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YAMHILL COUNTY BOARD OF COMMISSIONERS COVERSHEET

DATE: December 15, 2022
TO: Board of Commissioners
FROM: Mark Lago, Public Works Director
RE: Adopt the Mercury Total Maximum Daily Load (TMDL) Implementation Plan

BACKGROUND:

On October 27, 2022, there was a presentation of the Mercury Total Maximum Daily Load (TMDL) Implementation Plan to the Board of Commissioners. All components of this plan must be completed by 2027 and after this 5-year period, the plan will be reviewed and updated. This program will require that an erosion control ordinance be developed by March 2024.

I have reached out to other counties through the Oregon Association of County Engineers and Surveyors (OACES) email distribution list asking for their ordinances on erosion and sediment control with little success. Most counties started their plan two years ago and still need to work on their erosion control ordinances.

Generally, counties have been focusing on documenting what they are already doing to reduce mercury migration to the Willamette, and then identifying tasks for developing the framework to support a more developed program in the future.

There is a lot of work to be done and that is why I will continue to reach out to other counties to learn how their plan is being implemented. I will keep the County Administrator as well as the Board updated on our progress.

STAFF RECOMMENDATION:

Adopt the Mercury Total Maximum Daily Load (TMDL) Implementation Plan

FISCAL IMPACT: None at this time.

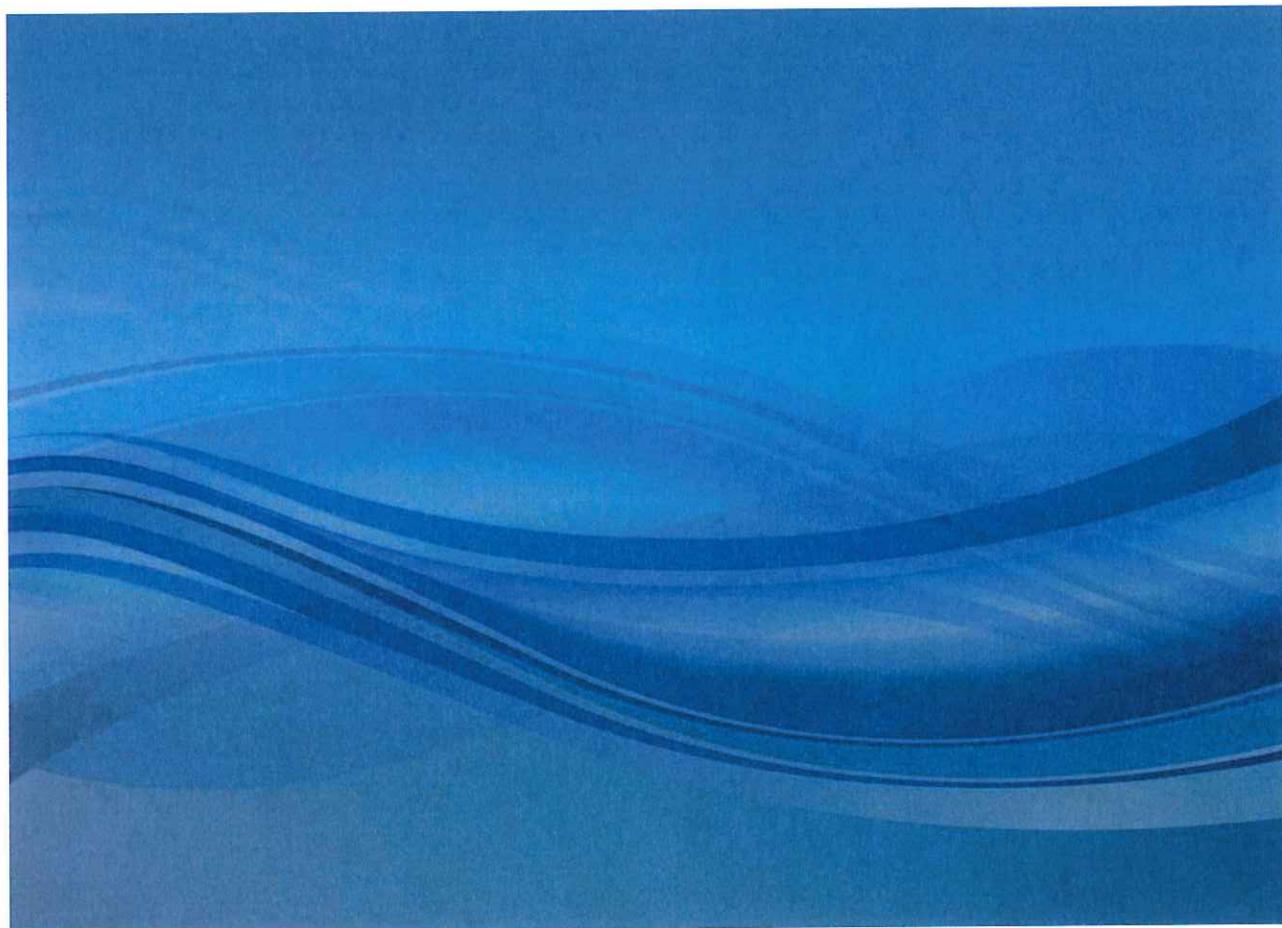
ATTACHMENTS: Yamhill County Mercury TMDL Final (10-24-22)

Accepted by Yamhill County
Board of Commissioners on
12.15.22 by Board Order
B.O. 22-384



Yamhill County Implementation Plan for the Willamette Basin Mercury TMDL

Final Draft



August 2022

B.O. 22-384

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Yamhill County Implementation Plan for the Willamette Basin Mercury TMDL

August 2022

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CONTENTS

1. Background.....	1
1.1 Purpose of This Report	1
1.2 Yamhill County Overview	1
1.2.1 Area Description.....	1
1.2.2 Drainage Infrastructure.....	3
1.3 Implementation Plan Overview and Adoption.....	6
2. Parameter of Concern—Mercury.....	9
2.1 Sources.....	9
2.1.1 Nonpoint Sources	9
2.1.2 Point Sources.....	10
2.2 Allocations	10
3. Existing Management Strategies.....	13
3.1 Pollution Prevention and Good Housekeeping for Municipal Operations.....	13
3.1.1 Actively Maintain Roadside Vegetation of County-Controlled Roads	14
3.1.2 Develop GIS Database of County-Controlled Systems.....	18
3.1.3 Identify and Prioritize Storm Drainage Projects.....	18
3.1.4 Retain or Plant Adequate Riparian Buffers Along Waterbodies on County Properties	18
3.1.5 Parks and Boat Launches.....	21
3.1.6 Cove Orchard Sanitary Sewer District	21
3.2 Public Education and Outreach.....	21
3.2.1 Coordinate with Agricultural Lands & Rural Property Owners.....	22
3.2.2 Other Agencies with Mercury Measures	23
3.3 Enforcement of Prohibited Pollutants	23
3.4 Construction Site Runoff Control	24
3.4.1 Construction Sites & Development.....	24
3.4.2 Overlay Districts.....	25
4. Management Strategies To Be Implemented	31
4.1 Pollution Prevention & Municipal Operations Good Housekeeping.....	31
4.1.1 Prioritize and Replace Undersized or Improperly Designed Culverts and Bridges	31
4.1.2 Develop and Implement an O&M Program for Culvert and Ditch Maintenance.....	32
4.2 Public Education and Outreach.....	32
4.2.1 Coordinate with Adjacent Agencies.....	33
4.2.2 Coordinate and Support YSWCD and GYWC in their Incentives Programs.....	33
4.3 Enforcement of Prohibited Pollutants	34
4.3.1 Establish Ordinances as Outlined in the Comprehensive Plan.....	34
4.3.2 Mine Runoff	35
4.4 Construction Site Runoff Control	36
4.4.1 Reduce Percent of New Impervious Surfaces	36
5. Monitoring, Reporting and Adaptive Management.....	37

5.1 Monitoring	37
5.2 Reporting.....	37
5.2.1 Annual Reporting	37
5.2.2 Five-Year Reporting.....	37
5.3 Adaptive Management.....	40
6. Land Use Compliance	41
7. Water Quality Management Plan Requirements	43
7.1 Public Involvement Plan.....	43
7.2 Fiscal Analysis.....	43
7.2.1 Funding for Existing Programs	43
7.2.2 TMDL Plan Coordinator	44
7.2.3 Proposed Capital Projects.....	44
7.3 Consideration of Stormwater Control Measures.....	44
References	47

Appendices

- Appendix A. EPA Willamette Basin Mercury TMDL and ODEQ WQMP
- Appendix B. Supporting Documents

Tables

Table 1-1. Minimum management program requirements for counties and implementation deadlines	7
Table 2-1. Allocated At-Source Loads and Required Percent-Reductions by Category.....	11
Table 3-1. Existing Strategies for Pollution Prevention and Good Housekeeping for Municipal Operations	13
Table 3-2. YC Roadside Maintenance Guidelines (from YC Roadside Vegetation Management Plan)	14
Table 3-3. Existing Strategies for Public Education and Outreach	22
Table 3-4. Existing Strategies for Enforcement of Prohibited Pollutants.....	24
Table 3-5. Existing Strategies for Construction Site Runoff Control.....	24
Table 4-1. Management Strategies for Pollution Prevention & Municipal Operations Good Housekeeping to Be Implemented.....	31
Table 4-2. Management Strategies for Public Education and Outreach to Be Implemented	32
Table 4-3. Connected Agencies/Jurisdictions	33
Table 4-4. Management Strategies for Enforcement of Prohibited Pollutants to Be Implemented	34
Table 4-5. Management Strategies for Construction Site Runoff Control To Be Implemented	36
Table 5-1. Implementation Plan Monitoring and Updating Matrix.....	38
Table 7-1. Applicability of Stormwater control Measures to Proposed Management Strategies.....	44

Figures

Figure 1-1. Yamhill County and Willamette River Basin2

Figure 1-2. Yamhill Subbasin of the Willamette Basin.....4

Figure 1-3. Yamhill Subbasin Watersheds5

Figure 3-1. Yamhill County Erosion Study15

Figure 3-2. Typical Road Section for Gravel and Paved Surfaces17

Figure 3-3. Greater Yamhill Watershed Council—Watershed Culvert Prioritization and Action Plan for Fish
Passage19

Figure 3-4. Yamhill County Zoning Map.....27

Figure 3-5. Yamhill County Overlay Districts (Floodplain and Greenway)28

ABBREVIATIONS

Abbreviation	Definition
BMP	Best Management Practice
DEQ	Department of Environmental Quality
DMA	Designated Management Agency
GYWC	Greater Yamhill Watershed Council
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
OAR	Oregon Administrative Rules
ODA	Oregon Department of Agriculture
ODOT	Oregon Department of Transportation
TMDL	Total Maximum Daily Load
WQMP	Water Quality Management Plan
WRB	Willamette River Basin
YCSWCD	Yamhill County Soil and Water Conservation District

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1. BACKGROUND

1.1 PURPOSE OF THIS REPORT

Yamhill County lies primarily in the Yamhill Subbasin, with small areas of the Tualatin and Middle Willamette subbasins overlapping the borders. These subbasins are part of the larger Willamette River Basin. Surface waters in these subbasins fail to meet federal water quality standards for mercury. The broader Willamette Basin also fails to meet the water quality standards for mercury. These water quality standards were established to ensure the protection of beneficial uses of surface waters, such as fish consumption, fish and aquatic life and wildlife conservation, and hunting.

When water quality standards are not met, the federal Clean Water Act requires a total maximum daily load (TMDL) to be established. A TMDL defines the amount of a pollutant that can be contributed to a water body without causing water quality criteria to be exceeded.

The EPA, with input from the Oregon Department of Environmental Quality (ODEQ), led the technical work associated with modeling the amount of mercury gained and lost by stream systems, as well as the concentration of mercury in the aquatic food web. They issued a final TMDL on February 4, 2021.

The ODEQ led the development of a water quality management plan (WQMP) to describe the overall framework for implementing the TMDL. The WQMP describes activities, programs, legal authorities, and other measures for which ODEQ and other designated management agencies (DMAs) have regulatory responsibility. A DMA is any governmental agency identified by the ODEQ in a TMDL as having legal authority over a sector or source contributing pollutants.

