# Polk County Total Maximum Daily Load Implementation Plan

(Revised February 2021)

## Introduction

This Total Maximum Daily Load (TMDL) Implementation Plan is designed to reduce river and stream temperatures, and to reduce the levels of bacteria and mercury entering Polk County rivers and streams. This TMDL Implementation Plan will be applied to the area of Polk County that is outside of incorporated city limits. This area is predominantly rural in nature. Properties are primarily used for agricultural, forestry, and rural residential purposes. There are some commercial and industrial uses within unincorporated Polk County which are primarily located within Polk County's 15 unincorporated communities. This TMDL Implementation Plan is intended to implement the Willamette Basin TMDL and comply with OAR 340-042-0080(3). The TMDL is applicable county-wide, and the specific management strategies and timelines that would implement the TMDL are included in the TMDL Implementation Planning Matrix (Exhibit 1).

On account of the predominantly rural nature of the area covered by the TMDL Implementation Plan, the Plan will not be integrated with Polk County's Stormwater Management Program (SWMP). The SWMP is specific to the area within the Salem urban growth boundary (UGB) that is located within Polk County and outside of the incorporated city. The SWMP was developed to meet the Municipal Separate Storm Sewer System (MS4) permit requirements of the National Pollutant Discharge Elimination System (NPDES). Polk County's NPDES MS4 Phase II General Permit was issued on March 7, 2019, which has a permit cycle from March 1, 2019 through June 30, 2024. Certain aspects of the SWMP will be applied county-wide as part of the TMDL Implementation Plan; however, technically the two plans will remain separate.

The background to the Willamette Basin TMDL, associated water quality issues, and Polk County's plan for implementation of the TMDL are discussed below.

## Background[1]

According to the Oregon Department of Environmental Quality (DEQ), the Willamette River and numerous tributaries do not currently meet several water quality standards including bacteria, mercury and temperature. These standards assure that beneficial uses of the river and tributaries, such as swimming, fish consumption and fish rearing, are protected. When water quality standards are not met, the federal Clean Water Act requires a TMDL to be established. A TMDL determines how much pollution can be added to the river without exceeding water quality standards.

In September 2006, DEQ issued the Willamette Basin TMDL as an Order, which was approved by the Environmental Protection Agency (EPA). As part of the Willamette TMDL, DEQ developed a Water Quality Management Plan (WQMP) to describe the overall framework for implementing the Willamette Basin TMDL. The WQMP includes a description of activities, programs, legal authorities and other measures for which DEQ and other designated management agencies (DMAs) have regulatory responsibility.

A DMA is "a federal, state or local governmental agency that has legal authority of a sector or source contributing pollutants, and is identified as such by the Department of Environmental Quality in a TMDL." TMDL implementation activities will be carried out under existing regulatory authorities, programs and water quality restoration plans as well as by TMDL implementation plans that certain DMAs will develop in fulfillment of the requirements of this TMDL.

[1] Oregon Department of Environmental Quality May 2007. TMDL Implementation Plan Guidance – for State and Local Government Designated Management Agencies, p. C1-C2. Available online at: http://www.deq.state.or.us/wq/tmdls/docs/impl/07wq004tmdlimplplan.pdf

Along with other counties, cities, and agencies in the Willamette Basin, Polk County has been named by DEQ as a DMA in that it has legal authority over a sector or source contributing pollutants within those sections of Polk County outside of the city limits of Salem, Dallas, Monmouth, Independence, Falls City, and Willamina, and further excluding those properties under the jurisdiction of the Confederated Tribes of Grand Ronde. Therefore, Polk County is required to develop a TMDL implementation plan for review and approval by DEQ.

TMDLs, the WQMP, and associated implementation plans and activities are designed to restore water quality to comply with water quality standards. In this way designated beneficial uses, such as aquatic life, drinking water supplies, and water contact recreation, will be protected. When implemented, the TMDL will result in a cleaner, healthier Willamette River for current and future generations.

**Water Quality Issues[2]**

Receiving waterbodies within the jurisdiction of Polk County include the Willamette River, Luckiamute River, Rickreall Creek, Glenn Creek, Gibson Creek, Spring Valley Creek, Ash Creek, Hartman Slough, as well as tributaries to those waterbodies within the jurisdiction of Polk County.

