CITY OF Salem AT YOUR SERVICE

Public Works Department

APWA ACCREDITED AGENCY

TMDL Implementation Plan for the City of Salem, Oregon

October 2022

Assisted by:

Brown AND Caldwell

6500 SW Macadam Avenue, Suite 200
Portland, OR 97239
Phone: 503.244.7005
Fax: 503.244.9095

I, the undersigned, hereby submit this Total Maximum Daily Load (TMDL) Implementation Plan . I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete.

Mark Becktel, AICP Operations Division Manager
City of Salem, Oregon

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List of Abbreviations

BMP	Best Management Practice
C	Celsius
cfs	cubic feet per second
CIP	Capital Improvement Project
City	City of Salem
CFR	Code of Federal Regulations
CWA	Clean Water Act
DEQ	Oregon Department of Environmental Quality
DMA	Designated Management Agency
EPA	U.S. Environmental Protection Agency
FSB	Functional Shade Buffer
GIS	Geographic Information System
LA	Load Allocation
LCDC	Land Conservation and Development Commission
LID	Low Impact Development
OAR	Oregon Administrative Rules
MAO	Mutual Agreement and Order
MS4	Municipal Separate Storm Sewer System
MST	Microbial Source Tracking
NPDES	National Pollutant Discharge Elimination System
PHS	Pacific Habitat Services
Plan	2014 TMDL Implementation Plan update
PLRE	Pollutant Load Reduction Evaluation
RM	River Mile
SRC	Salem Revised Code
SWMP	Stormwater Management Plan
TMDL	Total Maximum Daily Load
WLA	Waste Load Allocation
WQMP	Water Quality Management Plan

Section 1

Introduction

The City of Salem (City) is a Designated Management Agency (DMA) under the 2006 Willamette Basin Total Maximum Daily Load (TMDL) and the 2008 Molalla-Pudding TMDL and is responsible for development and implementation of strategies to minimize and address the discharge of TMDL pollutants. The City is located between river miles (RMs) 79 and 85 along the Willamette River. Prior to receiving the TMDLs, water quality data were collected from the Willamette River, Little Pudding River, and numerous tributaries within the City limits that show exceedences of water quality standards for several parameters, including bacteria, mercury, pesticides (DDT and dieldrin), metals (arsenic, iron, manganese), and temperature. As such, TMDLs were established to define allowable pollutant load discharges for DMAs in order to meet water quality standards.

On February 4th, 2021, the U.S. Environmental Protection Agency (EPA) issued an updated Willamette Basin TMDL for mercury. Appendix A of the TMDL includes a Water Quality Management Plan (WQMP) developed by the Oregon Department of Environmental Quality (DEQ), which outlines the specific TMDL requirements for DMAs. As required in the WQMP, within 18 months of TMDL issuance, the City provided DEQ with a summary of the City's strategy for addressing mercury (letter dated August 29, 2022). The City's strategy relies heavily on the City's NPDES Municipal Separate Storm Sewer System (MS4) Stormwater Management Plan (SWMP) commitments. At the time the strategy was submitted, the City was in the process of updating the SWMP for submittal to DEQ by November 1, 2022 to meet NPDES MS4 permit requirements.

This updated (2022) TMDL Implementation Plan (Plan) includes temperature management strategies under which the City has been operating, and reflects an interim update to the previous 2016 Plan to: 1) incorporate updates related to the 2021 reissued mercury TMDL; and 2) reflect the the City's new 2022 SWMP Document. Noteote that the 2022 SWMP may change based on review and approval from DEQ. This 2022 Plan includes updated strategies and activities that the City is proposing to continue compliance with the TMDLs in accordance with DEQ's 2006 guidance document and Oregon Administrative Rule (OAR) 340-042-0080. This 2022 Plan is organized as follows:

- Section 2 provides a regulatory background and summary related to the designation and definition of point and nonpoint sources in TMDLs.
- Section 3 provides reference to the City's management strategies for bacteria, total suspended solids (TSS), and mercury as point source pollutants addressed under the City's NPDES MS4 permit and associated SWMP Document.
- Section 4 provides a summary of management strategies, implementation timeframes, and performance monitoring specific for temperature (as a nonpoint source pollutant not otherwise addressed by the NPDES MS4 permit SWMP Document).
- Section 5 addresses this Plan's conformance with the City's land use goals and comprehensive plan.
- Section 6 addresses additional items identified by DEQ in the TMDL WQMPs, specifically:
  - Determine how best to provide for public involvement.
  - Analyze funding to determine what additional resources are necessary to develop, implement, and maintain the management strategies.

- Include citations and brief descriptions of legal authority used to carry out the management strategies.

Section 2

Background and TMDL Applicability

The City implements strategies to comply with TMDL requirements in conjunction with its NPDES MS4 permit SWMP Document for point sources of pollution associated with urban stormwater runoff, with its NPDES permit for point sources of pollution from the wastewater treatment plants, with its NPDES 1200-Z permit for the airport, and with this Plan for nonpoint sources of pollution not otherwise addressed under its NPDES permits.