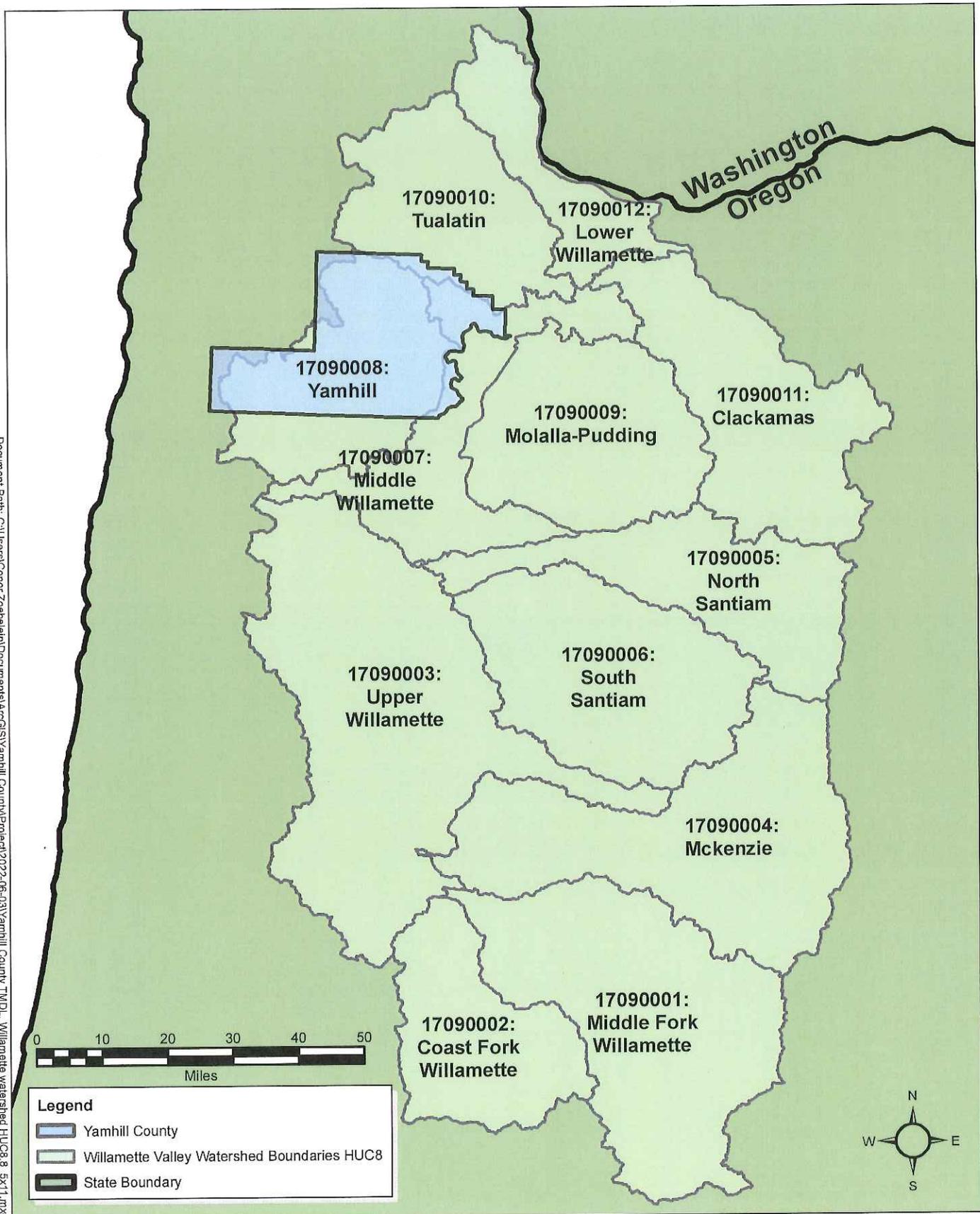
The ODEQ has named Yamhill County (the County) as a DMA in the Yamhill Subbasin because it has legal authority within its county limits, and because the County's stormwater drains to various tributaries of the Yamhill River and Willamette River. Under the ODEQ TMDL, Yamhill County must develop a TMDL Implementation Plan to address mercury in the drainage basins within its jurisdiction. This report represents the required TMDL implementation plan for Yamhill County.

1.2 YAMHILL COUNTY OVERVIEW

1.2.1 Area Description

Yamhill County is in the northwest quadrant of the Willamette Basin, and the Willamette River is the county's eastern boundary (see Figure 1-1). The county encompasses the cities of McMinnville, Newberg, Carlton, Yamhill, Dundee, Dayton, Amity, Sheridan, Willamina, and Midway. The estimated total population of the County as of July 2021 was 108,239 according to US census data.

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Yamhill County
**IMPLEMENTATION PLAN FOR THE
WILLAMETTE BASIN MERCURY TMDL**

Figure 1-1.
YAMILL COUNTY AND
WILLAMETTE RIVER BASIN

The County ranges in elevation between approximately 100 feet (at the Willamette River) and 3,422 feet (Trask Mountain) above sea level. The terrain is characterized by slopes of 0 to 20 percent with moderately well-defined drainage patterns. The predominant U.S. Soil Conservation Service soil type is Carlton Silt Loam, which is classified as a fine-silty, mixed, mesic Aquultic Haploxerolls, indicating a moderately impervious, moderately well-drained soil.

Roughly a third of the county is covered with commercial timber, as the principal economic base of the western part of the county is logging and timber-related products. Other land-intensive industries present include wineries/vineyards and hazelnut orchards. There are two mines within county limits.

The area experiences a marine west coast climate. Rainfall events typical of the area are large, intermittent frontal storms that move in from the Pacific Ocean. High intensity, short duration events are uncommon. The mean annual precipitation is 42 inches, most of which occurs during the wet weather season from October to to June. Approximately 45 percent of the annual precipitation falls in the springtime.

Yamhill County contains most of the Yamhill Subbasin (HUC-8 Subbasin 17090008, see Figure 1-1 and Figure 1-2) which consists of seven smaller (HUC-10) watersheds (see Figure 1-3). Relatively small areas of the Tualatin Subbasin (HUC-8 Subbasin 17090010) and the Middle Willamette Subbasin (HUC-8 Subbasin 17090007) also lie within Yamhill County (see Figure 1-1).

1.2.2 Drainage Infrastructure

Yamhill County maintains culverts and ditches along over 700 miles of roads under its jurisdiction. Design standards set by the County dictate requirements that must be followed for drainage infrastructure along both public and private roads.

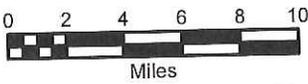
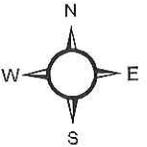
The County owns and maintains approximately 3,200 culverts ranging from 12-inch to 96-inch diameter, of which 100 culverts are categorized as large diameter (42-inch to 96-inch). Additionally, there are 6,500 approach/driveway culverts in sizes 12- to 24-inch. The County is currently undertaking an effort to mark and map all culverts in its GIS database. See section 3.1.2 for more detail.

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Legend

- Streams
- Yamhill County
- Watershed Boundaries HUC8

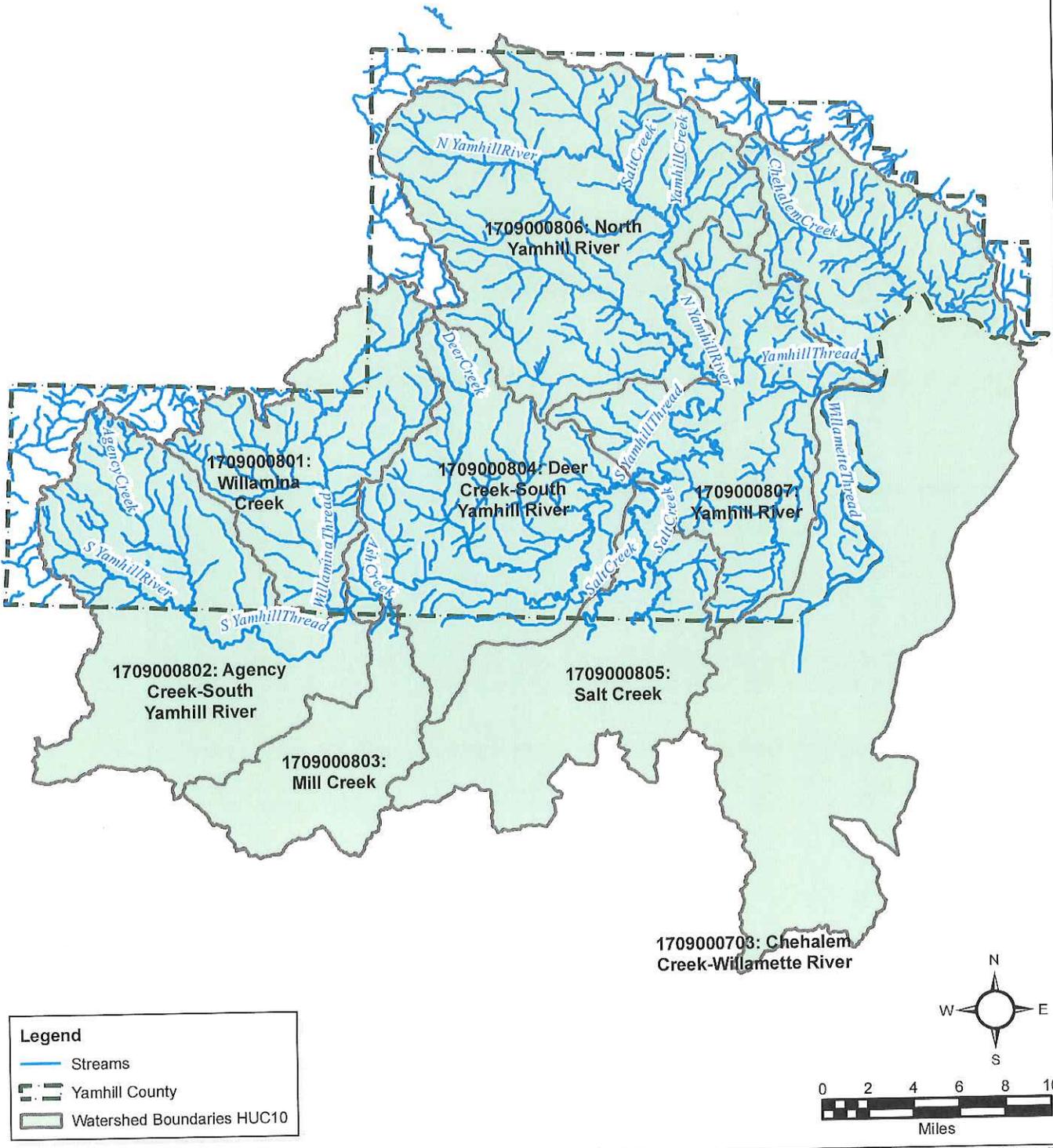


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Yamhill County
IMPLEMENTATION PLAN FOR THE WILLAMETTE BASIN MERCURY TMDL

Figure 1-2.
YAMHILL SUBBASIN OF THE WILLAMETTE BASIN



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1.3 IMPLEMENTATION PLAN OVERVIEW AND ADOPTION

As Yamhill County does not have an MS4 permit, this TMDL implementation plan includes the following components required under Oregon Administrative Rules (OAR 340-042-0080.4):

- Identify the management strategies the County will use to reduce pollutant loading.
- Provide a timeline for implementing management strategies and for completing measurable milestones.
- Provide a plan for periodic review and revision of the implementation plan.
- Provide evidence of compliance with applicable statewide land use requirements.
- Provide the following analyses or information specified in the WQMP:
 - Public involvement plan for strategy implementation
 - Fiscal analysis for resources needed to develop, implement, and maintain plan
 - Steps to reduce mercury entering streams via erosion of sediments
 - Stormwater control measures, including the following:
 - Pollution prevention in municipal operations
 - Public education and outreach on stormwater impacts
 - Public involvement in plan implementation
 - Detection and elimination of illicit discharges
 - Construction site stormwater runoff control
 - Post-construction stormwater management in new development and redevelopment

The WQMP published by ODEQ in 2019 separated minimum management program requirements for counties without MS4 permits into the four categories, as described in Table 1-1. The BMPs identified within this plan all fall under these categories.

