November 16, 2026

Theresa Burcsu
DEQ's Northwest Region Water Quality Manager
700 NE Multnomah St.,Suite 600
Portland, OR 97232

RE: Oak Lodge Water Services 2025-2026 Annual TMDL Report

Dear Ms. Burcsu:

I am pleased to submit the 2025-2026 Total Maximum Daily Load (TMDL) Annual Report for Oak Lodge Water Services (OLWS). This report summarizes progress that OLWS has made to address nonpoint source pollutants in the Willamette Basin required by our Designated Management Agency (DMA) assignment under the TMDL. Point sources pollution, which includes some of the same pollutants as those assigned under the TMDL, are also addressed separately under NPDES permits issued to OLWS.

On October 14, 2026, Oak Lodge Water Services submitted its updated TMDL Implementation Plan. This year's Annual Report highlights projects and programs that address the IP goals that were previously approved.

The attached report (Attachment A) is based on the previously approved plan, and no modifications to the existing plan are currently being proposed.

If you have any questions regarding this report, please contact me at (503) 353-4212.

Sincerely,

Aaron Janicke

Aaron Janicke, PE
Public Works Director/ District Engineer
Oak Lodge Water Services

Oak Lodge Water Services

Total Maximum Daily Load (TMDL) Implementation Plan Annual Status Report

Fiscal Year 2026

(July 1, 2025 - June 30, 2026)

Submitted to:

Oregon Department of Environmental Quality

December 1, 2026

OAK LODGE
WATER SERVICES

The following report addresses specific comments made to Oak Lodge Water Services in DEQ's letter dated August 29, 2025:

> *"This approved updated Plan contains sufficient actions and policies for reducing TMDL pollutants into surface waters within the jurisdiction of OLWS. OLWS has also made sufficient progress in implementing its Plan over the last four* years.
>
> *OLWS must report on Plan implementation to document restoration and protection of water quality in the Willamette Basin. To adequately fulfill reporting and implementation requirements OLWS must conduct the following actions:*
> 1. *Implement the best management practices proposed in the Plan.*
> 2. *Submit all changes to the Plan to DEQ for approval prior to implementing those changes.*
> 3. *Monitor, document, and report on* progress *in implementing the Plan:*
>   a. *Submit TMDL annual reports to DEQ by Dec. 1 each year. Reports should cover the previous 12 months of implementation for July 1 through June 30.*
>   b. *Each report must contain sufficient information to enable DEQ to* assess *reporting metrics, measurable goals, compliance with the provisions of the Plan, progress, delays, and challenges towards meeting TMDL load a/locations."*

The OLWS TMDL Implementation Plan focuses on several pathways to limit the introduction of target pollutants into local waterways. Since all local waterways flow through majority private lands, OLWS takes the tact of working with non-profits and with Clackamas County to implement partnership programs and shared capital projects. These programs and projects address TMDL water quality goals through a variety of strategies.

Examples of partnerships for overall TMDL pollution reduction goals

To address priority pollutants including temperature, mercury, and bacteria, OLWS provides program support to local non-profits active in pollution reduction programs such as the North Clackamas Watersheds Council (NCWC), the Bird Alliance of Oregon & Columbia Land Trust, and the Pacific Northwest Pollution Prevention Resource Center (PNWPPRC).

NCWC- OLWS provides ongoing support to the local watershed council, whose Streamside Stewards Program (SSP) educates and supports partner-stewards to restore properties that are being maintained to promote shade and reduce temperature. The SSP continues revegetating 52 sites in OLWS. Of the total number of sites, 22 sites are in the "maintenance mode" as plants grow to maturity while 27 sites are in active or intensive maintenance.

BHCP- OLWS continues to support the Backyard Habitat Certification Program (BHCP), which is a partnership program of the Bird Alliance of Oregon and Columbia Land Trust. Through partnering with individual landowners on yard plantings, restoration, and enhancement, BHCP adds shade to both streams and household yards and works to restore native wildlife habitats. There are five program elements: removal of aggressive weeds, nature scaping with native plants, pesticides reduction, stormwater management and wildlife stewardship. This program is a multi-pronged approach to improving not only shade quantity (supporting the temperature TMDL goals) but also for educating our public about healthy maintenance of the local environment. In 2025-26 in the OLWS service area, BHCP visited 12 properties and 8 were certified.

PNWPPRS- Housed in the Pacific Northwest Pollution Prevention Resource Center (PNWPPRC), EcoBiz offers technical assistance and outreach to automotive businesses in OLWS. EcoBiz is a voluntary, third party verified certification for businesses and public agencies that reach high standards in environmental protection. To become certified, participants must demonstrate industry best management practices to reduce and prevent air, water, and hazardous waste pollution. In the last few years, PPRC rolled out a pollution prevention Best Management Practices (BMP) video series that included a Wash water video. Keeping wash water out of local streams helps reduce pollution like bacteria and mercury.

Over the course of FY2025-2026, EcoBiz surveyed 29 automotive businesses to help determine awareness of and personal connection to wash water quality and flow. Ten responses provided information on the use of wash bays and knowledge of where the water from storm drains flows. The survey will provide information for Eco Biz to tailor outreach and follow up actions for the automotive businesses.