The Code of Federal Regulations (CFRs) and OARs include definitions and regulations directing the implementation of TMDLs based on defined point and nonpoint sources of pollutants. This section summarizes applicable TMDLs in conjunction with the City's watersheds and drainage patterns. This section also provides additional background and interpretation related to TMDL regulations with respect to the City's NPDES permit coverage.

2.1 TMDL Applicability and Coverage

The City of Salem is the capital city of Oregon and fluctuates between the second and third most populous cities in Oregon. Salem is located approximately 50 miles south of Portland and 65 miles north of Eugene. The city is bisected by the Willamette River, which flows through the city between approximate RMs 79 and 85. Salem's city limits currently encompass an area of approximately 47 square miles, and accommodate an estimated population of 175,535 (as of 2020, per the United States Census).

The Willamette River is the primary receiving waterbody in the city. Major tributaries to the Willamette River located within city limits include Pringle Creek, Waln Creek, Mill Creek, Clark Creek, and Battle Creek. Approximately 2,500 acres (approximately 4 square miles), along the eastern portion of the city, discharge north via various tributaries to the Little Pudding River, instead of directly to the Willamette River.

As described in Section 1, two individual TMDLs are applicable to the City: the Willamette Basin TMDL and the Molalla-Pudding TMDL. The City is referenced as a DMA for the Middle Willamette subbasin within the overall Willamette Basin TMDL and for the Little Pudding subbasin within the overall Molalla-Pudding TMDL. The Willamette Basin TMDL was approved by the EPA on September 29, 2006, with the Willamette Basin mercury TMDL resissued on February 4, 2021. The Molalla-Pudding TMDL was approved by EPA on December 31, 2008. The Willamette Basin TMDL addresses bacteria, mercury, pesticides, turbidity, and temperature. The Molalla-Pudding TMDL addresses temperature, bacteria, pesticides (DDT, dieldrin, chlordane), nitrate, and iron/manganese/arsenic. It should be noted that TMDL parameters applicable to Salem are specific for the Middle Willamette and Little Pudding subbasins and do not include all parameters referenced in each TMDL.

Figure 2-1 shows the major waterbodies and TMDL watersheds as referenced in the TMDL documents. It should be noted that most of the TMDL waterbodies originate outside of the city limits and may be impaired prior to discharge within the city. The City recognizes that it is responsible for only mitigating or improving the water quality that results from land uses or activities within the City's

jurisdiction. These mitigation and improvement measures, in and by themselves, may not be sufficient to improve the water quality of the listed waterbodies so that standards are eventually met.