This plan will be submitted to ODEQ by September 2, 2022. Following ODEQ plan approval, the County Commissioners will formally adopt the plan within 60 days.

Table 1-1. Minimum management program requirements for counties and implementation deadlines

Management Program	Requirements	Implementation Deadlines from TMDL Issuance Date
1. Pollution Prevention and Good Housekeeping for County Operations	Counties must properly operate and maintain lands, properties, and facilities using prudent pollution prevention and good housekeeping measures, and through appropriate staff training reduce the discharge of mercury-related pollutants to water bodies. Counties must maintain records for meeting these requirements and include a descriptive summary of their activities in the TMDL annual report.	18 months
2. Public Education and Outreach	Counties must conduct public education and outreach to reduce mercury and mercury-related pollutants, such as sediment, on county lands and properties, as applicable. Such activities should include outreach to property owners adjacent to county roads and ditches. In addition, public outreach must include efforts to encourage and facilitate reporting of sediment related issues or concerns from the public. Public outreach should be tailored to meet the needs and diversity of the county population (e.g. signs, social media, website presence, etc.) Counties must track implementation of the public education and outreach requirements and describe all activities in the TMDL annual report.	18 months
3. Enforcement of Prohibited Pollutants	Counties must reduce conveyance of mercury and mercury-related pollutants to waterbodies from county lands and properties, and have capability of enforcing on other entities that contribute mercury-related pollutants, such as sediment, to county property and assets. DEQ recognizes that county ordinances already in place or that must be adopted will likely be more comprehensive and prohibit discharges of other pollutants, rather than only those associated with mercury. The program must also maintain a procedure or system to document all complaints or reports of mercury and mercury-related pollutant discharges to county lands and properties and to water bodies from county lands and properties. In each TMDL annual report, counties must track implementation of their enforcement program and describe all activities.	3 years
4. Construction Site Runoff Control	To minimize mercury and control potential sediment runoff from construction sites, counties must incorporate erosion control requirements into county building and grading permit applications. Permit language must require erosion, sediment, and waste material management controls to be used and maintained at construction sites from initial clearing through final stabilization. Counties may prioritize where these building and grading permit requirements are applied, for example where increased development is occurring, according to county zoning regulations, or where large subdivisions or large-scale dense development is allowed. Through an ordinance or other regulatory mechanism, counties must be able to pursue enforcement and technical assistance, as appropriate, at construction sites where pollutants could discharge to waters of the state, either directly to stream or through a conveyance system. In each TMDL annual report, the county must track implementation of its construction site runoff control program and describe all activities.	4.5 years

Adapted from Tables 13-12 and 13-15 from the 2019 ODEQ Revised WQMP

2. PARAMETER OF CONCERN—MERCURY

Mercury, the parameter of concern for this implementation plan, is a potent toxin that can cause damage to the brain and nervous system. The primary way that humans are exposed to mercury is through the consumption of fish or seafood containing elevated levels of mercury. The accumulation of mercury in fish is an environmental problem throughout the United States. The following summary of the processes by which mercury becomes a threat to human health are derived from Appendix B of the EPA document *Total Maximum Daily Load for Mercury in the Willamette Basin, Oregon* (December 30, 2019; revised February 4, 2021).

2.1 SOURCES

The Oregon Administrative Rules provide definitions for nonpoint- and point-sources of pollutants as follows:

- Nonpoint source: Diffuse or unconfined sources of pollution where wastes can either enter, or be conveyed by the movement of water, into waters of the state (OAR 340-41-0002(42)).
- Point source: A discernible, confined, and discrete conveyance including, but not limited to, a pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or leachate collection system from which pollutants are or may be discharged but does not include agricultural storm water discharges and return flows from irrigated agriculture (OAR 340-041-0002(46))

Both nonpoint and point sources are greatly influenced by atmospheric deposition of mercury onto the Yamhill County landscape. Section 9 of ODEQ's 2019 Final Revised Willamette Basin Mercury TMDL (accepted by the EPA per Section 4 of the EPA TMDL) discusses point- and nonpoint-sources of mercury pollution across the basin, of which Yamhill is a HUC-8 subbasin. The following sub-sections summarize the discussion from that report.

2.1.1 Nonpoint Sources

Watershed characteristics and associated land use activities have a large influence on how much atmospherically deposited mercury is sequestered in the soil, re-emitted to the atmosphere, or mobilized in surface water. For the purpose of this TMDL report, nonpoint sources include activities associated with forestry, agriculture, legacy metals mining resources, water impoundments, water conveyances, non-permitted urban and rural stormwater, groundwater and atmospheric deposition to land and water.

The majority of the sources identified in this report will be non-point sources.

2.1.2 Point Sources

Point sources were discussed in Section 9 of the 2019 ODEQ TMDL from the perspective of regulating wastewater and stormwater through permits, as mercury levels are measured and reported within various federal and state level permits.

DEQ modeled potential mercury contributions from point sources using data gathered from various discharge permits. ODEQ issues NPDES permits for sources that discharge to surface waters according to OAR 340-045-0015. These permits can either be general or individual and cover discharges of stormwater and wastewater to surface waters of the state. In the Willamette Basin, ODEQ issues individual and general permits for wastewater discharged from major and minor municipal sewage treatment plants, major and minor industrial operations that fall under certain Standard Industrial Classification codes, and a variety of general wastewater permit categories. Furthermore, federal regulations require qualified municipalities, such as cities, counties, and special districts, to obtain NPDES permit coverage for their stormwater discharges.

An example of a major municipal sewage treatment facility within the Yamhill subbasin which is NPDES-permitted for wastewater discharge is the City of McMinnville Water Reclamation Facility, which discharges to the South Yamhill River. An example of an individual industrial facility within the Yamhill subbasin which is NPDES-permitted for wastewater discharge is the Cascade Steel blast furnace and steel mill, which also discharges to the South Yamhill River.

The potential contributions of mercury from stormwater managed through all of the general stormwater permits covering industrial and construction activities (NPDES 1200-A, 1200-Z, 1200-C, 1200-CA, and 1200-CN) were also modeled as point sources. For the purpose of this report, any construction site with one of the stormwater permits listed above will count as a point source.

2.2 ALLOCATIONS

The EPA provided a summary of allocations for mercury loads in various categories for all subbasins within the WRB. For an adaptation of Tables 2 and 3 from the EPA TMDL with information relevant to the three subbasins within Yamhill County, see Table 2-1.

Table 2-1. Allocated At-Source Loads and Required Percent-Reductions by Category

Category		Middle Willamette Subbasin 17090007	Yamhill Subbasin 17090008	Tualatin Subbasin 17090010
Surface runoff and sediment (agriculture, forest, shrub, developed, other*)	Allocated At-Source Loads (g/day)	0.25	2.44	0.44
	Percent Reductions in At-source Loads for Land Managers	97%	88%	97%
Groundwater (agriculture, forest, shrub, developed, other*)	Allocated At-Source Loads (g/day)	0.22	0.49	0.23
	Percent Reductions in At-source Loads for Land Managers	88%	88%	88%
Atmospheric deposition direct to water	Allocated At-Source Loads (g/day)	1.04	0.12	0.15
	Percent Reductions in At-source Loads for Land Managers	35%	35%	35%
NPDES Permitted Stormwater Point Source Discharges	Allocated At-Source Loads (g/day)	0.04	0.01	0.46
	Percent Reductions in At-source Loads for Land Managers	97%	75%	75%
Non-Permitted Urban Stormwater	Allocated At-Source Loads (g/day)	0.01	0.09	<0.01
	Percent Reductions in At-source Loads for Land Managers	97%	75%	75%
Legacy Metals Mines	Allocated At-Source Loads (g/day)	<0.01	<0.01	<0.01
	Percent Reductions in At-source Loads for Land Managers	95%	95%	95%
NPDES Permitted POTW Wastewater Discharges	Allocated At-Source Loads (g/day)	0.14	0.06	0.64
	Percent Reductions in At-source Loads for Land Managers	74%	10%	10%
NPDES Permitted Industrial Wastewater Discharges	Allocated At-Source Loads (g/day)	0.24	0.01	0.01
	Percent Reductions in At-source Loads for Land Managers	17%	10%	10%
Total	Allocated At-Source Loads (g/day)	1.93	3.22	1.91

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3. EXISTING MANAGEMENT STRATEGIES

The County’s existing management strategies for TMDL implementation and reduction are listed in the sections below. The tables identify the sources of pollutants addressed by each strategy and provide a general timeline for implementation. These strategies are currently ongoing and will be assessed for improvements in future annual update reports.

3.1 POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

Table 3-1 and the following subsections detail the programs and strategies already in place that satisfy this requirement of the WQMP.

Table 3-1. Existing Strategies for Pollution Prevention and Good Housekeeping for Municipal Operations

Management Strategy	Goal	Pollutant Source Addressed	Specific Actions	Results Monitoring	Timeline	Funding Source
Actively maintain roadside vegetation of County-controlled roads	Reduce erosion along County-controlled roads	Bank erosion due to high flows	Maintain vegetation along roads, remove debris as needed	Document existing conditions and riparian vegetation retained	Ongoing	County Operating Budget
Develop GIS database of County-maintained assets, document condition and identify those in need of replacement or repair	Lay foundation for necessary maintenance activities by building library of County assets	Road runoff and ditch erosion	For all culverts on county roads: survey, mark, and record location, size, material, condition, proximity to surface waters if immediately evident, etc.	Maintained GIS library and tracking spreadsheet	Ongoing	County operating budget
Identify and prioritize county roads and ditches that contribute sediment and runoff to water bodies	Develop strategy for reducing erosion and sedimentation caused by road runoff	Road runoff and ditch erosion	Survey roads and ditches and record the following: condition, state of vegetation, proximity to surface waters	Maintained spreadsheet and/or tracking forms	Ongoing	County operating budget
Develop and implement an O&M program	Create a schedule of regular and long-term inspection and maintenance activities	Surface runoff from roads	Create a document with instructions for O&M activities	Track status of O&M activities	Ongoing	County Operating Budget
Retain or plant adequate riparian buffers along waterbodies on county properties	Reduce runoff to surface water without benefit of infiltration	Multiple	Manage and protect wetlands, identify areas with little or no riparian buffer	Document riparian buffer status using photo logs	Ongoing	County Operating Budget

3.1.1 Actively Maintain Roadside Vegetation of County-Controlled Roads

Yamhill County manages vegetation within the right-of-way to maintain its 716 miles (1,432 lane miles) of County roads. This encompasses approximately 20 feet on each side of the road centerlines, and generally includes road shoulders, foreslopes, ditches, and backslopes. The County monitors the amount of erosion along these roads using GIS modeling, as shown in Figure 3-1.

