watering and other nonessential water uses with exceptions as specified by the City. Customers will be asked to restrict watering to the night hours to avoid loss through evaporation. Customers will also be asked to avoid all outdoor water use during typical times of peak demand (i.e., weekends, mornings, and evenings).
- Disseminate informational brochures on conservation methods. Advertising on radio, televisions, newspapers, sandwich boards, signs on City Kiosks, and other media will also be utilized to keep the public updated on the water supply situation. The City will also provide recorded information on the City Hall and Public Works phones.
- Request that consumers make efforts to voluntarily reduce water consumption by up to 10 percent of normal through personal conservation efforts. This may include the repair of household leaks, installation of low-flow fixtures, reduction or elimination of landscape watering, and other conservation efforts.
- Provide specific notification to major water users asking for voluntary reductions in use and/or deferring nonessential use to off-peak hours.

- City-operated decorative fountains that do not recirculate water shall cease operating.
- City uses of water for hydrant and water line flushing shall be limited to essential needs.
- No use of City-supplied water to wash sidewalks, walkways, streets, driveways, parking lots, or other hard surface areas except where necessary for public health or safety.
- Usage of City-supplied water to wash vehicles shall only be permitted during weekdays.
- The City should develop a water system reporting sign to indicate the general condition of the City's water supply. Often used to warn of a variety of levels of fire danger, a properly located reporting sign can send a regular reminder to consumers that the water supply is tenuous. Under Stage One curtailment, the reporting sign should raise the alert that the water is low and remind consumers to use water wisely.

Alert Stage 2: Moderate Water Emergency

Stage 2 is the first level of action for the City to enact mandatory water restrictions. Indicators of a Stage 2 emergency include streamflow in Jetty Creek receding below 1.0 cfs, demand reaching or exceeding 90 percent capacity, PI values between -3.0 to -4.0, SWSI values between -2.5 to -3.25, equipment failure, extended equipment maintenance needs, or other indicators listed in the WMCP. In addition to the Stage 1 curtailment measures, Stage 2 measures may include the following:

- Stage One curtailment measures 2-7 continued.
- Watering or irrigating of lawns, landscaping, and gardens may only occur on weekdays between 6 pm and 6 am.
- No use of City-supplied water shall be allowed to clean, fill, or maintain levels in decorative fountains.
- No use of City-supplied water shall be allowed to wash vehicles.
- Hydrant and water main flushing shall be done for emergencies only.
- Restaurants will be required to post drought notices and offer drinking water only upon request. Other high-volume water consumers (e.g., hotels, recreation centers) may be required to post drought notices apprising their clientele of the drought conditions.
- The City reporting sign should indicate the upgrade of severity and further caution consumers about wise and prudent water use.

Alert Stage 3: Severe Water Emergency

Stage 3 will be imposed when Jetty Creek flows recede to 0.75 cfs or when demand reaches 95 percent of capacity, or during major equipment failure. Specific scenarios that would result in a declaration of a severe water emergency are listed in the WMCP. In addition to the curtailment measures in Stages 1 and 2, Stage 3 includes provisions to prohibit all nonessential outdoor use. Stage 3 also includes the enforcement of severe penalties for violating water use restrictions. Additional Stage 3 curtailment measures include:

- Stage One curtailment measures 2-7 and Stage Two measures 3-6 continued.
- No watering or irrigating of lawns, landscaping, gardens, or any other outside water use.
- All outdoor use prohibited.
- No use of city-supplied water shall be allowed to fill swimming pools or other pools.
- The City reporting sign should indicate the upgrade of severity and further caution consumers about wise and prudent water use.

Alert Stage 4: Critical Water Emergency

Declaration of a Stage 4 water emergency is reserved for extreme water supply issues, such as conditions following a natural disaster. Indicators of Stage 4 include the inability of the WTP to produce additional water for the distribution system to deliver potable water. The goal of Stage 4 should be to provide enough water to sustain human life. Stage 4 conservation actions may include closing the distribution system or disconnecting all water users from the system. The City may choose to ration water use from a central location, reservoir, or directly from the WTP.

5.7 Plan Testing, Review, and Update

This Contingency Plan will be reviewed and updated when changes to emergency operations occur or following evaluation of lessons learned from exercises or events. Reviews aim to keep this Contingency Plan consistent with the City's EOP (Rockaway Beach, 2023). This Contingency Plan will be reviewed at a minimum of every 5 years to comply with State requirements.

5.8 Personnel Training

City water purveyors are required to hold certifications for the operation treatment, distribution, and costs connection control systems. City personnel are provided with training in Water Treatment Level 1-4, Water Distribution Level 1-4, and Cross Connection Specialist training.

Fire and EMS personnel are provided with training in driving (Emergency Vehicle Operations), NIMS-100, 200, 700, and 800, wildland firefighter Type 2, structural firefighter Type 1, healthcare provider cardiopulmonary resuscitation (CPR), Emergency Medical Responder (Emergency Medical Technician preferred), vehicle extrication, hazardous materials operations, SCBA fit test, and physical agility. Trainings are held weekly and on weekends as needed.

Emergency preparedness volunteers are trained in: CERT, radio, ICS 100, NIMS-100, 200, 700, and 800, and CPR/first aid. Monthly trainings are provided.

5.9 Public Education

The City recognizes the importance of emergency preparedness education and outreach to both permanent residents and transient populations (i.e., tourists), and it maintains an active community preparedness program.

The City's EOP (Rockaway Beach, 2023) has a section on media and public information, which outlines the process for disseminating information during an emergency. In the event of an emergency, the IC will designate a Public Information Officer (PIO). The PIO consults with the IMT before any information is released to the public. The two primary objectives of streamlining public information are to: (1) provide information to the affected population so they can respond accordingly, and (2) inform the news media on the event and actions taken to respond. Communication to the public and to the media will be done through any means necessary. To control propagation of false information, all questions and information requests are to be referred to the PIO to ensure consistent responses.

The City has an Emergency Preparedness webpage on its website which educates the public about numerous hazards to the community and how to be prepared. The Emergency Preparedness webpage can be accessed via the following link: <https://corb.us/emergency-management/>. The Emergency Preparedness webpage contains information about emergency notifications, tsunamis, earthquakes, evacuation sites, fire preparedness, heat safety, pandemics, power outages, storms and flooding, water conservation, and winter travel tips. It provides links to plans and resources, including the City Evacuation Plan and the EOP, a Family Emergency Preparedness Handbook, and tsunami evacuation maps. The tsunami content discusses what

tsunamis are, how to plan for a tsunami and protect your property, media and communication ideas, and what to do after a tsunami. The Fire Ready content includes links to more resources and videos from Lincoln County.

The City also conducts outreach in the community via distributing evacuation maps, pamphlets with emergency preparedness strategies, door signs for hotels, and posting tsunami hazard signs throughout the city.

5.10 Logistical and Financial Resources

The City considers funding and maintaining its EOP a priority. The City will continue to work to identify and secure funding and to maintain partnerships that support emergency preparedness and response.

In the event of an emergency, the City Council has authority to expend funds to respond to the emergency situation and City code (30.17 General Exemptions (F) Emergencies)) provides City Council (or possibly the Mayor) with the authority to promptly execute contracts to respond to emergencies.

In addition, the City can work with Tillamook County and the State of Oregon to secure financial resources. The Governor can request that the Federal Emergency Management Agency provides resources, planning, coordination, funding, and training. In the case of fire emergencies, the City's Fire Chief can notify the State Fire Marshall to mobilize and fund fire resources.

SECTION 6: Future Water Sources

This section provides an opportunity for water providers to identify risks, and strategies to address those risks, for any additional sources of water supply anticipated within the 20-year planning period of this SWPP. The City's WMCP (HBH, 2020) projected that the maximum daily demand for water will not exceed the City's source capacity until after 2039, which represents at least 15 years of this SWPP's 20-year planning period. The City's need for additional sources of water supply is currently uncertain for the remainder of the planning period. Planning for future water supply also includes climate change and drought preparedness. The City plans to develop updated demand projections and assess its existing water supply during development of its WMCP Update, which is due in August 2029, and potentially as part of other planning processes.

The City's WMCP (HBH, 2020) discussed potential additional future sources of water supply, such as developing one or more of its existing water rights currently held in reserve, or developing an interconnection with a system operated jointly by the Cities of Manzanita and Wheeler or with the City of Garibaldi. The water rights held in reserve are for McMillan Creek, Heitmiller Creek, and Spring Creek, each of which is located near the City's urban growth boundary and associated service area. These potential additional supply sources, and possibly other sources, are expected to be considered in the City's WMCP Update and/or other water supply analyses to be completed during the next 5 years.

Because the City's existing water sources are anticipated to provide sufficient water supply to meet demands during most of the 20-year planning period, and the current uncertainty about water supply needs and the viability of additional sources of water towards the end of the 20-year planning period, the City does not have immediate plans for expansion of its water system. Accordingly, it is too early to identify risks and strategies for a future additional water source in this SWPP.

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SECTION 7: References

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APPENDIX A

Cit of Rockaway Beach Source Water Assessment (2016)

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Updated Source Water Assessment

Rockaway Beach Water District

PWS #4100708

November, 2016

Prepared for:

Rockaway Beach Water District



Prepared by:



State of Oregon
Department of
Environmental
Quality



Oregon

Kate Brown, Governor

Department of Environmental Quality

Agency Headquarters

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TTY 711

November 3, 2016

Luke Shepard, Public Works Director
Rockaway Beach Water District
PO BOX 5
Rockaway Beach, OR 97136

Re: **Updated Source Water Assessment for PWS # 4100708**

Dear Mr. Shepard,

On behalf of the Oregon Health Authority (OHA), the Oregon Department of Environmental Quality (DEQ) is pleased to provide your community with important information in this Updated Source Water Assessment. The updated assessment is intended to provide information and resources to assist you and your community to **implement local drinking water protection efforts**. Since the first source water assessments were completed in 2005, state agencies have significantly expanded analytical capabilities, including more detailed data for analyzing natural characteristics and potential pollutant sources. DEQ is currently completing the updated assessments for surface water systems and OHA is updating the groundwater system assessments. This updated assessment includes information on both the groundwater and surface water source areas.

As you know, assuring safe drinking water depends on public water suppliers implementing multiple successful practices. **First, protect the drinking water source.** Second, practice effective water treatment. Third, conduct regular monitoring for contaminants to assure safety. Fourth, protect the distribution system piping and finished water storage from recontamination. Finally, practice competent water system operation, maintenance, and construction. These practices are collectively called “multiple barrier public health protection”. **Source water protection is an important first step because starting with the best possible quality source water helps assure that water treatment can be effective at all times.**

Source water protection is accomplished by effective state public health programs, environmental protection, land use policies, pro-active land stewardship, and by implementation of local drinking water protection efforts. The susceptibility of the public drinking water system source depends on both the natural conditions as well as the anthropogenic activities in the watershed or groundwater source area.

This letter, with attached figures and technical information, constitutes your **Updated Source Water Assessment**. It supplements your original Source Water Assessment (link here: <http://www.deq.state.or.us/wq/dwp/swrpts.asp>). One of the most important assets a public water system can have is accurate source water area mapping and visual resources to share with the community citizens and officials. The figures include a new regional map view of your watershed, topographic basemap with the source area delineated, and maps with natural characteristics, anthropogenic land uses, potential sources of pollutants, and historic landslides for the surface water source area). Information on anthropogenic land uses in a drinking water source area is important for

evaluating potential pollutant sources and working with stakeholders upstream. Tables are provided that include a summary of the types of potential pollutant sources present in your drinking water source area.

There are also a variety of resources included in this document to assist you with drinking water source protection efforts. **Appendix #1** provides a summary of how to use the information provided in the assessment to move forward to develop and implement source water protection. **Appendix #3** lists websites and resources available to public water systems and community members seeking technical assistance for work on watershed protection. **Appendix #4** provides brief descriptions and contact information for grants and loans to fund both drinking water infrastructure and source protection projects. **Appendix #5** contains potential management strategies for high priority sources of pollutants identified in the groundwater source area.

This update can be used as a standalone document for drinking water source protection or in conjunction with Source Water Assessment reports previously completed by OHA and DEQ between 1998 and 2005. We have provided a copy of the original report for the surface water intake. Contact OHA at 541-726-2587 to receive your water system's original SWA Report for the groundwater portion of your system. We encourage you to use the previous reports which contain additional information characterizing well construction, the drinking water source areas, and susceptibility to potential contaminant sources.

State agency resources are available to help you with mapping and information needs. Larger sizes of the source area maps and more details of landslide potential and other natural characteristics are available for you upon request (contact Steve Aalbers at 503-229-6798). DEQ is currently developing "Resource Guides" with more extensive information to assist public water systems in protecting their source waters. Resource Guides will be developed for both Oregon surface water systems and groundwater systems by 2017.

For direct assistance and/or additional information regarding watershed protection, call Sheree Stewart at DEQ (503-229-5413). For more information on drinking water policies and procedures, call Casey Lyon at OHA (541-726-2587).

Sincerely,

A handwritten signature in black ink, appearing to read 'Sheree Stewart', with a stylized, flowing script.

Sheree Stewart, Drinking Water Protection Coordinator
Environmental Solutions Division

Cc: Casey Lyon, Technical Services Manager, Oregon Health Authority

**Figure 1. Rockaway Beach Water District (PWS 00708)
Drinking Water Source Areas
and Adjacent Source Areas**



Legend

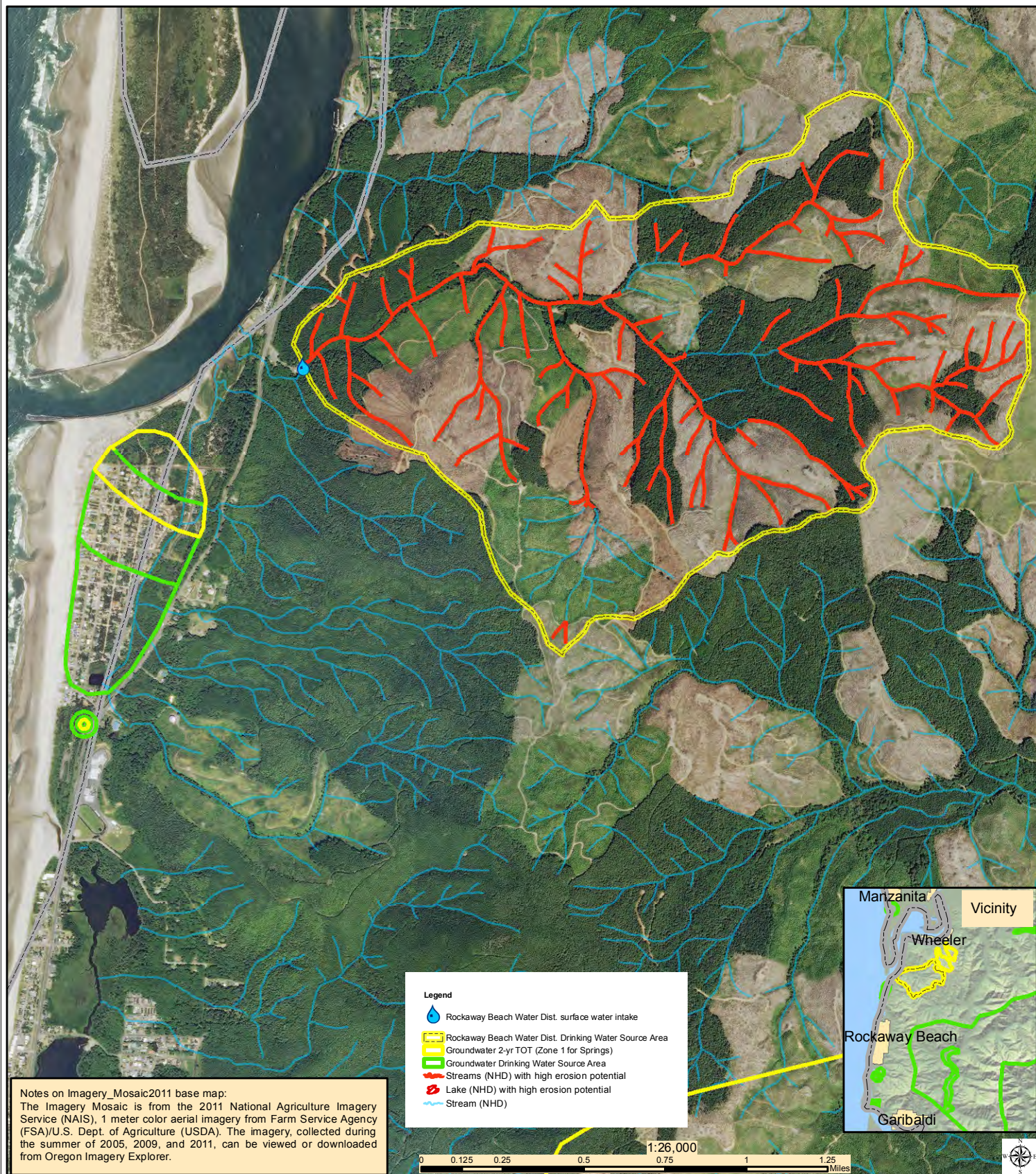
- Rockaway Beach Water Dist. surface water intake
- Rockaway Beach Water Dist. Drinking Water Source Area
- Surface Water Intake
- Surface Water DWSAs
- Groundwater Drinking Water Source Area
- Interstate
- U.S. Routes
- Oregon Routes
- City limits (ODOT, 2013)
- Urban Growth Boundary (2010)
- County Boundary

This data analysis was conducted for strategic planning purposes in drinking water protection. If other uses are considered for the data, please contact DEQ's Drinking Water Protection Program for details on how this query was performed. It is important to understand the limitations and qualifications of queries to ensure appropriate interpretation of this data. No warranty expressed or implied is made regarding the accuracy or utility. This disclaimer applies both to individual use of the data and aggregate use with other data.

Oregon Dept of Environmental Quality/Environmental Solutions Division/Water Quality Program
Drinking Water Protection Program/GIS
Projection: Oregon Lambert (Lambert Conformal Conic)
GCS_North_American_1983, Datum: D_North_American_1983
File: \\deqhq1\dwpl\SWA Reports & Plan\Update SWA SW
2016\PWSReports\4100708_Rockaway_Beach\USWA_Fig1_SWGW_RockawayBeachWaterDistrict_VicinityMap.mxd
Prepared by: sda(09SEP2016), updated by jkh (26SEP2016)

Note on Base Layer: The hillshade color effect shown here is the result of additional processing of digital elevation models (DEM - 30 meter grid) data from 1:24000 topographic maps. A "hillshade" was produced first and then color adjusted. The original DEM files were developed by the OR Dept. of Forestry. Additional processing of the hillshade data with Red, Green, Blue (RGB) color scheme resulted in the "orshade.sid" dataset displayed here. The data set is provided for use by the Oregon Geospatial Data Center.

**Figure 2. Rockaway Beach Water District (PWS 00708)
Drinking Water Source Area Erosion Potential
(See Appendix 2 for Key to map details and metadata)**



**Figure 3. Rockaway Water District (PWS 00708)
Drinking Water Source Area Landslide Hazards Map
(See Appendix 2 for Key to map details and metadata)**

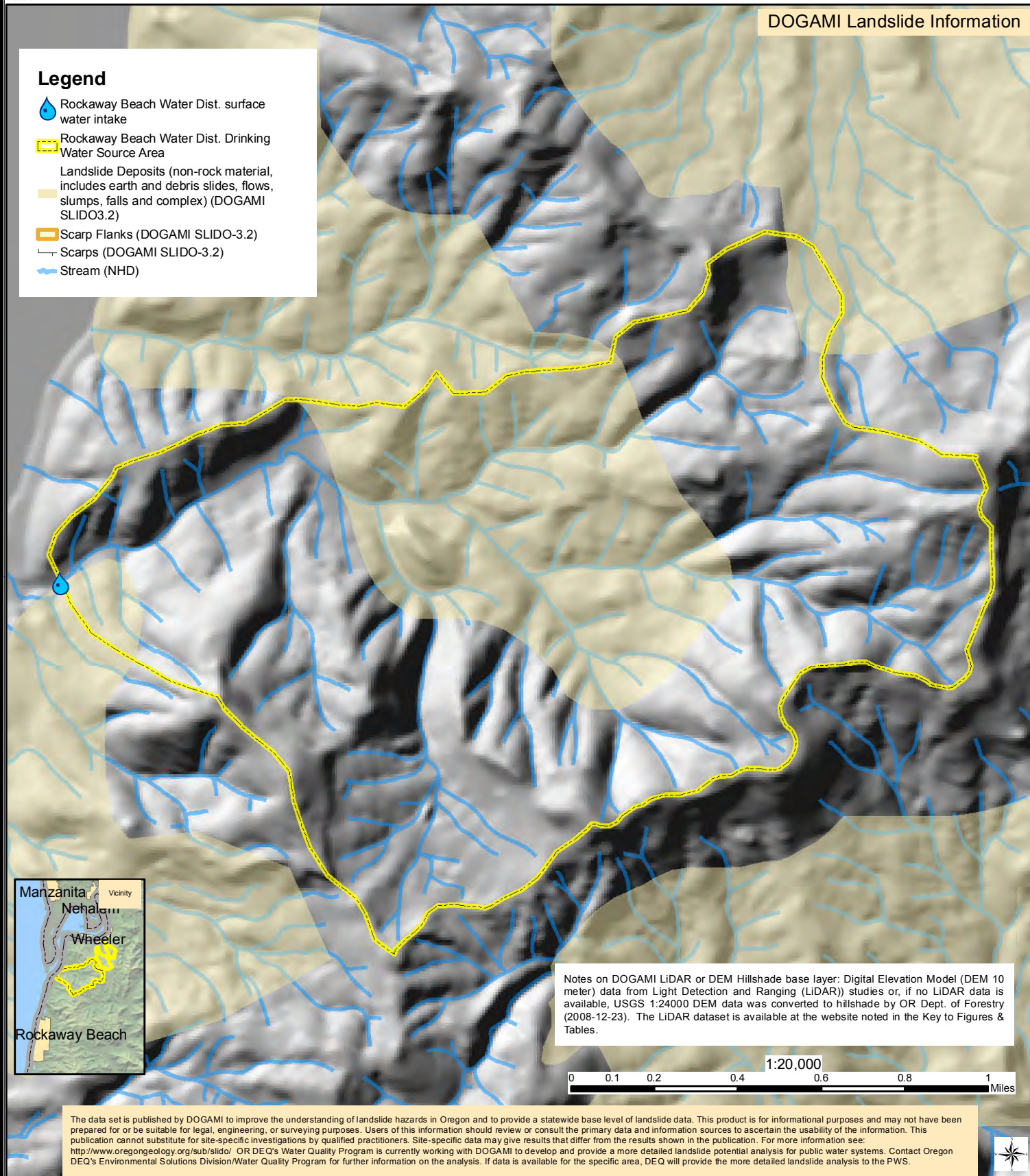


Figure 4. Rockaway Beach Water District (PWS 00708)