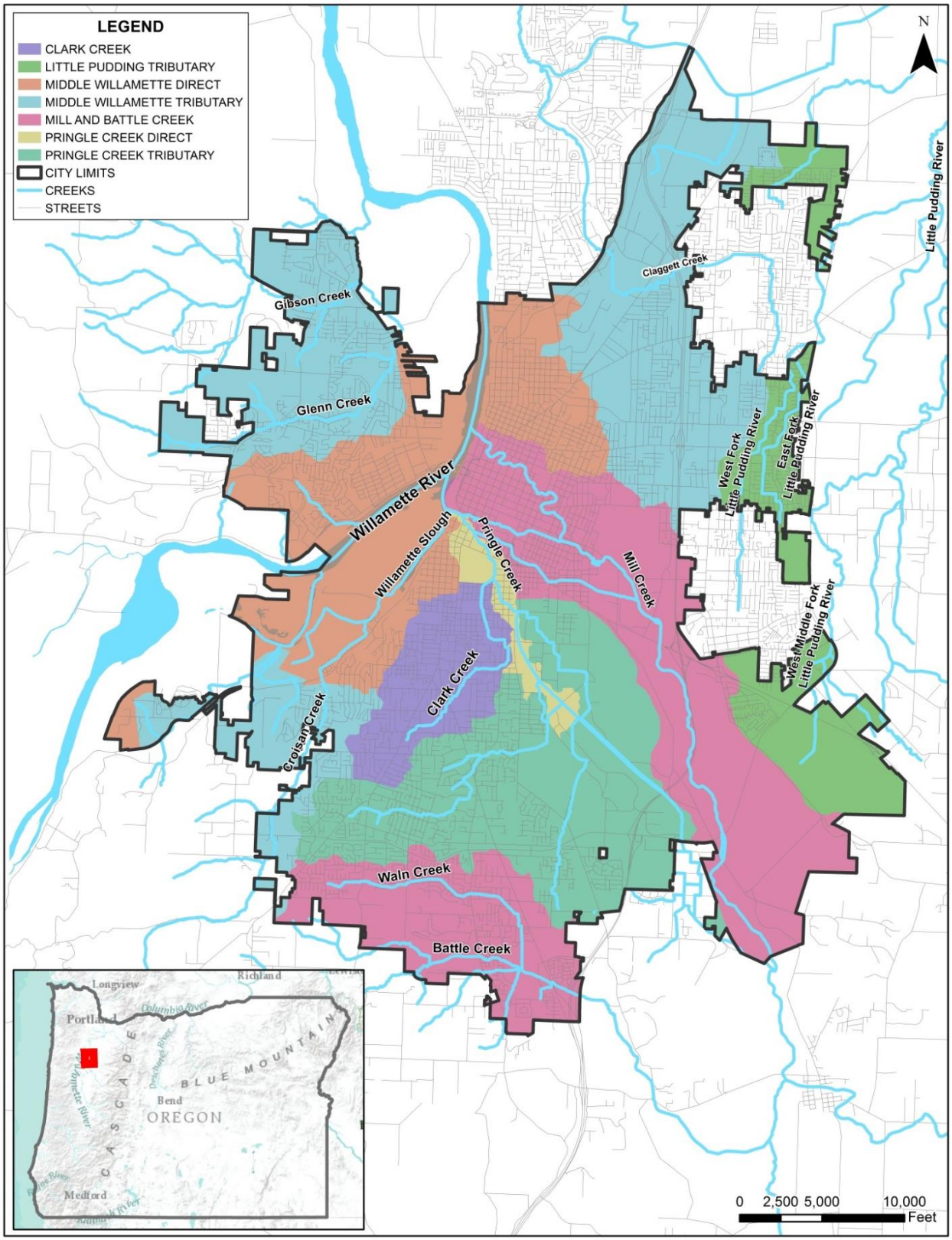

Figure 2-1. City of Salem TMDL waterbodies and watersheds

2.2 Regulatory Background

The Federal Clean Water Act (CWA) of 1977 authorized EPA to restore and maintain water quality in waterbodies throughout the United States. In response to the CWA, EPA designated certain state agencies (DEQ for the state of Oregon) to develop water quality standards, perform water quality monitoring to understand current conditions, determine sources of pollution, and develop TMDLs as a tool to improve water quality and restore the beneficial uses of surface waters.

A TMDL specifies the maximum amount of a pollutant load that a waterbody can receive and still meet water quality standards. A TMDL allocates pollutant loadings among point and nonpoint sources, and factors in background levels, reserves for future growth, and a margin of safety. Point sources are typically defined as sources that enter surface waters through a pipe or defined conveyance system (i.e., permitted municipal and industrial stormwater and/or wastewater). Waste load allocations (WLAs) are assigned in the TMDL to point sources. Nonpoint sources are typically defined as those sources that enter surface waters through more diffuse and dispersed overland flow (e.g., surface runoff from agricultural and forested lands, and riparian areas directly adjacent to waterways). Load allocations (LAs) are assigned in the TMDL to nonpoint sources.

The CFRs specifically define WLAs and LAs according to whether the associated discharge is considered a point or nonpoint source (40 CFR 130.2[g] and [h]). Additional documentation from EPA clarifies that NPDES-regulated stormwater discharges must be addressed by the WLA component of a TMDL and that stormwater discharges from sources not currently subject to NPDES requirements are addressed by the LA component of a TMDL (EPA, 2002). The City of Salem is a Phase I NPDES MS4 permit holder, and therefore, Salem's municipal stormwater discharges are point sources as they are NPDES-regulated. While Salem has some smaller isolated areas where runoff discharges directly to waterbodies without being conveyed through the MS4 (i.e., technically nonpoint sources), the City chooses to cover those areas with the same stormwater control measures that are used to address point sources of stormwater as outlined in the City's NPDES MS4 SWMP.

OAR 340-042-0040 provides further clarification, stating that WLAs are allocated to existing point sources of pollution, including all point source discharges regulated under the Federal Water Pollution Control Act, Section 402. Municipal stormwater permits and wastewater discharge permits are regulated under the Federal Water Pollution Control Act, Section 402. OAR 340-042-0080(1) also indicates that management strategies to achieve WLAs and LAs in a TMDL will be implemented through water quality permits for those sources subject to permit requirements and through sector specific or source-specific implementation plans for other sources.

There is a discrepancy with the CFRs and OARs in the 2006 Willamette Basin TMDL and the 2008 Molalla-Pudding TMDL regarding how MS4-permitted discharges were considered in the calculation of WLAs and LAs. In both the Willamette Basin and Molalla-Pudding TMDLs, the MS4 permitted stormwater discharges were universally considered a nonpoint source for purposes of loading capacity calculations and were erroneously assigned a LA instead of a WLA. For typical pollutant parameters addressed through the City's NPDES MS4 permit (i.e., bacteria, mercury, TSS [as a surrogate parameter for pesticides]), LAs were established either as a general percent reduction or as an instream concentration (that does not account for dilution or mixing). This application of a LA to permitted stormwater discharges contradicts the CFR and OAR definitions related to regulation of TMDLs for MS4-permitted discharges. This methodology also varies from recent EPA guidance related to disaggregating stormwater sources in a TMDL (EPA, 2014).