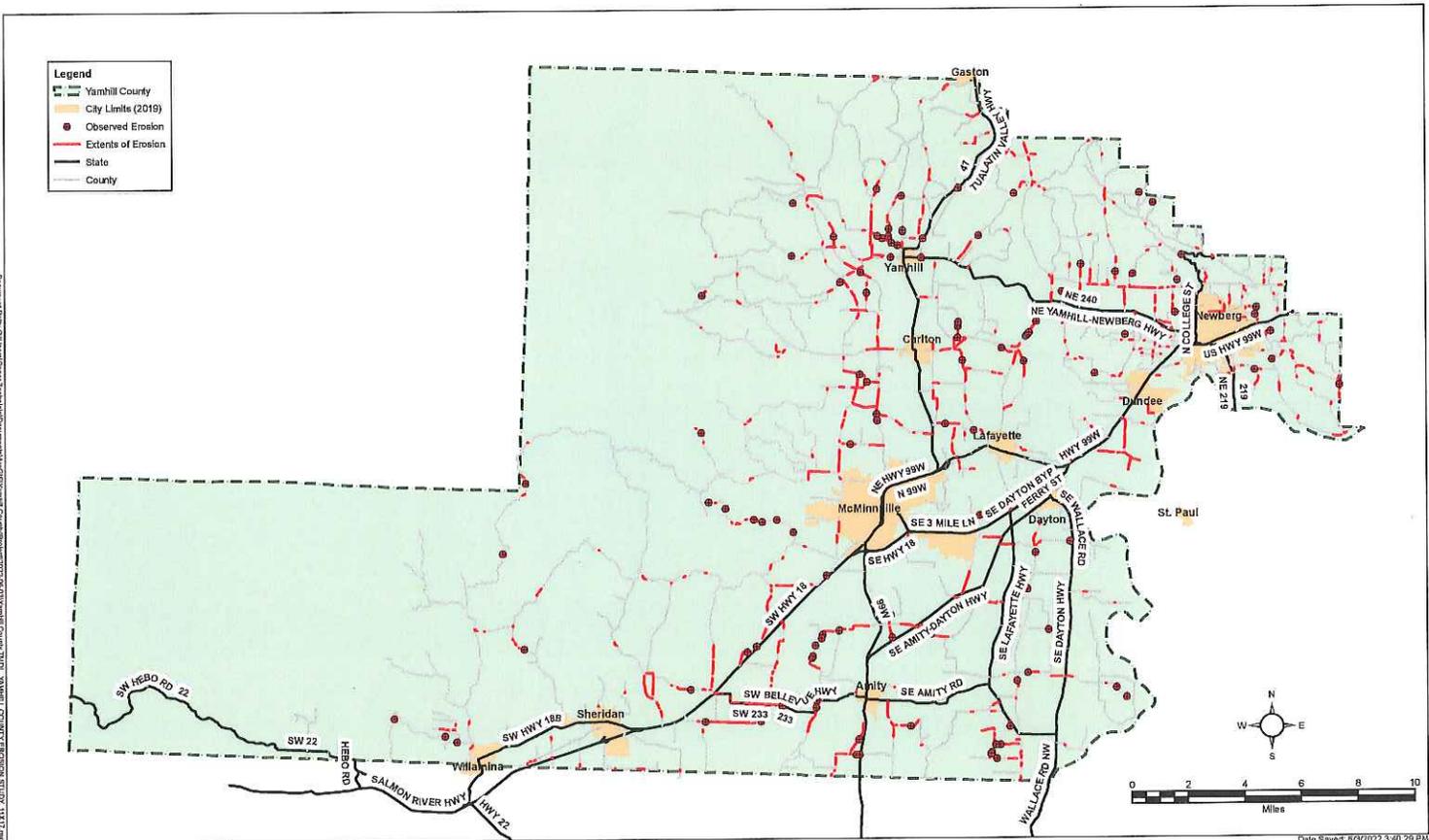
Maintaining roadside vegetation can reduce the amount of erosion and deposition of sediment in streams as water runs off county roads. Since mercury’s primary avenue toward polluting surface waters within Yamhill County is precipitating from atmospheric sources, controlling surface runoff and erosion is one effective method toward preventing mercury transfer into streams and rivers.

In 2016, the County updated the Yamhill County Roadside Vegetation Management Plan which details best management practices (BMP’s) for maintenance of roadsides by nurturing and maintaining native and endangered plant species, reducing the spread of invasive species and noxious weeds, and minimizing impacts to water quality. The plan also includes a figure showing a typical road section and associated table for maintenance activities required for the various parts of the road, as well as a proposed yearly schedule of activities that can be followed to achieve these goals. See Table 3-2 and Figure 3-2 (adapted for this report).

Table 3-2. YC Roadside Maintenance Guidelines (from YC Roadside Vegetation Management Plan)

Road Section	Width	Maintenance Activities as Needed
Travel lane: paved or gravel surface	11’ – 12’	<ul style="list-style-type: none"> ● Pave or grade
Gravel shoulder and foreslope: shoulder to bottom of ditch	Varies	<ul style="list-style-type: none"> ● Spray next to paved roads to maintain a vegetation-free zone ● Limit broadcast spray zone to 2-3’ from edge of travel lane; stay above ditch high water mark ● Target spray for noxious weeds and invasive plants ● Mow ● Cut brush ● Clean ditches ● Maintain vegetative cover in ditch bottom
Backslope: bottom of ditch to outside edge of right-of-way	Varies	<ul style="list-style-type: none"> ● Mow, cut brush, remove trees, or target spray to: <ul style="list-style-type: none"> ○ Respond to emergency/hazardous circumstances ○ Maintain sight distance ○ Maintain vehicle clearance ○ Maintain visibility of signs, guard rails, permitted structures ○ Control noxious weeds and invasive plants ● Clean ditches ● Maintain vegetative cover in ditch bottom

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Yamhill County
**IMPLEMENTATION PLAN FOR THE
WILLAMETTE BASIN MERCURY TMDL**

Figure 3-1.
YAMHILL COUNTY EROSION STUDY

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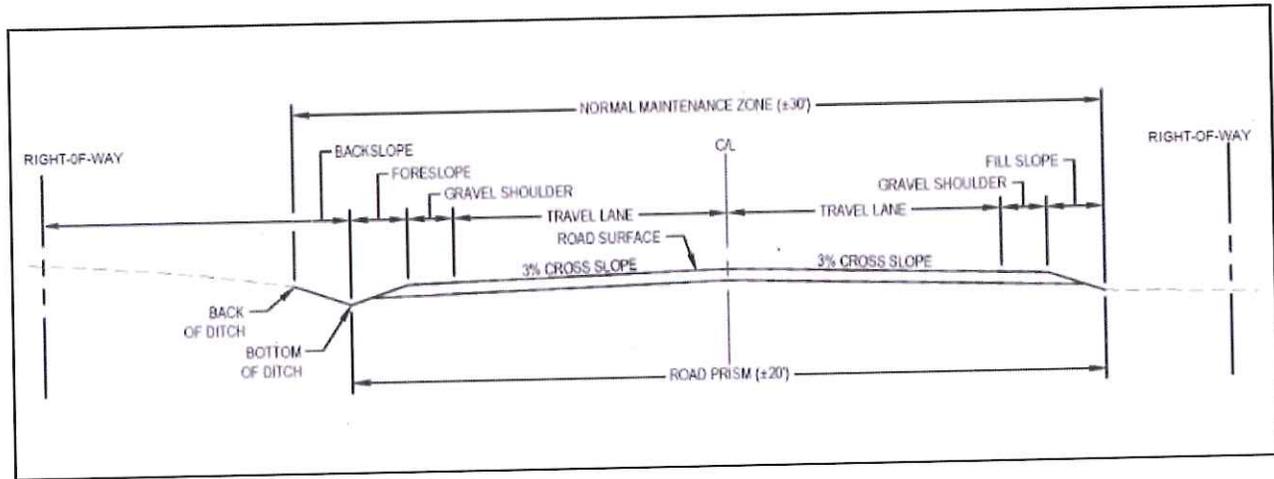


Figure 3-2. Typical Road Section for Gravel and Paved Surfaces

The plan includes detailed BMPs per categorized maintenance activities listed in table 3-2, also categorized into the various goals achieved (i.e. water quality, native plant and wildlife species, regulations, etc). For example, under *Brush Cutting, Mowing, and Tree Removal*, the BMPs to protect water quality are as follows:

- Reduce or eliminate pollutants and sediments from entering surface waters to improve water quality and comply with federal, state, and local regulations.
- Deposit excess material above the 100-year floodplain and not within 75' of a stream, wetland, or riparian area.
- If trees providing shade or bank stabilization within 50' of water bodies are determined to be a risk to public safety, remove the trees and replace at a 2:1 ratio in an area that will not pose a future threat to the roadway or bridge structures.
- Refuel, repair, and clean equipment at least 25' from water bodies.
- At bridge heads, remove brush on either side, either end, and under the structure only as needed to maintain sight distance and safety of the structure or to control noxious weeds and invasive plants. Maintain adequate air flow to prevent moisture build-up on wood, steel, and concrete bridge components.
- Remove 10' of brush, upstream, downstream, and on each side of culverts that are 6" in diameter or greater. Removal of noxious weeds and invasive plants may extend beyond this limit.

The Vegetation Policy is being updated by the Vegetation TAC Committee, with a draft to be completed in Fall 2022.

Another major factor managing surface runoff of roads is in maintaining culverts. Though the Roadside Vegetation Management Plan provides general practices for reducing sediment and maintaining culverts, it does not include record of all of the County's existing assets. The County recognized this, and is currently in the process of documenting location, size, length, material, etc. of all cross-tile and driveway approach culverts in their GIS library. After locating a culvert on a gravel road, each end is marked with a metal stake and green placard on the back slope of the ditch. For culverts located on paved roads they apply a green thermos-plastic square at the edge on the paved surface. Once completed, this library will be used in parallel with the Roadside Vegetation Management Plan to update and maintain maintenance records.

3.1.2 Develop GIS Database of County-Controlled Systems

As mentioned in section 3.1.1, the County is in the process of cataloging all cross-tile and driveway-approach culverts in its jurisdiction. Data collection has thus far included location, size, length, material, etc. of such culverts. Having easily accessible documentation of each culvert with specific information about them is an excellent place to start for tracking operations and maintenance needs, as it is difficult to ascertain what work needs to be done when there is no full understanding of what is in the system.

The County is also documenting overall condition of culverts, channel condition immediately upstream and downstream of each culvert, and need for erosion control measures such as channel stabilization and upsizing the culvert. Adding this information to the library will help to lay the foundation for other proposed management strategies, such as prioritization of necessary projects and implementing an O&M program.

This is an ongoing project and will be a multi-year effort given the limited resources available to the County.

3.1.3 Identify and Prioritize Storm Drainage Projects

The County GIS already includes layers for County roads, rivers, wetlands, and erosion. These layers are used together to identify county roads and ditches that have the potential to contribute sediment and runoff to water bodies.

To do so, the County looks at those layers mentioned above as well as soil type, proximity of the roads to the surface water, the locations of erosion per last update of the erosion layer, etc. Figure 3-3 is an example of culvert project prioritization from the GYWC to improve fish passage. The County is in the process of developing a similar plan.

3.1.4 Retain or Plant Adequate Riparian Buffers Along Waterbodies on County Properties

Riparian corridors are crucial to maintaining water quality of streams and rivers. The county has begun to conduct surveys of wetlands and riparian buffers on public lands to determine condition of these areas and identify those in need of maintenance or planting. Wetlands will be prioritized in this effort and catalogued separately. This effort will include assembly of a database of creeks, streams, and rivers on public lands. Photo logs will then be assembled of the various waterbodies and updated as work is performed. This is another effort that is anticipated to take several years to implement but can be initiated in tandem with other efforts.

Information on riparian buffers will be made available to the public in an accessible venue. The County website mentions Designate Riparian Land on the Farm/Forest Special Assessment Program page (<https://www.co.yamhill.or.us/content/farmforest-special-assessment-program>), however one must conduct a general search of the word “riparian” to find it. Once there, the webpage does not offer further information on benefits or qualifications. We recommend updating this page to include more information on this program.

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3.1.5 Parks and Boat Launches

The County owns and operates 15 parks and recreational areas, 13 of which contain rivers and/or streams and four of which have boat launches available for citizens to use. These parks are generally heavily vegetated and therefore act as a riparian buffer between the water and nearby development.

Most of these parks have stations available to pet owners for waste pickup and disposal, as well as signage to indicate the benefits of picking up after your pet near or on these stations. Monitoring and maintenance of park vegetation is regular and will continue to ensure protection against erosion.

Most precipitation that lands here generally has the benefit of infiltration prior to entering surface waters, as boat ramps and parking lots are the only impervious areas in this land use category. Therefore, the measures above sufficiently protect against mercury pollution.

3.1.6 Cove Orchard Sanitary Sewer District

Yamhill County operates the Cove Orchard Sanitary Sewer District (COSSD) which serves 49 private residences within a portion of unincorporated Yamhill County, located approximately four miles north of the City of Yamhill. The COSSD sanitary system consists of individual septic tanks connected to a centralized drain field with a Recirculating Gravel Filter (RGF). This district is at capacity with the 49 connections and there are no current plans for expansion. The COSSD currently serves private residences only. There are no dentist offices, industries, or other known potential sources of mercury that are connected to the COSSD sanitary system.