TMDL Pollutants and Potential Sources of Pollutants within Polk County's Jurisdiction[3]

The area within Polk County's jurisdiction that is covered under this TMDL Implementation Plan is primarily rural. TMDL pollutants within Polk County's jurisdiction as well as the primary suspected sources of the pollutants are:

- Warmer in-stream Temperatures: Likely caused by historic removal of shade-producing vegetation along streams.
- Bacteria: The likely sources are failing septic systems and animal feces that are delivered to streams by stormwater run-off.
- Mercury: Found in sediments. The likely sources are erosion and stormwater run-off that contains atmospherically deposited mercury. Household hazardous waste is another potential source.

Concerns Associated with Pollutants[4]

- Temperature: At times, the Willamette River and its tributaries are too warm to support healthy salmon and trout. Some of these cold water fish including lower Columbia Coho, spring Chinook, winter steelhead, and bull trout are threatened with extinction and elevated stream temperatures have contributed to their decline. Warm water interferes with adult salmon and trout migration and spawning. Warm water also decreases chances of juvenile survival, affects egg and embryo development, alters juvenile fish growth rates, and decreases their ability to compete with temperature-tolerant fish species for habitat and food. Salmon and trout are also more susceptible to disease when water temperatures are warmest.
- Bacteria: People can be affected by bacteria present in water when enjoying water activities such as swimming, wading, wind surfing, water skiing, boating, or fishing. Ingestion or contact with water contaminated with bacteria can cause skin and respiratory ailments, gastroenteritis and other illnesses in humans.

[2] Oregon Department of Environmental Quality, May 2007. TMDL Implementation Plan Guidance – for State and Local Government Designated Management Agencies, p. C1-C2. Available online at: http://www.deq.state.or.us/wq/tmdls/docs/impl/07wq004tmdlimplplan.pdf

[3] Ibid, p. C2-C3. Also: Oregon Department of Environmental Quality, September 2006. Fact Sheet: Reducing Bacterial Pollution in the Willamette Basin. Also: Oregon Department of Environmental Quality, February 2007. Fact Sheet: Reducing Mercury Pollution in the Willamette River.

[4] Oregon Department of Environmental Quality, May 2007. TMDL Implementation Plan Guidance – for State and Local Government Designated Management Agencies, p. C3.

- Mercury: The accumulation of mercury in fish is a well recognized environmental problem throughout the United States. Mercury is a potent toxin that can cause damage to the brain and nervous system. Small children and the developing fetus are most sensitive to mercury's toxic effects. The primary way that humans are exposed to mercury is through the consumption of fish or seafood containing elevated levels of mercury.

**TMDL Implementation**

This Total Maximum Daily Load (TMDL) Implementation Plan has been created to meet the requirements of OAR 340-042-0080(3), which states:

> **OAR 340-042-0080(3):**
> *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.*

**TMDL Implementation Management Strategies**

The TMDL Implementation Planning Matrix, included as Exhibit 1, describes the management strategies and timelines that Polk County will use to continue implementation of existing efforts, as well as new strategies, intended to address the suspected sources of temperature, bacteria, and mercury pollution to county rivers and streams. The management strategies and their implementation timelines have been developed to comply with OAR 340-042-0080(3)(a)(A)-(B). Polk County will make efforts to reduce bacteria and mercury from entering rivers and streams by implementing measures to increase the quality and decrease the quantity of stormwater run-off. Polk County will seek to reduce stream temperature by implementing Polk County's riparian setback ordinance in order to promote vegetation growth and shading along county rivers and streams.

This TMDL Implementation Plan covers the area of Polk County outside of incorporated city limits. This area is primarily rural in nature; however, there are neighborhoods in Polk County within the Salem UGB, but outside the incorporated city limits, that are developed to urban levels. Consequently, Polk County is implementing a Stormwater Management Program (SWMP) that covers those areas and is specific to properties in the Salem UGB that are outside of the incorporated city limits. The SWMP (Exhibit 3) was developed to meet the Municipal Separate Storm Sewer System (MS4) permit requirements of the National Pollutant Discharge Elimination System (NPDES). DEQ is in the process of administering a new general permit for MS4 Phase II communities, which may replace Polk County's existing individual permit. Until a

new general permit is issued by DEQ, Polk County will continue to implement the existing SWMP.

The SWMP includes strategies that address the mercury and bacteria components of the TMDL within the Salem UGB and outside of the incorporated city limits. The SWMP contains management strategies that address the "six minimum control measures." The six minimum control measures to address stormwater quantity and quality are: public education and outreach, public involvement and participation, illicit discharge detection and elimination, construction site stormwater runoff control, post-construction stormwater management, and pollution prevention in municipal operations. The SWMP includes erosion and sediment control measures intended to decrease the quantity, and increase the quality of stormwater that runs into county creeks within the Salem UGB. Implementation of the strategies described in the SWMP, particularly the programs designed to control erosion and sediment flow, will address the bacteria and mercury TMDL within the Salem UGB. Although the SWMP permit area is limited to the Salem UGB, many of the management strategies included in this plan are applied county-wide, including the riparian setbacks described in detail below. Riparian setbacks act to decrease stream water temperature by providing a significant buffer area where vegetation is retained and structural development is prohibited.