Examples of temperature, bacteria, and mercury reduction projects

OLWS continues partnering with NCWC on local temperature reduction and stream shading projects. NCWC's most recent Watershed Action Plan helped to prioritize the restoration of the Boardman Creek confluence, which is identified as potential cold water refugia in the lower Willamette. The goal for all of the OLWS sub-watersheds is enhanced habitat for the headwaters of tributaries and support for increased cold water refugia. Along with the "stream shading" map, we have attached the Watershed Action Plan Executive Summary to this annual report to show examples of projects that OLWS continues to support in protection

of our waterways (see Attachment C).

OLWS and NCWC continue implementing the water temperature monitoring program along several local creeks, placing loggers in 33 locations across the North Clackamas Watersheds to identify cold water refugia, threats to cold water, target future restoration and protection activities, and track influences of restoration, climate change, and other influencing factors such as changes in stormwater management, impervious surface, etc.

Through its partnership with NCWC, OLWS refers to recent shade surveys of riparian areas along Boardman, River Forest, and Rinearson creeks and their tributaries. This data is being used to 1) target future planting areas to increase shade when funds become available, based on goals for contiguous shade, aspect, landowner interest, and other factors, and 2) form a baseline of shade for tracking changes in shade over time as plants grow to maturity.

OLWS continues to invest in a "Scoop the Poop" program in partnership with the North Clackamas Parks and Recreation District (NCPRD) by sponsoring the placement of dog waste removal bags along the "Trolley Trail" (a walking/biking trail) through the area. Each year the parks district installs thousands of bags in signs which also feature public education about pet waste cleanup. This program directly removes bacteria from potential introduction into the adjacent drainage waterways.

OLWS supports mercury reduction goals primarily through its Erosion Control permitting program under the Municipal Separate Storm Sewer System (MS4) Permit. This program keeps mercury-laden sediment from being introduced into local airways and waterways.

Examples of capital projects supporting TMDL goals:

Structural BMPs are the primary line of defense against pollution as development occurs within OLWS. OLWS pursues capital improvements to structures affecting TMDL pollutants through its Capital Improvement Plan. In the coming year OLWS plans on investing $250,000 in a water quality project, the specifics of which are in the design/decision making phases.

Fiscal Investment - from 2026 report:

It is estimated that the TMDL expenses come to about 3% of the Stormwater Program fees. For FY 26, the SWM Program fees were $2,420,862, with $2,390,323 being devoted to operational

expenditures and $30,538 being spent from the Surface Water Management Capital Improvement fund. Last year, the Surface Water Management Capital Improvement fund was focused on evaluating rehabilitation for resolution of flooding and improving water quality on Boardman at Arista. Of the total SWM program budget, the TMDL program support averaged $61,400 per year. Over 5 years that puts support for TMDL program implementation at $307,000.

Four specific programs that fall within the TMDL implementation include support of the North Clackamas Watersheds Council's (NCWC) Streamside Stewards Program, the Temperature Monitoring Program run in partnership with NCWC, sponsorship of the North Clackamas Parks and Recreation OLWS's "Scoop the Poop" Pet Waste Bags program, and the Mercury Monitoring Program with Water Environmental Services (WES).

As OLWS continues developing its programs, it will adaptively manage programs and projects and update DEQ on any changes to its TMDL Implementation Plan.

