

**Mercury TMDL Implementation Plan**  
Nonpoint Source Clean Water Plan  
Willamette Basin Mercury



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## Introduction

On Nov. 22, 2019, DEQ issued the *Final Revised Willamette Basin Mercury Total Maximum Daily Load* that was submitted to the U.S. Environmental Protection Agency for action. EPA disapproved DEQ's TMDL on Dec. 30, 2019, and issued their final TMDL on Feb. 4, 2021, following a public comment period. EPA notified DEQ that, "EPA has established this TMDL and is hereby providing it to the State for implementation." EPA's TMDL states that reasonable assurance for their TMDL relies on DEQ's Water Quality Management Plan (WQMP). The WQMP was issued on Nov. 22, 2019, as part of the EPA TMDL. EPA and DEQ expect that with implementation of the WQMP, mercury water quality standards will be met.

The WQMP describes a multi-faceted approach that requires implementation of management practices through development of nonpoint source TMDL implementation plans (clean water plans) by Designated Management Agencies (DMAs) and Responsible Persons (RPs) across the entire Willamette Basin to reduce human-caused sources of mercury. The City of Yamhill, along with approximately 189 other DMAs/RPs, was identified in the Mercury TMDL WQMP by DEQ and issued notification of the requirements in March 2021 (Appendix 1 copy of letter).

## Summary of plan development and implementation requirements

The City of Yamhill is required to develop and implement a nonpoint source TMDL implementation plan that includes mercury and sediment reduction strategies. The plan must be approved by DEQ. The requirements of DEQ 2019 Mercury WQMP and OAR 340-042-0080 must be included for approval.

## Implementing a Total Maximum Daily Load

### ***Oregon Administrative Rule 340-042-0080 (4) & (5)***

As per OAR 340-042-0080, management strategies identified in a TMDL WQMP to achieve waste load and load allocations in a TMDL will be implemented through water quality permits for those sources subject to permit requirements in ORS 468B.050 and through sector-specific or source-specific implementation plans for other sources, respectively:

(4) Persons, including DMAs other than the Oregon Department of Forestry or the Oregon Department of Agriculture, identified in a WQMP as responsible for developing and revising sector-specific or source-specific implementation plans must:

(a) Prepare an implementation plan and submit the plan to the Department for review and approval according to the schedule specified in the WQMP. The implementation plan must:

(A) Identify the management strategies the DMA or other responsible person will use to achieve load allocations and reduce pollutant loading.

(B) Provide a timeline for implementing management strategies and a schedule for completing measurable milestones.

(C) Provide for performance monitoring with a plan for periodic review and revision of the implementation plan.

(D) To the extent required by ORS 197.180 and OAR chapter 340, division 18, provide evidence of compliance with applicable statewide land use requirements; and

(E) Provide any other analyses or information specified in the WQMP.

(b) Implement and revise the plan as needed.

(5) For sources subject to permit requirements in ORS 468B.050, wasteload allocations and other management strategies will be incorporated into permit requirements.

### Overview of Mercury TMDL

The focus of this plan is on the defined as nonpoint source Load Allocation. The Mercury TMDL overview below was extracted from the 2019 WQMP Mercury TMDL: <https://www.oregon.gov/deq/wq/Documents/willHgtmdlwqmpF.pdf>

**The Willamette River and many of its tributaries do not currently meet water quality standards for mercury and are included on Oregon's list of impaired waters under Clean Water Act §303(d). Mercury fish consumption advisories are in place throughout the Willamette Basin.**

**Water quality standards are in place to protect people from high levels of mercury exposure when eating fish and shellfish. The fish tissue criterion allows Oregonians to safely consume higher amounts of fish (approximately 23 8-oz fish meals a month) caught in Oregon waterways. Among those who rely on Willamette Basin fish and shellfish as a food source are tribal, immigrant and low-income communities and other historically marginalized communities.**

**A TMDL is a planning tool designed to restore and maintain the quality of waters that have been identified as not meeting applicable water quality standards (USEPA, 1991). A TMDL is typically expressed as:**

**$TMDL = \Sigma WLA + \Sigma LA + MOS \leq LC$  where:**

**WLA = Wasteload Allocation – the portion of the loading to the water body assigned to each permitted point source of the pollutant.**