Drinking Water Source Areas - Potential Anthropogenic Sources,

Transportation Corridors and Land Ownership/Use

 (See Appendix 2 for Key to map details and metadata)

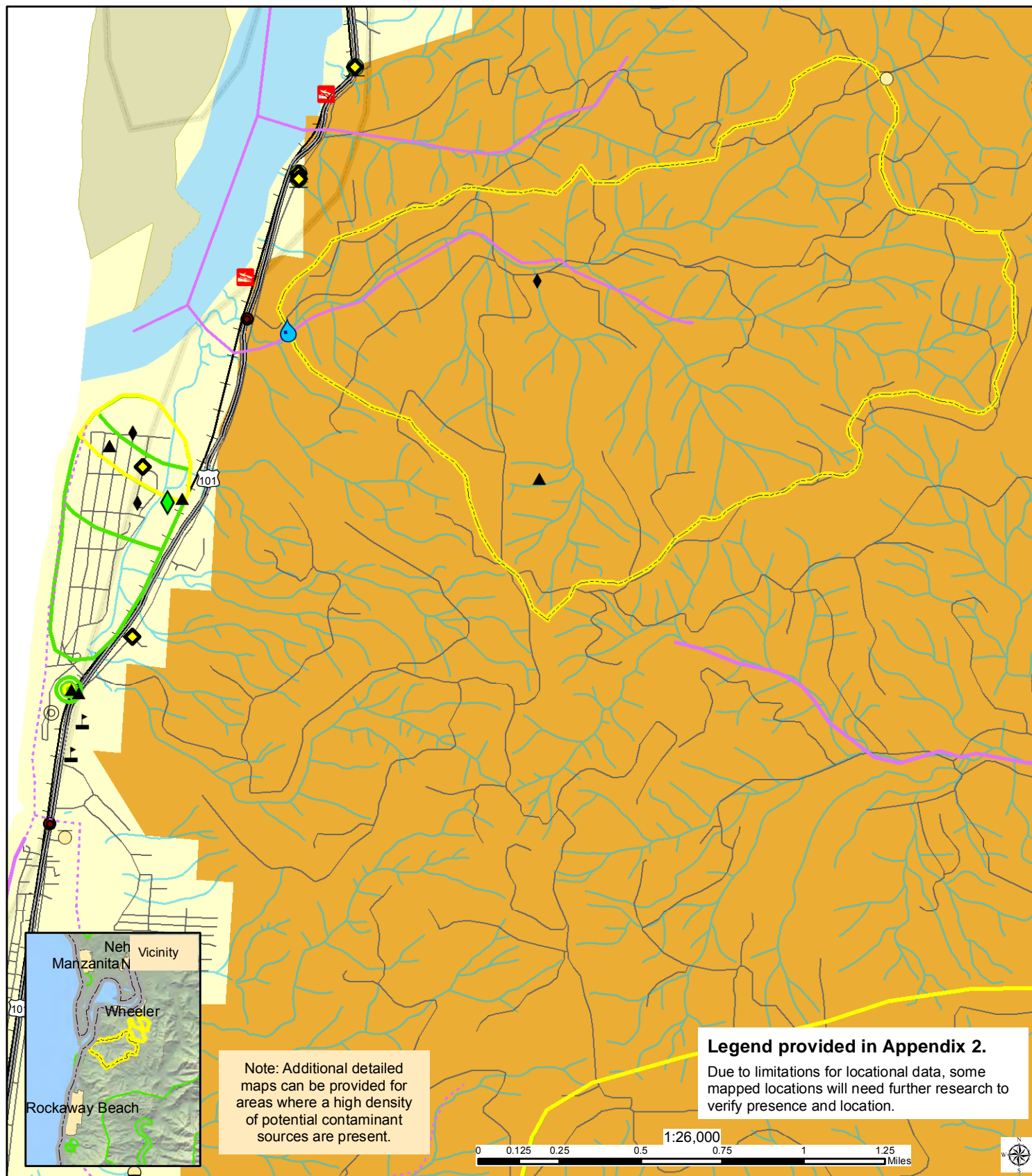




Table 1: Drinking Water Source Area Land Use and Susceptibility Analysis Summary

See Appendix 2 for Key to Tables and Notes

Public Water System Name	Rockaway Beach Water District
PWS ID	00708
Drinking Water Source Name	Jetty Creek
County Served	Tillamook
Subbasin	Nehalem
Drinking Water Source Area (DWSA) Size ⁽¹⁾	2.05 sq.mi./1310.5 acres
Stream Miles in Drinking Water Source Area	23.30
Population (includes wholesale buyers) ⁽²⁾	2,600
Number of Public Water Systems Served ⁽²⁾	1

Land Use / Ownership ⁽³⁾ (also shown on figures)	Owner Type	Area (acres)	% of DWSA	Notes
	Agricultural	0	0%	Priv Ind. Forest by two land owners.
	Private Industrial Forest	1,311	100%	
	Private (Rural/Non-industrial)	0	0%	
	Local Government	0	0%	
	State Forest	0	0%	
	Other State Lands	0	0%	
	Bureau of Land Management	0	0%	
	US Forest Service (USFS)	0	0%	
	Tribal	0	0%	
	Other (includes Water)	0	0%	

Potential Pollutants (see Table 2 for potential pollutants based on regulatory database search and Figures for approximate locations)			Notes
	Stream Miles in Erodible Soils ⁽⁴⁾	18.58	see note 4 in Appendix 2
	High Soil Erosion Potential Percent ⁽⁴⁾ (% stream mi w/ high erosion located w/in 300' of the stream)	80%	see note 4 in Appendix 2
	Shallow Landslide Potential	More details on shallow landslide susceptibility may be available. Contact DEQ Drinking Water Protection for additional information.	
	Landslide Deposits ⁽⁵⁾ (DOGAMI - SLIDO 3.2)	landslide areas mapped near intake and in mid-watershed - see map and note	Includes earth and debris slides, flows, slumps, falls and complex landslide types. Does not include rock material landslide deposits.

Water Quality Monitoring Data and Treatment Method	Treatment Process	Rapid sand & rapid mix	
	<u>Safe Drinking Water Information System Results</u> ⁽⁶⁾ Regulated volatile organic chemicals, synthetic organic chemicals and inorganic compounds Disinfection byproducts (Total Trihalomethanes (TTHM), Haloacetic acids (five) (HAA5), bromate, and chlorite) Bacteria (Ecoli and TCR=Total Coliform Rule)	<u>MCL Violations</u> ⁽⁶⁾ none Exceeded TTHM MCL at irregular intervals between 2005 and 2010. Violations of Chemical MCL (quarterly running-annual-average) for TTHM between January 2011 and July 2013. PWS submitted corrective action plan in 2012 and completed construction of enhanced treatment (pressurized sand filters) in 2014. none	<u>Significant Detections</u> <u>(2005-2016)</u> ⁽⁶⁾ Sodium (3 alerts, 2006-2011 from groundwater source only) TTHM (16 alerts) & HAA5 (5 alerts) (2005-2013) 3 TCR alerts (2005-2013)
	DEQ/OHA Source Water Monitoring project test data ⁽⁷⁾ ND = All parameters not detected and NA = source water not analyzed	sulfometuron-methyl detected: POSIS and grab (2013)	
	Additional raw water quality monitoring data for the drinking water source may be available from other sources including USGS, DEQ's LASAR database, individual water providers, local partners (i.e. soil and water conservation districts or watershed councils) or local volunteer monitoring.		



Table 2: Inventory of Potential Sources of Pollution
as identified in readily accessible state and federal databases and GIS layers
Updated Source Water Assessment
see Appendix 2 for Key to Tables for Notes and Descriptions of Acronyms

PWS Name: Rockaway Beach Water District
PWS Number: 00708

This information supplements the Original Source Water Assessment Inventory dated between 2000 and 2005 and should be used in conjunction with the original inventory to provide a more detailed analysis of potential sources of pollution. Note that due to limitations for locational data in state databases, some locations will need further research to verify presence and location.

Primary Land Ownership/Use(s)								Data Source
Jetty Creek Watershed is all private industrial forestry land use Groundwater sources dominated by residential land use with occasional municipal and commercial properties.								Land use map - Figure 4
Other potential sources of pollution identified based on aerial photographs, topographic maps or local knowledge.								
Name			Address/location	City	County		Data Source	
Sewer lines/septic systems through residential areas								
Regulatory Database Results - State and Federal								
Database Identifier (DB_ID)	Site Identifier (Staid)	Status	Common Name	Address	City	County	Retrieval Date (RET_DATE)	Data Source
Results for Jetty Creek Source								
DWP - PCS - Borrow Pit	10051	C18 Type; P - Mining Activities - Gravel Mines/Gravel Pits	Borrow Pit	East of Intake	Rockaway	Tillamook	2005	OR Dept. of Environmental Quality and OR Health Authority Source Water Assessment database (DEQ/OHA SWA 2000 - 2005)
DWP - PCS - Clearcuts	10050	A11 Type; A - Managed Forest Land - Clearcut Harvest (< 35 yrs.)	Clearcuts	Southeast of Intake	Rockaway	Tillamook	2005	OR Dept. of Environmental Quality and OR Health Authority Source Water Assessment database (DEQ/OHA SWA 2000 - 2005)
Water Quality Limited streams, Cat4A & Cat5, DEQ-2012 - Jetty Creek	1239334456590	Cat 4A: Water quality limited, TMDL approved - Fecal Coliform	Jetty Creek	Not applicable	Not applicable	Not applicable	10/31/2014	OR Dept. of Environmental Quality Water Quality Assessment 2012 - (DEQ/WQ - 10/31/2014)
Water Quality Limited streams, Cat3 - Jetty Creek	1239334456590	Cat 3: Insufficient data - Turbidity	Jetty Creek	Not applicable	Not applicable	Not applicable	10/31/2014	OR Dept. of Environmental Quality Water Quality Assessment - (DEQ/WQ - 10/31/2014)
Results for Groundwater Source Areas								
DWP - PCS - Aboveground Storage Tank	17209	M01 Type; P - Above Ground Storage Tanks - Excluding Water and Residential ASTs	Aboveground Storage Tank	White Dove Ave	Rockaway	Tillamook	2005	OR Dept. of Environmental Quality and OR Health Authority Source Water Assessment database (DEQ/OHA SWA 2000 - 2005)
DWP - PCS - High Density Housing	17208	R09 Type; A - Housing - High Density (> 1 House/0.5 acres) R16 Type; A - Septic Systems - High Density (> 1 system/acre)	High Density Housing	Throughout the DWPA	Rockaway	Tillamook	2005	OR Dept. of Environmental Quality and OR Health Authority Source Water Assessment database (DEQ/OHA SWA 2000 - 2005)

Database Identifier (DB_ID)	Site Identifier (Staid)	Status	Common Name	Address	City	County	Retrieval Date (RET DATE)	Data Source
DWP - PCS - Kittiwake	17211	M31 Type; P - Large Capacity Septic Systems (serves > 20 people) - Class V UICs	Kittiwake	Donald Street	Rockaway	Tillamook	2005	OR Dept. of Environmental Quality and OR Health Authority Source Water Assessment database (DEQ/OHA SWA 2000 - 2005)
DWP - PCS - Railroad	17210	M19 Type; A - Transportation - Railroads	Railroad	Runs through the DWPA	Rockaway	Tillamook	2005	OR Dept. of Environmental Quality and OR Health Authority Source Water Assessment database (DEQ/OHA SWA 2000 - 2005)
Highways - US-101	009	Highway/Interstate	OREGON COAST	Not applicable	Not applicable	Not Applicable	2008	Integrated Transportation Information System (ITIS) database, Oregon Department of Transportation (ODOT - 2008)
Railway - Port of Tillamook Bay Railroad	2029	Railway	Port of Tillamook Bay Railroad	Unknown	Not applicable	Tillamook	03/14/2016	US Geological Survey Railway GIS layer (via OR-IRIS) (USGS/RR - 2009)
Road - Bureau of Land Management	5606128	Unknown	Bureau of Land Management	Not Applicable	Unknown	Tillamook	2012	
Road - Oregon Department of Transportation	7667302	Unknown	Oregon Department of Transportation	Not Applicable	Unknown	Tillamook	2012	
Road - Rockaway Beach Public Works, City of	7096035	Unknown	Rockaway Beach Public Works, City of	Not Applicable	Unknown	Tillamook	2012	
Road - Tillamook County	7095918	Unknown	Tillamook County	Not Applicable	Unknown	Tillamook	2012	
SFM - HSIS - ROCKAWAY BEACH CITY OF	085185	OTHER GENERAL GOV SUPPORT with 1 different chemicals reported on site (liquids and solids only)	ROCKAWAY BEACH CITY OF	26757 WHITE DOVE AVE	ROCKAWAY BEACH	TILLAMOOK	09/29/2008	OR State Fire Marshall Hazardous Substance Information System database (SFM/HSIS - 2009)
SFM - HSIS - TATA COMMUNICATIONS	098608	WIRED TELECOMMUNICATIONS CARRIERS with 1 different chemicals reported on site (liquids and solids only)	TATA COMMUNICATIONS	25589 HWY 101	ROCKAWAY BEACH	TILLAMOOK	09/29/2008	OR State Fire Marshall Hazardous Substance Information System database (SFM/HSIS - 2009)
WQ SIS - NEDONNA WAVE PUD	117105	GEN12C - STORMWATER	NEDONNA WAVE PUD	KITTIWAKE DRIVE & RILEY STREET	ROCKAWAY BEACH	TILLAMOOK	01/25/2016	OR Dept. of Environmental Quality Water Quality SIS database (DEQ/WQ SIS - 2016)

Appendix #1

Developing Strategies For Drinking Water Protection

Many¹ public water systems in Oregon will receive an Updated Source Water Assessment (USWA) developed by the Oregon Department of Environmental Quality (DEQ) and the Oregon Health Authority (OHA) drinking water protection team by 2017. USWAs provide the water systems and communities more detailed information on the watershed or recharge area that supplies their well, spring or intake (the “drinking water source area”). Public water systems and local communities can use the information in the assessments to voluntarily develop and implement drinking water protection strategies.

Requirements for water quality monitoring of public water systems in Oregon provide some degree of assurance of safe drinking water; however, all systems are vulnerable to potential contamination. **One of the best ways to ensure safe drinking water and minimize future treatment costs is to develop local strategies designed to protect against potential contamination.** Not only will this add a margin of safety; it will also raise local community awareness of drinking water contamination risks and provide information about how communities and local landowners can help protect their drinking water sources.

Using Place-Based Planning to Develop Protection Strategies

The drinking water source area for most communities lies partially, if not entirely, outside of their jurisdiction and may include several different governing agencies as well as a diverse mix of landowners, businesses and residents. When developing protection strategies, DEQ and OHA highly recommend that the water system and community involve potentially affected stakeholders early in the process to foster stakeholder awareness and trust in the resulting strategies.

Oregon adopted an “Integrated Water Resources Strategy (IWRS)” in 2012 that provides recommendations for how to do a place-based and integrated approach to water resources planning. This approach helps communities achieve the level of coordination and collaboration to successfully address local water quality and water quantity challenges, such as developing and implementing strategies to protect their drinking water sources. The IWRS Place-Based Planning guidelines describe elements to consider for building a collaborative process, characterizing water-related issues, quantifying existing and future water needs, developing a suite of solutions, and adopting and implementing the plan. More information about the process can be found in this Water Resources Department document:

http://www.oregon.gov/owrd/LAW/docs/IWRS/2015_February_Draft_Place_Based_Guidelines.pdf

Strategies to Achieve Risk Reduction

The primary goal of the drinking water protection strategies should be to reduce or minimize the risks of pollution in the source water. It is highly improbable that one can

¹ All water systems using surface water will receive a USWA. Because of the number of water systems using groundwater in Oregon, the Oregon Health Authority has prioritized completing assessments for new Community and Non-Transient Non-Community water systems and systems that have added a new water source since their original source water assessment was completed.



State of Oregon
Department of
Environmental
Quality

Environmental Solutions
Division
Drinking Water Protection
811 SW 6th Ave.
Portland, OR 97204
Phone: (503) 229-5413
(800) 452-4011
Fax: (503) 229-5408
Contact: Sheree Stewart
<http://www.deq.state.or.us/wq/dwp/dwp.htm>



**Oregon Health Authority
Drinking Water Program**
444 "A" Street
Springfield, OR 97477
Phone: (541) 726-2587
Fax: (541) 726-2596
Contact: Tom Pattee
<http://www.healthoregon.org/g/dwp>

Alternative formats
Alternative formats (Braille, large type) of this document can be made available. Contact DEQ's Office of Communications & Outreach, Portland, at (503) 229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696.

Last Updated 4/2016
By: Sheree Stewart

eliminate risks in any area, but by applying one or more protection strategies, a community will be able to reduce the likelihood of pollutants affecting the water supply in the future. Potential strategies include both general management practices such as conservation or efficiency measures that will apply to the entire drinking water protection area and management practices that can be applied most appropriately by land-use category (commercial/industrial, agricultural/rural, forestry, residential/municipal, and miscellaneous). The following list provides some of the most common management options as an example to public water suppliers and communities:

Example Strategies for Drinking Water Protection
Non-Regulatory Options
<p>Notify and Educate the Public: Contact property owners within the protection area so they are aware of the need for protection measures. Let them know this is voluntary. Focus educational efforts on basic information about the source water and the relationship between surface activities and the water quality; familiarity with the location of the protected area; basic information on sources of contamination; and effective strategies for safe management of all potential contaminants. Public education/notification can be accomplished using local news media outlets, letters to residents, letters to land owners/operators, and bill stuffers/customer mailings. Information signs could be placed adjacent to roadways entering the protection area. Include on the sign the name of the water system/jurisdiction and a phone number where callers can obtain more information or report releases.</p>
<p>Use Technical Assistance Resources: Work with local or state providers of technical assistance (e.g., DEQ's regional offices, Soil and Water Conservation Districts, OSU Extension) to encourage the use of best management practices for pollution prevention and waste reduction. Apply for grants or funding to provide financial incentives such as pollution prevention tax credits, low-interest loans or direct subsidies/cost sharing. Provide recognition for environmental friendly businesses and operations (e.g., green awards, plaques/door signs).</p>
<p>Sponsor Hazardous Waste/Unused Chemical Collection: Establishing a permanent location or holding one-day events to collect hazardous wastes from community residents (including households and small businesses) is an effective way to reduce risks posed by storing hazardous wastes or other chemicals within the protection area. Hold an amnesty (free-disposal) event for unused business or agricultural chemicals stored in the protection area. Set up a local materials exchange program (or publicize existing programs).</p>
<p>Develop Spill Response Plans: Encourage and assist your local fire department and transportation department with spill response planning. Jurisdictions within protection areas could develop specific spill response procedures to allow quicker response and notifications should a hazardous material spill or release occur. These can be integrated into your county's Emergency Management Plan. Contact the Oregon Department of Transportation (ODOT) for state highways.</p>
<p>Acquire Land or Rights to Development: Community ownership of as much as possible of the critical land areas within the protection area and managed for water quality protection provides some of the best assurance of long-term protection of the public water supply. Protection could be provided by ownership accomplished through methods such as capital or bond fund programs, or through easements and deed restrictions. Private non-profit land conservation organizations or local land trusts in your area can assist you in acquiring land within your protection area by conveyance to a trust, seeking donations, or direct land purchases for conservation.</p>
Local Regulatory Options
<p>Existing Regulations and Permits: Take advantage of opportunities to provide public comment and input when existing regulatory programs are reviewing permits or programs which affect the siting, design, construction, operation or closure of facilities within your protection area. Ensure you are included on regulatory agency contact lists so that you receive announcements for public involvement opportunities. Consider participating in advisory group meetings for specific topics of interest. Ensure that the regulatory programs are aware of your protection area and request that compliance inspections or technical assistance is prioritized in critical areas.</p>
<p>Land Use Controls (Zoning/Health Ordinances): There are many different types of zoning tools. Your community can identify the protection area with an overlay map and enact specific requirements for land uses and development within these boundaries in order to protect public health. Ordinances applying to sites that pose a risk to water quality within the overlay area may include prohibition of various land uses (such as landfills or underground fuel storage tanks); subdivision controls (such as limiting density or requiring larger lot sizes); special permitting or siting requirements (i.e. placing limitations on the use of toxic and hazardous materials, pesticides, salts); and performance standards (i.e. requiring secondary containment for petroleum or chemical storage over a certain volume).</p>

How do communities use the Updated Source Water Assessments?

The Updated Source Water Assessment (USWA) provides the information for developing local protection strategies. The USWAs include details characterizing the source area and potential source water risks. It also provides key information that will allow the community to focus limited resources on higher-risk areas within the watershed or recharge zones for wells. The USWA information should be supplemented with local knowledge of the water system and community. The water system and community can refine the delineation of sensitive areas and identification of potential contamination sources through further research, local input and coordination with state agencies.

The USWA source area characterization should be reviewed to clarify the presence, location, operational practices, and actual risks of the identified facilities and land-use activities. Additional potential contaminant sources or sensitive areas may also be added based on local knowledge or additional research. Potential sources with low or no risk (such as landowners who have already incorporated best management practices into their operations to protect your source of drinking water) can be screened out or selected for low priority outreach or technical assistance. Local and state resources can then be directed to the highest priority potential problems in the drinking water source area.

Another way to use the information in the USWA is in developing the water system's contingency plan. Contingency planning focuses on potential threats to the drinking water supply (such as mechanical problems, chemical detections in the source water, chemical spills in the source area, or natural disasters) and the development of procedures to be followed should these events occur. Guidance for preparing a contingency plan and examples are available from OHA. Many contingency plan elements may have already been completed by public water systems as part of their required Emergency Response Plan. Additional elements can be added as drinking water source protection strategies are developed.