Attachments – see PDFs and add Appendices

Attachment A: Management Strategies for Non-Point Source Areas

STRATEGY	PROGRAM	ACTIONS	BUDGET	MEASUREABLE OBJECTIVES	TIMELINES	MILESTONES	ADDRESS			5-YEAR IMPLEMENTATION PLAN STATUS
							Bacteria TMDL	Temp TMDL	Mercury TMDL	
Bacteria, Temperature and Mercury NPS Strategies	Illicit Discharge Detection and Elimination (IDDE)	Implement IDDE program-outreach, response, and enforcement	Staff FTE and response materials	Cleanup and documentation	These events are addressed immediately upon notice to OLWS	Ongoing activities with annual report to DEQ	X	X	X	Yes, implemented per requirements
	Construction and repair of sanitary facilities meet DEQ, OLWS, and county plumbing codes	Require that construction and repair of sanitary facilities meet DEQ, OLWS, and county plumbing codes	Staff FTE and outreach materials	Summary of activities in annual report	Addressed on an ongoing basis as outlined in the OLWS Sewer Master Plan	Ongoing activities	X		X	Through its master planning process, OLWS is investigating monthly rate incentives for usage of pervious materials over traditional impervious materials. OLWS is also looking into incentives for removing current impervious surfaces
	OLWS and State septic system ban within OLWS	Enforce OLWS and State septic system ban within OLWS boundaries	Staff FTE and outreach materials	None required	Enforced consistently over time	If other septic systems are found, they will be abandoned properly and connected to the public system	X			Implemented per requirements and included in regulatory code; currently two functioning septic systems exist in OLWS that meet State Code for structures distance to public mains
	Industrial Pretreatment Program-illicit connection detection and response	Implement Industrial Pretreatment Program	Staff FTE and outreach materials	Summary of activities in annual report	One current significant user. Pretreatment program completed and certified by DEQ.	Ongoing activities in compliance with NPDES and MS4 permit, included on annual report	X	X	X	There is one potential current significant user (other than OLWS's WWTP); OLWS has obtained DEQ certification of the program; budget was integrated into annual budget and staff finalized program documents during summer 2022
	Streamside Erosion and Sediment Control	Implement provisions of Sections 2.1004.05.02 and 2.1004.05.04 including a reduced threshold for construction activities when within the sensitive area buffer	Staff FTE and outreach to contractors	Permits issued and inspections completed	Reduced threshold in place and ongoing	Identify number of permits triggered and issued based on program requirement	X	X	X	Yes, implemented per requirements
Outreach and Education Partnerships	"Scoop the Poop" Dog Waste Bags-Behavior Change Program	Partner with North Clackamas Parks and Recreation District (NCPRD) to provide OLWS-branded Dog Waste Bags in local parks and along walking trails	$5,000	Annual invoice for purchase of branded waste bags	Annual program	Ongoing activities with annual report to DEQ	X			Yes, implemented per requirements
	Clean Rivers Coalition Partnership	Sponsor and implement statewide messaging of two campaigns: "Follow the Water" and "What's Your Lawn Style", Implement regional "The River Starts Here" messaging campaign	$7,000	Annual invoices	Annual program	Ongoing activities	X	X	X	Yes, implemented per requirements
	Clackamas Community College's Environmental Learning Center	Partner with Clackamas Community College's Environmental Learning Center (ELC) to sponsor school-aged experiential education programs in the field at the ELC, which includes restoration and enhancement activities	$7,000	Student numbers reached, schools scheduled for classroom and field visits and activities tracked in MS4 Annual Report	Annual program participation	Ongoing activities	X	X	X	Yes, implemented per requirements
	Backyard Habitat Certification Program	Partner with Bird Alliance of Oregon and Columbia Land Trust to implement private landowner outreach and behavior change campaign to increase restored habitat	$12,000							
	Ecology in Classrooms and the Outdoors (ECO)	Partner with ECO to sponsor students in elementary school and high school with appropriately aged experiential education program in classroom and in the field, which includes restoration and enhancement activities. Also includes Spanish language classroom and field activities	$31,500							
	EcoBiz Partnership	Partner with the Pollution Prevention Resource Center (PPRC) to support behavior change and provide technical assistance to local automotive businesses	$5,500	Summary of activities in MS4 annual report	Annual program participation	Ongoing activities	X		X	Yes, implemented per requirements
Technical Programs	Streamside Stewards Program and Cold Water Refugia Restoration projects	Sponsor partnership with North Clackamas Watersheds Council (NCWC) supporting private landowner riparian outreach efforts. Continue to seek opportunities to identify and protect riparian areas in confluence with the Willamette River	$42,000	Summary of activities in annual report	Approved support for in annual budget	Ongoing activities with annual report to Oregon DEQ		X	X	Yes, implemented per requirements
	Stream Temperature Monitoring Program	Sponsor partnership with NCWC to monitor and assess effectiveness of riparian shading	$13,500	Summary of activities in annual report	Approved support for monitoring program in annual budget	Ongoing activities with annual report to DEQ		X		Yes, implemented per requirements
Capital Investments	Watershed Action Plan (WAP)	Support partnership with NCWC to carry out projects from their WAP	Completed and ongoing rollout	Summary of activities in annual report narrative	Completed WAP in 2022. Projects underway.	Ongoing activities with annual report to DEQ	X	X	X	Yes, implemented per requirements
	Boardman-Arista Flood Attenuation Project	Project Study with Clackamas County Dept. of Transportation and Development.	$30,000	Summary of activities in annual report narrative	In process	Final Technical Memorandum expected by June 2026	X	X	X	Yes, implemented per plans
	Additional Water Quality Projects	Research, evaluate, and design WQ projects in Oak Lodge based on NCWC Watershed Action Plan	Capital Investment TBD	Summary of activities in annual report narrative	In process	Ongoing activities	X	X	X	WAC plan adopted; goal to continue seeking funding for projects as outlined in the WAC

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TMDL: Attachment B – Overview Stream Shading

NORTH CLACKAMAS WATERSHEDS COUNCIL

North Clackamas Watersheds Action Plan 2022-2032

Executive Summary

Prepared for North Clackamas Watersheds Council & Partners
by **Samara Group, LLC & GeoEngineers**
July 2022

Supported by:

Clackamas Partnership

CLACKAMAS WATER ENVIRONMENT SERVICES

OAK LODGE WATER SERVICES

OREGON WATERSHED ENHANCEMENT BOARD

NORTH CLACKAMAS PARKS & RECREATION DISTRICT

and Customers participating in PGE's Green Future [SM] program through the PGE Salmon Habitat Support Fund