Though septic systems are not generally a source of mercury pollution, it is good practice to maintain up-to-date records of tank locations and conditions. Yamhill County does this by keeping a regular maintenance schedule for all septic tanks within the district. The following excerpt from the COSSD Operations Manual describes the process:

DEQ requires that sludge levels be checked annually. In general, the septic tanks shall be pumped before there is an accumulation of floating scum less than three (3) inches deep. The tank must be pumped before the maximum allowable depth of 2.0 feet of septage accumulates.

Within a 4-year pumping schedule, experience has shown that between 1 and 2 feet of septage accumulates in various tanks.

Because different houses have different sludge accumulation rates, the District's septic tanks are typically pumped at 2-year to 5-year intervals, as dictated by the District's maintenance schedule. When the pumping is conducted, the screen and tank is washed down. The pump, control panel, wiring, risers and tank interior are checked for any irregularities. The District checks for possible I/I sources in the house lateral to the tank, and the homeowner or contractor corrects any piping deficiencies.

The Operations Manual was written in 2004 and remains up to date according to County officials.

3.2 PUBLIC EDUCATION AND OUTREACH

Table 3-3 and the following subsections detail the programs and strategies already in place that satisfy this requirement of the WQMP.

Table 3-3. Existing Strategies for Public Education and Outreach

Management Strategy	Goal	Pollutant Source Addressed	Specific Actions	Results Monitoring	Timeline	Funding Source
Solicit public input on TMDL implementation plan	Facilitate public involvement	Mercury	Present TMDL Plan to County Commissioners, Road Improvement Advisory Committee, and public	Document public outreach efforts and public input	2022*	County Operating Budget
Coordinate with Agricultural Lands & Rural Property Owners	Support agencies with existing programs and facilitate communication with property owners	Surface runoff & erosion	Coordinate with agencies that have incentives programs in place and reach out to property owners to educate them on these programs	Document property owners taking advantage of incentives programs, attendance at information sessions	Ongoing	County Operating Budget

* Following ODEQ approval of report

3.2.1 Coordinate with Agricultural Lands & Rural Property Owners

Current programs in place for helping farms and other large property owners are being implemented and managed by agencies with overlapping jurisdiction in Yamhill County, including the Yamhill Soil and Water Conservation District (YSWCD) and Greater Yamhill Watershed Council (GYWC) in partnership with other federal, state, and regional committees. Both groups provide free technical assistance and funding to landowners with agricultural or forested land cover, including offering strategies for reducing erosion, holding pesticide collection events, advising on best management practices for various land use applications, grant writing, watershed data and maps, on-site visits, and more. Many of their suggestions and services center on helping landowners to reduce erosion.

In 2017, the YSWCD worked with the State and other regional committees to develop the Yamhill Basin Agricultural Water Quality Management Area Plan for the Yamhill subbasin. The purpose of the Area Plan is to guide landowners and partners in addressing water quality issues related to agricultural activities. It provides strategies to prevent and control water pollution and soil erosion on agricultural and rural lands by identifying eight Prevention and Control Measures, four of which are related to surface water runoff and erosion/sedimentation. The Area Plan is implemented using a combination of outreach, conservation and management activities, monitoring evaluation and adaptive management.

The Area Plan provides a guide but does not establish legal requirements for property owners to follow, so a set of Area Rules was developed alongside the plan to describe regulatory requirements. These rules are enforced by ODA.

Additionally, every five years the YSWCD develops a Strategic Plan to provide internal direction to staff and directors, establish priorities for the district, and ensure annual progress is being made to advance the plan goals and objectives. These goals include but are not limited to the following, which could directly affect the level of mercury pollution:

- Goal 7: Protect agricultural and forest soil resources.

- Goal 8: Assist the county with its roadside vegetation program and seek opportunities to establish appropriate roadside vegetation.
- Goal 9: Establish riparian buffers needed for streams in the watershed.

The most recent version of this plan available on the YSWCD website was published in 2015 for the 2015 to 2020 period.

Hazelnut Orchards

Hazelnut orchards represent a significant portion of private land ownership within Yamhill County, and thus have BMPs targeted specifically to them managed by various agencies. The YSWCD, for example, worked with the Natural Resources Conservation Service (NRCS) and adjacent counties to develop a multi-county Conservation Implementation Strategy (CIS), focused on providing financial incentives for erosion control practices in hazelnut orchards. The CIS was approved in March 2019 and became effective for the federal fiscal year beginning October 1, 2019. The CIS provides financial incentives to hazelnut growers who apply conservation practices on their land. There are six primary practices financially incentivized through the CIS:

1. Conservation Cover: Provides \$68 - \$91 per acre to establish permanent vegetation between rows
2. Cover Crop: Provides \$50 - \$67 per acre for winter erosion control
3. Mulching: Provides from \$181 - \$242 per acre for winter erosion control
4. Herbaceous Weed Treatment: Provides \$13 to \$18 per acre for noxious weed control
5. Field Border: Provides \$789 - \$1,053 per acre for vegetative plantings that filter surface water at field edges.
6. Critical Area Planting: Provides \$463 - \$618 to repair gully erosion and establish vegetation.

NRCS funds up to a 75 percent cost-share for practice implementation, subject to limits described above. The YSWCD is offering an incentive bonus to cover an additional 25% of the costs to further incentivize erosion control practices in Yamhill County.

3.2.2 Other Agencies with Mercury Measures

As discussed in some of the sections above, other agencies adjacent to or overlapping jurisdiction with Yamhill County have measures in place that protect against erosion and sedimentation, and therefore protect surface waters from mercury pollution.

We assume that these agencies will continue their efforts to reduce erosion, and suggest that Yamhill County coordinate with them to support their efforts. See section 4.2 below.

3.3 ENFORCEMENT OF PROHIBITED POLLUTANTS

Table 3-4 details the programs and strategies already in place that satisfy this requirement of the WQMP.

Table 3-4. Existing Strategies for Enforcement of Prohibited Pollutants

Management Strategy	Goal	Pollutant Source Addressed	Specific Actions	Results Monitoring	Timeline	Funding Source
Receive and respond to complaints regarding water quality problems (erosion; illicit discharge)	Eliminate illicit discharges	Domestic waste; erosion	Enforce nuisance control ordinance; Coordinate complaint with code enforcement	Maintain records of number of complaints handled, number of referrals	Ongoing	County Operating Budget

Yamhill County currently relies on a system whereby citizens can report incidents of uncontrolled surface runoff or severe erosion to the Road Improvement Advisory Committee (RIAC) on the County’s website. Relevant documents, including annual reports, can be found at following link: <https://www.co.yamhill.or.us/content/road-improvement-advisory-committee>

3.4 CONSTRUCTION SITE RUNOFF CONTROL

Table 3-5 and the following subsections detail the programs and strategies already in place that satisfy this requirement of the WQMP.

Table 3-5. Existing Strategies for Construction Site Runoff Control

Management Strategy	Goal	Pollutant Source Addressed	Specific Actions	Results Monitoring	Timeline	Funding Source
Require stormwater detention and water quality measures with development	Reduce flows and contamination to predevelopment levels	Increased impervious surface with development	Require stormwater detention with new development in accordance with development code	Maintain records of detention and water quality facilities	Ongoing	Developer Funded
Require construction permits contain provisions to protect sites from soil erosion	Reduce construction site stormwater runoff	Erosion from construction sites	Require ODEQ 1200-C erosion control permit for more than 1 acre of soil disturbance; County enforced erosion control for smaller projects	Maintain records of 1200-C permits submitted to DEQ	Ongoing	Developer Funded
Require erosion control for County construction projects	Reduce sediment laden runoff from County projects	Erosion from County projects	Educate county staff about erosion control	Document staff training about erosion control	Ongoing	County Operating Budget
Manage development within defined protected Overlay Districts	Reduce erosion and regulate the overland flow of water to surface waters	Surface runoff and shallow groundwater	Review relevant permits for development within the applicable Overlay Districts	Document existing conditions and riparian vegetation retained	Ongoing	County Operating Budget

3.4.1 Construction Sites & Development

Under state requirements, developers must manage stormwater and wastewater runoff from their construction sites. The 1200-C permit developed and reviewed by the State requires the following for approval:

- Plans for general stormwater control design, installation, and maintenance in accordance with engineering and professional practices.

- Engineered design for erosion prevention, sediment control and treatment, including but not limited to:
 - Preventing bypass and ponding of the designed system
 - Establishing natural buffer zones and/or equivalent controls
 - Preserving existing vegetation where possible
 - Protecting existing stormwater facilities as applicable
 - Engineered sediment basins or similar impoundments
 - Stabilization criteria
- Pollution prevention controls regarding equipment fueling and washing, handling of hazardous or toxic materials, and procedures for emergency spill notifications.
- A fully developed Erosion and Sediment Control Plan.

Additionally, the County has its own requirements for construction projects based on project size and scope. If a project footprint is greater than 1-acre, the developer must include stormwater measures such as artificial wetlands. Stormwater quality and quantity requirements are generally codified in the comprehensive plan, however there are no specifics as to how those objectives are achieved.

3.4.2 Overlay Districts

Overlay Districts amend the official Yamhill County Zoning Map (see Figure 3-4) to reflect areas that require specific considerations and associated permits for development. These districts are established through county ordinances and amended as necessary.

The following overlay districts include permit conditions that have the potential to reduce erosion and sediment deposition in Yamhill County waterways, and therefore can be considered existing management strategies toward achieving the TMDL for mercury.

Floodplain Overlay District (FP)

County Ordinance 901 establishes the Floodplain Overlay District (FP) with the purpose to “promote the public health, safety and general welfare, and to minimize public and private losses due to flood damage by establishing methods and provisions designed to recognize such hazards.” It includes areas identified by the Federal Insurance Administration in the report “Flood Insurance Study for Yamhill County, Oregon and Incorporated Areas” dated March 2, 2010 (see Figure 3-5).

This ordinance requires that a floodplain development permit be obtained prior to any construction or development within the FP Overlay District. The following criterium (subsection 901.06) required for issuance of a floodplain development permit are relevant to this report for their capacity to reduce erosion and deposition of sediment and/or pollution into waterways in the county: “E. The proposed development is consistent with policies j. and k. of the Comprehensive Plan, as amended by ordinance 471.”

From Section II.C of the Comprehensive Plan, as amended by Ordinance 471:

- j. It is the policy of Yamhill County to protect riparian vegetation from damage that may result from land use applications for development that is otherwise permitted outright or conditionally under county zoning regulations. To achieve this goal, Yamhill County will review land use applications for development in riparian areas in an effort to mitigate or prevent damage to riparian vegetation that might result from the development. For purposes of this policy, “riparian

areas” refers to areas within 100 feet measured horizontally from the ordinary high water line of streams identified as “Fish Habitat” in the comprehensive plan inventory (Natural Resource Conservation Plan, Yamhill County, Oregon, May 1979 -U.S.D.A. - Soil Conservation Services), that are not regulated under the Forest Practices Act. (Ord 471)

- k. It is county policy that land use management practices and nonstructural solutions to problems of erosion and flooding are preferred to structural solutions. Water erosion control structures, including riprap and fill, should be reviewed by the appropriate state permitting authority to insure that they are necessary, are designed to incorporate vegetation where possible, and designed to minimize adverse impacts on water currents, erosion, and accretion patterns.