Public water systems may also find it necessary, as a result of either existing or projected increased demand, to explore the development of additional sources for drinking water. Drinking water source protection provides a mechanism that can be used to help select the best site and identify areas that should be protected now so they will provide quality drinking water in the future. Additionally, development of a new groundwater source in the vicinity of existing sources may modify the movement of groundwater in the subsurface, perhaps changing the shape and orientation of existing drinking water source areas. Evaluation of the significance of those changes should be addressed in the protection planning process to ensure that the management strategy in place will continue to protect the community's drinking water supply.

Need assistance?

Drinking water source protection is already at work in Oregon. A number of Oregon communities are currently developing and implementing strategies to protect their drinking water source areas. Successful drinking water protection plans developed in Oregon are available to communities as templates or examples. Staff members at OHA and DEQ are available to provide assistance, and extensive written materials are available to local community groups or consultants to assist in developing drinking water protection plans or strategies.

Detailed information about developing drinking water source protection strategies can be found on DEQ's Drinking Water Protection Program website. The website also includes Updated Source Water Assessment methods and results, sample Drinking Water Protection Plans, information for schools, and links to many other useful sites:












<http://www.deq.state.or.us/wq/dwp/dwp.htm>

The OHA – Drinking Water Program website includes system characteristics, monitoring data, contacts for all public water systems in Oregon, drinking water standards, fact sheets on contaminants, information on the Safe Drinking Water Revolving Loan Fund, Consumer Confidence Reports, and more: <http://www.healthoregon.org/dwp>



Water systems or community members interested in the potential of developing drinking water protection strategies should contact the respective DEQ and OHA coordinators. Those systems using surface water sources should initially contact Sheree Stewart, Drinking Water Protection Program Coordinator, DEQ, Portland, (503) 229-5413. Groundwater-based water systems should initially contact Tom Pattee, Groundwater Coordinator, OHA, Springfield, (541) 726-2587 x24. As the state moves further into the protection phase of the Oregon program, DEQ and OHA will be able to direct individual requests for assistance to specific staff trained and experienced in that area, both within the state agencies and in other partner organizations.

Key to Figures and Tables including Notes and Symbols Updated Source Water Assessments




General Legend:

-  Public water system surface water
-  Public water system drinking water source
-  Nearby public water system surface water
-  Nearby public surface water system drinking water source area
-  Stream (NHD)
-  Interstate
-  U.S. Routes
-  Oregon Routes
-  City limits (ODOT, 2013)
-  Urban Growth Boundary
-  County Boundary














Erosion Potential:

-  Streams (NHD) with high erosion potential
-  Lake (NHD) with high erosion potential



































Landslide Information

-  Landslide Deposits (non-rock material, includes earth and debris slides, flows, slumps, falls and complex) (DOGAMI SLIDO3.2)
-  Scarp Flanks (DOGAMI SLIDO-3.2)
-  Scarps (DOGAMI SLIDO-3.2)

Land Ownership/Use:

-  Private Non-Industrial/Urban (includes residential, municipal, commercial, industrial, and rural residential land uses)
-  Agriculture (Ag Zoning (BLM) and NASS 2013)
-  Private Industrial Forests (ODF data); Lands Managed by Private Industry (BLM)
-  Local Government
-  State Dept. of Forestry
-  State - Other
-  Bureau of Land Management
-  U.S. Forest Service
-  Federal - Other
-  Bonneville Power
-  Bureau of Indian Affairs
-  Undetermined
-  Water

Potential Sources of Pollutants identified in State and Federal Regulatory Databases:

-  Boating access sites (OSMB as of 1/2016)
-  Confined Animal Feeding Operations (ODA as of 1/2016)
-  Dry Cleaner, Active (DEQ as of 1/2016)
-  Dry Cleaner, Dry Store (DEQ as of 2015)
-  Dry Cleaner, Closed (DEQ as of 2015)
-  Dry Cleaner, Inactive (DEQ as of 2015)
-  Dry Cleaner, Solvent Supplier (DEQ as of 2015)
-  Environmental cleanup site with known contamination (DEQ as of 01/2016)
-  Environmental cleanup site No Further Action required or otherwise lower risk (DEQ as of 01/2016)
-  Hazardous Material Large Quantity Generator (DEQ - HW as of 1/02/2016)
-  Hazardous Material Small Quantity or Conditionally Exempt Generator (DEQ - HW as of 1/02/2016)
-  Hazardous Material Transport, Storage, and Disposal sites (DEQ - HW as of 1/2016)
-  Hazardous Substance Information System (OSFM as of 2009)
-  Hazardous Substance Information System - AST (OSFM as of 2009)
-  Leaking underground storage tank - Confirmed (DEQ as of 9/2012) (Location will likely need verification.)
-  Leaking underground storage tank with No Further Action required or otherwise lower risk (DEQ as of 9/2015) (Location will likely need verification.)
-  Mining permits (DOGAMI as of 1/16/2014)
-  Oil and Gas wells (permitted only) (DOGAMI as of 7/2016)
-  Original Source Water Assessment Potential Contaminant Source - Area-wide source (DEQ as of 2005)
-  Original Source Water Assessment Potential Contaminant Source - Point source (DEQ as of 2005)
-  Other Source Water Assessment Potential Contaminant Source - SWA Update (OHA/DEQ as of 2016)
-  School Locations OR (DHS as of 2015)
-  Solid Waste sites (DEQ - SW as of 1/25/2016)
-  Underground Injection Control - Non-stormwater (UIC - DEQ as of 9/12/2016)
-  Underground Injection Control - Stormwater (UIC - DEQ as of 9/12/2016)
-  Underground Storage Tanks (DEQ as of 1/25/2016) (Location will likely need verification.)
-  Water Quality domestic wastewater treatment sites (DEQ - SIS as of 1/25/2016)
-  Water Quality permits (DEQ - SIS as of 1/25/2016)
-  Major route stream crossings and bridges (ODOT - 2013)
-  Water Quality effluent outfalls (DEQ - WQ as of 2009)
-  Water Quality Concern; lakes - Cat3 (DEQ - 2012)
-  Major route stream crossings & bridges (ODOT - 2013)
-  Water quality limited stream/lake, DEQ 303(d) list Cat 4A or 5, TMDL approved or needed (DEQ - 2012)
-  Water Quality Concern stream/lake, DEQ 303(d) Cat.3, Insufficient Data (DEQ - 2012)

Key to Figures and Tables including Notes and Symbols Updated Source Water Assessments

Notes

(1) DWSA - drinking water source area - delineated as the 5th-field watershed upstream of the intake. Note that Oregon's surface water source areas are delineated intake to intake. For watersheds with more than one intake, the DWSA is the watershed segment from the PWSs intake to the next intake upstream. All protection areas upstream of a specific water system's intake are included in the drinking water source area for that water system and PWSs are encouraged to work with other water providers and other entities within the Subbasin as they evaluate potential sources and move forward with developing protection strategies.

(2) There are independent public water systems that purchase water from the water systems listed and distribute it within their service areas. The total population served listed includes these "wholesale" customers and the total number of PWSs using the source water is also provided.

(3) Land Ownership/Use

The dataset is a combination of multiple datasets and was developed by DEQ in 02/2015. The primary dataset is from Bureau of Land Management BLM (OWNERSHIP_POLY.shp dated 06/20/2013) obtained from BLM at: <http://www.blm.gov/or/gis/data-details.php?id=425>. Publication date: 20130718. The dataset has been modified by grouping land owner categories in order to simplify data display on the map and using geospatial techniques to add additional data to capture the following land uses:

- agricultural land using a combination of the National Agricultural Statistics Service (NASS) data from Natural Resource Conservation Service (2007 "cdl_awifs_r_or_2007.tif") and agricultural land zoning from OR Dept. of Land Conservation and Development (note that public water systems may obtain more detailed information on potential crop types using the US Department of Agriculture National Agricultural Statistics Service "CropScape-cropland data layer." Available at <https://nassgeodata.gmu.edu/CropScape/>),
- private industrial forests using Oregon Dept. of Forestry's (ODF) "Private_Industrial_2006_ORLambert.shp" last updated in 2013,
- local government land combined from BLM ownership, tax lot ownership information from local county tax lot data and "OR Map" on-line application: <http://www.ormap.net/>, and
- all other categories (BLM, USFS, State, etc) from BLM 06202013 data. Note that Private Non-Industrial/Urban includes residential, municipal, commercial, industrial, and rural residential land uses.

Because of the nature of combining multiple datasets, minor discrepancies will be seen in some maps especially at larger scales. Public water systems and communities could use tax lot data available from the counties or other datasets to further refine the analysis if higher accuracy is needed.

(4) High Soil Erosion Potential

This layer was developed in accordance with the methods detailed in Oregon's Source Water Assessment program to assist public water systems prioritize drinking water protection strategies within their source area and was updated in 2016 using with Natural Resource Conservation Service (NRCS) 1:24,000 Soil Survey Geographic Database (SSURGO) and State Soil Geographic Database (STATSGO) data downloaded 25OCT2016. High Soil Erosion Potential for non-Forest Service lands with steeper slopes is determined by combining the effects of slope and the soil erodibility factor ("K-factor") using SSURGO and STATSGO data. The K-factor quantifies the susceptibility of soil particles to detachment and movement by water including the effects of rainfall, runoff, and infiltration. Soils with "high" soil erodibility ratings are considered sensitive to extensive ground disturbance such as some yarding methods and road building activities. Soils classified as "high" include soil with slopes of 30% (or greater) and K-factors (kfactor - rock free) of 0.25 (or greater). Soil Resource Inventory (SRI) information from the US Forest Service was used to determine erosion potential on National Forest lands. Erosion potential for soils represented in the SRI data is based on available representative data attributes such as sedimentation yield potential, sediment, or surface soil erosion potential. Specific information on the factors used for each National Forest to evaluate sensitivity is available from DEQ upon request. For future assessment on flatter terrains or in areas where K-factor is not available, a comparable approach will be developed and vetted with input from Natural Resource Conservation Service and others.

Key to Figures and Tables including Notes and Symbols Updated Source Water Assessments

(5) Landslide Information

OR Department of Geology and Mineral Industries (DOGAMI) Statewide Landslide Information Database of Oregon Release 3.2 (SLIDO-3.2). Includes earth and debris slides, flows, slumps, falls and complex landslide types. Does not include rock material landslide deposits. The landslide data set is published to improve the understanding of landslide hazards in Oregon and to provide a statewide base level of landslide data. This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information. This publication cannot substitute for site-specific investigations by qualified practitioners. Site-specific data may give results that differ from the results shown in the publication. For more information see: <http://www.oregongeology.org/sub/slido/>

OR DEQ's Water Quality Program is currently working with DOGAMI to develop and provide a more detailed landslide potential analysis for public water systems. Contact Oregon DEQ's Environmental Solutions Division/Water Quality Program for further information on the analysis. If data is available for the specific area, DEQ will provide the more detailed landslide analysis to the public water system.

(6) Safe Drinking Water Information System (SDWIS) data is obtained from Oregon Health Authority's Data Online available at <https://yourwater.oregon.gov/>.

- "Significant detections" indicate water quality tests with analytical results greater than the detection limit (for volatile and synthetic organic compounds (VOCs and SOC)) or one-half of the maximum allowable contaminant level (for inorganic compounds (IOC), arsenic and nitrate). Significant detections are not water quality violations but may require follow-up actions by the OHA Drinking Water Program. Significant detections are available as "alerts" in OHAs Data Online.
- Maximum Contaminant Level (MCL) Violations indicate samples that exceed the MCL and may be based on an average of samples or violation of a treatment technique (i.e. lead and copper rule). Maximum Contaminant levels and action levels for chemicals are available OAR 333-061-0030. Does not include violations for late/non-reporting or treatment/distribution system deficiencies.
- A full list of tested and regulated volatile organic chemicals, synthetic organic chemicals and inorganic compounds and disinfection byproducts is provided in OAR 333-061-0030 and OAR 333-061-0036. Only regulated chemicals are reported in SDWIS. It is important to note that public water system compliance data is collected after drinking water treatment, typically at the entry point to the distribution system.

(7) DEQ/OHA source water monitoring project samples were collected between 2008 and 2012 and analyzed for several hundred compounds, including Oregon-specific herbicides, insecticides, pharmaceuticals, volatile organic compounds (including cleaners), fire retardants, polycyclic aromatic hydrocarbons (organic compounds produced as byproducts of fuel burning) and plasticizers. Only the contaminants that were detected are listed. The concentrations of compounds listed were detected at very low levels well below existing standards and guidelines and are well within acceptable limits. The primary objective of this ongoing monitoring program is to identify priorities for drinking water protection through water quality data. Water quality samples are taken from raw source waters, not treated drinking water. A comprehensive list of analytical methods, compounds, and detection limits is available in each Analytical Report (search DEQ database or by request) and information is summarized at <http://www.deq.state.or.us/wq/dwp/monitoring.htm>.

Key to Figures and Tables including Notes and Symbols Updated Source Water Assessments

Inventory of Potential Sources of Pollution (Table 2 and Figures)

This information is intended to supplement the original Source Water Assessment completed for the water system between 2000 and 2005 by DEQ and Oregon Health Authority. This update should be used in conjunction with the original inventory. DEQ can provide more information on potential impact, risk and status as the public water system moves into developing protection strategies.



The inventory of potential sources of pollution is based on the readily-available state and federal regulatory databases listed below and general categories of land use/ownership. The primary intent is to identify and locate significant potential sources of contaminants of concern. Areas with agricultural, septic systems, or managed forests are generally not identified in the regulated databases but are presented in the figures as a factor of land ownership/use.

It is important to remember that the sites and areas identified are only potential sources of contamination to the drinking water. Water quality impacts are not likely to occur when contaminants are used and managed properly and land use activities occur in such a way as to minimize erosion and contaminant releases.


















It is highly recommended that the community “enhance” or refine the delineation of the sensitive areas and the identification of the potential contamination sources through further research and local input. If there were no potential sources of contamination identified during the review of regulatory databases or community’s enhanced inventory, the water system and community should consider the potential for future development to impact the source water.

Table 2 Header	Description
Database Identifier (DB_ID)	Database Type and site name for identified potential pollutant
Site Identifier (Site ID)	Program specific identifier. This is the number or name used to look the site up in the programs regulatory database.
Status	Select information on the site that helps to evaluate potential risk to water quality
Common Name, Address, City	Common Name, Address and City as listed in the regulatory database. Note that some sites may have addresses associated with responsible party, not the physical location of the site.
County	County site is located in
Retrieval Date (Ret_Date)	Date the information was retrieved from the individual programs regulatory database
Data Source	Source for geographic information system (GIS) data


















State and Federal Regulatory Database Information

CAFO		Oregon Department of Agriculture's Confined Animal Feeding Operation database of livestock owners. Includes permitted, non-permitted, and applications. Status indicates facility designation and animal type. Permits typically address conditions for animal waste management. More information at http://www.oregon.gov/ODA/programs/NaturalResources/Pages/CAFO.aspx
DOGAMI		Oregon Department of Geology and Mineral Industries list of mining sites. Status includes permit status and primary material extracted.

Key to Figures and Tables including Notes and Symbols Updated Source Water Assessments

<p>DC</p> <p> Active</p> <p> Dry Store</p> <p> Closed</p> <p> Inactive</p> <p> Solvent Supplier</p>	<p>DEQ Dry Cleaners list</p> <p>Status indicates Facility type and information on historic and current solvent use:</p> <p>Facility Type:</p> <p><i>Dry Cleaner</i> - currently active</p> <p><i>Dry Store</i>: current 'dry store': pickup and drop off point that does not have a dry cleaning machine on site. These sites may still pose a risk as the industry has consolidated over past decades, so many of these used to be dry cleaners and may have contamination.</p> <p><i>Closed site</i>: There is no longer a dry cleaner or dry store on site, and the site has not opted to stay in the program as 'inactive'. Note that when a site changes ownership, the old Dry Cleaner ID (DCID) may be identified as Closed and a new dry cleaner record may be added for the new owner resulting in the potential for on address to have more than one status</p> <p><i>Listed Inactive</i>: Site is no longer a dry cleaner or dry store but the property owner or former operator has opted to continue paying dry cleaner program fees in order to maintain their liability protection & cleanup coverage.</p> <p><i>Solvent Supplier</i>: This may be a chemical supply businesses or individual dry cleaner that imports their own solvent from out-of-state</p> <p>SolventBefore1998: true if dry cleaning solvent was used at this site prior to spill prevention regulations that came in around 1998. If this field is true, there's a higher likelihood that there may be contamination on site.</p> <p>PercUseOngoing: true if perchloroethylene solvent is currently used at the site.</p>
<p>DWP-PCSs</p> <p> area wide</p> <p> point source</p>	<p>Potential sources of contamination (PCS) identified by the DEQ and Oregon Health Authority drinking water protection (DWP) program in the original source water assessments completed between 2000 and 2005. Status includes DEQ's potential contaminant source Code (i.e. M31 or R15), Source type (P= point source, A=Area wide source) and a description of the land use type. Note that sources classified as "Area-wide" were marked at a point on the map closest to the intake, well or spring. Additional detailed maps can be provided upon request for source areas where DWP PCSs are not shown on maps to improve map clarity.</p>
<p>DWP-PCS (update)</p> <p></p>	<p>Potential sources of contamination (PCS) identified by the OHA or DEQ in the Source Water Assessment updates completed in 2016 and 2017. May include information from interviews with public water system operators, field visits, aerial photograph or topographic map review.</p>
<p>ECSI</p> <p></p>	<p>DEQ Environmental Cleanup Site Information database. Includes the U.S. EPA National Priorities List (NPL) and the U.S. EPA Comprehensive Environmental Response, Compensation and Liability Information System (CERCLA) list. Includes sites where further assessment or action is needed. More information available at http://www.deq.state.or.us/lq/ECSI/ecsi.htm</p>
<p>ECSI-NFA</p> <p></p>	<p>DEQ Environmental Cleanup Site Information database site where no further action (NFA) is required. Public water system may consider verifying with DEQ that standards used during site investigation were protective of drinking water.</p>
<p>HW</p> <p> LQG</p> <p> SQG or CEG</p>	<p>DEQ Hazardous Waste generators that submit an annual report to DEQ. This list includes active facilities in HazWaste.NET (http://www.deq.state.or.us/lq/hw/hwrptonlineforms.htm). Status includes information on generator size including LQG (Large Quantity Generator), SQG (Small Quantity Generator), CEG (Conditionally Exempt Generator), and Unknown (may be used oil or universal waste activities or old generators that require further assessment).</p>
<p>HW/TSD</p> <p></p>	<p>DEQ Hazardous Waste Program registered sites that treat, store or dispose of hazardous waste. Includes both active and inactive sites in the process of closing or in post-closure care that are registered in HazWaste.NET (http://www.deq.state.or.us/lq/hw/hwrptonlineforms.htm).</p>
<p>LUST</p> <p></p>	<p>DEQ leaking underground storage tank (LUST) list - includes sites that have reported releases from petroleum-containing underground storage tanks, including residential heating oil tanks, regulated tanks at gas stations and other commercial facilities, and non-regulated tanks.</p>
<p>LUST-NFA</p> <p></p>	<p>DEQ leaking underground storage tank (LUST) list where no further action (NFA) is required or cleanup is completed. PWS may consider verifying with DEQ that standards used during site investigation were protective of drinking water.</p>
<p>Oil & Gas Wells</p> <p></p>	<p>Oil and Gas wells from OR Department of Geology and Mineral Industries. Only includes wells with a status of "permitted".</p>
<p>OSMB</p> <p></p>	<p>Oregon State Marine Board's Boating Access Sites.</p>

Key to Figures and Tables including Notes and Symbols Updated Source Water Assessments

School		School as identified by Department of Human Services. Further evaluation may be needed to identify if school has onsite/septic system, pesticide use, chemistry lab, vehicle maintenance, or other potential contaminant sources.
SFM-HSIS AST		Aboveground storage tank(s) as identified in the State Fire Marshall Hazardous Material Information System (HMIS) site list. Aboveground tanks storing gas products were not included since gaseous compounds rarely pose a threat to surface water or groundwater. Additional information on material stored and tank size is available upon request.
SFM (HSIS)		State Fire Marshall Hazardous Material Information System (HMIS) site list. Status indicates number of different chemicals stored on site. A full list of chemicals with information on storage type and a range of amounts is available on request. Information on materials in a gas-form was not included in the chemical counts since gaseous compounds rarely pose a threat to surface water or groundwater.
Stream Crossing/Bridge		Oregon Department of Transportation structure in the "Bridge" layer for interstates, highways, or Oregon Routes. Does not include crossings over ODOT 2012 Roads layer. Includes some culverts. Name indicates water body (or other structure) crossed and the highway/route name.
SW		DEQ Active Solid Waste Disposal Permits list. Status includes permit type and activity (active, terminated, closure, pending). Solid waste disposal site permits are issued for the following facility types: landfill, solid waste treatment, transfer station/material recovery, composting, incineration, conversion technology, and energy recovery.
UIC – Stormwater		DEQ Underground Injection Control (UIC) list of facilities with registered underground injection control systems that manage Stormwater. Status includes type and number of UIC wells registered.
UIC – Non-Stormwater		DEQ Underground Injection Control (UIC) facilities with registered underground injection control systems that do not manage stormwater. Status includes type and number of UIC wells registered.
UST		DEQ registered underground storage tank (UST) list with details on number of tanks that are upgraded to current standards, decommissioned and with unknown status that require further assessment.
WQ SIS		DEQ Site Information System (SIS) which includes Water Pollution Control Facility (WPCF) permits where discharge to surface water is not allowed and National Pollutant Discharge Elimination System (NPDES) permits for "point source" discharges into surface water. Includes both individual permits (site specific) and general permits covering a category of similar discharges.
WQ SIS-WWTP		Subset of water quality Site Information System (SIS) for domestic wastewater treatment plants that discharge to surface water
WQ SIS Outfalls		Water quality effluent outfalls - location of permitted outfall to water body. May vary from facility address or permitted activity location.
WQL Streams/Lakes TMDL approved or needed Insufficient data	 	Streams and lakes identified by DEQ under Section 303(d) of the Clean Water Act as Water Quality Limited and either having (Category 4A) or needing (Category 5) a Total Maximum Daily Load pollutant load limit. Streams and lakes with insufficient data (Category 3) to make a determination are also shown. Based on Oregon's 2012 Integrated Report and 303(d) list. Contact DEQ basin coordinator for more information (http://www.deq.state.or.us/WQ/TMDLs/docs/basincoordinators.pdf)
Transportation Sources		
Interstate/Highway Interstate U.S. Roads Oregon Routes		Oregon Department of Transportation interstate, highway, road or route identified in the Integrated Transportation Information System database.
Roads		Oregon Department of Transportation 2012 Roads layer - note roads are usually mapped by section so there will be many duplications of road names.
Railways		Railways
Stream Crossing/Bridge		Oregon Department of Transportation structure in the "Bridge" layer for interstates, highways, or Oregon Routes. Does not include crossings over ODOT 2012 Roads layer. Includes some culverts. Name indicates water body (or other structure) crossed and the highway/route name.