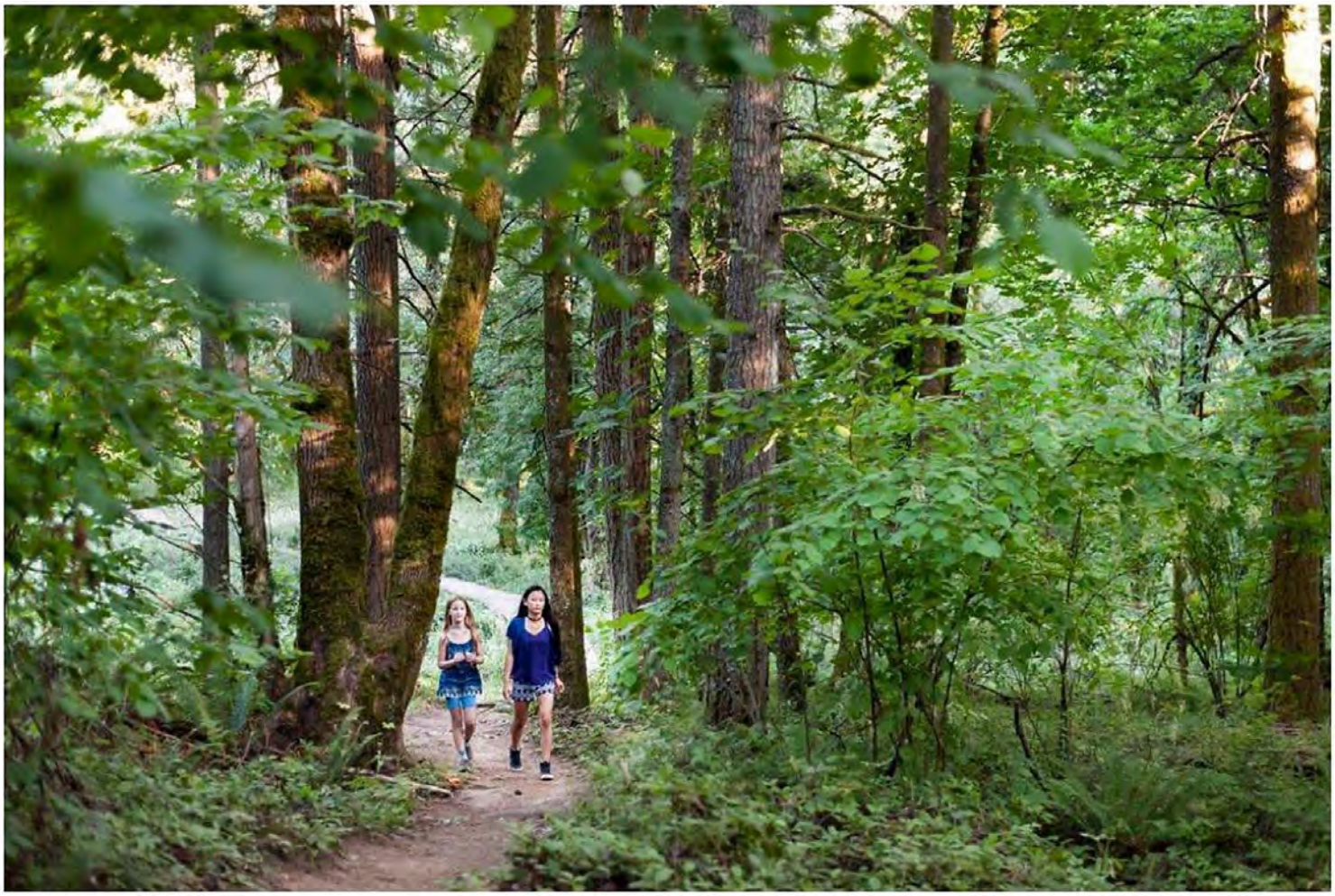


Photo (above): Two hikers enjoying Mt. Talbert Nature Park. *Credit: Metro, 2017*

Authored by:
Jalene Littlejohn, Melanie Klym, Amanda Temple, Fiona Smeaton, Marie Hepner, and Jason Scott.

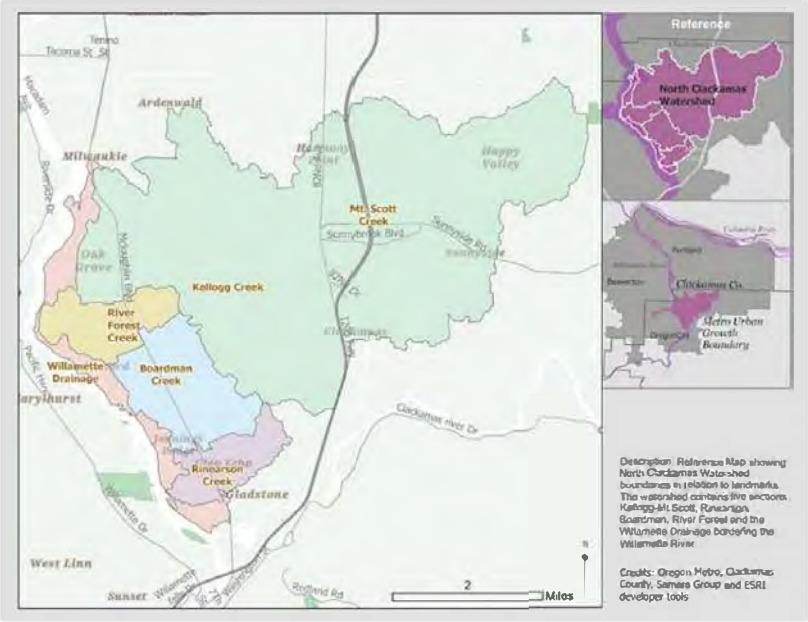
This action plan was co-developed in partnership with the North Clackamas Watersheds Council and regional partners. *Thank you to all who participated in interviews, workshops, and reviews: North Clackamas Watersheds Council Board, Staff and Contractors, Clackamas County (Climate Action, Planning, Disaster Management), Clackamas Water Environment Services, North Clackamas Parks and Recreation District, Oregon Department of Fish & Wildlife, City of Gladstone, City of Milwaukie, City of Happy Valley, Clackamas Soil & Water Conservation District, Altap Restoration, Urban Greenspaces Institute, Oregon Department of Environmental Quality, Oregon Department of Transportation, Metro Parks & Nature, Institute for Natural Resources, Native Fish Society, Willamette Partnership.*

Your insights are the foundation of this plan.