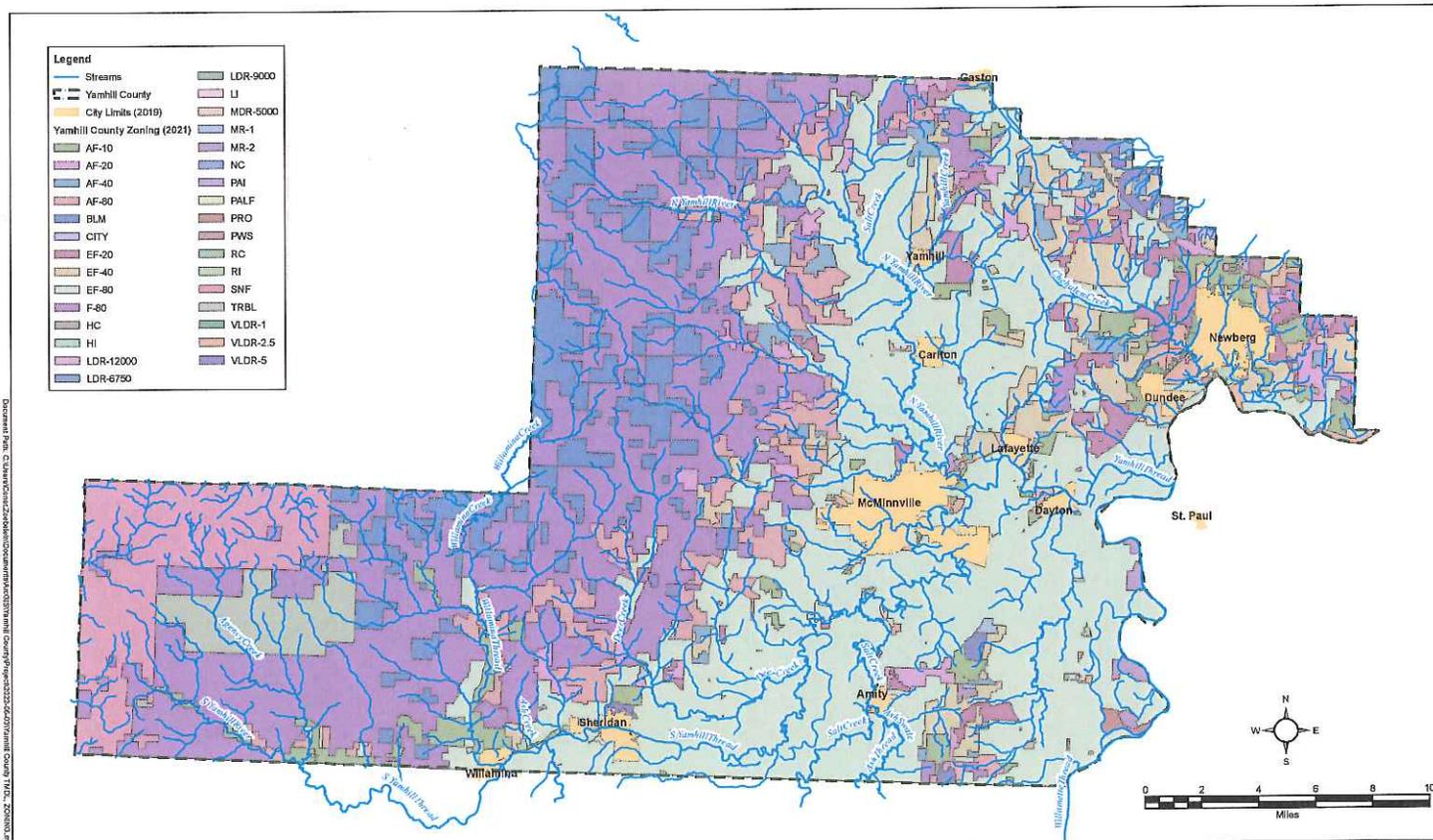
Willamette River Greenway Overlay District (WRG)

County Ordinance 902 establishes the Willamette River Greenway Overlay District (WRG) (see Figure 3-5) with the following purposes as stated in the document:

- A. Protect and preserve the natural, scenic and recreational qualities of lands along the Willamette River in Yamhill County;
- B. Preserve and allow the restoration of historical sites, structures, facilities and objects on lands along the Willamette River;
- C. Implement the goals and policies of the Comprehensive Plan and of the State of Oregon’s Willamette River Greenway program;
- D. Establish standards and requirements for the use of lands within the Willamette River Greenway of Yamhill County; and
- E. Provide for the review of any intensification, change of use or development of properties located within the Willamette River Greenway of Yamhill County.

This ordinance requires that those who perform work that “results in a change of use, intensification of use, or development within the WRG Overlay District shall require a Greenway permit pursuant to the procedures set forth in subsection 902.05 for obtaining a Greenway permit,” with exceptions not listed here. The following considerations and criteria (subsection 902.06) required for issuance of a Greenway permit are relevant to this report for their capacity to reduce erosion and deposition of sediment and/or pollution into the Willamette River:

- C. That the natural vegetative fringe along the river shall be maintained in order to assure scenic quality, protection of wildlife, protection from erosion and screening of uses from the River.
- I. That areas of annual flooding, flood plains and wetlands shall be preserved in their natural state to the maximum possible extent to protect water retention, overflow and other natural functions.
- L. That areas considered for development, change of use or intensification of use, which have erosion potential, shall be protected from loss by appropriate means which are compatible with the character of the Willamette River Boundary.
- M. That any extraction of aggregate deposits and reclamation shall be conducted in a manner designed to minimize adverse effects on water quality, fish and wildlife, vegetation, bank stabilization, stream flow, visual quality, noise and safety.
- P. That any development shall be located away from the River to the greatest possible degree. A minimum building setback line of fifty (50) feet from the ordinary high water line of the Willamette River shall be maintained, except for buildings and structures in conjunction with a water-dependent use.

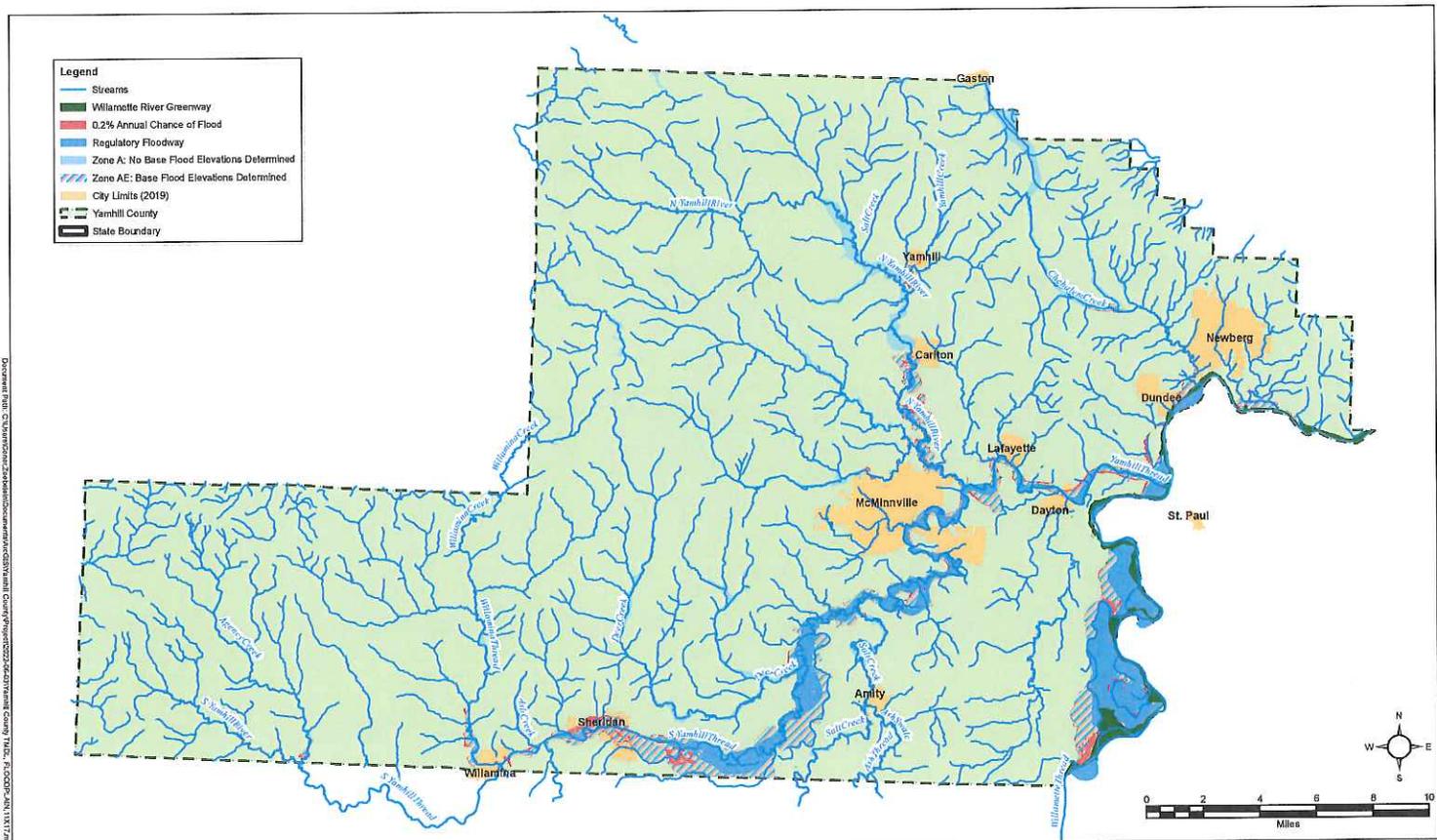


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Yamhill County
**IMPLEMENTATION PLAN FOR THE
 WILLAMETTE BASIN MERCURY TMDL**

Figure 3-4.
 YAMHILL COUNTY ZONING MAP



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Yamhill County
 IMPLEMENTATION PLAN FOR THE
 WILLAMETTE BASIN MERCURY TMDL

Figure 3-5.
 YAMHILL COUNTY OVERLAY DISTRICTS (FLOODPLAIN AND GREENWAY)

Watershed Overlay District (WS)

County Ordinance 905 establishes the Watershed Overlay District to “identify municipal watershed areas” and provide cities within Yamhill County the “opportunity to participate in land use actions to be taken by the county.” The boundaries of this Overlay District are coordinated with individual cities and potentially affected property owners, and are not applied until specifically requested by a city. Although review criteria and permit requirements are generally determined by underlying zones as applicable, “Yamhill County shall consider the potential effect of land use actions on water quality values within designated watershed areas. Conditions may be imposed on development permits to protect water quality.” (905.05)

Scenic Waterway Overlay District (SW)

County Ordinance 906 establishes the Scenic Waterway Overlay District (SW), which “describes the review process administered by the State Parks and Recreation Department under the Scenic Waterways Act (ORS 390.805-390.925).” This overlay district applies only to the river segments included in the Oregon Scenic Waterways system, and includes “the river at its shoreline and all land and tributaries within one-quarter mile of its banks”. Furthermore, the Scenic Waterways Act prohibits placer mining and construction of dams, reservoirs, or impoundments within scenic waterways, and this statutory prohibition takes precedence over the permitted and conditional uses listed in any underlying zone used with the SW Overlay.

In 1993, a review by County staff determined that a segment of the Nestucca River and Walker Creek were to be adopted as scenic river per the requirements of the Oregon Land Conservation and Development Commission. This adoption was completed on December 29, 1993 with Ordinance 566 and identified overlay zones. At the time of writing this report, a GIS layer did not yet exist due to the following factors:

1. The areas deemed as scenic waterways are relatively remote and remain undeveloped due to ownership by McMinnville Water and Light
2. The ordinance was adopted before the County began using GIS.

A request to have these areas mapped and added to the GIS database was submitted by County staff in May 2022.

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4. MANAGEMENT STRATEGIES TO BE IMPLEMENTED

4.1 POLLUTION PREVENTION & MUNICIPAL OPERATIONS GOOD HOUSEKEEPING

Table 4-1 and the following subsections detail the proposed strategies to address this requirement. As stated in Table 1-1, the implementation deadline for best management strategies in this category is September 2022 – 18 months from TMDL issuance. Yamhill County has an existing program (3.1) and the below is an adaptation.

Table 4-1. Management Strategies for Pollution Prevention & Municipal Operations Good Housekeeping to Be Implemented

Management Strategy	Goal	Pollutant Source Addressed	Specific Actions	Results Monitoring	Timeline	Funding Source
Prioritize and replace undersized or improperly designed culverts	Develop strategy for reducing erosion and sedimentation caused by surface runoff	Surface runoff from roads	Use GIS database and tracking spreadsheet to develop work plan for culverts needing to be replaced	Work plans and list of prioritized culverts	March 2024	County Operating Budget, ODOT grant funding

4.1.1 Prioritize and Replace Undersized or Improperly Designed Culverts and Bridges

The purpose of a culvert is to channel water under a road or railroad and can pose significant flooding and erosion concerns if not functioning properly. The primary risk pertinent to this report is erosion of sediment in or around the culvert that could then exacerbate transport of mercury to surface waters. Culverts need to be adequately sized and properly maintained to prevent this from happening.