In accordance with the CFR and OAR definitions for the regulation of MS4 sources, the City has assumed that the LAs for bacteria and TSS are actually WLAs and regulated through the City's NPDES MS4 permit. The reissued 2021 Willamette Basin mercury TMDL appropriately applied mercury WLAs to the City's MS4 discharges. LAs for temperature, presented in the TMDL documents as

effective shade targets, are applicable as LAs, as the City's NPDES MS4 permit and associated SWMP Document do not include activities that specifically address instream temperature. This is due to the fact that municipal stormwater discharges have not been considered by DEQ to be a source of elevated temperatures in Willamette Valley waterbodies.

Table 2-1 summarizes the TMDL pollutants and associated LAs and WLAs currently applicable to Salem.

Table 2-1. TMDL Summary for Salem

TMDL	Year	Subbasin(s)	Applicable TMDL parameters	TMDL surrogate parameters	WLA[a]	LA
Willamette Basin	2006	Middle Willamette	• Bacteria (*E. coli*) • Temperature	Effective shade (surrogate for temperature)	• Bacteria = 75%-88% reduction[b]	Temperature[d] = 65%-90% effective shade
Willamette Basin	2021	Middle Willamette	• Mercury	TSS (surrogate for mercury)	• 97% reduction	• 97% reduction
Molalla-Pudding	2008	Little Pudding	• Bacteria (*E. coli*) • Pesticides (DDT, dieldrin, chlordane) • Iron • Temperature	Effective shade (surrogate for temperature) TSS (surrogate for pesticides and iron)	• Bacteria = 86% reduction • TSS (surrogate for pesticides) = 7 mg/L • Iron = NA[c]	Temperature[d] = 65%-90% effective shade

a. *Due to the discrepancy in the way MS4 sources are managed in the Willamette Basin TMDL and Molalla-Pudding TMDL documents, for the purposes of this evaluation, the LA references in the TMDLs for bacteria, TSS, and mercury are assumed to refer to WLAs.*

b. *The WLA for bacteria varies according to season and TMDL watershed. A 75 percent annual reduction in bacteria load is applicable for areas discharging directly to the Willamette River and a 75 percent reduction is applicable during the fall, winter, and spring for areas discharging to tributaries. An 88 percent reduction during the summer is applicable for areas that discharge to tributaries.*

c. *In June 2011, EPA approved DEQ's request to withdraw the human health criteria for iron and manganese. As a result, the WLA in the TMDL is no longer applicable.*

d. *The range in effective shade is based on shade curves developed by geomorphic classifications and stream aspect.*

Iron is a TMDL parameter referenced under the Molalla-Pudding TMDL for the Pudding River and tributaries (including the Little Pudding River), but it is not a parameter that the City is currently conducting activities to regulate (beyond those designed to address TSS per the NPDES MS4 permit SWMP Document). Iron is a fundamental component of soils and the rocks from which soils are derived. In January 2011, Oregon submitted a request to EPA to update water quality standards and withdraw the numeric human-health water quality criteria for iron and manganese, which was the basis for the original 303(d) listing and development of LAs. The withdrawal of numeric criteria is based on iron and manganese being naturally occurring earth elements. In addition, the previous numeric criteria for iron and manganese were based on EPA's recommendations for taste and laundry staining effects, not human-health effects. EPA issued a letter of approval for withdrawal of the standards on June 9, 2011, and Oregon's revised water quality standards for human-health criteria were approved in 2011.

The City operates the Willow Lake Water Pollution Control Facility and River Road Wet Weather Treatment Facility and serves as the sole provider of wastewater treatment services throughout the greater Salem-Keizer urbanized area. Both facilities are covered under an NPDES wastewater discharge permit for discharges from the facilities to receiving waters. The NPDES permits include waterbody-specific effluent limits, which were developed from the TMDLs that included the establishment of source-specific WLAs and LAs. Additionally, the City implements a 1200-Z general industrial stormwater permit for the Salem Airport. The 1200-Z permit includes effluent discharge benchmarks

for TMDL pollutant parameters. Because effluent limitations are provided in these individual and general NPDES permits for point sources, discussion of the management strategies to mitigate pollutant discharges from the wastewater treatment facilities and airport are not provided in this nonpoint source management plan.

2.3 TMDL Implementation Plan Requirements

In 2007, DEQ prepared a guidance document for developing TMDL implementation plans in conjunction with issuance of the Willamette Basin TMDL. This Plan reflects the elements that are related to nonpoint source temperature control strategies. The requirements for a TMDL implementation plan as listed in the guidance are as follows:

(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.

It should be noted and emphasized, as discussed previously, that under the first requirement above, this implementation plan is associated with strategies to achieve LAs, which are associated with nonpoint sources. WLAs are associated with point sources and are covered through water quality permits for those sources (in this case, the City's NPDES MS4, wastewater treatment plant, and industrial permits). Section 3 provides a summary of point source strategies for reference.