Appendix #3

Technical Information and Factsheets for Water Quality

PLEASE NOTE: The Internet URL Addresses listed in this document were included as a convenience for the users of this document. All URL Addresses were functional at the time this publication was last updated (September 2016). For active links, this list is located at <http://www.oregon.gov/DEQ/WQ/pages/index.aspx>

General Water Quality Information	
Handbook for Developing Watershed Plans to Restore and Protect Our Waters (EPA)	https://www.epa.gov/polluted-runoff-nonpoint-source-pollution/handbook-developing-watershed-plans-restore-and-protect
Water Quality Model Code and Guidebook (DLCD)	http://www.oregon.gov/LCD/pages/waterqualitygb.aspx
DEQ Toxics Reduction Strategy	http://www.deq.state.or.us/toxics/docs/ToxicsStrategyNov28.pdf
Oregon's Groundwater Protection Program – who does what? (DEQ)	http://www.deq.state.or.us/wq/groundwater/agencies.htm
Groundwater Basics for Drinking Water Protection (DEQ)	http://www.deq.state.or.us/wq/pubs/factsheets/drinkingwater/GroundwaterBasics.pdf
Protecting Oregon's Groundwater from Contamination (OSU)	http://groundwater.orst.edu/groundwater/
Oregon Climate Change Research Institute	http://occri.net/
Climate Impacts in the Northwest (EPA)	http://www3.epa.gov/climatechange/impacts/northwest.html
Climate science, data, tools, and information (NOAA)	http://www.noaa.gov/climate.html
Harmful Algae Blooms (OHA) FAQs, guidelines for lake managers and outreach materials	https://public.health.oregon.gov/HealthyEnvironments/Recreation/HarmfulAlgaeBlooms/Pages/index.aspx
Harmful Algal Blooms (DEQ) - agency strategy, actions to control/eliminate & prevention	http://www.deq.state.or.us/wq/algae/algae.htm
Residential Areas, Parks and Golf Courses	
Domestic Well Safety Program (OHA) – Resources and contacts for domestic/private wells	http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/SourceWater/DomesticWellSafety/Pages/index.aspx
Well Water Program (OSU)- tech. assistance for domestic/private wells & septic systems	http://wellwater.oregonstate.edu/
Oregon's Domestic Well Testing Program for Real Estate Transactions	http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/SourceWater/DomesticWellSafety/Pages/Testing-Regulations.aspx
After You Buy: Wells, Septic Systems, and a Healthy Homesite (NRCS)	http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_042403.pdf
Household Hazardous Waste Program website (DEQ)	http://www.deq.state.or.us/lq/sw/hhw/index.htm
Household Hazardous Waste - locally-sponsored collection programs	http://www.deq.state.or.us/lq/sw/hhw/collection.htm
Household Pharmaceutical Waste Disposal (OHA)	https://public.health.oregon.gov/HealthyEnvironments/DrinkingWater/SourceWater/Pages/takeback.aspx

Residential Areas, Parks and Golf Courses (cont.)	
Household Hazardous Wastes (EPA)	https://www.epa.gov/hw/household-hazardous-waste-hhw
Recycle Used Motor Oil Resources (EPA)	https://www.epa.gov/recycle/managing-reusing-and-recycling-used-oil
Frequently Asked Questions About Heating Oil Tanks (DEQ)	http://www.deq.state.or.us/lq/tanks/hot/homeowners.htm
Proper Care/Maintenance of Heating Oil and Other Unregulated Tank Systems	http://www.deq.state.or.us/lq/pubs/factsheets/tanks/hot/ProperCareMaintenance.pdf
Oregon resources for on-site septic systems (DEQ)	http://www.oregon.gov/deq/WQ/Pages/onsite/SepticSmartHome.aspx
Oregon's Onsite Wastewater Management Program (Septic Systems) (DEQ)	http://www.deq.state.or.us/wq/onsite/onsite.htm
Local Outreach Toolkit for Septic Systems (EPA)	https://www.epa.gov/septic/septic-systems-outreach-toolkit
A Homeowners Guide to Septic Systems (EPA)	http://www.nesc.wvu.edu/pdf/ww/septic/epa_septic_guide.pdf
Septic Tank Maintenance (DEQ)	http://www.deq.state.or.us/wq/pubs/factsheets/onsite/septictankmaint.pdf
Septic Systems OSU Extension website (OSU)	http://wellwater.oregonstate.edu/septic-systems-0
Groundwater protection and your septic system (National Small Flows Clearinghouse)	http://www.nesc.wvu.edu/pdf/ww/septic/septic_tank3.pdf
Combating Illegal Dumping (DEQ)	http://www.deq.state.or.us/lq/sw/disposal/illegaldumping.htm
Water Well Owner's Handbook & other related guidance documents (WRD)	http://www.oregon.gov/owrd/pages/pubs/index.aspx
Oregon Water Resources Department	http://egov.oregon.gov/OWRD/
Disposal of Chlorinated Water from Swimming Pools and Hot Tubs (DEQ)	http://www.deq.state.or.us/wq/pubs/factsheets/wastewater/bmpchlorwaterdisp.pdf
Source Water Protection Publications (EPA) for managing various including: Septic Systems Turfgrass and Garden Fertilizer Application Small-Scale Application of Pesticides Small Quantity Chemical Use Pet and Wildlife Waste Storm Water Runoff	http://www.deq.state.or.us/wq/dwp/assistance.htm
Integrated Plant Protection Center (OSU)	http://ipmnet.org/
National Pesticide Information Center	http://npic.orst.edu/
Integrated Pest Management and Pesticide Safety for Schools (OSU)	http://www.ipmnet.org/Tim/PSEP_home.htm
School Lab Cleanout Program (DEQ)	http://www.deq.state.or.us/lq/labcleanout.htm
Golf Course Integrated Pest Management (IPM) tool and BMP Generator	http://www.greengolfusa.com/tiki-index.php
EcoBiz Certified Landscapers and Auto Repair Shops	http://ecobiz.org/find-an-ecobiz/

Agriculture/Forestry Land Uses (cont.)	
Tips for Small Acreages in Oregon (NRCS) - Fact Sheets on wells, septic systems, animals, crops, weeds, streamside erosion protection. Includes specific factsheets for Eastern and Western Oregon.	http://www.nrcs.usda.gov/wps/portal/nrcs/detail/or/newsroom/?cid=nrcs142p2_046062
Source Water Protection Pubs (EPA) for managing various activities including: Agricultural Fertilizer Application Large-Scale and Small-Scale Application of Pesticides Livestock, Poultry and Horse Waste Above Ground and Underground Storage Tanks Small Quantity Chemical Use Turfgrass and Garden Fertilizer Application	http://www.deq.state.or.us/wq/dwp/assistance.htm
Oregon Small Farms (OSU Extension) Information on Crops, Grains, Livestock, Pastures, and Soils (see tabs at top of page for multiple resources)	http://smallfarms.oregonstate.edu/
Oregon Pesticide Stewardship Partnerships and Waste Pesticide Collection Events	http://www.oregon.gov/oda/programs/pesticides/water/pages/pesticidestewardship.aspx
Managing Waste Pesticide (DEQ)	http://www.deq.state.or.us/lq/hw/pesticide.htm
Oregon Department of Agriculture (ODA) – resources for reducing impacts	http://www.oregon.gov/oda/Pages/default.aspx
Soil and Water Conservation Districts (OACD) – technical assistance for rural landowners, family forests and growers	http://oacd.org/conservation-districts/directory
Natural Resources Conservation Service, Oregon (NRCS)	http://www.or.nrcs.usda.gov/
NRCS Financial Assistance Programs	http://www.nrcs.usda.gov/wps/portal/nrcs/main/or/programs/financial/
Oregon Department of Fish and Wildlife Hatchery Information (ODFW)	http://www.dfw.state.or.us/fish/hatchery/
Animal Care and Handling Facilities (from California stormwater program)	https://www.casqa.org/sites/default/files/BMPHandbooks/BMP_IndComm_Appendix_D.pdf
Managing Small-acreage Horse Farms (OSU)	https://catalog.extension.oregonstate.edu/ec1558/viewfile
Irrigation well use and maintenance	See resources for domestic wells under Information for Residential Areas
Oregon State University Forestry & Natural Resources Extension Program	http://extensionweb.forestry.oregonstate.edu/
Oregon Department of Forestry Stewardship Foresters	http://www.oregon.gov/ODF/Working/Pages/FindAForester.aspx
Oregon Department of Forestry Grants and Incentives	http://www.oregon.gov/ODF/AboutODF/Pages/GrantsIncentives.aspx
US Department of Agriculture Pacific Northwest Research Station	http://www.fs.fed.us/pnw/
US Department of Agriculture Forest Incentive Programs Available in Oregon	http://www.srs.fs.usda.gov/econ/data/forestincentives/or.htm
US Forest Service State & Private Forestry–Cooperative Forestry, Forest Health Protection, Sustainable Development & Urban/ Community Forestry	http://www.fs.fed.us/spf/
Water quality impacts information from US Forest Service - Part III: Chapter 10: Forest Management; Chapter 13: Pesticides and Part IV: Chapter 14-16 Animals	http://www.srs.fs.fed.us/pubs/gtr/gtr_srs039/

Agriculture/Forestry Land Uses (cont.)	
National Management Measures to Control Nonpoint Source Pollution from Forestry (EPA)	http://water.epa.gov/polwaste/nps/forestry/forestrymgmt_index.cfm
Managing Nonpoint Source Pollution from Forestry (EPA)	https://www.epa.gov/polluted-runoff-nonpoint-source-pollution/forestry-additional-resources
Oregon Forest Practices Act	https://www.oregon.gov/ODF/Working/Pages/FPA.aspx
Forest Practices Board Manual (Washington Dept. of Natural Resources)	http://www.dnr.wa.gov/about/boards-and-councils/forest-practices-board/rules-and-guidelines/forest-practices-board-manual
Sustainable Forest Management Programs/Certifications: American Tree Farm Systems (ATFS) Forest Stewardship Council (FSC) Sustainable Forestry Initiative (SFI) Dovetail Partners, Inc.	https://www.oregon.gov/ODF/Documents/AboutODF/ForestCertificationFactsheet.pdf https://www.treefarmssystem.org/ https://us.fsc.org/en-us/certification http://www.oregonsfi.org/ http://www.dovetailinc.org/
Commercial/Industrial/Municipal Land Uses	
Drinking Water Protection Strategies for Commercial & Industrial Land Uses (DEQ)	http://www.deq.state.or.us/wq/dwp/docs/DWPStrategiesCommercialIndustrial.pdf
Business and Industry tips for reducing water quality impacts (DEQ)	http://www.deq.state.or.us/wq/pubs/factsheets/drinkingwater/busindtips.pdf
Source Water Protection Publications (EPA) for managing various including: Above Ground and Underground Storage Tanks Aircraft and Airfield Deicing Operations Highway Deicing Operations Vehicle Washing Pet and Wildlife Waste Small Quantity Chemical Use Storm Water Runoff	http://www.deq.state.or.us/wq/dwp/assistance.htm
Free Assistance from DEQ's Toxics Use and Waste Reduction Assistance Program	http://www.deq.state.or.us/lq/pubs/docs/hw/TABrochure.pdf
10 Ways for Businesses to Prevent Pollution, Conserve Resources and Save Money (with pollution prevention resources for various industry sectors) (DEQ)	http://www.deq.state.or.us/programs/sustainability/10ways-businesses.htm
Managing Used Computers and Other Electronic Equipment (DEQ)	http://www.deq.state.or.us/lq/pubs/factsheets/ManagingUsedComputers.pdf
Computer and Electronic Equipment Recyclers (DEQ)	http://www.deq.state.or.us/lq/pubs/factsheets/OregonECyclesConsumers.pdf
Underground Injection Control (UIC) Program (DEQ)	http://www.deq.state.or.us/wq/uic/overview.htm
Industrial Stormwater Best Management Practices Manual (DEQ)	http://www.deq.state.or.us/wq/wqpermit/docs/IndBMP021413.pdf
Best Mgmt Practices for Industrial Activity Storm Water Discharges (DEQ)	http://www.deq.state.or.us/wq/stormwater/docs/nwr/indbmpps.pdf
Construction Stormwater Best Management Practices Manual (DEQ)	http://www.deq.state.or.us/wq/wqpermit/docs/general/npdes1200c/BMPManual.pdf

Commercial/Industrial/Municipal Land Uses (cont.)	
Illicit Discharge and Source Tracing Guidance Manual (Washington Stormwater Center)	http://www.wastormwatercenter.org/illicit-connection-illicit-discharge
Low Impact Development O&M guidance (Washington Stormwater Center)	http://www.wastormwatercenter.org/lid-om-guidance/
Water quality impacts information from USFS - Part V: Chapter 18-20 Mining and Oil/Gas	http://www.srs.fs.fed.us/pubs/gtr/gtr_srs039/
Dam Safety Publications and Resources FEMA website	https://www.fema.gov/dam-safety-publications-resources
Healthcare: Pollution Prevention & Best Management Practices (EPA)	http://www3.epa.gov/region9/waste/p2/hospart.html
Boating/Marinas/Recreation Areas	
Oregon Clean Boater Program (OSMB)	http://www.oregon.gov/OSMB/boater-info/Pages/Clean-Boater.aspx
Clean Boater Guide (OSMB)	http://www.oregon.gov/OSMB/boater-info/Documents/2015_osmb_clean_boater_guide_forweb.pdf
Best Management Practices for Oregon's Marinas (DEQ)	http://www.deq.state.or.us/wq/pubs/bmps/marinas.pdf
Clean Marina Program (OSMB)	http://www.oregon.gov/OSMB/boater-info/Pages/Clean-Marinas.aspx
Clean Marina Guidebook (OSMB)	http://www.oregon.gov/OSMB/forms-library/Documents/Environmental/entire_clean_marina_guidebook.pdf
Marine Sewage and Wastewater Disposal (DEQ)	http://www.oregon.gov/OSMB/Pages/Pumpout-and-Dump-Stations.aspx
Water quality impacts information from US Forest Service - Part II: Chapters 7-8: Recreation; Chapter 5: Dams and Chapter 9: Roads	http://www.srs.fs.fed.us/pubs/gtr/gtr_srs039/

FUNDS AND RESOURCES for Drinking Water Source Protection

This document provides brief descriptions and contact information for resources available to public water systems, including grants and loans to fund drinking water infrastructure and source protection projects. DEQ's list of "[Technical Information and Factsheets for Water Quality Protection](#)" provides other websites and resources available to public water systems and community members seeking to work on watershed protection.

Note: The Internet links listed in this document were included as a convenience for the users of this document. All URL Addresses were functional at the time this publication was last updated (October 2016).

Oregon Health Authority (OHA)

Drinking Water Services

Phone: 971-673-0405

Website: www.healthoregon.org/dwp

The Oregon Health Authority (OHA) is the primacy agency for the implementation of the federal Safe Drinking Water Act (SWDA) in Oregon. ORS 338.277 authorizes the OHA to administer the federal Safe Drinking Water Act in Oregon as the Primacy Agency in agreement with the federal government. ORS 448.131 further authorizes the adoption of standards necessary to protect public health through insuring safe drinking water within a water system. Standards in OAR 333-061 outlines requirements for systems to meet MCLs, submit to periodic inspections, and meet enforcement requirements as administered by OHA. As the primacy agency, OHA also approves drinking water treatment plans and sets construction standards, operator certification standards, and enforces rules to ensure safe drinking water. The OHA website has extensive information on drinking water treatment requirements: <http://healthoregon.org/dwp>

In order to assist systems in complying with standards, OHA also provides technical assistance and oversight of grants and loans from the Safe Drinking Water Act for public water system operation and improvements. *For those Safe Drinking Water Act loans and grant funds, the Oregon Health Authority partners with Oregon Infrastructure Finance Authority to provide the financial services (see below).*

Business Oregon - Infrastructure Finance Authority (IFA)

Infrastructure Finance Authority (IFA)

Municipal Infrastructure Funding

Phone: (503) 986-0123

Website: www.orinfrastructure.org

IFA is a division of Business Oregon that provides funding for municipally owned infrastructure projects. IFA manages federal infrastructure funds for agencies such as Oregon Health Authority and Housing and Urban Development. IFA is not a regulatory agency but collaborates and supports our state and federal partners with financing programs and technical assistance.



State of Oregon
Department of
Environmental
Quality

Environmental Solutions
Division
Drinking Water Protection
811 SW 6th Ave.
Portland, OR 97204
Phone: (503) 229-5413
(800) 452-4011
Fax: (503) 229-5408
Contact: Sheree Stewart
<http://www.deq.state.or.us/wq/dwp/dwp.htm>



Oregon Health Authority
Drinking Water Program
444 "A" Street
Springfield, OR 97477
Phone: (541) 726-2587
Fax: (541) 726-2596
Contact: Tom Pattee
<http://www.healthoregon.org/dwp>

Alternative formats
Alternative formats (Braille, large type) of this document can be made available. Contact DEQ's Office of Communications & Outreach, Portland, at (503) 229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696.

Last Updated 10/2016
By: Sheree Stewart

The list of available funding programs for drinking water infrastructure and source protection is:

- **Safe Drinking Water Revolving Loan Fund (SDWRLF)**
- **Drinking Water Source Protection Fund (DWSP)**
- **Water/Wastewater Financing Program (WWFP)**
- **Special Public Works Fund (SPWF)**
- **Community Development Block Grant Program (CDBG)**
- **Port Revolving Loan Fund (PRLF)**

Safe Drinking Water Revolving Loan Fund (SDWRLF)

This loan program funds drinking water system improvements needed to maintain compliance with the Federal Safe Drinking Water Act. The Safe Drinking Water Fund is funded by annual grants from the U.S. Environmental Protection Agency (EPA) and matched with funds from the state Water/Wastewater Financing Program. The program is managed by the Oregon Health Authority (OHA), Drinking Water Services. The loans are managed by the Oregon Infrastructure Finance Authority (IFA).

The Safe Drinking Water Revolving Loan Fund (SDWRLF) is designed for water source, treatment, distribution, storage and related infrastructure projects. Funding is available for all sizes of water systems, although 15 percent of the funds are reserved for systems serving a population of fewer than 10,000. Eligible applicants can be owners of water systems that provide service to at least 25 year-round residents or systems that have 15 or more connections (or a nonprofit with 25 or more regular users). Owners can be a nonprofit, private party or municipality, but systems cannot be federally owned or operated.

To be eligible for funding, a project must solve an existing or potential health hazard or noncompliance issue under federal/state water quality standards. The following are the main types of eligible activities:

- Engineering, design, upgrade, construction or installation of system improvements and equipment for water intake, filtration, treatment, storage, transmission
- Acquisitions of property or easements
- Planning, surveys, legal/technical support and environmental review
- Investments to enhance the physical security of drinking water systems, as well as water sources

SDWRLF loan amount: The program provides up to \$6 million per project (more with additional approval) with the possibility of subsidized interest rate and principal forgiveness for a Disadvantaged Community. The standard loan term is 20 years or the useful life of project assets, whichever is less, and may be extended up to 30 years under SDWRLF for a Disadvantaged Community. Interest rates are 80 percent of state/local bond index rate.

To apply, the municipality should first submit a Letter of Interest to Oregon Health Authority where it will be rated and ranked. Call Oregon OHA Drinking Water Services at 971-673-0422 or go to the OHA website:

www.healthoregon.org/srf

Projects placed on the Project Priority List will be invited to apply through IFA for funding. Contact your IFA Regional Coordinator for assistance and more information. Call IFA at 503-986-0123 or <http://www.orinfrastructure.org/>

Drinking Water Source Protection Fund (DWSP)

From the Safe Drinking Water Act, loans and grants are also available for drinking water protection projects: low interest *loans up to a maximum of \$100,000 per project*, and *grant funds up to \$30,000 per water system*. Eligible systems include any public and privately-owned Community and Nonprofit Non-Community water systems with a completed Source Water Assessment are able to demonstrate a direct link between the proposed project and maintaining or improving drinking water quality. Eligible activities include those that lead to risk reduction within the delineated source water area or would contribute to a reduction in contaminant concentration within the drinking water source. Projects can take either a local or regional approach. Local projects are defined as activities that concentrate on a public water system's source area(s). Regional projects are defined as activities that involve multiple communities and/or water systems attempting to address a common source water issue or group of issues.

The categories for eligible projects for DW Source Protection funding include the following:

Refined Delineation OHA and DEQ have completed delineations for most drinking water source areas (DWSA) for the community and non-community public water systems. DWSAs include aquifer recharge areas for groundwater sources and watershed areas for surface sources. DW Source Protection funding can be used to complete, update, or refine DWSA delineations using new or additional site-specific information as part of a more comprehensive protection strategy.

Updated Assessment

Inventory – Projects that improve upon existing potential contaminant source inventories available from the DEQ database, Geographic Information System, and Assessment Reports prepared by OHA/DEQ. A project could involve expanding or updating the inventory of land uses or existing and potential point and non-point contaminant sources.

Evaluation – Projects establishing a water quality monitoring project to evaluate existing and potential threats to water quality. This could include evaluating and prioritizing potential threats (or protection activities) based upon new or more detailed information.