Once sufficient data has been collected regarding the condition of the County’s culverts in the BMPs discussed above, a Capital Improvement Plan (CIP) will be developed to prioritize and replace those that do not meet current standards. As the County owns over 3,200 culverts, this effort is anticipated to take many years and can be initiated in some conjunction with the GIS library development strategy.

The County has some standard plans available on their website, but for culvert design they primarily rely on ODOT standard details and specifications. ODOT has other resources available for use on their website linked below, including a description of the Culvert Inspection Program (which is used to prioritize culvert projects on state roads) and program contacts.

ODOT Geo-Environmental Culvert Engineering webpage:
<https://www.oregon.gov/odot/geoenvironmental/pages/culverts.aspx>

Furthermore, County officials have identified several bridges under County jurisdiction that are exhibiting significant scour at abutments and in streams. These locations will be surveyed and included in the project appraisal process and added to the list of projects needed.

4.1.2 Develop and Implement an O&M Program for Culvert and Ditch Maintenance

As repair and replacement projects are completed for culverts and ditches in the County, they must be actively monitored and maintained to ensure they are operating as designed. Standardized procedures and maintenance schedules are an efficient way to achieve this, which can be documented in an Operations and Maintenance Manual that is accessible to County staff and contractors.

The County will develop an O&M program for monitoring, maintaining, and reporting conditions of culverts and ditches. This will include the following, at a minimum:

1. A schedule for regular inspection. As there are 3,200+ culverts and 700+ miles of roads with limited staffing resources, this will be on the scale of inspecting different regions every five to ten years.
2. Detailed instructions on steps to take during inspection, what to look for, what photos to take. This could include standard details for reference, example photos of how a properly maintained culvert or ditch should look, etc.
3. Templates for relevant forms to be filled out during inspection and maintenance activities.
4. Contact information for the head of the O&M program.

4.2 PUBLIC EDUCATION AND OUTREACH

Table 4-2 and the following subsections detail the proposed strategies to address this requirement. As stated in Table 1-1, the implementation deadline for strategies in this category is September 2022 – 18 months from TMDL issuance. Yamhill County has existing programs (3.2), below is an adaptation.

Management Strategy	Goal	Pollutant Source Addressed	Specific Actions	Results Monitoring	Timeline	Funding Source
Coordinate with adjacent agencies & overlapping jurisdictions	Understand and assist with measures taken by other agencies that affect Yamhill County surface waters.	Multiple	Coordinate outreach efforts, combine data sources, include links to relevant webpages on the Yamhill County website, continue to encourage and build upon incentives programs	Maintain folder of meeting minutes, correspondence with various agencies, track attendance at sponsored events, data related to incentives programs, etc.	March 2024	County operating budget
Coordinate and support YSWCD and GYWC in their incentives programs	Coordinate efforts with these agencies and offer support as needed	Agricultural erosion, sedimentation and runoff	Co-sponsor incentive programs, apply for applicable grants, include links to relevant webpages on the County website	Document awarded grants and funding, maintain file of property owner's applications	March 2024	Combined Agency Budgets

Implemented

4.2.1 Coordinate with Adjacent Agencies

While this report focuses on the responsibilities of Yamhill County in monitoring and reducing the mercury TMDL in the Yamhill River, this goal cannot be achieved without acknowledging the other stakeholders and municipalities located within and adjacent to Yamhill County's jurisdiction. A key action toward reducing mercury levels in the County's surface water is to coordinate with these agencies and maintain lines of active communication to support other strategies as necessary. This includes, but may not be limited to, the public agencies and municipalities in the County listed in Table 4-3.

Table 4-3. Connected Agencies/Jurisdictions

Agency Name	Potential Contributions
Cities within Yamhill County (Amity, Carlton, Dayton, Dundee, McMinnville, Midway, Newberg, Sheridan, Willamina, Yamhill)	Surface runoff from city streets, erosion from development and city construction Point source contributions from NPDES permits
State of Oregon <ul style="list-style-type: none"> Oregon Department of Transportation 	Surface runoff from state highways
United States Federal Government <ul style="list-style-type: none"> Bureau of Land Management US Forest Service Department of Corrections 	Surface runoff from federal facilities, development, and re-development Surface runoff from forest roads and logging operations
Confederated Tribes of Grand Ronde	Surface runoff from tribal land, development, and re-development
Adjacent Counties (Clackamas, Marion, Polk, Tillamook, Washington,)	Surface runoff from neighboring county roads

4.2.2 Coordinate and Support YSWCD and GYWC in their Incentives Programs

As discussed in various sections above, two major players within the Yamhill subbasin are the YSWCD and the GYWC. Both agencies have established programs that inform citizens and property owners about erosion prevention measures and incentivize them to participate. Yamhill County will focus especially on supporting and participating in these programs and amplify their benefits as possible using resources available to the County.

The following list includes some of the programs these groups offer, taken from their respective websites:

- YSWCD:
 - Agricultural Water Quality Program: The District works with rural landowners to prevent erosion of sediment and nutrients (chemicals, manure, etc.) into Yamhill County streams and rivers as well as re-establishing riparian buffers through promoting BMPs tailored to each landowner. Webpage: <https://yamhillswcd.org/resources-information/agricultural-water-quality-program/>
 - Soil Health/Erosion Reduction Funding: Financial assistance is available from the USDA in partnership with the District to prevent soil erosion, improve soil health, and enhance water quality specifically geared toward hazelnut orchards. See section 3.3 above for more detail. They also offer mulching services and a no-till drill rental. Webpage: <https://yamhillswcd.org/funding/soil-health/>
 - Forest Health Improvement: The District works with owners of forested lands to develop a management plan for forest stands, provides funding for restoring structural diversity to monoculture timber stands. Webpage: <https://yamhillswcd.org/funding/forest-health-improvement/>
 - Streamside Restoration: This program provides financial incentives for landowners to enroll and implement riparian buffer protection through site prep, native grass seeding, riparian forest planting,

tree and shrub establishment, fencing, etc. They offer annual payments and one-time incentive payments. Webpage: <https://yamhillswcd.org/funding/streamside-restoration/>

- GYWC:
 - Watershed Data and Maps: The Council maintains a database of publicly-available watershed data which they use to answer landowner questions about the watershed, properties, or other needs. They provide this data in the form of maps for landowners as requested.
 - On-Site Visits: The Council offers in-person visits by a staff member to look at a potential project site and provide guidance on a variety of watershed needs. Site visits are confidential and at no-cost to the owner.
 - Project support, Volunteer Coordination, and Grant Writing: The GYWC partners with a variety of public, private, and tribal landowners to pursue grant funding, volunteer needs and other resources for implementing watershed projects on the ground. Sometimes the grants and volunteer projects begin with a landowner request for data/maps or an onsite visit, and then develop into a collaborative effort to secure funding and implement the project together.
 - Webpage for all of the above: <https://gywc.org/help-for-landowners/>

4.3 ENFORCEMENT OF PROHIBITED POLLUTANTS

Table 4-4 and the following subsections detail the proposed strategies to address this requirement. As stated in Table 1-1, the implementation deadline for strategies in this category is March 2024 – three years from TMDL issuance.

Management Strategy	Goal	Pollutant Source Addressed	Specific Actions	Results Monitoring	Timeline	Funding Source
Establish ordinances as outlined in the Comprehensive Plan	Align County regulatory goals with TMDL BMPs	Surface runoff from subdivision developments and roads	Enact an ordinance that addresses Goal Statement II.A.2.c.	Report ordinance numbers and dates of adoption	March 2024	County operating budget
Require stormwater and discharge permits from existing and future mining operations*	Control and monitor discharge and runoff from active or future mining operations	Surface runoff and sedimentation	Adopt ordinance so planning and development codes are updated to refer developers to the appropriate state agencies for stormwater General 12 series permits determination.	Collect all permits from existing mines in an accessible location, create and maintain a tracking log with existing and new permits	March 2024	Permittees

*Not applicable if no new mining operations are present or proposed within Yamhill County.

4.3.1 Establish Ordinances as Outlined in the Comprehensive Plan

The Yamhill County Comprehensive Plan outlines policies, practices, standards, and goals for the operation and management of the County’s land, waters, and development. Section II – A. Agricultural Lands, Goal Statement 2 is as follows:

Implemented

To conserve Yamhill County's soil resources in a manner reflecting their suitability for forestry, agriculture and urban development and their sustained use for the purposes designated on the county plan map.

Protection of soil on agricultural lands similarly protects surface waters from mercury pollution via erosion and sedimentation. The policies listed as means to accomplish this goal statement are as follows:

- a. Yamhill County will continue to preserve those areas for farm use which exhibit Class I through IV soils as identified in the Capability Classification System of the U.S. Soil Conservation Service.
- b. Yamhill County will continue to support ASCS soil conservation measures and SWCD best management practices designed to protect and improve forest and agricultural land productivity and to prevent unnecessary losses through excavation, stripping, erosion and sedimentation. (108) R
- c. Yamhill County will establish an ordinance to control erosion and sedimentation in subdivision developments and both public and private roadway construction.
- d. Yamhill County will require that construction permits contain provisions to protect sites from soil erosion.

The County does not currently have an ordinance that accomplishes the goal of item c. Therefore, the County will establish an ordinance to this end. County ordinances that establish construction requirements within overlay zones come the closest, but do not specifically detail erosion control requirements. Developers are generally directed to ODEQ standards related to erosion control when questions are received.

Furthermore, C.O. 108 referenced in item b could not be found in the Yamhill County online directory. This ordinance will be located and reviewed for relevance, and updated as needed to achieve the goal of item b.

4.3.2 Mine Runoff

The Willamette Basin Mercury TMDL identified multiple abandoned mercury mines, mercury prospects, and gold mining districts. In that report, a list of twelve mining districts and abandoned mine lands that were currently being assessed and remediated in DEQ's cleanup program did not include any locations in Yamhill County. Furthermore, included in the supporting Technical Document published along with the TMDL Report was a more extensive list of 38 mines that were potential mercury sources. None of these were located within Yamhill County.

Although no existing mines in Yamhill County are known to produce mercury pollution, measures will be taken to ensure any future mining operations control discharges. The County will adopt an ordinance to update the pre-planning requirements within the planning and development codes to refer developers to the appropriate state agencies for stormwater General 12 series permits determination. Not all mines need permits, those that do are typically overseen by DOGAMI. ODEQ develops General 12 series permits but does not typically regulate the entities with these permits. The relevant permits are listed below.

- 1200-a: Mining Stormwater Discharge Permit (expired as of October 2022, renewal pending)
- 1200-c: Construction Stormwater General Permit
- 1200-z: Industrial Stormwater Discharge Permit

4.4 CONSTRUCTION SITE RUNOFF CONTROL

Table 4-5 and the following subsections detail the proposed strategies to address this requirement. The deadline for implementation of strategies in this section is September 2025.

Table 4-5. Management Strategies for Construction Site Runoff Control To Be Implemented

Management Strategy	Goal	Pollutant Source Addressed	Specific Actions	Results Monitoring	Timeline	Funding Source
Reduce percent of new impervious surfaces	Reduce runoff to surface water without benefit of infiltration	Multiple	Update County Standards to prioritize onsite stormwater infiltration on county-owned properties for existing properties, new development, and redevelopment.	Include descriptions of stormwater measures in design and construction reports	September 2025	County Operating Budget

4.4.1 Reduce Percent of New Impervious Surfaces

Stormwater management measures are required for all construction projects and certain methods are better for reducing mercury pollution than others. Any design that prioritizes infiltration, for example, will return better results than storm drains surrounded by impervious surfaces. The County will consider requiring and offering incentives for designs that include infiltration-based stormwater management measures for new development.

Furthermore, any replacement of County-owned facilities will include these measures as well.