Section 4 addresses the first three requirements (A, B, and C) specifically for temperature (as a nonpoint source pollutant with LAs not otherwise addressed by NPDES MS4 permit compliance). Section 5 addresses the fourth requirement (D), and reflects the evaluation of this Plan's conformance with the City's land use goals and comprehensive plan. Section 6 addresses additional items identified in the water quality management plans as requested in requirement (E), including public involvement, funding, and legal authority.

Section 3

Management Strategies for Point Sources (WLAs)

As described in Section 2, a TMDL specifies the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and it allocates pollutant loadings among point and nonpoint sources. WLAs are provided for point sources (e.g., municipal stormwater, industrial stormwater and wastewater covered by permits), and LAs are provided for nonpoint sources (e.g., surface runoff from agricultural and forested lands).

Discharges of stormwater runoff to surface waters via the City's MS4 are point sources of pollutants since they are covered by an NPDES MS4 permit. The City also has stormwater discharges that flow over land and enter receiving waters directly without first entering the City's MS4. While these discharges are technically considered to be nonpoint sources of pollutants, the City manages them as if they are covered by the NPDES MS4 permit because the NPDES MS4 permit SWMP is implemented citywide.

Bacteria, mercury, and TSS (three of the City's TMDL parameters) are managed as point sources with WLAs in accordance with the City's NPDES MS4 permit (see discussion in Section 2.2). Because the City's NPDES MS4 permit SWMP Document extends to all stormwater discharges conveyed via the MS4 or that discharge via flow over land, the City does not have any sources of bacteria, mercury, or TSS that would need to be addressed by this TMDL Implementation Plan for nonpoint sources. The management strategies discussed in this section thus apply to all sources of bacteria, mercury, and TSS covered by the City's NPDES MS4 permit SWMP Document.

Because stormwater is not considered to be a source of water quality temperature criteria exceedances, temperature is managed as a nonpoint source issue that is addressed through this TMDL Implementation Plan as opposed to being addressed through the NPDES MS4 permit. Temperature management is discussed in Sections 4 and 5 of this Plan.

The purpose of this section is to provide an overview and reference for the strategies, schedules, and monitoring activities that address bacteria, mercury, and TSS (as a surrogate for mercury and toxics) under the NPDES MS4 permit SWMP Document and Surface Water and Stormwater Monitoring Plan.

3.1 NPDES MS4 Permit Background

The City obtained its most recent NPDES MS4 permit from DEQ in 2021 for its municipal stormwater discharges to surface waters. Requirements of the City's NPDES MS4 permit are met through implementation of a SWMP Document and monitoring plan. The 2021 permit requires these documents to be submitted to DEQ for approval by November 1, 2022.

The SWMP outlines various management strategies in the form of best management practices (BMPs) that address specific permit requirements and specific TMDL parameters. BMPs include control techniques, system design and engineering methods, and other measures the City implements to reduce the discharge of pollutants in stormwater to protect water quality.

The NPDES MS4 permit authorizes the City to discharge stormwater to waters of the state, while also requiring the implementation of programs that will reduce the discharge of pollutants from the MS4

to the Maximum Extent Practicable. This standard is met through compliance with NPDES MS4 permit conditions and implementation of BMPs identified within the City's SWMP. The City conducts adaptive management annually and with the permit renewal application process to assess the effectiveness of the BMPs and subsequently update and revise them as necessary, and within permit limits, to reduce pollution in the City's stormwater system.

In addition to implementation of the SWMP Document and monitoring plan, Phase I NPDES MS4 permits in Oregon require the development of a pollutant load reduction evaluation (PLRE) and the establishment of TMDL benchmarks to further ensure progress in achieving TMDL WLAs. Salem submitted its PLRE and TMDL benchmarks with its permit renewal application in December 2015. The PLRE and benchmarks reflect implementation of stormwater controls (both structural and select nonstructural) as documented in the City's SWMP. Both analyses require an assessment of TMDL pollutant loads generated from the NPDES MS4 permit area and comparison of the loads (or load reduction) to the WLAs defined in the TMDLs. Another PLRE and TMDL benchmark evaluation will be required for submittal with the next NPDES MS4 permit renewal application in March of 2026.

3.2 Management Strategies to Address WLAs

The City prepared and submitted an updated SWMP Document to DEQ in conjunction with the submittal of this Plan (November 1, 2022). The 2022 SWMP Document was developed based on a review and evaluation of the City's stormwater program, including activities and accomplishments implemented during the previous permit term and during the permit's administrative extension period. The City used an adaptive management process to assess and modify BMPs to achieve reductions in stormwater pollutants to the MEP. The SWMP Document was also compared to the new 2021 permit requirements to identify any potential gaps based on new permit requirements. BMPs per the updated (2022) SWMP Document are listed in Table 3-2 on p. 3-7, in conjunction with the TMDL parameter they are expected to address. This SWMP Document may change based on review and approval from DEQ.