**LA = Load Allocation – the portion of the pollutant loading assigned to nonpoint sources of the pollutant.**

**$\Sigma$  = Summation across multiple items**

**The TMDL identified sources of mercury and how much mercury needs to be reduced to meet water quality standards. The TMDL used linked models and significantly more data than the 2006 TMDL. The greatest source of mercury in the basin is from atmospheric deposition, which is**

**mercury in the air falling onto the land or into the water. The mercury in air originates mainly from national and global sources rather than from sources in Oregon.**

**Once mercury is deposited on the landscape, the major pathways to streams are erosion of sediment-bound mercury and surface runoff. Of the many different types of land use that exist within the Willamette Basin, forestry, agriculture, and urban uses comprise most of the area within the basin. Management actions on these land uses influence the amount of mercury from these sources that reach streams and rivers in the basin. Point source discharges, such as sewage treatment plants or industries, contribute significantly less mercury to streams than nonpoint sources, such as runoff from logging roads and agricultural fields.**

## City of Yamhill TMDL Implementation Plan

The City of Yamhill is located approximately 12 miles west of Newberg and approximately 11 miles north of McMinnville in Yamhill County. The majority of land within the service area is zoned for residential use. Other land uses include commercial, and light industrial.

With a 2020 population of 1,177, Yamhill is currently growing at a rate of 0.34% annually and its population has increased by 14.94% since the most recent census, which recorded a population of 1,024 in 2010 ([worldpopulationreview.com](http://worldpopulationreview.com)).

### Yamhill Subbasin

The City of Yamhill is located in the Yamhill Subbasin (Hydrologic Unit Code 17090008) in the Western portion of the Willamette Basin and drains portions of the Coast Range. The Yamhill River flows into the Willamette River just upstream of the City of Newberg (approximately river mile 48).

The City of Yamhill resides in the North Yamhill watershed of the Yamhill Subbasin of the Willamette Basin. Rowland Creek and Yamhill Creek are within the City of Yamhill and are tributaries to the North Yamhill River. Yamhill Ditch runs through the center of town and re-enters Yamhill Creek.

### General approach for mercury reductions

This plan is focused on the TMDL for mercury and sediment reduction to protect and improve water quality. The water bodies and parameters applicable to the City of Yamhill are identified in Table 1. Rowland Creek enters from North of town and runs along a small westside section of town. Yamhill Creek enters north of town into Yamhill Ditch that runs through the center of town and re-enters Yamhill Creek south of town (Figures 1 & 2).

**Table 1: Basins and Parameters**

Basin Name	Subbasin	Water bodies City of Yamhill	Parameter
Willamette	Yamhill	Yamhill Creek to Yamhill Ditch to Yamhill Creek tributary to North Yamhill River;	Mercury

		Rowland Creek tributary to North Yamhill River	
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**Figure 1 – Yamhill Location and Waterways**



Figure 2 – Yamhill Zoning

**Activities and services**

The City of Yamhill is the sole provider of water and wastewater services to customers within the urban services boundary of the city. Revenues required to fund the delivery of these services are obtained from monthly user fees which are set by the City Council via its City charter authority. The City of Yamhill drinking water is overseen by OHA and the wastewater treatment plant is DEQ permitted sanitary sewer hook-ups. Turner Creek northwest of town and upstream city stormwater outfalls is the primary drinking water source. The Consumer Confidence report is issued every year. The authorized WWTP discharges treated effluent into the North Yamhill River. The North Yamhill River is a tributary of the Willamette River.

The City of Yamhill also has jurisdiction for addressing non-permitted (nonpoint source) activities that can affect the quality of surface water and groundwater in its jurisdiction. The **City of Yamhill TMDL Implementation Plan Nonpoint Source Clean Water Plan** when implemented in concert with the matrix (Appendix 1), is designed to protect water quality, improve stormwater management, and stimulate new approaches to land use design and development that minimize associated water resource problems as a result of nonpoint source activity. The focus of this plan is on mercury and sediment reduction.