Source Protection Planning

Projects designed to identify appropriate protection measures, including development of a comprehensive DW Source Protection plan, educational projects, projects to identify and ensure implementation of Best Management Practices (BMPs), development of local DW Source Protection ordinances, development of restoration or conservation plans for the source area for future easement or land acquisition.

Implementation

Funds can be used to implement many types of protection strategies in drinking water source areas. This can include implementation of any *eligible activities that will reduce risks within the source water area or would contribute to a reduction of contaminant concentration within the drinking water source(s).*

Examples of the types of projects that can be funded include:

- Implementing drug-take-back projects in source areas
- Projects for reducing pesticide application rates and loadings in source area
- Implementing pesticide and household hazardous waste collection events
- Closure of high-risk abandoned or unused (private or irrigation) wells close to supply well
- Projects for reforestation or replanting in sensitive or riparian areas
- Installation of fencing to protect sensitive riparian source areas
- Installation of signs at boundaries of zones or protection areas
- Projects for assessing risks from onsite systems near supply wells, inspections, pump-outs, or decommissioning onsite systems.
- Secondary containment for high-risk ABOVE ground tanks
- Focused workshop events for household/business instruction for changing to alternative nonhazardous product usage (“green chemical” products)
- Seismic spill prevention or inspection project in proximate areas for high-risk sources
- Permanent abandonment (i.e. filling in) of inadequately constructed private wells within the source area
- Installation of fencing around the immediate intake or well area to provide protection
- Structures to divert contaminated stormwater runoff affecting the source area
- Set up ecosystem services (or similar) project in watershed to fund preservation areas
- Implementation of pollution prevention or waste reduction projects
- Restoration and/or conservation projects within the drinking water source area
- Implementation of water reuse and other conservation measures related to source protection
- Implementation of best management practice projects
- Implementation of conservation easements to protect sensitive source areas
- Implementation of a drinking water source protection ordinance
- Establishing management plans for easements or lands purchased within source areas
- Development of educational flyers/brochures for purposes of public education

- Purchase of lands within the drinking water source area (funded only via low interest loans)

Any *Public and Privately-owned Community and Nonprofit Non-Community water systems* with a completed *Source Water Assessment* are eligible for funds. A “community water system” is defined as a public water system that has 15 or more service connections used by year-round residents, or which regularly serves 25 or more year-round residents. This includes water systems that are owned privately, by non-profit or public entities such as a city, district, or port. A “nonprofit non-community water system” is a public water system that is not a community water system and that regularly serves at least 25 people (more than 6 months per year) and is legally recognized under Oregon law as a nonprofit entity.

For the source water protection funds, contact OHA regarding the letter of interest submittal schedule. Call Oregon OHA Drinking Water Services at 971-673-0422 or go to the OHA website: www.healthoregon.org/srf or contact IFA at 503-986-0123; www.orinfrastructure.org

Water/Wastewater Funding Program (WWFP)

This loan program funds the design and construction of public infrastructure needed to ensure compliance with the Safe Drinking Water Act or the Clean Water Act. The public entities that are eligible to apply for the program are cities, counties, county service districts, tribal councils, ports, and special districts as defined in ORS 198.010. Municipalities must either have a documented compliance issue or the potential of a compliance issue in the near future.

Allowable funded project activities may include:

- Construction costs, including Right of Way and Easements, for improvement or expansion of drinking water, wastewater or stormwater systems
- Design and construction engineering
- Planning/technical assistance for small communities

WWFP Loans

The maximum loan term is 25 years or the useful life of the infrastructure financed, whichever is less. The maximum loan amount is \$10 million per project (more with additional approval) through a combination of direct and/or bond funded loans. Loans are generally repaid with utility revenues or voter approved bond issues. A limited tax general obligation pledge also may be required. "Credit worthy" borrowers may be funded through the sale of state revenue bonds.

WWFP Grants

Grant awards up to \$750,000 may be awarded based on a financial review. An applicant is not eligible for grant funds if the applicant's annual median household income is equal or greater than 100 percent of the state average median household income for the same year.

Funding for Technical Assistance

The Infrastructure Finance Authority offers technical assistance financing for municipalities with populations of less than 15,000. The funds may be used to finance preliminary planning, engineering studies and economic investigations. Technical assistance projects must be in preparation for a construction project that is eligible and meets the established criteria.

Grants up to \$20,000 may be awarded per project.

Loans up to \$60,000 may be awarded per project.

To apply, call IFA at 503-986-0123, then contact your IFA Regional Coordinator for assistance and more information. <http://www.orinfrastructure.org/>

Special Public Works Fund (SPWF)

The Special Public Works Fund (SPWF) provides funds for publically owned facilities that support economic and community development in Oregon. Funds are available to public entities for planning, design, purchasing, improving and constructing publically owned facilities, replacing publically owned essential community facilities, emergency projects as a result of a disaster, and for planning. Public agencies that are eligible to apply for funding are cities,

counties, county service districts (ORS 451), tribal councils, ports, districts as defined in ORS 198.010, and airport districts (ORS 838).

SPWF Loans

Loans for development (construction) projects range from less than \$100,000 to \$10 million (more with additional approval). The Infrastructure Finance Authority offers very attractive interest rates that reflect tax-exempt market rates for highly qualified borrowers. Initial loan terms can be up to 25 years or the useful life of the project, whichever is less.

SPWF Grants

Grants are available for construction projects that create or retain traded-sector jobs. They are limited to \$500,000 or 85 percent of the project cost, whichever is less, and are based on up to \$5,000 per eligible job created or retained. Limited grants are available to plan industrial site development for publically owned sites and for feasibility studies.

To apply, call IFA at 503-986-0123, then contact your IFA Regional Coordinator for assistance and more information. <http://www.orinfrastructure.org/>

Community Development Block Grant (CDBG)

Grants and technical assistance are available to develop livable urban communities for persons of low and moderate incomes by expanding economic opportunities and providing housing and suitable living environments. Non-metropolitan cities and counties in rural Oregon can apply for and receive grants. *[Oregon tribes, urban cities (Albany, Ashland, Bend, Corvallis, Eugene, Gresham, Hillsboro, Medford, Portland, Salem and Springfield) and counties (Clackamas, Multnomah, Washington) receive funds directly from HUD.]* Funding amounts are based on the applicant's need, the availability of funds, and other restrictions defined in the program's guidelines. The maximum available grant for drinking water system projects is \$3,000,000.

All projects must meet one of three national objectives:

- The proposed activities must benefit low- and moderate-income individuals.
- The activities must aid in the prevention or elimination of slums or blight.
- There must be an urgent need that poses a serious and immediate threat to the health or welfare of the community.

To apply, call IFA at 503-986-0123, then contact your IFA Regional Coordinator for assistance and more information. <http://www.orinfrastructure.org/>

Port Revolving Loan Fund (PRLF)

The Port Revolving Loan Fund (PRLF) is a loan program to assist Oregon ports in the planning and construction of facilities and infrastructure. Ports must be incorporated under ORS Chapter 777 or 778. The Fund may be used for port development projects (facilities or infrastructure) or to assist port-related private business development projects. The variety of eligible projects is very broad and may include water-oriented facilities, industrial parks, airports and commercial or industrial developments. Eligible project costs can include engineering, acquisition, improvement, rehabilitation, construction, operation, and maintenance or pre-project planning. Projects must be located within port district boundaries. The maximum loan amount is \$3 million at any one time. The loan term can be as long as 25 years or the useful life of the project, whichever is less. Interest rates are set by the IFA at market rates, but not less than Treasury Notes of a similar term minus one percent.

Note: Flexible manufacturing space projects will not accrue interest until the building is at least 25 percent occupied or until three years after the date of the loan contract, whichever is earlier.

To apply, call IFA at 503-986-0123, then contact your IFA Regional Coordinator for assistance and more information. <http://www.orinfrastructure.org/>

Oregon Department of Environmental Quality (DEQ)

Clean Water State Revolving Fund (CWSRF)

Clean Water State Revolving Fund

503-229-6412

Website: www.deq.state.or.us/wq/loans/loans.htm

Low-cost loans for planning, design, and construction projects to attain and maintain water quality standards, and necessary to protect beneficial uses such as fish habitat, drinking water sources, irrigation, and recreation. Eligible borrowers are public entities, such as cities and counties, Indian tribal governments, sanitary districts, soil and water conservation districts, irrigation districts, various special districts and some intergovernmental entities. CWSRF offers:

- Low-cost loans and bond purchases
- Lower than market interest rates
- Fixed interest rates
- Terms up to 30 years
- Up to 100% of eligible costs covered
- No match required
- Repayment begins after project is constructed
- No pre-payment penalty
- Additional financial incentives, including principle forgiveness

Applications are accepted year round with scheduled review and ranking in the first week of January, May and September. Contact the Oregon Department of Environmental Quality (DEQ); for a list of CWSRF project officers, go to www.deq.state.or.us/wq/loans/loans.htm

Financial incentives make CWSRF loans worth exploring. Principle forgiveness is available for communities meeting affordability criteria, or for meeting green project criteria. Implement a non-planning nonpoint source project *and* a traditional point source wastewater treatment project through the same application to reduce your interest rate on the combined two projects to as low as 1%. This combined application is called a sponsorship option.

CWSRF Pollution Reduction Funding

The Clean Water State Revolving Fund loan program provides low-cost loans to public entities for the planning, design or construction of both point source and nonpoint source projects that *prevent or mitigate water pollution*. Wastewater facility improvements and stormwater management projects are funded with CWSRF.

CWSRF loans fund development of nonpoint source water quality improvement plans, such as an integrated water resources plan and a regional or municipality-wide stormwater management plan. Planning loans can also fund the establishment of watershed partnerships, local ordinances to implement a stormwater master/management plan, engineering and development standards for new and redevelopment, permanent riparian buffers, floodplains, wetlands and other natural features.

CWSRF offers a Local Community Loan, which allows the borrower to make loans to private entities like home owners and farmers. The Local Community Loans fund the repair and replacement of failing decentralized systems. This loan type can also fund nonpoint source agricultural best management practices such as building manure containment structures, manure digesters, and fences to protect riparian resources capture and convert methane, and purchase calibrated application equipment.

CWSRF loans fund a variety of nonpoint source watershed improvement implementation projects such as establishing or restoring permanent riparian buffers and floodplains, and daylighting streams from pipes. Loans can fund protecting and restoring streamside areas, wetlands and floodplains, and to acquire riparian land, wetlands, conservation easements, and land to protect drinking water sources.

More information on DEQ's Clean Water State Revolving Fund program can be found here:

<http://www.deq.state.or.us/wq/loans/loans.htm>. For specific information on the Sponsorship Option, Planning

Loans, Nonpoint Source Loans, or Local Community Loans, see <http://www.deq.state.or.us/wq/loans/apps.htm>. The application requirements for CWSRF loans may take some lead-time to develop and may require out-of-pocket expense to prepare. Prospective CWSRF applicants should discuss any questions about the required content of these items with a regional DEQ CWSRF Project Officer at the earliest opportunity (<http://www.deq.state.or.us/wq/loans/contacts.htm>)

Supplemental Environmental Projects (SEPs)

Supplemental Environmental Projects are administered by DEQ's Office of Compliance and Enforcement. When DEQ assesses civil penalties for environmental law violations, violators can offset up to 80% of their monetary penalty by agreeing to pay for a Supplemental Environmental Project that improves Oregon's environment. SEPs can be for pollution prevention or reduction, public health protection, environmental restoration and protection as long as it is a project that the respondent is not already required to do by law or where the project would be financially self-serving for the respondent. The work can be completed by a third-party like a local government, watershed council, non-profit or private entity. Coastal PWSs can develop a "SEP Application" with general information that OCE can distribute to respondents. Community organizations with proposed projects are also free to contact respondents on their own initiative. The enforcement case does not necessarily have to be in the same area (watershed/county, etc.) as the environmental project or even address the same media (i.e. air/water/land). Interested parties can sign up for DEQ's public notifications via email at <http://www.oregon.gov/deq/Pages/publicnotice.aspx> - when signing up, select types of information (select "enforcement actions") and which counties or subbasins are of interest.

Nonpoint Source Implementation 319 Grants

Nonpoint Source Grants support implementation and planning projects that address water quality problems in surface and groundwater resources resulting from nonpoint source pollution. Funds are appropriated by DEQ through the U.S. Environmental Protection Agency under Section 319 of the Clean Water Act and support a wide variety of management activities, including technical assistance, site assessment, public awareness and education, training, technology transfer, demonstration projects, and monitoring to assess the success of specific nonpoint source implementation projects. Eligible applicants include government agencies, tribal nations and nonprofit organizations. For more information including funding availability, eligible projects, and application requirements and timelines see <http://www.oregon.gov/deq/WQ/Pages/nps319.aspx>

Oregon Water Resources Department (WRD)

Water Resources Development Program
725 Summer Street NE, Suite A
Salem, OR 97301
Phone: 503-986-0900

The Water Resources Department is the state agency charged with administration of the laws governing surface and ground water resources. The Department's core functions are to protect existing water rights, facilitate voluntary streamflow restoration, increase the understanding of the demands on the state's water resources, provide accurate and accessible water resource data, and facilitate water supply solutions. WRD is charged with carrying out the water management policies and rules set by the Water Resources Commission and with overseeing the enforcement of Oregon's water laws. By law, all surface and ground water in Oregon belongs to the public.

WRD's mission is to serve the public by practicing and promoting responsible water management through two key goals:

- to directly address Oregon's water supply needs, and
- to restore and protect streamflows and watersheds in order to ensure the long-term sustainability of Oregon's ecosystems, economy, and quality of life.

WRD developed *Oregon's 2012 Integrated Water Resources Strategy* to help individuals and communities address instream and out-of-stream needs now and into the future, including water quantity, water quality and ecosystem needs. More information can be found at:

https://www.oregon.gov/owrd/Pages/law/integrated_water_supply_strategy.aspx

There is funding available to support planning, feasibility studies, and implementation of water projects:

Place-Based Integrated Water Resources Planning

Place-based planning is a voluntary, locally initiated and led effort in which a balanced representation of water interests within a basin or watershed work in partnership with the state to: characterize current water resources and issues (water quantity, water quality, ecosystem health); understand current and future instream and out-of-stream water needs and demands; identify and prioritize strategic solutions to address water needs; and, develop a place-based integrated water resources plan that informs the state-wide strategy.

Recent cycle of funding included \$750,000 in grants; requires 25% cost-share.

For more information, contact Harmony Burright at 503-986-0913.

Feasibility Study Grants

Once potential projects are identified, communities often find it difficult to secure funding to assess their viability. This program component addresses that need by providing grant funding to cover 50% of the cost of conducting feasibility studies for potential water conservation, storage and reuse projects. A feasibility study is an assessment of the practicality of a proposed project or plan and can be used to determine if and how a project should proceed to the implementation phase.

Recent cycle of funding included \$2.8 million in grants; 50% cost share required.

For more information, contact Jon Unger at 503-986-0869.

Water Project Grants & Loans (formerly Water Supply Development Grants & Loans)

This account provides grants and loans to evaluate, plan and implement instream and out-of-stream water development projects that have economic, environmental and social/cultural benefits. Eligible projects include, but are not limited to projects that: increase water use efficiency; develop new or expanded storage; allocate federally stored water; promote water reuse or conservation; and protect or restore stream flows. Recent cycle funding included \$14 million in grants or loans; 25% cost share required; applications accepted year round.

For more information, contact Jon Unger at 503-986-0869.

More details and updates for these grants can be found at:

http://www.oregon.gov/OWRD/pages/Water_Resources_Development_Program.aspx

Municipal Water Management and Conservation Planning

Municipal water management and conservation planning provides a process through which cities and other municipal water suppliers estimate long-range water supply needs and identify alternatives, including water conservation programs, to meet those needs. The Department requires many municipal water suppliers to prepare plans as conditions of their water use permits or permit extensions.

Water Rights

Oregon's water laws are based on the principle of prior appropriation. This means the first person to obtain a water right on a stream is the last to be shut off in times of low streamflows. In water-short times, the water right holder with the oldest date of priority can demand the water specified in their water right regardless of the needs of junior users. The date of application for a permit to use water usually becomes the priority date of the right. Watermasters respond to complaints from water users and determine in times of water shortage, which generally occur every year, who has the right to use water. Each summer as streamflows drop, watermasters regulate junior users to provide water to the more senior users. On many streams throughout the state, by the end of summer, there is only enough water to supply users who established their rights in the late 1800s. All of the more recently established rights will have been regulated off by the [watermaster](#).

There are "watermaster" offices located around the state. The watermaster office is an excellent source of local information. Watermasters can research water rights for a particular stream reach and provide supporting maps (above). During critical flow periods, watermasters regulate water usage to enable senior water right holders to

satisfy their water right. The watermaster may also provide information regarding instream leases, ground water rights, cancellations, transfers of water rights, streamflow data, and water right information in general (list as of 6/16).

WRD Watermasters

District 1

Nikki Hendricks

c/o Port of Tillamook Bay
4000 Blimp Blvd Ste 400
Tillamook, Oregon 97141
Ph: 503-815-1967

District 2

Michael Mattick

125 East 8th Avenue
Eugene, OR 97401-2926
Ph: 541-682-3620

District 3

Robert Wood

2705 E 2nd St
The Dalles, Oregon 97058
Ph: 541-506-2652

District 4

Eric Julsrud

201 S Humbolt, Suite 180
Grant County Courthouse
Canyon City, Oregon 97820
Ph: 541-575-0119

District 5

Greg Silbernagel

116 SE Dorion Ave
Pendleton, OR 97801
Ph: 541-278-5456

District 6

Shad Hattan

10507 N McAlister Rd #6
La Grande, Oregon 97850
Ph: 541-963-1031

District 7

David Bates

401 NE First St., Suite 11
Enterprise, Oregon 97828
Ph: 541-426-4464

District 8

Rick Lusk

Baker County Courthouse
1995 3rd Street, Suite 180
Baker City, Oregon 97814
Ph: 541-523-8224 ext 231

District 9

Ron Jacobs

Malheur County Courthouse #4
251 B St W
Vale, Oregon 97918
Ph: 541-473-5130

District 10

JR Johnson

Harney County Courthouse
450 N Buena Vista #3
Burns, OR 97720
Ph: 541-573-2591

District 11

Jeremy Giffin

231 SW Scalehouse Loop,
Ste 103
Bend, Oregon 97702
Ph: 541-306-6885

District 12

Brian Mayer

513 Center St
Lakeview, Oregon 97630
Ph: 541-947-6038

District 13

Travis Kelly

10 S Oakdale, Rm 309A
Medford, Oregon 97501
Ph: 541-774-6880

District 14

Kathy Smith

700 NW Dimmick St.
Grants Pass, Oregon 97526
Ph: 541-479-2401

District 15

David Williams

Douglas County Courthouse,
Room 306
Roseburg, Oregon 97470
Ph: 541-440-4255

District 16

Joel Plahn

725 Summer St NE, Ste A
Salem, Oregon 97301
Ph: 503-986-0889

District 17

Scott White

305 Main Street
Klamath Falls, Oregon 97601
Ph: 541-883-4182

District 18

Jake Constans

1400 SW Walnut St, Suite 240
Hillsboro, Oregon 97123
Ph: 503-846-7780

District 19

Greg Wacker

Physical Address:
225 N Adams
Coquille, Oregon 97423
Ph: 541-396-1905

District 20

Amy Kim

10722 SE Highway 212
Clackamas, Oregon 97015
Ph: 503-722-1410

District 21

Ken Thiemann

221 S Oregon St.
P.O. Box 427
Condon, OR 97823
Ph: 541-384-4207

Oregon Department of Forestry (ODF)

Salem Headquarters

2600 State Street

Salem, Oregon 97310

<http://www.oregon.gov/ODF/Pages/index.aspx>

The Oregon Department of Forestry manages and regulates activities on non-federal forestland in Oregon. There are three main divisions under ODF-- Fire Protection, Private Forests, and State Forests. The Private Forests Division administers the Forest Practices Act and various forestry incentive programs and employs the use of about 50 Stewardship Foresters who work closely with landowners and operators. The State Forests Division is responsible for forest management to provide economic, environmental, and social benefits to Oregonians.

Financial incentive programs are aimed at encouraging and assisting landowners in managing their resources and meeting their objectives. Typical forestry projects can be aimed at protecting the landowner's resources/investment from fire or insect and disease infestation, to increasing its monetary and environmental value in the future.

Information about all ODF and federal forestry-related grants and incentive programs can be found at:

<http://www.oregon.gov/ODF/AboutODF/Pages/GrantsIncentives.aspx>

Community Forest Program

The Community Forest and Open Space Conservation Program is a federal financial assistance program with grants available to local governments, Indian tribes, and qualified nonprofit organizations to establish community forests and sustainably manage them for many public benefits, including recreation, income, wildlife habitat, stewardship demonstration sites, and environmental education.

Conservation Stewardship Program

To help landowners and operators maintain existing stewardship and adopt additional conservation on privately-owned, non-industrial working forests and agricultural lands.

Forest Legacy Program

The Forest Legacy Program is a national program that addresses privately-owned forestlands that face threats of conversion to non-forest use by development pressures. The goal of the Forest Legacy Program is to promote stewardship and sustainable management of private forest lands by maintaining working forests that conserve important forest resource and conservation values. Forest Legacy provides funds for eligible private forestlands for the purchase of development rights through either conservation easement or fee-title acquisition into public ownership. All properties entered into Oregon's Forest Legacy Program – either through conservation easement, fee acquisition or donation – have their forest resources and conservation values protected and managed in accordance with a State Forester-approved Forest Stewardship Plan (see below).

Forest Stewardship Program

Oregon's Forest Management Planning System recognizes that forest management planning is a journey – Pathways to Stewardship -- involving several distinct steps. A landowner's initial interest may be related to a specific project or action that is pressing on their property – such as reducing hazardous wildfire fuels or combating an invasive weed. Landowner assistance organizations and agencies usually first cross paths through outreach efforts defined around mutual interests or resource concerns. Landowners who are just beginning the management planning process begin a more formal journey by taking the [Woodland Discovery](#) step. Woodland Discovery consists of gathering basic property information and solidifying management goals. The remaining steps for completing your forest management plan include organizing the planning elements into specific management planning modules: soil and water, forest vegetation, fish and wildlife, access and protection, scenery and enjoyment and tax and business. Every step completed

along the way results in the identification of specific actions that a landowner can take to improve conditions of the forestland or otherwise meet goals in owning forestland. Completion of a forest management plan opens up formal types of engagement such as forest certification and the enrollment of lands into specialized conservation programs that define a long-term commitment to sustainable forestry.