In addition to management strategies outlined in the SWMP Document, the City has conducted additional targeted activities to address bacteria, mercury, and TSS discharges to receiving waters. For example, to address bacteria, private property within 200 feet of a public sanitary sewer is required to connect to it per Salem Revised Code (SRC) Chapter 73. Mercury reduction efforts, including the promotion of take-back programs and dental office outreach, have also been implemented. Implementation of such programmatic activities varies year-to-year and is not required specifically by the City's NPDES MS4 permit.

Finally, the City implements stormwater-related projects through implementation of stormwater capital improvement projects (CIPs), implementation of the Stormwater Retrofit Plan (October 2014) and the updated 2014 Public Works Stormwater Management Design Standards (Design Standards). Projects implemented address a variety of water quality and water quantity control objectives. Through the 2014 Design Standards, developers are encouraged to incorporate use of low-impact development (LID) techniques for treatment of stormwater runoff. Stormwater facilities installed are accounted for in the ongoing updates to the PLRE and TMDL benchmark development and referenced in conjunction with the NPDES MS4 annual reporting.

3.3 Management Strategies Specific to the 2021 Willamette Basin Mercury TMDL

The 2021 Willamette Mercury TMDL (Appendix A, Chapter 13 – Water Quality Management Plan) requires that municipal MS4 permittees implement six stormwater control measures in areas not included in their MS4-coverage areas to achieve the necessary nonpoint source reductions in mercury and sediment. Per Section 13.3.1.11 and Table 13-11, DEQ refers to six minimum control measures to control unpermitted urban runoff from cities with populations of 5,000 or greater (as is applicable for the City of Salem). These six minimum control measures apply to cities with MS4 permits for areas outside of their MS4 permit coverage area, and to cities without MS4 permits (2019 Willamette Basin WQMP, Table 13-11, p 92-221). However, MS4 permit holders may choose to implement requirements under their NPDES MS4 permit throughout their jurisdiction for implementation consistency, and this approach would meet or exceed requirements in Table 13-11 (2019 Willamette Basin WQMP, p 94-221).

As stated in Section 2.2, the City implements its NPDES MS4 permit SWMP Document across all areas of the city, and therefore meets the six minimum measures. For reference Table 3-1 summarizes the six minimum measures for mercury (per Table 13-11 of the Willamette Basin TMDL Appendix A), as related to the City's 2022 SWMP Document. It should be noted that (at the time of this Plan update) the 2022 SWMP Document is subject to final review and approval from DEQ.

Table 3-1. Correlation Between Six Minimum Stormwater Control Measures for Mercury and Phase I NPDES MS4 Permit Requirements

Minimum Stormwater Control Measure	Minimum Stormwater Control Measure Requirements Summary	2022 SWMP BMP (see also Table 3-2)
1. Pollution Prevention and Good Housekeeping for Municipal Operations	• Operate and maintain facilities to reduce the discharge of mercury-related pollutants. • Ensure DMA-owned and operated facilities with industrial activities have coverage under a 1200-Z permit and conduct operations and maintenance activities to protect water quality. • Maintain records.	OM-1 through OM-8
2. Public Education and Outreach	• Conduct an ongoing education and outreach program to inform the public. • Track implementation of public education and outreach and assess progress including a qualitative evaluation of one activity.	EO-2
3. Public Involvement and Participation	• Implement a public involvement and participation program to provide the public with opportunity to participate in the development of control measures.	PI-1 through PI-6
4. Illicit Discharge Detection and Elimination	• Implement and enforce a program to detect and eliminate illicit discharges. • Develop and maintain a current map of the conveyance system. • Prohibit non-stormwater discharges through enforcement of an ordinance or other legal mechanism.	IL-1 through IL-3
5. Construction Site Runoff Control	• Refer project sites to DEQ or agent to obtain 1200-C permit coverage. • Require construction site operators to complete and implement an Erosion and Sediment Control Plan for construction project sites that result in a min. land disturbance of 0.5 acres or more. • Require erosion controls, sediment controls, and waste materials management for qualifying construction projects. • Develop, implement, and maintain escalating enforcement.	EC-1 through EC-3
6. Post Construction Site Runoff for New and Redevelopment	• Develop, implement, and enforce a program to reduce discharge of pollutants from new and redevelopment project sites (0.25 acres or more). • Target natural or predevelopment hydrologic function to retain rainfall onsite and treatment of the remainder or runoff.	PC-1 through PC-3

3.4 Timeline and Implementation Schedule

The City's 2022 SWMP Document includes measurable goals and tracking measures for each BMP. These represent the schedule for implementing the TMDL management strategies for bacteria, mercury, and TSS. Table 3-2 includes the measurable goals and tracking measures currently listed in the City's 2022 SWMP Document for each BMP. These goals have the potential to change annually through adaptive management and with the next reissuance of the City's NPDES MS4 permit.

3.5 Monitoring and Reporting

The City is required to conduct stormwater monitoring for program compliance. This is accomplished by conducting two types of monitoring: program implementation monitoring and environmental monitoring. Implementation monitoring relates to the tracking of BMP (management strategy) implementation and evaluating whether BMP measurable goals and tracking measures are met. Environmental monitoring relates to the collection of stormwater and instream samples and the associated analysis and evaluation of pollutant concentrations.