The SWMP will remain a separate program from this TMDL Implementation Plan, and remain specific to the Salem UGB. DEQ's Water Quality Management Plan, which specifies what DMAs' TMDL Implementation Plans must entail, requires that the "six minimum (stormwater) control measures" be implemented as "Urban/Residential Storm Water Control Measures."[5] As discussed above, the area within Polk County's jurisdiction is predominantly rural. The areas developed to urban residential levels are located in the Salem UGB, and are already covered under the SWMP. Therefore, the six minimum control measures are already being implemented in those urban/residential areas within Polk County's jurisdiction. This TMDL Implementation Plan does not expand strategies that address all of the six minimum control measures county-wide; however, it does apply specific management strategies described in the SWMP county-wide. These include the measures that Polk County believes will enhance stormwater quality in rural areas. As described in the TMDL Implementation Planning Matrix, included as Exhibit 1, the TMDL Implementation Plan includes erosion and sediment control measures designed to increase awareness among construction operators of when they need to obtain a 1200-C permit, and increase awareness among industrial site owners when they need to obtain a 1200-Z permit. As part of the TMDL Implementation Plan, Planning staff will implement Polk County's erosion and sediment control ordinance, Polk County Code of Ordinances (PCCO) 80.133(1), and Polk County's ordinance that prohibits non-stormwater discharges (PCCO 43.057). These erosion and sediment control measures are intended to reduce the levels of bacteria and mercury entering county streams.

Polk County developed an Operations and Maintenance (O&M) Plan to address stormwater issues that arise during road, ditch, and bridge construction and maintenance. The O&M Plan contains stormwater management best management practices (BMPs) designed to decrease the quantity and increase the quality of stormwater runoff associated with road, ditch, and bridge construction and maintenance. The O&M Plan is currently being implemented, and Public Works staff reviews the Plan on an annual basis to determine if changes should be made to the BMPs in order to help reduce the levels of bacteria and mercury that enter county rivers and streams. Polk County Planning staff will also continue to coordinate with the Public Works Department to explore grant funding opportunities to implement stream restoration strategies as a part of County road and park projects.

The TMDL Implementation Plan includes a strategy to continue implementation of the riparian and wetland setbacks required by Chapter 182 of the Polk County Zoning Ordinance (PCZO).

[5] Oregon Department of Environmental Quality, September 2006. Willamette Basin TMDL; Chapter 14: Water Quality Management Plan, p. 22. Available online at: http://www.deq.state.or.us/wq/TMDLs/docs/willamettebasin/willamette/chpt14wqmp.pdf

See Exhibit 4. The riparian and wetland setbacks should act to reduce stream temperature throughout Polk County's jurisdiction, as well as provide erosion and sediment control that reduces the levels of bacteria and mercury entering Polk County's rivers and streams. The riparian and wetland setback requirements include management standards for development in proximity to rivers, streams, lakes, and other wetlands identified on the National Wetlands Inventory (NWI) maps[6]; which have been incorporated into the Polk County Significant Resources Area Map. Rivers and streams identified on the Polk County Significant Resources Area Map must have a riparian management area that averages three times the stream width, but it shall not average less than 25 feet or more than 100 feet. Stream width is the average of the main channel width of the stream during its high water level flow. The riparian management area for lakes and significant wetlands indentified on the Polk County Significant Resources Area Map also ranges from 25 to 100 feet based on the size of the lake or wetland. PCZO 182.050(B), which is included in Exhibit 4, prohibits all structural development within the riparian management area. Any non-structural development, with limited exceptions, that entails vegetation removal, road construction, or timber harvest (excepting those operations conducted under provisions of the Forest Practices Act), requires that the property owner prepare and implement a management plan designed to protect the riparian area that meets the requirements of PCZO 182.040(E). The management plan must be coordinated with the applicable state and federal managing agencies. The removal of non-native vegetation and invasive species within the riparian setback area is included in the activities that require a property owner to create a management plan in coordination with the Oregon Department of State Lands (DSL) and, if adjacent to a fish-bearing stream, with the Oregon Department of Fish and Wildlife (ODFW). A management plan in and of itself does not prohibit a property owner from removing invasive species. It does; however, require the property owner to consider such factors as the potential erosion impacts of the vegetation removal on the riparian area. If DSL or ODFW determines that removing invasive species would cause substantial erosion, the management plan could require that the area be stabilized with new plantings. The management plan requirements are not intended to prohibit property owners from removing invasive species, but are designed to require property owners to consider and account for the potential negative impacts associated with invasive species removal, such as increased sedimentation and erosion.