**Mercury reductions**

The EPA Willamette Basin TMDL has reduction targets for mercury at the Yamhill Subbasin level. Reductions of 75% from nonpoint source urban stormwater are needed to eliminate fish consumption advisories. These percent reductions apply to all waters of the Yamhill Subbasin

**Mercury Reduction Yamhill-17090008**

Category	EPA Allocated reduction
Non-Permitted Urban Stormwater	75%

Information above is an excerpt from Appendix C from U.S. EPA Total Maximum Daily Load (TMDL) for Mercury in the Willamette Basin, Oregon [Total Maximum Daily Load \(TMDL\) for Mercury in the Willamette Basin, Oregon - February 4, 2021](https://www.epa.gov/watersheds/tmdl/total-maximum-daily-load-tmdl-for-mercury-in-the-willamette-basin-oregon-february-4-2021) (epa.gov)

Like most small city systems, the biggest challenges are budget, and lack of employees to do everything on our own. The City of Yamhill’s key actions toward meeting these reductions focus on Stormwater management. The TMDL Implementation Plan may also be called a Stormwater Management Plan. Stormwater discharges can be a source of mercury and sediment in surface waters. *DEQ Nov 2019 Mercury Water Quality Management Plan* measures and timelines (Tables 13-11 and 13-14 below) were used for the assessment and consideration of stormwater management strategies that will be implemented under this plan.

The attached matrix (Appendix 1) includes management strategies, timeline and schedule and performance initiatives that will be implemented by the City of Yamhill under this plan to mitigate the potential nonpoint sources of mercury and sediment. The Table 13-11 and 13-14 timelines being implemented are identified in the matrix and were determined during the draft



development of the plan with DEQ. The activities not implemented, are also identified and will be reassessed during the five year review.

The Plan focuses on nonpoint source requirements for cities without MS4 permits and a population of less than 5,000. The assessment included the following:

- Evaluated the six minimum stormwater control measures listed in WQMP Table 13-11. Identified the strategies and actions that can be implemented to reduce mercury and sediment, including sources of runoff, sediment, and erosion.
- Upon request, provided information to DEQ regarding their specific limitations to implementing all or some of the six stormwater controls in Table 13-11.
- Met or utilized timelines in Table 13-14.

**Table 13-11. Minimum requirements for cities - WQMP page 92-221**

<https://www.oregon.gov/deq/wq/Documents/willHgtmdlwqmpF.pdf>

Stormwater Measure	Requirements
<p><b>1. Pollution Prevention and Good Housekeeping for Municipal Operations</b></p>	<p>DMAs must properly operate and maintain its facilities, using prudent pollution prevention and good housekeeping to reduce the discharge of mercury-related pollutants, such as sediment, through the stormwater conveyance system to waters of the state.</p> <p>DMAs must ensure that DMA-owned or operated facilities with industrial activity identified in DEQ’s 1200-Z Industrial Stormwater General Permit have coverage under this permit. The DMA must also conduct its municipal operation and maintenance activities in a manner that reduces the discharge of pollutants to protect water quality.</p> <p>DMAs must maintain records for activities to meet the requirements of the Pollution Prevention and Good Housekeeping for Municipal Operations program requirements and include a descriptive summary of their activities in the TMDL Annual Report.</p>
<p><b>2. Public Education and Outreach</b></p>	<p>DMAs must conduct an ongoing education and outreach program to inform the public about the impacts of stormwater discharges on waterbodies and the steps that they can take to reduce mercury-related pollutants in stormwater runoff. The education and outreach program must address stormwater issues of significance within the DMA’s community.</p> <p>DMAs must track implementation of the public education and outreach requirements. In each corresponding TMDL Annual Report, the DMA must assess their progress toward implementation of the program, including a qualitative evaluation of at least one education and outreach activity corresponding to the reporting timeframe for the associated TMDL Annual Report. The evaluation should be used to inform future stormwater education and outreach efforts to most effectively convey the educational material to the target audiences.</p>
<p><b>3. Public Involvement and Participation</b></p>	<p>DMAs must implement a public involvement and participation program that provides opportunities for the public to effectively participate in the development of stormwater control measures. The DMA must comply with their public notice requirements when implementing a public involvement participation process, including maintaining and promoting at least one publicly accessible website with information on the city’s stormwater control implementation, contact information and educational materials.</p>