North Clackamas Watersheds hold opportunities for both local and regional benefits

As Clackamas County continues to grow and the demand for new development increases, the importance of protecting and restoring watershed resources becomes even more pressing.

Healthy urban watersheds not only support the critical habitat that fish and wildlife need, but they also provide valuable ecosystem services such as buffering against heat island effects, improved water quality, carbon storage, enhanced health outcomes through proximity and access to nature, and reducing utility bills[1] . The services provided by watersheds (or lack thereof) have direct impacts on the local community's lives[1] and the community as direct impact on the health of the watersheds demonstrating that people are a critical piece of the puzzle of watershed management[2]. While it may not be feasible to restore North Clackamas watersheds to pre-colonial conditions, these watersheds remain an important priority and hold opportunities for benefits for fish, wildlife, and people.



The North Clackamas Watersheds are part of the greater Portland metropolitan area, in present day Clackamas County on "the traditional lands and waterways of the Clackamas, Chinook Bands, Kalapuya, Kathlamet, Molalla, Multnomah, Tualatin, Tumwater, Wasco and many other tribes of the Willamette Valley and Western Oregon[3]

[1] Environmental Protection Agency, Benefits of Watersheds, 2022

[2] Purdue, 2019

[3] Clackamas County Land Acknowledgment

Planning for Healthy Watersheds

This watersheds action was developed in partnership with and for the many agencies, nonprofit organizations, and other partners who have missions, management responsibilities, policy and funding authority to improve the health of North Clackamas Watersheds. For the Plan to succeed, it must inform the strategies, work plans, and budgets of all the North Clackamas partners.

The plan integrates equity, resilience in the face of climate change, and interjurisdictional collaboration and coordination into all aspects of watershed health. In this summary, you will find an overview of the primary healthy watershed goals and limiting factors considered in the development of North Clackamas Watersheds strategies and actions and an overview of the recommended focal actions. The full plan provides a breadth of assessment information as well as action and opportunity areas that support and expand on the focal actions.

Healthy Watershed Goals

- Enhance habitat and connectivity for fish, wildlife, and people
- Sustain and enhance cold water in streams
- Improve water quality considering reduction of water quality contaminants and stormwater management
- Conserve and improve flood storage and floodplains
- Integrate watershed health and development needs up and downstream

Limiting Factors

Factors threatening and limiting the health of the North Clackamas Watersheds and the ecosystems they serve.

- Fish passage barriers
- Lack of stream channel complexity
- Water pollution and warm water temperatures
- Loss of riparian buffers and woodlands that provide shade and habitat
- Loss of connection to floodplains that slow and store water
- Invasive species
- Lack of water availability during low flows

Anticipating Future Trends

Population and development pressures combined with a variety of climate-related threats are the primary future trends that are anticipated to exacerbate limiting factors for fish and native ecosystems in the North Clackamas Watersheds.

Recommended Focal Actions for North Clackamas Watersheds

There are a wide variety of participants and actions that may support watershed health. This plan is intended to be flexible. Certain actions rise to the top based on the Watersheds Assessment, stakeholder input, and the consultant team's diverse experience with watershed restoration project implementation, community engagement, and urban ecology. In addition to watershed restoration, an important need that emerged is the mobilization of watershed health advocates to be involved in policy development and collaborative stewardship programs, such as Streamside Stewards. For this to occur, expanded educational and engagement programs are crucial.

When developing programmatic actions and organizational work plans, consider the following actions and review the comprehensive list of actions for additional ideas.

All Watersheds Focus

This section summarizes the recommended programmatic actions that bridge watershed boundaries. These actions were selected to best address cross-boundary limiting factors for watershed health, particularly regarding habitat connectivity, improving water quality, and integrating watershed health and development needs.

Implement Diverse Community Engagement & Education

- Install community-based data collection kiosks near 'high-access' community hubs (Action #78)
- Survey community surrounding "gap access" community hubs to better understand needs for access to nature and stewardship opportunities (Action #63) Work with Homeowners' Associations and other community neighborhoods groups, landowners, and managers to collect and interpret regular water quality measurements (Action #80)

- Partner with local schools to adopt restoration sites as outdoor classrooms where students can be involved with full-spectrum restoration activities, have recurrent visits, and long-term stewardship (Action #81)

Adopt Stronger Watershed Protection Policies and Plans

- Collect and interpret watershed data to inform effective policies, codes, rules, standards, and plans (Actions #11, 12, 57, 70, 75)
- Pass codes and regulations that integrate watershed function into key decisions (zoning, stormwater, floodplain management, development codes, tree codes, etc.) (Action #25)
- Engage in planning updates for stormwater management manuals, master plans and development code to increase green stormwater infrastructure (Action #58)

Maintain and Expand the Streamside Stewards Program

- Create and distribute handbook on best practices for Streamside Stewards (Action #83)
- Expand "Streamside Stewards" program to include a broader variety of "Watershed Stewards" activities (e.g. Backyard Habitat Certification Program, connectivity projects, data collection, etc.) (Action #87)
- Collaborate with Oak working group, regional corridor group, SWCD, Willamette Partnership, Backyard Habitat program, and other groups to increase planting and maintenance of native oak and associated plant communities in permeable oak corridors (Action #28)
- Partner with native peoples to understand their harvest, cultural, and spiritual needs and incorporate into action efforts (Action #68)

Restoration Focal Actions

Kellogg-Mt. Scott Watersheds

Watersheds Focus: Reconnect floodplains, enhance wetlands, conserve riparian canopy cover, and provide fish access to cold-water habitats in the Kellogg-Mt. Scott Watershed.