The riparian and wetland requirements listed in PCZO Chapter 182 provide protection to rivers and streams that are near construction sites of all sizes; including those of less than one acre and not covered by a DEQ 1200-C permit. Riparian and wetland setbacks provide natural filtration, shade, and erosion and sediment control. The riparian protections require that all trees be retained with the exception of dead, diseased, or dying trees. By providing shade and erosion and sediment control, these riparian areas should reduce river and stream temperature as well as bacteria and mercury pollution that enters county rivers and streams. PCZO Chapter 182 is applied at all times. Planning staff provides outreach and education to property owners about the riparian setback and management plan requirements when discussing potential projects over the phone or at the counter, and when property owners apply for planning or building permits. Those standards are enforced through the Code Enforcement Program in response to complaints filed with the County. Projects that require a Land Use Compatibility statement from Polk County is also an effective tool to ensure that management plan requirements are being met. As a part of the second five-year permit cycle, Polk County created a Targeted Education and Outreach Program, intended to expand outreach efforts to property owners who would benefit from information related to riparian and wetland restoration. This program used a Geographic Information System (GIS) to identify properties that contain fish bearing streams, identified on Polk County's SRA Map, and are primarily managed for agricultural crop production. The results of this analysis provided approximately 400 mailing addresses associated with these targeted properties. Polk County developed a brochure that contained information on riparian area setbacks, management plans, and local resources that are available for riparian restoration

[6] Polk County National Wetland Inventory Maps are available for review in the Polk County Community Development Department through Polk County's GIS. They are also available online at http://wetlandsfws.er.usgs.gov/wtlnds/launch.html.

projects. Polk County coordinated with watershed groups to determine appropriate parameters for identifying the targeted properties. Watershed groups also reviewed draft copies of the brochure prior to it being finalized. Because the targeted properties mailing list contained more addresses than anticipated, Polk County divided the list into four separate mailing lists that each contained approximately 100 addresses. This allowed Polk County staff a better opportunity to provide additional consultation to the targeted property owners. In 2016 the brochure was send to the first mailing list and in 2017 the brochure was sent to the second mailing list. To continue these efforts, Polk County will send the brochure to the third and fourth mailing lists to ensure that all targeted properties receive the outreach material.

As part of the second five-year permit cycle, planning staff maintained an inventory of riparian management plans as a resource to track improvements to county riparian areas. Over the next 5 year permit cycle, Polk County will update their tracking methods to include an estimated size of riparian restoration projects that are associated with each riparian management plan. Including the size of riparian vegetation gains and losses will provide more qualitative information that the County can use to measure the effectiveness of requiring management plans within riparian management areas.

Polk County currently manages 10 parks which are listed in Exhibit 5. Each park provides restroom facilities. Buell Park contains restrooms that are connected to a septic system. Polk County will maintain that septic system within acceptable DEQ parameters so as to minimize the probability of bacteria entering nearby Mill Creek. The other nine parks are served by either a pit toilet or a "port-a-potty." Those toilets are pumped regularly when the parks are open. Parks officially open in late May and close September 30. Therefore, county parks are closed during the months of the year that experience high levels of rainfall and stormwater run-off. Additionally, county park maintenance is subject to the riparian setback standards listed in PCZO Chapter 182 (Exhibit 4). Also, road construction is listed as a conflicting use within identified significant water areas, wetlands, watersheds and groundwater resources areas. Therefore, county road construction within identified significant wetlands must be conducted in accordance with the applicable requirements specified in PCZO Chapter 182. These management strategies should act to reduce stream temperatures and the level of bacteria and mercury that enters streams from county parks. In addition to County parks, there are three large Oregon State Parks properties located within Polk County's jurisdiction; Sarah Helmick State Park, Fort Yamhill Heritage Area, and Luckiamute Landing Natural Area. Sarah Helmick State Park is located adjacent to the Luckiamute River, Fort Yamhill is located adjacent to Cosper Creek, and Luckiamute Landing is adjacent to the Luckiamute River. Polk County will amend the existing County Park List, Exhibit 5, and research the amenities that are present at these additional State Parks properties. Because these State Parks properties are all located adjacent to a major receiving water body that are regularly visited by the public, it is important to gather more information about potential pollution and contaminant sources that may be occurring at these sites.