Results of the program implementation and environmental monitoring are documented in NPDES MS4 compliance reports that are prepared annually by the City, reflecting permit implementation activities from July 1 to June 30 each year. The annual reports are submitted to DEQ by November 1 of each year.

3.5.1 Program Implementation Monitoring

With respect to program implementation monitoring, the City submits NPDES MS4 annual compliance reports that summarize program implementation activities for all BMPs in its SWMP. Each BMP has a defined measurable goal and tracking measure. Table 3-2 lists the measurable goals and tracking measures for each BMP.

3.5.2 Environmental Monitoring

The City conducts environmental monitoring in the form of sample collection and analysis at various instream and stormwater outfall sites throughout Salem. Environmental monitoring activities are conducted in conjunction with the monitoring requirements listed in the NPDES MS4 permit.

The City developed an updated Surface Water and Stormwater Monitoring Plan and submitted the updated plan to DEQ for approval in conjunction with submittal of the updated SWMP Document by November 1, 2022. The updated monitoring plan is consistent with requirements in the City's 2021 NPDES MS4 permit.

Per the updated monitoring plan, the City proposes to collect grab samples from three instream sites and three stormwater system sites during three storm events each year. Additionally, the City will conduct continuous sampling from 10 instream sites and collect monthly grab samples from 24 instream sites. Samples collected from these sites will be analyzed for various parameters that include bacteria, nutrients, metals, sediment, and field parameters (e.g., pH, dissolved oxygen, temperature). Pesticides will also be analyzed in stormwater samples from 3 sites during four storm events throughout the course of the permit. The City will also conduct biological monitoring at three instream locations twice over the permit term. Data from environmental monitoring efforts are included in the NPDES MS4 annual reports. Trends analyses are also conducted in conjunction with the NPDES MS4 permit renewal application to evaluate instream water quality improvements.

Table 3-2. City of Salem Stormwater Program Implementation Activities

BMP Number	BMP Name	Program Element(s)	Addresses Bacteria?	Addresses Mercury?	Addresses TSS?	Responsible City Department	Measurable Goals (2022 SWMP)	Annual Tracking Measures
IL-1	Spill Prevention and Response	Illicit Discharge Detection and Elimination	○	○	○	Salem Fire Department Public Works Department (Environmental Services)	• Update the City's Spill Response Plan. Post it in the SWMP Document Library. • Continue to implement the spill prevention and emergency response program. • Conduct daily equipment inspections.	• Status of update to the Spill Response Plan • Number and category of spill events and responses
IL-2	Illicit Discharge Detection and Elimination Program	Illicit Discharge Detection and Elimination Pollution Prevention for Municipal Operations	○	○	○	Public Works Department (Environmental Services, Stormwater Services, Wastewater Collections)	• Review, update, and post the City's IDDE Enforcement Response Plan in the SWMP Document Library. • Continue to operate the 24-hour Public Works Dispatch Reporting Center. • Respond to reports of illicit discharges and suspicious water quality conditions within the timelines identified in the IDDE Enforcement Response Plan. • Review stormwater and ambient stream monitoring data to identify possible cross-connection discharges into the stormwater system. • Take corrective action on any identified system cross-connection problems.	• Status of update to IDDE Enforcement Response Plan • Number of illicit discharge concerns reported • Number of confirmed illicit discharge problems and enforcement action taken • Number of cross-connections identified. • Number of cross-connections remedied
IL-3	Stream Crew Program (Dry Weather Field Screening and IDDE)	Illicit Discharge Detection and Elimination	○	○	○	Public Works Department (Stormwater Services)	• Conduct dry weather inspections for a minimum of 35 outfalls annually. • Develop GIS geodatabase for storage and display of observed dry weather flows and add observed dry weather flows to GIS geodatabase annually. • Update Dry Weather Outfall and Illicit Discharge Screening Plan in 2023 with updated priority areas, pollutant parameter actions levels, and water quality sampling SOPs. • Walk 50% of waterways within Salem each year for stream clean up and enhancement.	• Number of outfall inspections conducted and results of inspections including follow-up activities. • Number of outfalls with observed dry weather flows added to GIS geodatabase • Status of updating the Dry Weather Outfall and Illicit Discharge Screening Plan • Waterway miles walked and the amount of garbage/litter removed
IC-1	Industrial and Commercial Strategy	Industrial and Commercial Facilities		○	○	Public Works Department (Environmental Services)	• Update Industrial/Commercial Facilities strategy with revised facility screening strategy, inspection processes, and documentation procedures by November 1, 2023. • Develop database of industrial and commercial facilities with the potential for increased stormwater pollution.	• Status of updated Industrial/Commercial Facilities Strategy. • Number of facilities referred for 1200-Z permits.
IC-2	Industrial and Commercial Site Inspections	Industrial and Commercial Facilities		○	○	Public Works Department (Environmental Services)	• Inspect stormwater systems during inspections of City-permitted wastewater users. • Document facility inspections, site operator meetings, and corrective actions.	• Number of industrial/commercial stormwater inspections. • Number of corrective actions identified through industrial and commercial site inspections.
EC-1	Erosion Control Requirements	Erosion and Sediment Control		●	●	Public Works Department (Engineering)	• Update SRC Chapter 75 to update the threshold for erosion control requirements for consistency with NPDES MS4 permit by November 1, 2024.	• Status on updating SRC Chapter 75
EC-2	ESC Plan Review	Erosion and Sediment Control				Public Works Department (Engineering)	• Post the City's ESC Plan Review Procedures in the SWMP Document Library. • Perform ESC Plan reviews and issue construction permits. • Ensure requirements for 1200-CA compliance are incorporated into City construction plans, specifications, and contract documents. • Develop ESC Plan educational resource webpage.	• Number of erosion control plans reviewed, and permits issued • Status of renewal of the City's 1200-CA permit • Status of developing educational materials resource webpage
EC-3	Erosion Control Inspections	Erosion and Sediment Control		●	●	Public Works Department (Engineering)	• Maintain inventory of permitted construction sites with contact information, project size, date of approved plan, inspections, and complaints. • Make erosion prevention and sediment control key agenda items at all preconstruction conferences. • Include inspection of all site erosion prevention and sediment control measures as part of City projects. • Conduct construction site inspections in accordance with the City's documented Construction Site Inspection procedures. • Conduct enforcement in accordance with the City's documented Erosion Control Enforcement procedures. • Ensure the escalating enforcement procedure meets new permit requirements by Nov. 1, 2023.	• Number of preconstruction conferences that discuss erosion prevention and sediment control • Number of erosion control inspections performed • Number of enforcement actions and the outcome of the actions • Track number of 1200-CA inspections • Escalating enforcement procedures are documented and submitted by Nov 1, 2023, if needed.
EC-4	Training for Construction Site Operators	Erosion and Sediment Control		○	○	Public Works Department (Engineering and Stormwater Services)	• Provide annual erosion control training for private contractors.	• Number of training programs conducted, and number of contractors trained
EO-1	Staff Training and Coordination	Education and Outreach	○	○	○	Public Works Department	• Conduct annual training of staff involved in MS4-related positions in accordance with the NPDE MS4 Training Plan (Appendix B).	• Training dates and number of staff attending. • Dates of stormwater supervisor meetings.