In-Stream Focal Actions

Fish Passage Barrier Removal Remove Kellogg Dam and assess other barriers in the watershed and prioritize by quantity and quality of upstream habitat (Action #41).	The North Clackamas Watersheds Council is currently convening partners to advance planning and design for fish passage and stream restoration at the Kellogg Dam and Impoundment site. The dam removal project will likely be implemented by the Oregon Department of Transportation in coordination with the City of Milwaukie and/or Mitigation Credit firms. The North Clackamas Watersheds Council should lead the fish passage barrier assessment and prioritization with support from the Oregon Department of Fish & Wildlife.
In-Line Pond Disconnection Restore Kellogg Creek as a discrete channel through the Kellogg Lake impoundment (Action #42). Disconnect in-line pond at Kellogg Creek headwaters. Evaluate other in-line ponds on Kellogg/Mt. Scott Creek for fish passage and heat loading (Action #49).	The North Clackamas Watersheds Council and partners should continue to pursue improvement of Kellogg Creek at the Kellogg Lake impoundment. Clackamas County WES and the City of Happy Valley should evaluate the disconnection of the other in-line ponds as part of their temperature total maximum daily load plans. The North Clackamas Watersheds Council and Clackamas Soil & Water Conservation District could be best-positioned to assist with landowner communication.

Riparian and Wetland Focal Actions

Intact Canopy Conservation on Privately-Owned Lands	These organizations manage development and tree code: City of Milwaukie, City of Happy

Conserve and enhance areas of intact canopy on privately-owned lands at Kellogg Creek and Dean Creek headwaters and along Minthorn Springs Creek (Action #16).	Valley, and Clackamas County. North Clackamas Watersheds Council and the Clackamas Soil and Water Conservation District are organizations most likely to succeed with work on private lands in partnership with the Backyard Habitat Certification Program and the local jurisdictions.
Areas with Groundwater near the Surface Evaluate floodplain reconnection, wetland enhancement (hydrologic connectivity and native vegetation), and potential willing- seller feasibility in areas of shallow groundwater at Minthorn Springs headwaters, Kellogg Creek, Three Creeks Natural Area, Dean Creek, and Mt. Scott Creek (Action #22).	Clackamas County Disaster Management is best-suited to address flooding risks and floodplain reconnection opportunities. The stormwater management agencies (Clackamas WES, City of Milwaukie, City of Happy Valley) could evaluate wetland enhancement as part of their stormwater management program to address hydromodification. Publicly owned parks are also potential locations for wetland enhancement projects, such as North Clackamas Park. The North Clackamas Watersheds Council could play a role in communicating with landowners.

Upland Focal Actions

Commercial and Industrial Stormwater Management Retrofits Evaluate stormwater quality and quantity management retrofits along I-205, Highway 224, and Highway 99E and at Clackamas Town Center (Action #31).	These organizations manage the roadways and/or stormwater management plans: City of Milwaukie, Oregon Department of Transportation, Clackamas Water Environment Services, Clackamas County, and Oak Lodge Water Services. North Clackamas Watersheds Council may be effective at coordinating with partners and writing grants to fund retrofits.
Residential Property Downspout Disconnects Evaluate stormwater quantity management retrofits on terraces along Kellogg Creek and Dean Creek (Action #18)	These organizations have authority over the stormwater management plans: City of Milwaukie, Clackamas County WES. North Clackamas Watersheds Council may be effective at communicating with private residences in partnership with the Backyard Habitat Certification Program.

Restoration Focal Actions

Boardman Watershed

Watershed Focus: Sustain and enhance cold-water inputs, restore riparian areas, conserve and restore oak woodlands in the uplands in the Boardman Creek Watershed.

In-Stream Focal Actions

Confluences and Refugia Restore confluence of Boardman Creek with Willamette River (Action #39 underway).	North Clackamas Watersheds Council is leading the development of this project. Implementation will require partnership with private landowners. Project design, implementation, and maintenance require coordination with Oak Lodge Water Services.
Fish Passage Barrier Removal Evaluate bedrock channel passability; remove the barriers at Walta Vista Drive and River Road (Action #36).	North Clackamas Watersheds Council is leading the assessment of the bedrock channel. The road crossings should be evaluated in cooperation with the Oregon Department of Fish and Wildlife and Clackamas County, and Oak Lodge Water Services.

Riparian and Wetland Focal Actions

Title 13 Habitat Area Buffer Enhancements Enroll Class I and Class II riparian habitat areas in Streamside Stewards program (Action #03).	North Clackamas Watersheds Council, Clackamas SWCD, and the Backyard Habitat Certification Program are best positioned to work with private landowners.
Areas with Groundwater near the Ground Surface Evaluate wetland enhancement potential in the area of shallow groundwater near the intersection of Vineyard Ave. and Vineyard Rd (Action #21).	Clackamas County is best-suited to address flooding risks and floodplain reconnection opportunities. Clackamas County also regulates floodplain land use. Oak Lodge Water Services could evaluate wetland enhancement as part of their stormwater management program to address hydromodification.