Healthy Forests Reserve Program (HFRP)

The goal is to restore and enhance ecosystems and habitat for threatened and endangered species while promoting sustainable timber harvests on working forest lands.

Oregon Department of Agriculture Natural Resources Program

635 Capitol St. NE

Salem, OR 97301-2532

Phone: 503 986-4700

<http://www.oregon.gov/ODA/programs/NaturalResources>

The Oregon Department of Agriculture (ODA) is responsible for developing plans to prevent and control water pollution from agricultural activities and soil erosion on rural lands. ODA's Natural Resources Program aims to conserve, protect, and develop natural resources on public and private lands in order to ensure that agriculture will continue to be productive and economically viable in Oregon. Natural Resources Programs work to do the following:

- Address water quality and natural resource conservation on agricultural lands
- Protect Oregon's environment and public health by ensuring the proper and legal sale, use, and distribution of pesticide products
- Assist local soil and water conservation districts as they help landowners properly manage Oregon's natural resources

More information on the Agricultural Plan Areas and Regulations can be found at:

<https://www.oregon.gov/ODA/programs/NaturalResources/AgWQ/Pages/AgWQPlans.aspx>

Information on local management plans and your area's ODA Water Quality Specialist can be found at:

<http://www.oregon.gov/ODA/programs/NaturalResources/AgWQ/Pages/AgWQPlans.aspx>

More information on the regulation and use of pesticides can be found at:

<http://www.oregon.gov/ODA/programs/Pesticides/Pages/default.aspx>

Department of Agriculture Pesticide Analytical and Response Center (PARC)

<http://www.oregon.gov/ODA/programs/Pesticides/Pages/PARC.aspx>

The Pesticide Analytical and Response Center (PARC) was created by executive order in 1978. The program was reauthorized under the Oregon Department of Agriculture (ODA) as ORS 634.550, in 1991.

PARC is mandated to perform the following activities with regard to pesticide-related incidents in Oregon that have suspected health or environmental effects: Collect incident information, mobilize expertise for investigations, identify trends and patterns of problems, make policy or other recommendations for action, report results of investigations, and prepare activity reports for each legislative session.

PARC does not have regulatory authority. Their primary function is to coordinate investigations to collect and analyze information about reported incidents. Investigation coordination includes collecting reports produced by member agencies and consultation as necessary with a toxicologist with Oregon State University. Member agencies conduct most of the investigations and take any necessary enforcement action(s). The eight member agencies include the following: [Oregon Health Authority \(OHA\)](#), [Oregon Department of Fish and Wildlife \(ODF&W\)](#), [Oregon Department of Environmental Quality \(DEQ\)](#), [Oregon](#)

[Department of Forestry \(ODF\)](#), [Oregon Occupational Safety and Health Administration \(OR OSHA\)](#), [Office of the State Fire Marshal \(SFM\)](#), [Oregon Poison Center \(OPC\)](#), [Oregon Department of Agriculture \(ODA\)](#).

To report a pesticide incident that has impacted people, animals, or the environment, contact: Theodore Bunch Jr., PARC Coordination Team Leader at 503-986-6470 or toll-free at 844-688-7272

PARC@oda.state.or.us

Christina Higby, Citizen Advocate Liaison at 503-986-5105 chigby@oda.state.or.us

Department of Agriculture

Soil and Water Conservation Districts

<http://www.oregon.gov/ODA/SWCD/>

SWCD Program and Water Quality Program Manager: John Byers, 503-986-4718

The Soil and Water Conservation District (SWCD) Program provides services to the 45 Soil and Water Conservation Districts throughout Oregon (list current as of 6/16). SWCDs are local government entities that have authorities to address soil, erosion, and water quality issues.

Benton SWCD

456 SW Monroe Ave., Suite 110
Corvallis, OR 97333
Phone: 541 753-7208
Website: www.bentonswcd.org

Burnt River SWCD

3990 Midway Drive
Baker City, OR 97814
Phone: 541 523-7121 Ext. 109
Email: whitney.collins@bakercountyswcds.com

Clackamas SWCD

221 Molalla Ave., Suite 102
Oregon City, OR 97045
Phone: 503 210-6000
Website: www.conservationsdistrict.org

Clatsop SWCD

750 Commercial St., Room 207
Astoria, OR 97103
Phone: 503 325-4571
Website: www.clatsopswcd.org

Columbia SWCD

35285 Millard Road
St. Helens, OR 97051
Phone: 503 397-4555
Website: www.columbiaswcd.com

Coos SWCD

371 N Adams St.
Coquille, OR 97423
Phone: 541 396-6879
Website: www.coosswcd.org

Crook County SWCD

498 SE Lynn Blvd.
Prineville, OR 97754
Phone: 541 447-3548

Curry County SWCD

29692 Ellensburg Ave.
Gold Beach, OR 97444
Phone: 541 247-2755 Ext. 0#
Website: www.currywatersheds.org

Deschutes SWCD

625 SE Salmon Ave., Suite 7
Redmond, OR 97756
Phone: 541 923-2204
Website: www.deschuteswcd.com

Douglas SWCD

2741 West Harvard Ave.
Roseburg, OR 97471
Phone: 541 957-5061
Website: www.douglasswcd.org

Eagle Valley SWCD

3990 Midway Drive
Baker City, OR 97814
Phone: 541 523-7121 Ext. 109

East Multnomah SWCD

5211 N Williams Ave.
Portland, OR 97217
Phone: 503 222-SOIL (7645)
Website: www.emswcd.org

Fort Rock / Silver Lake SWCD

17612 Highway 395
Lakeview, OR 97630
Phone: 541 947-5855
Email: LakeviewSWCD2@hotmail.com

Gilliam County SWCD

Dunn Office Building
333 S Main St.
Condon, OR 97823
Phone: 541 384-2672
Email: gilliamswcd@gmail.com

Grant SWCD

721 S Canyon Blvd.
John Day, OR 97845
Phone: 541 575-0135 Ext. 3
Email: jkehrberg@ortelco.net

Harney SWCD

530 Highway 20 S
Hines, OR 97738
Phone: 541 573-5010
Email: marty.suter@or.nacdn.net

Hood River SWCD

3007 Experiment Station Drive
Hood River, OR 97031
Phone: 541 386-4588 / 386-6719
Website: www.hoodriverswcd.org

Illinois Valley SWCD

Josephine Co. Office Building
102 S Redwood Highway
Cave Junction, OR 97523
Phone: 541 592-3731
Email: amy@ivstreamteam.org

Jackson SWCD

89 Alder Street
Central Point, OR 97502
Phone: 541 664-1070
Website: www.jswcd.org

Jefferson County SWCD

625 SE Salmon Ave., Suite 6
Redmond, OR 97756
Phone: 541 923-4358 Ext. 101
Email: debbe.chadwick@oacd.org

Josephine SWCD

1440 Parkdale Drive
Grants Pass, OR 97527
Phone: 541 474-6840
Email: joswcd@outreachinternet.com

Keating SWCD

3990 Midway Drive
Baker City, OR 97814
Phone: 541 523-7121 Ext. 109
Email: whitney.collins@bakercountyswcds.com

Klamath SWCD

2316 S 6th St., Suite C
Klamath Falls, OR 97601
Phone: 541 883-6932 Ext. 101
Website: www.klamathswcd.org

Lakeview SWCD

17612 Highway 395
Lakeview, OR 97630
Phone: 541 947-5855
Email: lakeviewswcd2@hotmail.com

Lincoln SWCD

23 North Coast Highway
Newport, OR 97365
Phone: 541 265-2631
Website: www.lincolnswcd.org

Linn SWCD

33935 Highway 99E, Suite C
Tangent, OR 97389
Phone: 541 926-2483
Website: www.linnswcd.oacd.org

Malheur County SWCD

2925 SW Sixth Ave., Suite 2
Ontario, OR 97914
Phone: 541 889-2588 Ext. 101
Email: LRowe@malcoswcd.org

Marion SWCD

338 Hawthorne Ave. NE
Salem, OR 97301
Phone: 503 391-9927
Website: www.marionswcd.net

Monument SWCD

Columbia Power Building
311 Wilson St.
Monument, OR 97864
Phone: 541 934-2141
Website: www.monumentswcd.org

Morrow SWCD

430 Linden Way
Heppner, OR 97836
Phone: 541 676-5452
Email: swcdmanager@centurytel.net

Polk SWCD

580 Main St., Suite A
Dallas, OR 97338
Phone: 503 623-9680
Website: www.polkswcd.org

Sherman County SWCD

302 Scott St.
Moro, OR 97039
Phone: 541 565-3216 Ext. 3
Website: www.shermancountyswcd.com

Siuslaw SWCD

1775 Laurel Place, Suite 4
Florence, OR 97439
Phone: 541 997-1272
Website: www.siuswcd.com

Tillamook SWCD

4000 Blimp Blvd., Suite 200
Tillamook, OR 97141
Phone: 503 842-2240 Ext. 110
Website: tillamookcountyswcd.org/

Tualatin SWCD

1080 SW Baseline St., Suite B-2
Hillsboro, OR 97123
Phone: 503 648-3174 Ext. 4
Website: www.swcd.net

Umatilla County SWCD

1 SW Nye Ave., Suite 130
Pendleton, OR 97801
Phone: 541 278-8049
Website: www.umatillacountyswcd.com

Umpqua SWCD

1877 Winchester Ave.
Reedsport, OR 97467
Phone: 541 662-1341
Website: www.umpquasoilandwater.com

Union SWCD

10507 N McAlister Road, Room 7
La Grande, OR 97850
Phone: 541 963-1313
Website: unionswcd.org

Upper Willamette SWCD

780 Bailey Hill Road, Suite 5
Eugene, OR 97402
Phone: 541 465-6443 Ext. 102
Website: www.uwswcd.org

Wallowa SWCD

401 NE 1st St., Suite E
Enterprise, OR 97828
Phone: 541 426-4521
Email: cynthia.a.warnock@gmail.com

Wasco County SWCD

2325 River Road, Suite 3
The Dalles, OR 97058
Phone: 541 296-6178 Ext. 3
Website: www.wascoswcd.org

West Multnomah SWCD

2701 NW Vaughn St., Suite 450
Portland, OR 97210
Phone: 503 238-4775
Website: www.wmswcd.org

Wheeler SWCD

40535 Highway 19
Fossil, OR 97830
Phone: 541 468-2990
Website: www.wheelerswcd.org

Yamhill SWCD

2200 SW Second St.
McMinnville, OR 97128
Phone: 503 472-6403
Fax: 503 472-6407
Website: www.yamhillswcd.org

Oregon Watershed Enhancement Board (OWEB)

775 Summer St. NE Suite 360
Salem, OR 97301
Phone: (503) 986-0178
Website: www.oregon.gov/OWEB

The Oregon Watershed Enhancement Board (OWEB) is a state agency that provides grants to help Oregonians take care of local streams, rivers, wetlands and natural areas. Community members and landowners use scientific criteria to decide jointly what needs to be done to conserve and improve rivers and natural habitat in the places where they live. OWEB grants are funded from the Oregon Lottery, federal dollars, and salmon license plate revenue. The agency is led by a 17 member citizen board drawn from the public at large, tribes, and federal and state natural resource agency boards and commissions.

OWEB provides grants to projects that contribute to the Oregon Plan for Salmon and Watersheds and the Oregon Conservation Strategy by protecting, restoring and improving clean water and fish and wildlife habitat. See the OWEB website for more information on grants: <http://www.oregon.gov/OWEB/GRANTS/pages/index.aspx>

Oregon Sea Grant (OSG)

Oregon State University

Corvallis, Oregon

Phone 541-737-2714

<http://seagrants.oregonstate.edu/>

Oregon Sea Grant serves Oregon coastal communities through integrated research, education and public engagement on ocean and coastal issues. Based at Oregon State University, OSG is part of the national network of NOAA Sea Grant College Programs, dedicated to promoting environmental stewardship, long-term economic development and responsible use of America's coastal, ocean and Great Lakes resources. OSG targets research on better defining the relationships between the many pressures that can degrade water quality: climate change, upland and coastal land use, fish and habitat restoration efforts, aquatic invasive species. OSG works with groups whose interests sometimes come in conflict - landowners, outdoor recreationists, farmers and woodland managers, local government, the general public - to seek solutions that will help sustain healthy watersheds and our precious water resources. OSG focuses on the question of resilience - the ability to plan, adapt and rebound in the face of change by supporting physical and social science research aimed at better understanding ocean and coastal processes and the socio-economic barriers to hazard and climate change preparation. Publications and resources available from OSG can be found here:

<http://seagrants.oregonstate.edu/sgps>.

OSG and OSU Extension produce textbooks and other publications on such topics as conservation-friendly gardening, sustainable living and low-impact development. OSG also partners with the Oregon State Marine Board to develop the Clean Vessel Act (CVA) Education Initiative. Funded by the Clean Vessel Act of 1992, the goal of the CVA Education Initiative is to improve boaters' awareness, accessibility and use of sewage pump-outs, dump stations, and floating toilets. Publications and resources available from OSG about watershed health can be found here: <http://seagrants.oregonstate.edu/sgps> by using "watersheds and wetlands" in the "Search by Subject" field.

Every two years, OSG awards approximately \$2 million in research grants addressing community preparedness for climate change, watershed health, other urgent or emerging regional needs with high relevance to coastal communities. For more information on grants, see:

<http://seagrants.oregonstate.edu/research>

Source Water Collaborative

– led by U.S. Environmental Protection Agency

Technical assistance and lists of resources and contacts are available from this national network that has worked to promote drinking water protection for several years. The Source Water Collaborative is a network of federal, state, and local organizations led by US EPA. Some of the key Source Water Collaborative members include the US EPA, US Department of Agriculture, AWWA, American Planning Association, ASDWA, ACWA, National Rural Water Association, Groundwater Protection Council, National Association of Counties, and The Trust for Public Land. Resources can be found here:

<http://sourcewatercollaborative.org/>



U.S. Environmental Protection Agency

Catalog of Federal Funding Sources for Watershed Protection

This is an online, free searchable database of financial assistance sources (grants, loans, cost-sharing) available to fund a variety of watershed protection projects.

<https://ofmpub.epa.gov/apex/watershedfunding/f?p=fedfund:1>

U.S. Environmental Protection Agency - Environmental Finance Centers

Free technical assistance is available through EPA's Environmental Finance Centers. There is currently no Environmental Finance Center for US EPA Region 10, but the resources are still available through the US EPA website. The program mission is to provide help to those facing the "how to pay" challenges of environmental protection. EFC is committed to helping the regulated community build and improve the technical, managerial, and financial capabilities needed to comply with federal and state environmental protection laws.

<https://www.epa.gov/envirofinance>

U.S. Environmental Protection Agency

Community Action for a Renewed Environment (CARE) Grants

Eligible Projects: Prevention of human exposure to harmful pollution; improve water quality. Form community-based collaborative partnerships; identifying and developing an understanding of the many local sources of risk from toxic pollutants and environmental concerns; and setting priorities for the reduction of the identified risks and concerns of the community

Eligible Applicants: Local, public non-profit institution/organizations, federally-recognized Indian tribal government, Native American organizations, private non-profit institution/organization, quasi-public nonprofit institution/organization both interstate and intrastate, local government, colleges, and universities

Funding Available: \$75,000 to \$100,000 with an average project funding of about \$90,000

How To Apply: www.epa.gov/care

U.S. Bureau of Reclamation

Cooperative Watershed Management Program

Eligible Projects: Improve water quality; improve ecological resiliency of a river or stream; and to reduce conflicts over water at the watershed level by supporting the formation of watershed groups to develop local solutions to address water management issues

Eligible Applicants: States, Indian tribes, local and special districts (e.g., irrigation and water districts, county soil conservation districts, etc.), local governmental entities, interstate organizations, and non-profit organizations. To be eligible, applicants must also meet all of the following requirements: (1) Significantly affect or be affected by the quality or quantity of water in a watershed; (2) Be capable of promoting the sustainable use of water resources; (3) Be located in the western United States specifically: Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington.

Funding Available: \$22,000-\$100,000 in the past

How To Apply: <http://www.usbr.gov/WaterSMART/cwmp/index.html>



U.S. Department of Agriculture

Farm Service Agency Conservation Programs

<http://www.fsa.usda.gov/programs-and-services/conservation-programs/index>

USDA Farm Service Agency oversees a number of voluntary conservation-related programs. These programs work to address a large number of farming and ranching related conservation issues including:

- Drinking water protection
- Reducing soil erosion
- Wildlife habitat preservation
- Preservation and restoration of forests and wetlands
- Aiding farmers whose farms are damaged by natural disasters

Source Water Protection Program (SWPP)

The SWPP is designed to protect surface and ground water used as drinking water by rural residents. Through a partnership with the National Rural Water Association, local teams are formed to develop plans to reduce pollutant impacts in rural areas.

<http://www.fsa.usda.gov/programs-and-services/conservation-programs/source-water-protection/index>

Conservation Reserve Program (CRP)

The CRP pays a yearly rental payment in exchange for farmers removing environmentally sensitive land from agricultural production and planting species that will improve environmental quality. In exchange for a yearly rental payment, farmers enrolled in the program agree to remove environmentally sensitive land from agricultural production and plant species that will improve environmental health and quality. Contracts for land enrolled in CRP are 10-15 years in length. The long-term goal of the program is to re-establish valuable land cover to help improve water quality, prevent soil erosion, and reduce loss of wildlife habitat.

<http://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/index>

Conservation Reserve Enhancement Program (CREP)

The CREP, an offshoot of CRP, targets high-priority conservation issues identified by local, state, or tribal governments or non-governmental organizations. In exchange for removing environmentally sensitive land from production and introducing conservation practices, farmers, ranchers, and agricultural land owners are paid an annual rental rate. Participation is voluntary, and the contract period is typically 10–15 years, along with other federal and state incentives as applicable per each CREP agreement.

<http://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-enhancement/index>

Emergency Conservation Program (ECP)

The ECP provides funding and technical assistance for farmers and ranchers to restore farmland damaged by natural disasters and for emergency water conservation measures in severe droughts. The ECP also provides funding and assistance to help ranchers and farmers install water conservation measures during severe drought.

<http://www.fsa.usda.gov/programs-and-services/conservation-programs/emergency-conservation/index>

Emergency Forest Restoration Program (EFRP)

The EFRP, which is very similar to the ECP, provides funding to restore privately owned forests damaged by natural disasters.



<http://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/emergency-forest-restoration/index>

Farmable Wetlands Program (FWP)

The FWP is designed to restore wetlands and wetland buffer zones that are farmed. FWP gives farmers and ranchers annual rental payments in return for restoring wetlands and establishing plant cover.

<http://www.fsa.usda.gov/programs-and-services/conservation-programs/farmable-wetlands/index>

U.S. Department of Agriculture

Natural Resources Conservation Service

NRCS provides farmers, ranchers and forest managers with free technical assistance, or advice, for their land. Common technical assistance includes: resource assessment, practice design and resource monitoring. The conservation planner will help you determine if financial assistance is right for you. Technical assistance is also available online through [Conservation Client Gateway](#). More information about NRCS can be found on their home page:

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/about/>

Environmental Quality Incentives Program (EQIP)

Grants are available for best management practices and conservation on private, non-industrial forestland and agricultural lands. Financial assistance is available to help plan and implement conservation practices that address natural resource concerns and for opportunities to improve soil, water, plant, animal, air and related resources on agricultural land and non-industrial private forestland. In addition, EQIP can help producers meet Federal, State, Tribal and local environmental regulations.

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/>

Eligible Applicants: Owners of land in agricultural or forest production or persons who are engaged in livestock, agricultural or forest production on eligible land and that have a natural resource concern on the land

Funding Available: Financial and technical assistance to agricultural and forestland producers through contracts up to 10 years. Not to exceed \$300,000 for all EQIP contracts entered into during any six-year period. If NRCS determines project has special environmental significance the payment limitation is a maximum of \$450,000.

Conservation Stewardship Program (CSP)

CSP helps agricultural producers maintain and improve their existing conservation systems and adopt additional conservation activities to address priority resources concerns. Through CSP, participants take additional steps to improve resource condition including soil quality, water quality, water quantity, air quality, and habitat quality, as well as energy. Participants earn CSP payments for conservation performance - the higher the performance, the higher the payment.

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/csp/>

Wetlands Reserve Easements (WRE)

WRE provides habitat for fish and wildlife, including threatened and endangered species, improve water quality by filtering sediments and chemicals, reduce flooding, recharge groundwater, protect biological diversity and provide opportunities for educational, scientific and limited recreational activities.

NRCS also provides technical and financial assistance directly to private landowners and Indian tribes to restore, protect, and enhance wetlands through the purchase of a wetland reserve easement. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/or/home/?cid=stelprdb1249312>



Agricultural Land Easements (ALE)

ALE is designed to protect the long-term viability of the nation's food supply by preventing conversion of productive working lands to non-agricultural uses. Land protected by agricultural land easements provides additional public benefits, including environmental quality, historic preservation, wildlife habitat and protection of open space.

<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/or/home/?cid=stelprdb1249312>

Emergency Watershed Protection (EWP)

The EWP program was set up by Congress to respond to emergencies created by natural disasters. The United States Department of Agriculture's Natural Resources Conservation Service is responsible for administering the program. EWP is designed to relieve imminent hazards to life and property caused by floods, fires, windstorms, and other natural occurrences. It is not necessary for a national emergency to be declared for an area to be eligible for assistance. Activities include providing financial and technical assistance to remove debris from streams, protect destabilized streambanks, establish cover on critically eroding lands, repairing conservation practices, and the purchase of flood plain easements. The purpose of EWP is to help groups of people with a common problem. EWP is generally not an individual assistance program. All projects undertaken must be sponsored by a political subdivision of the State, such as a city, county, general improvement district or conservation district, or by a tribal government.

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/or/programs/financial/ewp/>

Other NRCS Programs

There are other NRCS programs that are specific to Oregon geographic areas---Wildfire Rehabilitation Initiative, Organic Initiative, drought funding, and restoration funding---see the Oregon NRCS link for more information on those:

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/or/programs/financial/eqip/>

Anyone applying for EQIP or any of the other NRCS grants for the first time should schedule a meeting with NRCS to discuss their options before moving forward.