<p><b>4. Illicit Discharge Detection and Elimination</b></p>	<p>DMA must implement and enforce a program to detect and eliminate illicit discharges into the stormwater conveyance system. An illicit discharge is any discharge to a stormwater conveyance system that is not composed entirely of stormwater. The DMA must develop and maintain a current map of their stormwater conveyance system. The stormwater conveyance system map and digital inventory must include the location of outfalls and an outfall inventory, conveyance system and stormwater control locations. The DMA must make maps and inventories available to DEQ upon request. When in digital format, the DMA must fully describe mapping standards in the TMDL implementation plan or other city planning document.</p> <p>The IDDE program must prohibit non-stormwater discharges into the stormwater conveyance system through enforcement of an ordinance or other legal mechanism, including appropriate enforcement procedures and actions to ensure compliance. The ordinance or other regulatory mechanism must also define the range of illicit discharges it covers, including those discharges that are conditionally allowed, such as groundwater and lawn watering discharges. The IDDE program must also maintain a procedure or system to document all complaints or reports of illicit discharges into and from the stormwater conveyance system.</p> <p>The DMA must track implementation of the IDDE program requirements. In each TMDL Annual Report, the DMA must assess their progress towards implementation of the program.</p>
<p><b>5. Construction Site Runoff Control</b></p>	<p>DMA must refer project sites to DEQ, or the appropriate DEQ agent, to obtain NPDES 1200-C Construction Stormwater Permit coverage for construction projects that disturb one or more acres (or that disturb less than one acre, if it is part of a “common plan of development or sale” disturbing one or more acres).</p> <p>In addition, DMA must require construction site operators to complete and implement an Erosion and Sediment Control Plan for construction project sites in its jurisdictional area that result in a minimum land disturbance of 21,780 square feet (one half of an acre) or more, and are not already covered by a 1200-C permit.</p> <p>Through ordinance or other regulatory mechanism, to the extent allowable under state law, the DMA must require erosion controls, sediment controls, and waste materials management controls to be used and maintained at all qualifying construction projects (as described above) from initial clearing through final stabilization to reduce pollutants in stormwater discharges to the stormwater conveyance system from construction sites.</p> <p>The DMA must develop, implement and maintain a written escalating enforcement and response procedure for all qualifying construction sites. The procedure must address repeat violations through progressively stricter response, as needed, to achieve compliance.</p> <p>The DMA must track implementation of its construction site runoff program required activities. In each TMDL annual report, the DMA must assess their progress toward implementing its construction site runoff program’s control measures.</p>

<p><b>6. Post-Construction Site Runoff for New Development and Redevelopment</b></p>	<p>DMA must develop, implement, and enforce a program to reduce discharges of pollutants and control post-construction stormwater runoff from new development and redevelopment project sites in its jurisdictional area.</p> <p>Through ordinance or other regulatory mechanism, the DMA must require the following for project sites discharging stormwater to the storm water conveyance system that create or replace 10,890 square feet (one quarter of an acre) or more of new impervious surface area:</p> <p>1. The use of stormwater controls at all qualifying sites.                  A site-specific stormwater management approach that targets natural surface or predevelopment hydrological function through the installation and long-term operation and maintenance of stormwater controls. (C) Long-term operation and maintenance of stormwater controls at project sites that are under the ownership of a private entity.</p> <p>The DMA must target natural surface or predevelopment hydrologic function to retain rainfall on-site and minimize the offsite discharge of precipitation utilizing stormwater controls that infiltrate and evapotranspire stormwater. For projects that are unable to fully retain rainfall/runoff from impervious surfaces on-site, the remainder of the rainfall/runoff from impervious surfaces must be treated prior to discharge with structural stormwater controls. These stormwater structural controls should be designed to remove, at a minimum, 80 percent of the total suspended solids.</p> <p>(A) The DMA must maintain records for activities to meet the requirements of the post-construction site runoff program requirements and include a descriptive summary of their activities in the TMDL Annual Report.</p>
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**Table 13-14. Stormwater Control Measures Implementation Schedule for Cities.**  
<https://www.oregon.gov/deq/wq/Documents/willHgtmdlwqmpF.pdf>

Stormwater Control Measures	Implementation Deadlines from TMDL Issuance Date		
	City Population		
	Less than 5,000	5,000 to 10,000	Greater than 10,000
1. Pollution Prevention and Good Housekeeping for Municipal Operations	As determined by DEQ based on information provided by DMA	3 years	18 months
2. Public Education and Outreach	As determined by DEQ based on information provided by DMA	3 years	18 months
3. Public Involvement and Participation	As determined by DEQ based on information provided by DMA	3 years	18 months
4. Illicit Discharge Detection and Elimination	As determined by DEQ based on information provided by DMA	4.5 years	3 years
5. Construction Site Runoff Control	As determined by DEQ based on information provided by DMA	9.5 years	4.5 years

### ***Plan monitoring and reporting requirements***

The DEQ 2019 TMDL Mercury WQMP describes DEQ's plan for implementing actions to reduce mercury in fish tissue. Effectiveness of these measures will be tracked, evaluated, and improved, as warranted, to meet the standards.