Upland Focal Actions

Commercial and Industrial Property Stormwater Management Retrofits Evaluate stormwater quality and quantity management retrofits along McLoughlin Blvd (Action #30).	These organizations manage the roadways and/or stormwater management plans: Oak Lodge Water Services, City of Milwaukie, Oregon Department of Transportation. North Clackamas Watersheds Council may be effective at coordinating with commercial and industrial partners and writing grants to fund retrofits.
Residential Property Downspout Disconnects Evaluate stormwater quantity management retrofits in lower watershed near borders with Rinearson Creek and Willamette Drainage watersheds (Action #17).	Oak Lodge Water Services has authority for stormwater management in this area. Clackamas County administers building codes. North Clackamas Watersheds Council may be effective at building partnerships with private properties.

Restoration Focal Actions

Rinearson Creek Watershed

Watershed Focus: Sustain and enhance cold-water inputs, enhance wetlands, conserve and restore uplands in the Rinearson Watershed.

In-Stream Focal Actions

Fish Passage Barrier Removal Evaluate passability of steep channel downstream of former dam impoundment and partial barrier at upstream end of Rinearson Natural Area (Action #37); and Remove barrier on Rinearson Creek under McLoughlin Blvd (Action #38).	The project partners (Columbia Restoration Group, City of Gladstone, Private Landowners, NOAA Fisheries) should continue to monitor the Rinearson Natural Area's performance. North Clackamas Watersheds Council, landowners & Oregon Department of Transportation will need to coordinate assessment and pursuit of removal/improvements of barriers at the upstream end of Rinearson Natural Area and McLoughlin Boulevard.
In-Line Pond Disconnection Continue monitoring performance of restoration project at Rinearson Creek mouth, especially temperature in former dam impoundment and evaluate disconnection feasibility if elevated temperatures are observed (Action #46).	The project partners (Columbia Restoration Group, City of Gladstone, Private Landowners, NOAA Fisheries) should continue to monitor the Rinearson Natural Area's performance.

Riparian and Wetland Focal Actions

Title 13 Habitat Area Buffer Enhancements Enroll Class I and Class II riparian habitats in Streamside Stewards program (Action #03)	North Clackamas Watersheds Council, Clackamas SWCD, and the Backyard Habitat Certification Program are best positioned to work with private landowners.
Oregon Conservation Plan Strategic Habitat Enhancements Enhance Glen Echo and Olsen wetlands by improving hydraulic function, managing vegetation, and maximizing stormwater filtration and detention (Action #88).	The City of Gladstone could support wetland enhancement as part of their stormwater management program to address hydromodification. North Clackamas Watersheds Council and the Clackamas Soil and Water Conservation District are organizations most likely to succeed with work on private lands.

Upland Focal Actions

Commercial and Industrial Property Stormwater Management Retrofits Evaluate stormwater quality and quantity management retrofits along McLoughlin corridor (Action #32).	These organizations manage the roadways and/or stormwater management plans: City of Gladstone, Oak Lodge Water Services, Oregon Department of Transportation, and Clackamas County. North Clackamas Watersheds Council may be effective at coordinating with commercial and industrial partners and writing grants to fund retrofits.
Residential Property Downspout Disconnects Evaluate stormwater quantity management retrofits on the terrace above Rinearson Creek adjacent to McLoughlin (Action #19).	Oak Lodge Water Services and the City of Gladstone have authority for the stormwater management in this area. North Clackamas Watersheds Council may be effective at building partnerships with private properties.
Title 13 Habitat Area Enhancements and Oregon Conservation Plan Strategic Habitat Enhancements Conserve and enhance oak woodlands in the upper watershed (Action #27).	Clackamas County could adopt Development and Non-Development Tree Code to protect Oak woodlands. North Clackamas Watersheds Council, the Clackamas Soil and Water Conservation District, and the Backyard Habitat Certification Program are organizations most likely to succeed with work on private lands.

Restoration Focal Actions

River Forest Creek Watershed

Watershed Focus: Sustain and enhance cold-water inputs, enhance floodplain connection and wetlands, and provide fish access to cold-water habitats in the River Forest Creek watershed.

In-Stream Focal Actions

In-Line Pond Disconnection Disconnect creek channel from River Forest Lake (Action #47).	North Clackamas Watershed Council should convene partners and landowners for the improvement of River Forest Creek at the River Forest Lake impoundment. It is currently unknown who the project implementation lead will be due to the private ownership of the impoundment area. Clackamas County and Oak Lodge Water Services may be able to implement this project as part of their temperature total maximum daily load reduction water quality plan.
Fish Passage Barrier Removal Remove passage barrier at River Forest Road (Action #44).	Clackamas County is most suited to implement this project with support from North Clackamas Watersheds Council and Oregon Department of Fish and Wildlife.
Confluences and Refugia Enhance confluence with large wood (Action #40).	North Clackamas Watersheds Council should lead the development of this project. Implementation will require partnership with private landowners.