5. MONITORING, REPORTING AND ADAPTIVE MANAGEMENT

5.1 MONITORING

Although the goals outlined in the ODEQ WQMP ultimately strive to quantitatively track the reduction of mercury levels in surface waters of the Willamette Basin, the reality is that this is difficult to achieve when most of the mercury pollution comes from non-point sources over a large area. Almost all monitoring will be qualitative and will effectively comprise of record-keeping and documentation. The WQMP does, however, differentiate between implementation and effectiveness monitoring for qualitative monitoring:

1. Implementation monitoring tracks if/when/how specified management strategies were implemented.
2. Effectiveness monitoring tracks if/when/how specified management strategies were effective at reducing mercury pollution in surface waters.

Each management strategy must have both implementation and effectiveness monitoring reported. See table 5-1 below.

5.2 REPORTING

5.2.1 Annual Reporting

The County will submit an annual report to ODEQ by June 30 of every year on annual progress and qualitative effectiveness of TMDL implementation activities for the previous calendar year (January 1 – December 31). When applicable, the effectiveness of each management strategy in reducing mercury loads will be assessed qualitatively and documented in the report. In addition to narration and illustrations, the matrix provided in Table 5-1 will be used to describe TMDL implementation activities for this annual report.

The County will include delays or challenges faced in implementing the strategies outlined above in all annual reports.

5.2.2 Five-Year Reporting

Yamhill County will evaluate this implementation plan for updates every five years after submittal. The evaluation will include a review of existing data (water quality data and other information) to determine the effectiveness of the plan relative to the pollution reduction goals for the previous four years, and revise the approach as needed to improve efficacy. The five-year report will describe the information used in the evaluation and the findings of the evaluation. If the evaluation indicates that the plan is not likely to be adequate in meeting pollution reduction goals, the report will describe how the County will modify the plan or undertake other efforts to achieve the goals, and the timeline for accomplishing this. The five-year report will be due by June 30, 2027.

The County will include delays or challenges faced in implementing the strategies outlined above in all five-year reports, and will provide description of those outlined in previous annual reports and actions taken to address related issues.

In addition to the annual and five-year reports, the County will review and revise this implementation plan as needed following any ODEQ reevaluation of the TMDL.

Table 5-1. Implementation Plan Monitoring and Updating Matrix

Management Strategy	Specific Actions	Results Monitoring	Status of Accomplishments
Require stormwater detention and water quality measures with development	Require stormwater detention with new development in accordance with development code	Maintain records of detention and water quality facilities	
Solicit public input on TMDL implementation plan	Present TMDL Plan to County Commissioners and public	Document public outreach efforts and public input	
Coordinate with Agricultural Lands & Rural Property Owners	Coordinate with agencies that have incentives programs in place and reach out to property owners to educate them on these programs	Document property owners taking advantage of incentives programs, attendance at information sessions	
Require construction permits contain provisions to protect sites from soil erosion	Require ODEQ 1200C erosion control permit for more than 1 acre of soil disturbance; County enforced erosion control for smaller projects	Maintain records of 1200C permits submitted to ODEQ	
Actively maintain roadside vegetation of County-controlled roads	Maintain vegetation along roads, remove debris as needed	Document existing conditions and riparian vegetation retained	
Require erosion control for County construction projects	Educate county staff about erosion control	Document staff training about erosion control	
Receive and respond to complaints regarding water quality problems (erosion; illicit discharge)	Enforce nuisance control ordinance; Coordinate complaint with code enforcement	Maintain records of number of complaints handled, number of referrals	
Maintain maps of County-controlled stormwater and sanitary sewer systems	Update existing maps periodically	Document all updates of system maps	
Manage development within defined protected Overlay Districts	Review relevant permits for development within the applicable Overlay Districts	Document existing conditions and riparian vegetation retained	

Management Strategy	Specific Actions	Results Monitoring	Status of Accomplishments
Coordinate with adjacent agencies & overlapping jurisdictions	Coordinate outreach efforts, combine data sources, include links to relevant webpages on the Yamhill County website, continue to encourage and build upon incentives programs	Maintain folder of meeting minutes, correspondence with various agencies, track attendance at sponsored events, data related to incentives programs, etc	
Establish ordinances as outlined in the Comprehensive Plan	Enact an ordinance that addresses Goal Statement II.A.2.c.	Report ordinance numbers and dates of adoption	
Require stormwater and discharge permits from existing and future mining operations	Enact ordinance requiring new mines in Yamhill County to acquire 1200-c and 1200-z permits, conduct survey of existing mines	Collect all permits from existing mines in an accessible location, create and maintain a tracking log with existing and new permits	
Develop GIS database of County-maintained assets, document condition and identify those in need of replacement or repair	For all culverts on county roads: survey, mark, and record location, size, material, condition, proximity to surface waters if immediately evident, etc.	Maintained GIS library and tracking spreadsheet	
Identify and prioritize county roads and ditches that contribute sediment and runoff to water bodies	Survey roads and ditches and record the following: condition, state of vegetation, proximity to surface waters	Maintained spreadsheet and/or tracking forms	
Prioritize and replace undersized or improperly designed culverts	Use GIS database and tracking spreadsheet to develop work plan for culverts needing to be replaced	Work plans and list of prioritized culverts	
Develop and implement an O&M program	Create a document with instructions for O&M activities	Track status of O&M activities	
Retain or plant adequate riparian buffers along waterbodies on county properties	Manage and protect wetlands, identify areas with little or no riparian buffer	Document riparian buffer status using photo logs	
Reduce percent of new impervious surfaces	Prioritize onsite stormwater infiltration on county-owned properties for existing properties, new development, and redevelopment.	Include descriptions of stormwater measures in design and construction reports	

Management Strategy	Specific Actions	Results Monitoring	Status of Accomplishments
Perform water quality monitoring in the Willamette River	Sample and analyze water from the Willamette River within Yamhill County	Quantitative analysis of mercury pollution	
Continue to encourage YWSCD and GYWC in their incentives programs	Co-sponsor incentive programs, apply for applicable grants, include links to relevant webpages on the County website	Document awarded grants and funding, maintain file of property owner's applications	

5.3 ADAPTIVE MANAGEMENT

The following is an excerpt from Section 13.1.2 of the 2019 ODEQ Willamette Basin WQMP:

The federal Clean Water Act and associated Oregon laws and implementing regulations governing water quality require water quality standards to be met over time. In some cases, responsibility may depend on practicability, but ODEQ typically requires that all feasible steps be taken toward achieving the highest quality water attainable. This is a long-term goal in many watersheds, particularly where nonpoint sources of pollution are the main concern and significant landscape alterations are needed...

Adaptive management is a process that acknowledges and incorporates improved technologies and practices over time in order to refine implementation.

As Yamhill County implements the BMPs presented in this report and revises the plan in the coming years, it will make considerable effort to understand and include improved technologies such that it is using the most up-to-date techniques to mitigate mercury pollution of its rivers and streams.

6. LAND USE COMPLIANCE

None of the proposed management strategies presented in this report will significantly affect land use. The management strategies proposed in this plan were thoroughly cross-checked with the County's Comprehensive Land Use Plan to ensure compliance with land use requirements, and based on the review to date for the proposed management strategies, the TMDL implementation plan is consistent with the County's Plan. The management strategies can be implemented in a manner that complies with the statewide land use goals and be compatible with the provisions of the Comprehensive Plan. The County will evaluate and maintain consistency with local and statewide land use laws in any future actions related to TMDL implementation.

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7. WATER QUALITY MANAGEMENT PLAN REQUIREMENTS

7.1 PUBLIC INVOLVEMENT PLAN

The County will develop a webpage where all relevant TMDL documentation, including future annual reports and five-year updates, will be posted permanently. The website will be accessible to the public for comment where needed. For each release of TMDL documentation, a comment period of 30 days will be available where the County will solicit public input. The updated webpage will include a comment form, similar to the “Contact Form” already available on the Yamhill County website, to facilitate easy electronic compilation of comments.

The design team recommends that the Public Works Department increases its social media presence. Social media is an effective way to communicate information to large audiences and is being used increasingly by government agencies to engage with citizens. Signs and fliers developed by the County to be posted in public spaces, such as parks and boat launches, shall include the relevant account handles or a QR code to make the accounts easy to find by citizens and users of County facilities. These accounts can be used to post information about BMP’s for reducing erosion, events relevant to improving water quality (i.e. the YSWCD annual native plant sale), and general information about how mercury ends up in surface waters and how everyday actions can reduce mercury pollution.

Public involvement will be included in the County Public Works Department and Board of Commissioner’s review and adoption process for this plan and any subsequent updates. Once approved by DEQ, the current plan will be presented to the County Commissioners for adoption within 60 days. Future changes to the plan will be presented to the County Commissioners for review and approval. The County Commissioners will review and approve annual and 5-year reports prior to submitting them to DEQ.

7.2 FISCAL ANALYSIS

DEQ requires this report to include an estimate of resources that will be required for the first five years of the plan, to be re-evaluated and updated at each five-year update report. See below for the measures the County will take within this time period to implement the BMP’s outlined in earlier sections.

7.2.1 Funding for Existing Programs

Management practices that the County already has in place are generally funded by the County’s General Operations Budget. Strategies involving development permits are funded by the developer. See Table 3-1, Table 3-3, Table 3-4, and Table 3-5 for sources of funding per strategy.

7.2.2 TMDL Plan Coordinator

The BMPs listed above will require a full-time Range-16 union employee at a starting annual salary of \$53,786. The responsibilities of this employee would include, but are not limited to, the following efforts:

- Monitoring of riparian vegetation, roadside conditions, and bridge scouring.
- Condition assessments of all County-owned culverts.
- Planning and management of stormwater mitigation projects.
- Developing status and condition reports.
- Meet with property owners to educate on various programs available for assistance with erosion prevention.

7.2.3 Proposed Capital Projects

The monitoring BMPs proposed in earlier sections will inevitably result in necessary construction projects. Further analysis will be needed to determine the scope and number of these projects over the next five years. Thus, it is not possible to estimate the cost of these projects for the given period.

This analysis will be revisited in the annual update of this report once the Vegetation Management Coordinator has been hired and can determine what projects are needed.

7.3 CONSIDERATION OF STORMWATER CONTROL MEASURES

Table 7-1 identifies stormwater control measures that relate to individual management strategies.

Management Strategy	Pollution prevention in municipal operations	Public education and outreach	Public involvement	Illicit Discharge Detection & Elimination	Construction Runoff Control	Post-Construction Stormwater Management
Require stormwater detention and water quality measures with development					X	X
Solicit public input on TMDL implementation plan		X	X			
Coordinate with Agricultural Lands & Rural Property Owners		X				
Require construction permits contain provisions to protect sites from soil erosion				X	X	
Actively maintain roadside vegetation of County-controlled roads	X					
Require erosion control for County construction projects	X				X	
Receive and respond to complaints regarding water quality problems (erosion; illicit discharge)				X		

Requirements

Management Strategy	Pollution prevention in municipal operations	Public education and outreach	Public involvement	Illicit Discharge Detection & Elimination	Construction Runoff Control	Post-Construction Stormwater Management
Maintain maps of County-controlled stormwater and sanitary sewer systems	X					
Manage development within defined protected Overlay Districts					X	
Coordinate with adjacent agencies & overlapping jurisdictions		X	X			
Establish ordinances as outlined in the Comprehensive Plan	X					
Require stormwater and discharge permits from existing and future mining operations				X	X	
Develop GIS database of County-maintained assets, document condition and identify those in need of replacement or repair	X					
Identify and prioritize county roads and ditches that contribute sediment and runoff to water bodies	X					X
Prioritize and replace undersized or improperly designed culverts	X					X
Develop and implement an O&M program	X					X
Retain or plant adequate riparian buffers along waterbodies on county properties	X					
Reduce percent of new impervious surfaces						X
Perform water quality monitoring in the Willamette River	X					
Continue to encourage YWSCD and GYWC in their incentives programs	X	X	X			

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Appendix A. EPA Willamette Basin Mercury TMDL and ODEQ WQMP

Submitted under separate cover.

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Appendix B. Supporting Documents

Submitted under separate cover.