U.S. Department of Agriculture

Rural Development Water and Waste Disposal Direct Loans and Grants

Eligible Projects: Pre-construction and construction associated with building, repairing, or improving drinking water, solid waste facilities and wastewater facilities

Eligible Applicants:

- Cities or towns with fewer than 10,000 population
- Counties, special purpose districts, non-profit corporations or tribes unable to get funds from other sources at reasonable rates and terms

Funding Available: Loans (40-year term), grants in some cases, interest rates vary (currently 2.125 – 3.5%)

How To Apply: Applications accepted year-round on a fund-available basis.

<http://www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program>

U.S. Department of Commerce

Community Development Block Grant Planning Program

Region 10 HUD

Seattle Regional Office

Phone: (206) 220-5101

<http://portal.hud.gov/hudportal/HUD?src=/states/washington/offices>



http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs

Eligible Projects: Comprehensive plans, Infrastructure plans, Feasibility studies, Community action plans, Low-income housing assessments

Eligible Applicants: Projects must principally benefit low- to moderate-income people in non-entitlement cities and counties.

- Cities or towns with fewer than 50,000 people
- Counties with fewer than 200,000 people

Funding Available: Grants

- Up to \$24,000 for a single jurisdiction
- Up to \$35,000 for single jurisdiction projects that address urgent public health and safety needs
- Up to \$40,000 for multiple jurisdictions/joint application

How To Apply: <http://portal.hud.gov/hudportal/HUD?src=/states/washington/offices>

Rural Community Assistance Corporation (RCAC)

Environmental Programs

1020 S.W. Taylor Street Suite 450

Portland, OR 97205

Local contacts:

Chris Marko, Rural Development Specialist 503- 228-1780

RosAnna Noval, Rural Development Specialist 503-308-0207

Email: cmarko@rcac.org; rnoval@rcac.org

Website: www.rcac.org

At the national level, RCAC has a variety of loans for water and/or wastewater planning, environmental work, and other work to assist in developing an application for infrastructure improvements

Eligible Applicants: Non-profit organizations, public agencies, tribes, and low-income rural communities with a 50,000 population or less, or 10,000 or less if guaranteed by USDA Rural Development financing.

Funding Available:

- Maximum \$50,000 for feasibility loan
- Maximum \$350,000 for pre-development loan
- 1 year term
- 5.5% interest rate

How To Apply: Applications accepted anytime. www.rcac.org

National contact: Josh Griff, 720-951-2163, jgriff@rcac.org

Water Research Foundation - Source Water Protection Cost-Benefit Tool

This is a free, online suite of tools designed to assist in evaluating the triple bottom-line costs and benefits of different source water protection options. Cost/benefit calculations help evaluate, prioritize, justify, and ultimately implement source water protection initiatives.

<http://www.swptool.org/index.cfm>

Healthy Watersheds Consortium

The Healthy Watersheds Consortium Grant Program has just published a Request for Proposals (RFP) to support local projects that protect and sustain healthy watersheds (including drinking water sources). Through this program, EPA will provide approximately \$3.75 million over six years to the U.S. Endowment for Forestry and Communities for projects that develop and/or



support state, interstate, and tribal healthy watersheds programs and enhance collaboration among the many groups who benefit from protecting healthy watersheds such as drinking water utilities, hunters and fisherman, foresters and farmers, and more. The Endowment is also matching a portion of EPA's financial commitment to the partnership and expects to leverage additional funding from other public and private sources.

The goal of the Healthy Watersheds Consortium Grant Program is to accelerate strategic protection of healthy, freshwater ecosystems and their watersheds. This goal will be achieved by: Funding key projects identified in existing watershed protection or conservation plans; Building the sustainable organizational infrastructure, social support, and long-term funding commitments necessary to implement large-scale protection of healthy watersheds; and supporting innovative or catalytic projects that may accelerate or broadly advance the field of practice for watershed protection efforts. For more information and to view and download the RFP and other helpful documents, visit the website:

<http://usendowment.org/partnerships/hwcgrantprogram.html>

For questions, please contact Peter Stangel at peter@usendowment.org.

Ecotrust

<http://www.ecotrust.org/>

Ecotrust works to protect and restore watersheds and the economic and public health of the communities that depend upon them. Ecotrust develops and applies strategic approaches that improve habitat for native fish and wildlife, create local jobs and recreational opportunities, increase public awareness of the value of nature's services like water, and ensure a more reliable access to clean water for all members of the Oregon communities. Ecotrust provides Ecosystem Services, GIS Analysis, Mapping, Cartography, Data and Software Development, Economic Impact Assessment, etc.

Ecotrust Forest Management

<http://ecotrustforests.com>

Ecotrust Forest Management is a for-profit forestland investment management company that acquires and manages land on behalf of investors and forestland owners to enhance forest health and productivity, and to produce a diverse array of forest products and services including timber, biomass, carbon, and improved habitat and water quality. Where possible, our goal is to transition land to long-term, local, stewards of land like Tribes, Community Forests, Public or State Agencies etc. EFM is adept at using a wide array of financing sources— New Market Tax Credits, carbon credits, conservation easements, and restoration funding — to supplement private capital resources in the acquisition and management of forestland. Contact:

info@ecotrustforests.com

LAND TRUSTS

Resources to assist in locating a land trust can be found here:

<http://findalandtrust.org/states/oregon41>

Coalition of Oregon Land Trusts

The Coalition of Oregon Land Trusts (COLT) is a newly formed nonprofit representing and serving Oregon's land trusts. Its mission is to serve and strengthen the land trust community in Oregon. Oregon's land trust community is working at local, regional, and statewide scales with



landowners, communities, public agencies and other partners to maintain the state's natural heritage and the economies it supports. COLT will accomplish its mission by strengthening public policies and programs that are supportive of land conservation, helping to build capacity within and across land trusts, and communicating to key audiences about the role of land trusts in conserving Oregon's natural heritage and healthy human communities that depend on it. There are currently 18 land trusts that are members of COLT.

Coalition of Oregon Land Trusts

322 NW 5th, Suite 312 Portland, OR 97209

Phone: 503-719-4732 <http://oregonlandtrusts.org/>

Land Trust Alliance

The Land Trust Alliance is a national conservation organization that works preserve land through conservation and easements, so land and natural resources get protected. The Alliance is based in Washington, D.C., and has several regional offices.

Northwest Conservation Manager

1353 Officers Row Vancouver, WA 98661

Phone: (971) 202-1483 <http://www.landtrustalliance.org/>

Individual land trusts which may be of assistance include:

The Trust for Public Land

<http://www.tpl.org/services/conservation-transactions>

The Nature Conservancy

<http://www.nature.org/>

FOUNDATIONS

The Oregon Community Foundation / Community Grant Program

Eligible Projects: Community Livability, Environment & Citizen Engagement (*10 to 20 percent of grants*)

- Promote leadership development, volunteerism, immigrant integration, and civic participation
- Support stewardship and appreciation of Oregon's outdoor spaces and scenic beauty
- Address social, economic and environmental challenges or opportunities by bringing together disparate stakeholders
- Preserve places essential to communities' civic and historic identities

Eligible Applicants: nonprofits with tax-exempt status under Section 501(c)(3)

Funding Available: average grant is \$20,000

Contact: <http://www.oregoncf.org/grants-scholarships/grants/community-grants>

National Fish and Wildlife Foundation

Eligible Projects: Environmental Solutions for Communities (1:1 match required)

- Supporting sustainable agricultural practices and private lands stewardship;
- Conserving critical land and water resources and improving local water quality;



- Restoring and managing natural habitat, species and ecosystems that are important to community livelihoods;
- Facilitating investments in green infrastructure, renewable energy and energy efficiency; and
- Encouraging broad-based citizen and targeted youth participation in project implementation.

Eligible Applicants: non-profit 501(c) organizations, state government agencies, local governments, municipal governments, Indian tribes, educational institutions

Funding Available: grants range from \$25,000 to \$100,000

Contact: 202-595-2434 - Community-Based Conservation

Access Fund Foundation

Eligible Projects: land acquisitions; considering the management and financial resources of land ownership, the Access Fund views land acquisitions as a tool of last resort and have adopted the following guidelines for land acquisition projects. If you are requesting funds for a land acquisitions please call the Access Fund before submitting your application.

- The area must be imminently threatened with permanent closure or sale to an outside party that may consider land development opportunities or other uses threatening its climbing and/or access resources.
- The area can be acquired for a reasonable price (reasonable price being one that falls within existing market values and is not in excess of appraised value), together with a reasonable budget (including secured funding) or secured exit-strategy for management by another land trust, local climbers organization or governmental agency.
- A fully executed purchase agreement stating how the project will be funded is required before Access Fund grant funds will be allocated to any acquisition.
- A high degree of matching funds is required. The Access Fund's role in land acquisitions is as an additional, not primary, funding resource.
- Applicants whose projects require continued payments and/or financing should submit a plan describing how these payments will be met in the future. These include, but are not limited to, property tax payments, loan payments, lease and mortgage payments. This payment plan will be taken into consideration during the grant review process.

Eligible Applicants: Local climbing groups, individuals or organizations (Note: tax exempt 501(c)(3) status is not a pre-requisite); governmental agencies that wish to sponsor or organize a local project; conservation organizations and land trusts.

Funding Available: \$1,000 to \$4,000. (The Access Fund considers requests for over \$10,000, but these projects should have national significance and utilize a high degree of matching funds.)

Contact: <http://www.accessfund.org/>

The Collins Foundation

Eligible Projects: land acquisitions; grants are for projects that directly benefit the residents of Oregon

Eligible Applicants: nonprofits with tax-exempt status under Section 501(c)(3) / agencies that have current registration with the offices of the Oregon State Attorney General and the Secretary of State

Funding Available: varies; grants may range from \$3000 to \$150,000

Contact: www.collinsfoundation.org



Giles W. and Elise G. Mead Foundation

Eligible Projects: Preserving and improving the environment; primary emphasis forestry, fisheries and the sustainable use of natural resources in western North America

Eligible Applicants: nonprofits with tax-exempt status under Section 501(c)(3) in western North America

Funding Available: past grants ranged from \$15,000 to \$100,000

Contact: <http://www.gileswmeadfoundation.org/>

Rose E. Tucker Charitable Trust

Eligible Projects: giving limited to organizations and projects in Oregon, with emphasis on the metropolitan Portland area; land acquisition is eligible

Eligible Applicants: nonprofits with tax-exempt status under Section 501(c)(3)

Funding Available: past grants ranged from \$6,000 to \$150,000

How to Apply: apply anytime; board meets approximately every 2 months

Contact: Tuckertrust@stoel.com

Doris Duke Charitable Foundation

Eligible Projects: The foundation's grant-making is designed to provide frameworks and concrete examples of how practitioners can protect biodiversity in light of climate change through strategic land conservation. The program's adaptation efforts focus on three critical land conservation activities undertaken by non-profit organizations and government natural resource agencies:

- Habitat conservation planning (i.e., the identification of which sites should be conserved in their natural state to benefit wildlife);
- Permanent land protection (i.e., the acquisition of conservation easements or fee title to secure high priority sites); and C) Management of lands already in protected status. The goal for each of these activities is to encourage the conservation community to augment the dominant species-based approach to wildlife conservation with a focus on maintaining ecosystem functionality as climate change takes hold.
- The program has adopted three approaches to achieve its objectives: 1) Identifying resilient landscapes; 2) Protecting resilient landscapes; and 3) Managing conserved lands.

Eligible Applicants: nonprofits with tax-exempt status under Section 501(c)(3)

Funding Available: past grants ranged in the \$100K

Contact: <http://www.ddcf.org/what-we-fund/environment/>

Bonneville Environmental Foundation

Eligible Projects: renewable power and acquire, maintain, preserve, restore, protect, and/or sustain fish and wildlife habitat within the Pacific Northwest.

Interest area: Watershed Restoration Program---supports restoration of damaged watershed ecosystems; supports communities trying to heal their local watersheds by supporting watershed restoration projects grounded in the best available watershed science

Eligible Applicants: nonprofit organizations

Funding Available: varies

Contact: www.b-e-f.org



The Bullitt Foundation

Program priorities:

- Manage freshwater resources: control, use, distribution, conservation;
- Conserve and restore resilient watersheds, wetlands and estuaries;
- Maintain a working land base for sustainable agriculture and forestry;
- Enforce laws and policies intended to assure air and water quality;
- Create landowner incentives for maintaining and enhancing ecosystem services, including the development of market-based mechanisms.

Eligible Applicants: nonprofit organizations in Washington, Oregon, Idaho, western Montana, south-central Alaska, and British Columbia. Within that broad geographic range, work is targeted to specific sub-regions generally associated with major population centers.

Funding Available: varies---past grants ranged from \$10,000 to over \$600,000

Contact: <http://www.bullitt.org/>

Weyerhaeuser Foundation

Eligible Projects: forestry practices, manufacturing's effects on air, water and land; free trade, recycling, diversity, land conservation and environmental education; land acquisitions or conservation easement projects may fit with the Foundation's priorities and goals

Eligible Applicants: educational institutions, non-profit organizations, research institutions in Oregon and Washington

Funding Available: \$1,000 - \$50,000

Contact: <http://www.wfamilyfoundation.org/>

Laird Norton Foundation

Eligible Projects: projects contribute to a heightened awareness of the ecological, social and economic significance of water sources and watersheds. Preference will be given to projects which demonstrate innovative measures for protecting and restoring water resources and which involve local communities and/or regional institutions.

Eligible Applicants: nonprofit organizations working in Hood Canal (WA), Upper Deschutes (OR), and Rogue (OR) watersheds

Funding Available: varies; past grants ranged from \$10k to \$100k

Contact: <http://www.lairdnorton.org>





Appendix #5

Management Strategies for High Priority Potential Sources of Pollutants Identified in Rockaway Beach WD's Groundwater Drinking Water Source Area

Contact Drinking Water Protection Staff with questions or for assistance with any potential sources of contamination not identified in this document.

Source of Info or Regulatory Database Identifier (DB_ID)	Potential Pollutant Type	Potential Impact	Recommended Management Measures and Fact Sheets/Resources
Primary Land Ownership/Use Private Non-Industrial/Urban Lands that have urban residential and/or rural residential development	All Residential	Spills, leaks, or improper handling of chemicals, fuels, wastewater, and other materials may impact drinking water. Infiltration containing pesticides or fertilizers may impact drinking water.	<input type="checkbox"/> Contact residents (see DEQ Website for example letter) and provide them information on their location within your Drinking Water Source Area. Send relevant fact sheets and web resources from list below. Fact Sheets/Resources *DEQ DWP website for Residential Land Uses: http://www.deq.state.or.us/wq/dwp/residential.htm Groundwater Basics: http://www.deq.state.or.us/wq/pubs/factsheets/drinkingwater/GroundwaterBasics.pdf *Protecting Oregon's Groundwater from Contamination: http://groundwater.orst.edu/groundwater/ Healthy Lawn, Healthy Environment: https://www.epa.gov/sites/production/files/2014-04/documents/healthy_lawn_healthy_environment.pdf *What is Household Hazardous Waste?: http://www.deq.state.or.us/lq/pubs/docs/sw/hhw/WhatIsHHW.pdf *Household Hazardous Waste Program: http://www.deq.state.or.us/lq/sw/hhw/index.htm *Household Pharmaceutical Waste Disposal: http://www.deq.state.or.us/lq/pubs/factsheets/sw/HouseholdPharmaceuticalWasteDisposal.pdf Additional measures may include: <input type="checkbox"/> Ongoing education program on household hazardous waste and proper disposal of pharmaceuticals, lawn and landscaping, septic system maintenance.
Regulatory Database Results Domestic Wastewater and Water quality permit Layers or Local Knowledge:	Sewer Lines - Close Proximity to well or spring	If not properly designed, installed, and maintained, sewer lines can impact drinking water, especially adjacent to a waterbody or within the 2-year time-of-travel zone for drinking water wells.	<input type="checkbox"/> Contact jurisdiction for sewer/wastewater management and determine status of sewer lines and sewer plan <input type="checkbox"/> Identify broken or cracked lines, areas with inflow and infiltration. <input type="checkbox"/> Plan for or complete replacement/repair or double sleeve of sewer lines within 2-year TOT or within Zone 1 for springs. <input type="checkbox"/> Identify upgrade or replacement of lines as a high priority within City Sewer Master Plan. Include timeline.

Regulatory Database Results: Transportation – Interstates/Highways and Railroad selections	All transportation and ROW related PCSs (Highway, high use roads, railroad, transmission lines)	Vehicle use increases risk for fuel and other chemical leaks, spills and emissions affecting drinking water. Over-application or improper handling of pesticides or fertilizers may impact drinking water supply. Construction and maintenance of roadways and corridors may contribute to increased erosion and turbidity in drinking water.	<ul style="list-style-type: none"> <input type="checkbox"/> Notify the owner (City, County, ODOT, railroad, transmission line, etc) and local first responders of your Drinking Water Source Area location. 'OR Emergency Response Program Local Emergency Managers List: https://www.oregon.gov/OMD/OEM/docs/plan_train/locals_list.pdf <input type="checkbox"/> Request elimination or minimization of herbicide application on right-of-ways that may contaminate groundwater. If appropriate, send *Managing Small-Scale Application of Pesticides to Prevent Contamination of Drinking Water http://www.deq.state.or.us/wq/dwp/docs/EPA/EPASWPPPracticesBulletin_PesticidesLargeScale.pdf <input type="checkbox"/> Identify if stormwater injection wells are present. If they are present, verify the permit status by contacting the Oregon DEQ's Water Quality staff at (503) 229-5945. <input type="checkbox"/> Send info on drinking water protection for shallow injection well owners and operators: http://www.deq.state.or.us/wq/pubs/factsheets/uic/shallowinjwell.pdf <p>Additional recommendations:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Encourage proper use or elimination of any dry wells or sumps in your wellhead protection area. <input type="checkbox"/> Ask transportation officials to examine spill/runoff detention capacity to avoid contaminants entering the groundwater after an accident. Transportation and handling of fuels and chemicals in bulk Website: http://groundwater.orst.edu/protect/transport.html <input type="checkbox"/> Ask for notification of water system in case of spills <input type="checkbox"/> Reroute transport of hazardous materials <input type="checkbox"/> Water system assumes responsibility of non-chemical weed control.
Regulatory Database Results: UIC Status1 Field = Onsite System Or Water Quality permits Status = WPCF and Domestic	Large Capacity Septic Systems (serves > 20 people) - Class V UICs	If not properly sited, designed, installed, and maintained, septic systems can impact drinking water.	<ul style="list-style-type: none"> <input type="checkbox"/> In addition to general Residential/Municipal Fact Sheets, send: *Managing Septic Systems to Prevent Contamination of Drinking Water http://www.deq.state.or.us/wq/dwp/docs/EPA/EPASWPPPracticesBulletin_SepticSystems.pdf <input type="checkbox"/> Verify UIC registration and on-site permit with DEQ. <input type="checkbox"/> Get notification from DEQ on permit modifications <input type="checkbox"/> Upgrade septic systems and establish an ongoing septic system maintenance program. <p>DEQ On-site permitting: http://www.deq.state.or.us/wq/onsite/onsite.htm</p> <ul style="list-style-type: none"> <input type="checkbox"/> If applicable, ongoing education program for residents or businesses on household hazardous waste and proper disposal of pharmaceuticals. Household Hazardous Waste Program: http://www.deq.state.or.us/lq/sw/hhw/index.htm <p>Household Pharmaceutical Waste Disposal: http://www.deq.state.or.us/lq/pubs/factsheets/sw/HouseholdPharmaceuticalWasteDisposal.pdf</p>

APPENDIX B

Public Outreach Examples

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PRESS RELEASE

FOR IMMEDIATE RELEASE
August XX, 2024

Contact:
Suzanne de Szoeker
GSI Water Solutions, Inc.
sdeszoeker@gsiws.com
541-257-9006

Rockaway Beach Seeks Community Input on Sourcewater Protection Plan

ROCKAWAY BEACH, Oregon – On September 12, the City of Rockaway Beach will host a town hall to discuss a draft Sourcewater Protection Plan focused on the Jetty Creek watershed. The hybrid meeting will be held from 5:30 pm to 7:00 pm at City Hall (276 US-101 - Civic Facility, Rockaway Beach, OR) and virtually via Zoom.

The City of Rockaway Beach seeks community input on the draft Sourcewater Protection Plan, which will help inform the City's source water protection efforts in the Jetty Creek watershed, the City's primary drinking water source. The town hall will include an overview of the plan development process, and a discussion of risks to drinking water sources identified and prioritized thus far. There will be a timed public comment section at the beginning of the meeting, in addition to opportunities for community members to ask questions and share feedback at the end. Those unable to attend will be able to view a recording of the town hall and submit comments and questions afterwards.

The planning process has been made possible by a grant from the Oregon Health Authority. The City Council established the Sourcewater Protection Plan Development Advisory Committee (SPPDAC) to provide reviews and community input during the development of the Plan. Additionally, the City has engaged a Sourcewater Protection Team consisting of local stakeholders and technical experts to guide development of the Plan. This will be the first of two town halls for community members to provide input on the Plan.

To read the draft risks prioritization document, join the Zoom meeting, or view the meeting recording, please visit the [City's SPPDAC webpage](#).

###

CITY OF ROCKAWAY BEACH SOURCE WATER PROTECTION PLAN TOWN HALL

Community Input Needed

Please join us for a town hall on March 18 to learn about the City's Draft Source Water Protection Plan for the Jetty Creek watershed and provide feedback on the Draft Plan. Community engagement is an essential part of source water protection planning.

Date and Time:

Tuesday, March 18 | 6:00–7:30 PM

Location:

City Hall (276 Hwy. 101 S.,
Rockaway Beach, OR)

To Attend Virtually:



Visit the City's
Sourcewater Protection
Plan Development
Advisory Committee
(SPPDAC) webpage.

TOWN HALL WILL INCLUDE:

- **Overview** of the Source Water Protection Plan development process
- **Discussion** of elements of the draft Plan, including:
 - Risks to the City's primary drinking source, the Jetty Creek Watershed
 - Strategies to address the risks
 - Plan to implement the strategies
- **Time** for public comments and questions.