Riparian and Wetland Focal Actions

Title 13 Habitat Area Buffer Enhancements Enroll Class I and Class II riparian habitats in Streamside Stewards program (Action #03).	North Clackamas Watersheds Council, Clackamas SWCD, and the Backyard Habitat Certification Program are best positioned to work with private landowners.
Areas with Groundwater near the Ground Surface Evaluate wetland enhancement potential in the area of shallow groundwater upstream of River Forest Lake (Action #13).	Oak Lodge Water Services could evaluate wetland enhancement as part of their stormwater management program to address hydromodification. North Clackamas Watersheds Council may be most effective at coordination with private property owners.

Upland Focal Actions

Commercial and Industrial Property Stormwater Management Retrofits Evaluate stormwater quality and quantity management retrofits along McLoughlin corridor (Action #33).	These organizations manage the roadways and/or stormwater management plans: Oak Lodge Water Services, Oregon Department of Transportation, Clackamas County The North Clackamas Watersheds Council and Clackamas SWCD may be effective at building partnerships with private properties.
Conserve and enhance oak woodlands in the lower watershed, especially on privately-owned vacant lands (Action #23).	North Clackamas Watersheds Council, Clackamas SWCD, and the Backyard Habitat Certification Program are best positioned to work with private landowners.

Restoration Focal Actions

Willamette Drainage

Watershed Focus: Sustain and enhance cold-water inputs and restore uplands, especially oak woodlands, in the Willamette Drainages.

In-Stream Focal Actions

Confluences and Refugia Ground-truth potential locations of seeps and springs and increase in-channel complexity (by placing large wood, removing bank armoring, etc.) if the locations are accessible (Action #9).	North Clackamas Watersheds Council and the Clackamas Soil and Water Conservation District are organizations most likely to succeed with facilitating work on private lands across multiple partners and jurisdictions.
Confluences, Complexity, Refugia Enhance and restoration Elk Rock Island and the alcove as refugia habitat (Action #05).	The City of Milwaukie owns Elk Rock Island with North Clackamas Parks and Recreation District management through an Interagency Agreement. Friends of Elk Rock Island is a key partner to mobilize community members in ongoing stewardship activities.
Confluences and Refugia Increase habitat complexity of Willamette in other publicly owned parks including RiverVilla Park and Milwaukie Bay Park (Action #07).	North Clackamas Watersheds Council, City of Milwaukie, and North Clackamas Parks and Recreation District are best suited to lead the development of these projects.

Riparian and Wetland Focal Actions

Title 13 Habitat Area Buffer Enhancements Enroll Class I, Class II and Class III riparian habitats in streamside stewards program (Action #03).	North Clackamas Watersheds Council, Clackamas SWCD, and the Backyard Habitat Certification Program are best positioned to work with private landowners.

Upland Focal Actions

Residential Property Downspout Disconnects Evaluate stormwater quantity management retrofits near the boundary with Boardman Creek and Rinearson Creek watersheds (Action #20).	Oak Lodge Water Services has authority for most stormwater management in this area, with a small area falling in the City of Gladstone. Clackamas County will need to approve Willamette Greenway Projects.

	North Clackamas Watersheds Council and Clackamas SWCD may be effective at building partnerships with private properties.
Conserve and enhance oak woodlands (Action #24).	Metro is currently in the process of developing tools for oak conservation. Clackamas County is a critical partner to address development impacts and future policy updates. North Clackamas Watersheds Council, Clackamas SWCD, and the Backyard Habitat Certification Program are best positioned to work with private landowners.

Connecting Communities & Habitat for Long-Term Watershed Health

The intent of this plan is to provide flexibility and resources for those using this plan. In addition to restoration actions, this plan includes a unique opportunity area approach to watershed health planning. In Chapter 3 of the action plan, you will find:

Connectivity Opportunity Areas

Ease of mobility between riparian or upland environments is critical for wildlife to access required amenities such as food, cover, and mates. In urban watersheds, many potential barriers to wildlife movement exist in the form of roads, size of natural habitat, and fragmentation. Habitat connectivity is an important strategy for wildlife conservation and provides both enhanced resilience to changing climate conditions as well as harnesses potential for greater access to nature for people.

A number of the restoration actions identified in the plan consider connections between stream, riparian/wetland, and upland habitats. However, there are significant knowledge gaps and competing agendas as to where connectivity efforts are most strategic. Opportunity areas identified in the plan provide the ability to narrow geographic areas for further assessment.

Community Opportunity Areas

Equitable programming, outreach, and access to nature are complex concepts that require input and participation from a wide variety of stakeholders. A successful community-centered approach is an interactive approach, of which the specifics should not be prioritized by a planning team. Rather, involvement of the community and authentic relationship-building is key. This plan provides a portfolio of community opportunity areas to provide a variety of locations where partnerships can be developed

to explore community needs, advance equity-based activities, and harness community support to meet healthy watershed goals. Community Opportunity Areas are highlighted for each watershed using a combination of approaches including:

- **Identification of a set of community hubs:** schools, affordable housing clusters, public parks and trails, and community centers;
- **Highlighting high-medium-gap access to water resources** and proximity to current and proposed restoration areas using spatial analysis; and
- **Overlay of available data to support equitable investment of resources** including Metro Regional Barometer's equity focus areas to compare and contrast with Metro's ongoing equity efforts and narrowed further with recent racial and english learner data from local schools.