The City of Yamhill will conduct two types of monitoring in support of DEQ's effectiveness monitoring strategy:

- 1) Plan implementation monitoring (evaluating progress on accomplishments) and
- 2) Effectiveness monitoring (success of BMPs and reduction evaluations)

The monitoring assessment will focus on the adequacy of the BMPs (in terms of implementation and maintenance), not the response of the receiving waterbody.

### **Four annual progress reports and one five-year review report**

TMDL implementation is in iterative process that continues every five years. The Implementation Plan documents the City's efforts to improve water quality over five years starting Sept 3, 2022.

Monitoring will be documented in reports that Yamhill is required to submit under this plan. The City of Yamhill will annually report on progress in implementing nonpoint source strategies identified in the TMDL implementation plan, including any delays or challenges DMAs had in implementing strategies (WQMP page 125-221). This information is provided in an annual report over a five-year timeline (4 progress reports and a five-year review covering the progress over the previous five-year timeline).

The status column in the matrix or a written summary by control measure number will be used each year to report progress toward the commitments and to indicate adaptive changes that are planned before the five-year report.

For the five-year review report, the City of Yamhill will review their implementation plan in collaboration with DEQ staff to evaluate whether strategies, timelines, milestones, or other components of the plan should be updated for the next five years. The fifth-year report is a more comprehensive report on overall progress for the previous four years and preparing for the next five years. The five-year review report will also describe: (a) the progress on implementation and the effectiveness of the strategies implemented, (b) planned adaptations if strategies are not effective, (c) the findings of the evaluation and (d) the basis for these conclusions.

### ***Land use compliance and legal authority (Optional)***

Management strategies determined to significantly affect land use will be implemented in a manner that complies with the statewide land use goals and be compatible with the provisions in the Comprehensive Plan.

The City of Yamhill has adequate legal authority, through code, or other means, to implement the provisions of this plan and the foundation to adapt the plan overtime. Authority examples to build initial foundation and to implement Appendix 1 matrix activities include:

- [Municipal Code \(cityofyamhill.org\)](http://cityofyamhill.org)
- Zoning map to guide planning - [P:\City Base Maps\Yamhill Zone Map Layout1 \(1\) \(cityofyamhill.org\)](P:\City Base Maps\Yamhill Zone Map Layout1 (1) (cityofyamhill.org))
- Pre-Planning forms for development preparation against municipal codes, such as, Development fees such stormwater and system development
- Budget prep to cover routine services for public works
  - <https://cityofyamhill.org/wp-content/uploads/Final-Yamhill-2022-2023-Budget.pdf>
- What is the Yamhill County emergency? Not on website?
  - [Public Works \(cityofyamhill.org\)](http://cityofyamhill.org) for emergency and non-emergencies on Public Works website
- 2.20.040 System Development Charge Establish for development to connect to, or which will otherwise use or create a need for, the sewer facilities, storm sewers, water facilities, streets, or parks and open spaces of the City. (Ord. 406 §4, 1995; Ord. 432 §1, 1998)

### ***Cost and funding***

As a DMA, the City of Yamhill provides a fiscal analysis of the resources needed to develop, execute, and maintain the programs described in their Implementation plan (refer to Appendix 1 matrix for funding and stormwater program measure best management activities for budget strategies) overtime. The extent of staff salaries, supplies, volunteer coordination, regulatory fees, installation, operation, and maintenance of management measures will be considered annually during budget development and approval.

### ***Public Involvement and Participation***

Yamhill will implement a public involvement and participation program that provides opportunities for the public to effectively participate in the development of stormwater control measures (Appendix 1 matrix). Yamhill will comply with their public notice requirements when implementing a public involvement participation process, including maintaining and promoting at least one publicly accessible website with information on the city's stormwater measures, contact information and educational materials.

TMDL plan and progress reports will be posted on a publicly accessible website. The Public education and outreach and public involvement and participation program measure is outlined

in the City's matrix (Appendix 1). As documented in the reporting section above, the initial plan and all reports and plan updates will be approved by City Council and posted on the city website (Appendix 1).