In order to reduce mercury and other hazardous waste pollutants from entering waterways, Polk County has historically held two Household Hazardous Waste Events per year for citizens to safely dispose of common household hazardous materials. For the remaining portion of this permit cycle (2020-2022), Polk County will hold one Household Hazardous Waste Event and/or maintain an Intergovernmental Agreement (IGA) with Marion County to allow Polk County citizens to dispose of hazardous waste at the Marion County Household Hazardous Waste Facility. Maintaining an IGA with Marion County would allow Polk County citizens to safely dispose of hazardous waste material year-round rather than two specified days per year.

**Public Involvement Opportunities During Plan Acceptance and Implementation**

Planning staff presented the TMDL Implementation Plan to the Polk County Board of Commissioners for acceptance at a public meeting on November 13, 2018. Regarding implementation, Polk County holds one public meeting each year where the City of Salem, the

Glenn-Gibson Watershed Council, and the general public are invited to learn about and provide comments on implementation of the SWMP and the TMDL Implementation Plan. Annual public meetings are noticed to the local newspaper for publication and announced on Polk County's website. Polk County has also coordinated with local watershed groups to implement BMP 13, the Targeted Education and Outreach Program. Over the next 5 years, Polk County will increase public involvement by providing a draft copy of the TMDL Implementation Plan and annual report on Polk County's stormwater website at least 2 weeks prior to submission to DEQ. Comments and input provided by the public will be considered prior to submitting the final annual report and TMDL Implementation Plan to DEQ.

**Performance Monitoring & Adaptive Management**

OAR 340-042-0080(3)(a)(C) requires that Polk County "provide for performance monitoring with a plan for periodic review and revision of the implementation plan." The TMDL Implementation Planning Matrix (Exhibit 1) describes performance measures for each management strategy. Polk County will track and monitor those measures and use that information to make changes to the TMDL Implementation Plan as necessary and appropriate. In order to comply with OAR 340-042-0080(3)(b), Polk County will also annually review progress toward implementing the management strategies described in Exhibit 1. Polk County will send an annual progress report to DEQ by a date agreed to by DEQ. The annual progress report will consist of a copy of the TMDL Implementation Planning Matrix, included in this plan (Exhibit 1), with the status column updated to reflect the year's activities and any other relevant information. In these annual progress reports, Polk County will also include a description of any changes that have been made to the Plan as a result of data gathered through performance monitoring. Every five years, Polk County will prepare and send to DEQ an evaluation and review report of the Implementation Plan that will summarize and evaluate the projects completed within the previous five years of the Plan's implementation. The Implementation Plan review, submitted every fifth year, will substitute for the annual status report that year. It will also indicate what changes, if any, will be made to the Plan in response to any DEQ revisions of the TMDL. If matrix items are not completed by the specified timeline, Polk County will report on the progress that has been made and/or will report on an alternative strategy that has been implemented.

**Land Use Compatibility**

This TMDL Implementation Plan was created by Polk County Planning staff in coordination with the Public Works Department. Planning staff reviewed the Plan for consistency with the Polk County Comprehensive Plan, the Polk County Zoning Ordinance, and the Polk County Subdivision and Partition Ordinance, and found that the proposed TMDL Implementation Plan would be consistent with those documents. A land use compatibility statement is included as Exhibit 2.

**Fiscal Analysis**

As required by OAR 340-042-0080(3)(a)(C) and the WQMP, Polk County is directed to conduct a fiscal analysis to determine what additional resources are needed to implement the management strategies and to identify possible sources of funding. Certain management strategies identified in the TMDL Implementation Planning Matrix expand upon, or include, activities that will be conducted as part of the Polk County Stormwater Management Program (SWMP). As such, no additional funding will be required to include those activities in the TMDL Implementation Plan. The other components of the plan will be added to the work load of Polk County staff. Implementation strategies that have would not require any additional funding sources are identified as "None" or "N/A" in the TMDL Implementation Planning Matrix (Exhibit 1).

**Exhibits**

Exhibit 1: TMDL Implementation Planning Matrix (Revised in February 2020)

Exhibit 2: Land Use Compatibility Statement (Submitted October 2008)

Exhibit 3: Polk County Stormwater Management Plan (SWMP), August 2011 (Submitted April, 2013)

Exhibit 4: Polk County Zoning Ordinance Chapter 182. Section 182.050(B) describes the riparian and wetland setback. Section 182.040(E) describes the management plan criteria (Submitted October 2008)

Exhibit 5: Polk County Parks List (Revised November 2018)