For information, please contact:

Suzanne de Szoeki at sdeszoeki@gsiws.com or 541-257-9006
<https://corb.us/advisory-committees/>



UPCOMING TOWN HALL

**We invite you to a Town Hall about the draft
Source Water Protection Plan for the Jetty Creek
Watershed. We want your feedback!**

WHEN: Tuesday, March 18, 6:00-7:30 PM

WHERE: City Hall (276 Hwy. 101 S., Rockaway Beach, OR)

TO ATTEND VIRTUALLY: <https://corb.us/advisory-committees/>

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APPENDIX C

Resources for Community Water System Operators

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OREGON DEPARTMENT OF EMERGENCY MANAGEMENT

Local Water Supply Emergency Planning Guidance

Feb. 2, 2023

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Purpose

This guidance identifies potential solutions when anticipating or experiencing sustained drought causing localized or widespread drinking, sanitation and household water supply shortages. When responding to any emergency, the first step is to follow your local emergency operations plan to ensure appropriate entities are engaged.

Planning Assumptions

- Drought is a normal, recurring feature of climate and occurs almost everywhere, although its features vary from region to region and defining it can be difficult.
- Changes in the timing of streamflow related to changing snowmelt have been observed and are likely to continue, reducing the supply of water for many competing demands and causing widespread ecological and socioeconomic consequences.
- Prolonged periods of reduced precipitation contribute to water supply deficits that can increase the time it takes for water supplies to recover.
- Sustained high temperatures increase demand on water supply systems and stress within the natural environment.
- Drought is a slowly developing – and often long-lasting – disaster with cumulative impacts, making consistent early monitoring and detection critical. Drought can have adverse effects on agriculture, community water supplies, industry, fish and wildlife, recreation, and other uses of water to support communities and individuals.
- During a drought, local and tribal jurisdictions will consider all water management tools available and routinely consult with drinking water suppliers within the region.
- Local jurisdictions have initial responsibility for providing emergency drinking water supplies.
- When local resources have been exhausted, assistance may be provided by state agencies.

Understanding ORS 536 and ORS 401 Emergency Declarations

Drought declarations under Oregon Revised Statute (ORS) 536 and emergency declarations under ORS 401 allow for different types of state assistance. Drought declarations provide water rights holders with temporary, short-term methods of accessing water resources or putting water to beneficial use. Emergency declarations enable emergency resource procurement and allocation when the lack of water supply resources threatens health and safety. This section supports local and tribal emergency managers in accessing the most appropriate state assistance associated with drought conditions and water supply emergencies.

In most instances, an ORS 536 drought declaration should occur before an ORS 401 emergency declaration to conserve limited state resources. In some cases, especially when it's anticipated that drought conditions may occur statewide, the governor may issue concurrent drought and emergency declarations. When this occurs, it's to facilitate proactive emergency planning and resource coordination to address anticipated water supply shortages.

ORS 536 Drought Declaration

Counties and tribes can declare a drought emergency and petition the governor to declare a state drought emergency under ORS 536. Oregon Water Resources Department (OWRD) offers water users (e.g., farmers, ranchers, cities, industry) additional water rights tools to address supply shortages. An ORS 536 drought

declaration is not intended to address life safety impacts. An ORS 536 drought declaration makes available the following emergency tools and powers: temporary emergency water use permits, temporary transfers, temporary instream leases, temporary substitutions, special option agreements, human consumption or stock water use preferences, and water conservation or curtailment. Download the OWRD [State Drought Declaration Process and Emergency Tools](#) document for more information.

ORS 401 Water Supply Emergency Declaration

When a drought causes water supply shortages that affect life safety within local or tribal jurisdictions, then a state of emergency should be declared under ORS 401. Local, tribal and county emergency declarations allow emergency actions at the local level to meet immediate needs. This often means procurement process requirements may be eased. Local, tribal and county governments should use every means available, including mutual aid, to prevent loss of life and interruption of essential services. When a county or tribe has exhausted local and regional resources, it may request state assistance through the Oregon Department of Emergency Management (OEM).

The state will not provide direct financial support under an ORS 401 declaration. The level of state assistance will be determined by the extent of the threat to life safety, resources available, statewide priority and type of assistance requested. All requests are reviewed by OEM and assigned to one or more state partners for fulfillment. The state will respond within its capabilities and request interstate or federal government support, if necessary. Resources may include technical assistance, equipment, personnel, facilities, communications or coordination.

Planning Checklist

Drought impacts many sectors. The focus of this section is on water supply shortages that pose life safety issues by jeopardizing water for drinking, sanitation and other household purposes.

Preparing for Drought and Water Shortages

1. Understand and define drought impacts.

- Identify affected water sources and assess the severity of the effects.
- Identify public water systems vulnerable to reductions in supply, see [Appendix A: Resources for Community Water System Operators](#).
- Engage with vulnerable local water systems to track changes in water supply over time and forecast expected rates of change.
- Identify other factors contributing to water supply shortages (e.g., damaged or leaking pipes, improperly constructed wells, collapsed well casings, inadequate storage) and determine timelines for resolving issues.
- Identify the number of households that use domestic wells.
- Engage with the local [watermaster](#) to understand regional water supply impacts.
- Consider the effects of severe weather. Hot, dry days can cause an increase in plant evapotranspiration and open container evaporation, which may reduce surface water flows as well as soil moisture.
- Identify the total number of people potentially affected. This information will drive many planning assumptions since an individual needs about 1 gallon of water per day to survive. The average American domestic water user uses about 80-100 gallons per day for normal household indoor activities.

2. Review existing plans.

- Review existing county or tribal emergency operations plans and address potential planning gaps.
- Identify water providers' existing plans for addressing water shortages:
 - Water management and conservation plan (WMCP).
 - Emergency response plan.
 - Drought contingency plan.
 - Hazard mitigation plan.
 - Water curtailment plan.

3. Organize a collaborative local response planning team.

- Include members who have local knowledge and technical expertise, represent multiple disciplines and are focused on solutions.
- Involve the whole community, including government, community-based organizations, nonprofit organizations, private sector businesses, organizations and agencies from other sectors, people with disabilities, individuals with access and functional needs, infants, children and older adults.
- Some recommended members include but are not limited to:
 - County commissioners.
 - Water system operators (both drinking water and wastewater facilities).
 - Local drinking water regulators.
 - Local OWRD watermaster.
 - Fire departments.
 - Tribal representatives.

- OEM preparedness and response and mitigation and recovery regional coordinators.
- Oregon Department of Human Services (ODHS) regional coordinators.
- Oregon Water/Wastewater Agency Response Network (ORWARN).
- Local community emergency response organizations (i.e., CERT) and faith-based organizations that can mobilize volunteers.
- Water-related planning groups.
- Local public information officers.

4. Develop a jurisdictional communication plan for drought and water shortages.

- Pre-identify available public information officer resources that may be activated during a response.
- Develop accessible public education materials (translated and in formats accessible to individuals with access and functional needs).
 - Water shortages impacting community water systems:
 - Strategies for conserving water that system users can take to maximize water.
 - Role of the community when water conservation or curtailment measures are implemented.
 - Ways that community members can get involved with helping.
 - Actions that community members should take when a water shortage occurs.
 - Domestic dry wells:
 - How to maintain your well, indicators a well may be going dry, and when and where to report a dry well.
 - Strategies for conserving water that household residents can take to maximize water (the Oregon State University Well Water Program has educational materials and is willing to be a resource to aid in developing additional resources. Contact the program at well.water@oregonstate.edu).
 - Ways that community members can help (e.g., what to donate and where or how to volunteer).

5. Prioritize local water needs.

Identify critical facility needs.

- Critical facilities in your community may have significant water needs, such as hospitals, long-term care facilities, food processing plants, public safety facilities, and wastewater treatment and processing facilities.

Consider water needs for agriculture.

- Water for agricultural production and processing typically is not prioritized as highly as health and safety considerations during an emergency.
- Lack of water to support agricultural production and processing poses potential impacts on local economies and supply chain management.
- Loss of livestock because of extended water shortages can become a secondary public health concern, as higher temperatures will increase decomposition rates and create additional health and safety concerns. As such, carcasses must be disposed of quickly using accepted disposal methods.

Consider water availability for firefighting.

- A major fire event concurrent with a significant drought can pose a special risk should water for fire suppression become unavailable due to reduced supply.

- Coordination among emergency managers and local, state and federal firefighting resources is vital for ensuring sufficient water supply to conduct effective fire suppression without causing sudden drinking water supply depletion.

Consider economic impacts.

- Disruption of water availability can result in economic hardships for individuals and businesses.
- Identify businesses at risk of closing if water shortages cannot be remedied.
- Determine if economic impacts will affect the operations of critical facilities, such as hospitals.

6. Identify resources for domestic personal wells.

- Pre-identify the organizations or groups that may test and provide verification a well is dry due to drought vs. non-operational due to mechanical or maintenance issues (e.g., licensed well driller or pump installer, public works officials or volunteers specifically trained in performing verification).
- Evaluate and pre-identify local resources available to assist potential personal well owners with:
 - Deepening or replacing an existing well.
 - Sources for temporary potable water.
 - Testing water levels in wells to verify well is dry vs. non-operational due to mechanical or maintenance issues.
 - Providing temporary potable water storage (e.g., water tanks).
 - Transporting potable water to household water storage tanks.
 - Plumbing temporary water storage tanks into homes.
- Review local or tribal codes and ordinances to determine if there are any waivers or permits required for connecting temporary water storage tanks to preexisting plumbing.
- Specific areas have wells that go dry annually and have adapted to such occurrences. Solutions may be readily available without engaging in an emergency response.
- Consult OWRD's dry well [handout](#) to troubleshoot issues with drying water wells.
- Pre-identify strategies to solicit, accept, store and disburse bottled water donations.
- See [Appendix B: Dry Domestic Personal Wells](#) for additional information about household responsibilities and resources.

7. Understand state and federal regulations.

- When identifying potential response strategies, engage with state and federal regulators for technical expertise and to ensure compliance with state requirements.
- Oregon Health Authority (OHA) Drinking Water Services regulates the safety of public water supply systems.
- OWRD regulates the use of surface water and groundwater.
- Oregon Department of Environmental Quality (DEQ) regulates wastewater sanitation and management.

8. Identify strategies and document local capabilities to respond to drought.

- Talk to local and regional partners that can deliver mutual aid, such as ORWARN or local fire departments.
- The local OWRD watermaster can assist in identifying alternatives, such as other public water systems or private wells, and should be contacted to ensure emergency supplies are obtained legally.

- Talk to local businesses to identify what resources or capabilities they may be able to provide.
 - Examples of resources include water trucks, commercial water hauling companies, water tanks for short-term storage, water point of distribution equipment (e.g., trailers, manifolds) and bottled water distributors.
- Consider non-traditional solutions and partnerships. Be creative within regulatory guidelines.

Remember the following when identifying potential response strategies:

- What are the costs associated with implementing each identified strategy and who is responsible for these costs?
- How long can the identified strategy be sustained?
- For any strategy that's implemented, what are the thresholds for demobilizing?

9. Identify thresholds for local response.

- Set clear, data-driven thresholds and associated actions (e.g., if stream flow drops below 300 gallons per minute, then implement curtailment measures restricting outdoor water use).

Responding to Drought and Water Shortages

During the preparedness phase, counties should identify thresholds indicating when a drought emergency is imminent, and action is required. When those thresholds are met, counties should implement their plan and include the following actions:

1. Convene the drought response planning team.

2. Declare a local drought emergency.

- The county governing body, through ordinance or resolution, should declare a local drought emergency for its jurisdiction. In its resolution, the governing body should identify local actions that should be taken and indicate if state assistance is needed.
- Under most circumstances, jurisdictions should initially request an ORS 536 drought declaration to receive assistance to address water supply shortages before requesting an ORS 401 emergency declaration to address life safety impacts. The local OEM preparedness and response coordinator is available to provide technical assistance on the appropriate declaration.
- Additional details about state assistance provided under ORS 536 and ORS 401 are available in the Understanding ORS 536 and ORS 401 Emergency Declarations section.
- See [Appendix C: Sample County Drought Declaration Resolution](#) for a sample ORS 536 declaration.
- When requesting a drought declaration from the governor, refer to the Guidance Memo and Template document on the OWRD [Governor Drought Declaration Process](#) page for a template letter.

3. Communicate with the public.

- Implement a jurisdictional communications plan and consider the following:
 - Be consistent in the type and frequency of information communicated.
 - Clearly communicate the situation and appropriate preparedness actions through media outlets, government websites, social media and other public information distribution methods.
 - Directly and promptly address rumors that can have detrimental effects on public confidence, morale and sense of security.

4. Reduce Demand.

- Encourage water conservation. OWRD maintains water conservation [resources](#).
- For public water systems, enforce curtailment of non-essential water uses per existing curtailment plans.
- For private domestic uses, make recommendations about curtailing lawn watering, car washing, and other non-essential activities that require water when surface water or wells are going dry.

5. Initiate local strategies to provide emergency water.

6. If life safety needs for water exceed local capability, request state support.

- Emergency managers can request state support for responding to water supply shortages through the Oregon Emergency Operations Portal (i.e., Ops Center).
- Ensure the request clearly explains the problem to be resolved, the support provided through local resources and how needs exceed the capabilities of the local jurisdictions.

Best Practices for Responding to an Emergency

Communicate early and often.

- Communication with stakeholders, community leaders, organizations and the public will provide the foundation to build partnerships when involvement and support become critical.
- Public trust and confidence in local government will help reinforce difficult water use restrictions that may be required, as well as provide reassurance that issues are being addressed and response efforts are underway.
- Open and honest communication will minimize adverse public opinion, counterproductive interference, panic, rumors and false claims.
- Clearly communicate the impacts of drought.
- Release clear guidance regarding water conservation and curtailment measures for the public.
- Clearly outline how curtailment measures will be enforced and any penalties associated with violations.

Consider immediate and long-range issues.

- Response to the immediate effects of drought and threats to public safety will lead to a review of existing water supply capabilities. A review could include system reliability, storage capacity, pipeline and pumping requirements, requirements for future flow demands, potential intertie considerations, and funding opportunities for expansion and maintenance.
- Recovery from a sustained drought and corresponding water supply emergency will require long-term planning to ensure the continuation of reliable and sustainable drinking water sources and associated treatment and distribution systems to offset future water shortage impacts.

Leverage volunteer services.

- Some aspects of water supply emergencies depend on human resources to be effective. Identify volunteers from established volunteer organizations, local government staff or community solicitations for assistance.
- Volunteers may be able to assist by:
 - Providing or supplementing staffing at water supply community points of distribution (CPODs).
 - Passing out water bottles at CPODs.
 - Transporting drinking water tanks and containers to central locations or individual users.
 - Assisting with conducting safety checks of vulnerable populations.
 - Moving supplies to and from warehouses for further distribution.
 - Passing out official information on water supply resilience.
 - Documenting response activities for emergency efforts.

Identify the impact on vulnerable populations.

- Identifying who may be vulnerable to water supply emergencies within affected areas will require careful consideration of matters of privacy. Examples of vulnerable populations may include people with pre-existing medical or health conditions, very young individuals and senior populations.
- People who already may be faced with water supply limitations are especially at risk during prolonged droughts.
- Vulnerability may be enhanced because of limited mobility, access to transportation, remoteness or financial hardship.

- Local organizations and neighborhood associations may be able to assist in defining populations of vulnerability.
- Identify organizations like the Disability Emergency Management Advisory Committee (DEMAC) to assist vulnerable populations.

Embed diversity and inclusion into planning and decision-making.

- Ensure public messaging and outreach are as inclusive as possible, being mindful that some segments of an affected community traditionally may be underserved during emergencies.
- Remembering that emergencies transcend both physical and human boundaries will ensure diversity and inclusion are elements of the local water supply emergency response.
- Inclusion of community groups, organizations and cultural representations, as well as those with non-English language proficiency, will ensure all population segments are represented.

Special Considerations

Community Points of Distribution (CPODs)

- CPODs are sites where the public can access life-sustaining emergency relief supplies during or after a disaster.
- The logistics associated with the implementation of CPODs for centralized water delivery in affected neighborhoods require planning and preparation to achieve success and maximum coverage.
- Available data about where systems have or are about to fail because of water shortages will help identify the most effective sites for CPODs, including water delivery resources, staff needed and available, hours of operation, security, public outreach, traffic control and other factors.
- Understand sanitation regulations and cleaning processes for ensuring potable water.
- Consider using convenient sanitary containers, such as water bags.
- Set up sanitation stations to clean water containers before they're filled.
- Check with the local OWRD watermaster to ensure the source of water complies with Oregon Water Law.
- Ensure all water intended to be used for drinking is safe for use.

Water Hauling

- Ensure all potable water hauling meets the OHA Drinking Water Services [Hauling Guidelines](#).
- Ensure water tenders are operated by appropriately qualified operators.
- Water tenders should be flushed and sanitized regularly to ensure water potability.
- Check with the local OWRD watermaster to ensure the source of water complies with Oregon Water Law.

Appendix A: Resources for Community Water System Operators

The following are resources that jurisdictions can share with community water system operators.

Organization or Agency	Resource	Details
Oregon Department of Environmental Quality	Clean Water State Revolving Fund	Assists public agencies with low-interest loans for water infrastructure projects.
Oregon Health Authority	Drinking Water State Revolving Fund	Provides low-cost loans to community and nonprofit non-community water systems for planning, design and construction of drinking water infrastructure improvements.
Oregon Health Authority	Drinking Water Services Circuit Rider Program	Circuit Riders provide short-term (typically 10 hours or less) on-site technical and engineering assistance for community water systems serving populations under 10,000, as well as nonprofit transient and non-transient water systems. For these systems, services are free.
USDA Rural Development – Oregon Program	Emergency Community Water Assistance Grants	Helps eligible communities prepare, or recover from, an emergency that threatens the availability of safe, reliable drinking water.
Oregon Association of Water Utilities	Training and on-site assistance for water utilities	Helps provide training, resources and on-site technical assistance for water systems.

Appendix B: Dry Domestic Personal Wells

During drought, increased groundwater pumping coupled with reduced recharge can impact domestic personal wells and result in low water yields. Chronic drought is becoming more common across Oregon lowering available groundwater and causing domestic personal wells to go dry.

Responsibilities of Households

Users of domestic personal wells should be informed about their wells. The following are resources to educate domestic well users about maintaining their domestic wells:

- Oregon State University [Well Water Program](#).
- Oregon Health Authority [Domestic Well Safety Program](#).
- National Environmental Health Association [Private Well Class](#).

When households find that their well output is decreasing, residents should start water conservation efforts and contact a licensed well driller or pump installer to verify the cause. Decreased output of water from a well may be due to drought or a maintenance issue. Households should work with a licensed well driller or pump installer to identify a solution. When water output from a well drops significantly or a well becomes dry, report the dry well to the Oregon Water Resources Department using its [Dry Well Reporting form](#).

The following are resources that jurisdictions can share with households experiencing dry domestic personal wells.

Organization or Agency	Resource	Details
Oregon Water Resources Department	Water Well Abandonment, Repair, and Replacement Fund (WARRF)	WARRF provides financial assistance to individual households or members of a federally recognized tribe in Oregon to permanently abandon, repair or replace a water well used for household purposes.
Rural Community Assistance Corporation	Household Water Well & Septic System Loan/Grant Programs	Provides loans and grants for wells and septic tanks for households in rural communities with income of \$31,713 or less.
Rural Community Assistance Corporation	Environmental Infrastructure Loans	<p>Provides early funds small rural communities need to determine project feasibility and pay pre-development costs prior to receiving state and federal funding.</p> <p>Projects must be in rural areas with populations of 50,000 or less in RCAC's service region.</p>
USDA Rural Development – Oregon Program	Rural Decentralized Water Systems Grant in Oregon	Helps qualified nonprofits and tribes create a revolving loan fund to increase access to clean, reliable water and septic systems for households in eligible rural areas.

Appendix C: Sample County Drought Declaration Resolution

ORS 536 Sample Declaration

IN THE MATTER OF DECLARING)
A STATE OF DROUGHT EMERGENCY) RESOLUTION #2022-03
IN HARNEY COUNTY)

THIS BEING the 16th Day of March, 2022 and a day set aside for a regular meeting of the Harney County Court and there being present Pete Runnels, County Judge; Kristen Shelman, County Commissioner and Patty Dorroh, County Commissioner; and

WHEREAS, information has been provided to the Harney County Court that a drought is occurring in Harney County and that protective actions may be or are required to protect the citizens of Harney County;

WHEREAS, the U.S. Secretary of Agriculture has designated Harney County as a contiguous disaster county due to drought, enabling producers in the County eligible for emergency aid, with a moderate drought monitor condition;

WHEREAS, the National Drought Mitigation Center has listed a large portion of Harney County as "Extreme Drought" with smaller portions listed as "Severe Drought" as of February 17, 2022.

WHEREAS, unless weather conditions improve substantially to above normal conditions, water users who rely on stored water will have a shortened water use season, and depending upon the priority date of their water right, water users who rely on stream flows will have substantially less water available and a shortened water use season;

WHEREAS, the above conditions will result in severe economic hardship to Harney County, including shortages of livestock forage, loss of agricultural interests, and increased chance of wildfire;

NOW, THEREFORE, BE IT RESOLVED that:

1. A state of emergency exists in Harney County due to drought conditions.
2. The Harney County Drought Emergency Management Plan has been implemented
3. Due to the state of emergency, the Harney County Court does hereby request and entreat the Honorable Kate Brown, Governor of the State of Oregon, to:
 - A. Declare a "State of Emergency," a drought, to exist in all of Harney County, Oregon under ORS 536; due to severe and continuing drought conditions beginning at this time and continuing for an unknown period of time; and Direct the Oregon Water Resources Department to provide all available means of assistance to Harney County agricultural producers; Temporary Transfers of

Water Rights, Emergency Water Use Permits, and Use of Existing Option/Agreement; and other federal and state drought assistance programs as needed.

- B. Direct Office of Emergency Management to coordinate and assist as needed, to address current and projected conditions in Harney County.
- C. Direct all other state agencies to coordinate with the above agencies and to provide appropriate state resources as determined necessary to assist those affected in Harney County.

DONE AND DATED this 16th day of March 2022.

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