Key to pollutant symbols: A full circle (●) indicates the BMP directly addresses the parameter. An empty circle (○) indicates the BMP may directly address the parameter based on the situation. A blank cell means the item has unknown or indirect effect.

Table 3-2. City of Salem Stormwater Program Implementation Activities

BMP Number	BMP Name	Program Element(s)	Addresses Bacteria?	Addresses Mercury?	Addresses TSS?	Responsible City Department	Measurable Goals (2022 SWMP)	Annual Tracking Measures
							• Stormwater supervisors will meet quarterly to coordinate training and adaptively manage programs.	
EO-2	Public Education and Outreach	Education and Outreach	○	○	○	Public Works Department (Stormwater Services)	• Create an annual education and outreach plan showing Priority audience, topic, messaging method. • Meet with City's DEI coordinator annually, during development of outreach and education plan. • Implement identified public outreach activities and campaigns. • Support Marion County in providing alternatives for household hazardous waste disposal, including mercury-containing items.	• Confirm development of annual education and outreach plan • Date of meeting with DEI coordinator • Create an annual report that details the outreach activities and includes an evaluation of at least one outreach event or program for adaptive management • Types of publicity for Marion County household hazardous waste program
PI-1	Stormwater Program Website	Public Involvement				Public Works Department	• Update information on website in 2022 • At least annually review the webpages to check for accuracy, working links, staff changes, new documents, and policy updates	• Confirm website update in 2022 • Completion of annual website review checklist
PI-2	Watershed Grants	Public Involvement	○	○	○	Public Works Department	• Fund $50,000 annually for the Watershed Protection and Preservation Grant for projects that enhance Salem's water resources • Promote the grant program.	• Annual inclusion of $50,000 in the budget • Number of approved Watershed Grants, their project category, and overall funds spent • Promotion mechanism and frequency
PI-3	Adopt-a-Street Program	Public Involvement	○			Public Works Department	• Continue to implement the Adopt–a-Street Program.	• Miles of adoptable and adopted streets, number of participating groups/individuals, and pounds of litter collected
PI-4	Adopt-a-Stream Program	Public Involvement	○	○	○	Public Works Department	• Continue to support the Adopt–a-Stream Program.	• Number of participating groups, and support provided
PI-5	Storm Drain Marking Program	Public Involvement	○	○	○	Public Works Department	• Provide marking to 100 storm drains per year.	• Number of drains marked
PI-6	Volunteer Green Infrastructure Cleaning Program	Public Involvement	○	○	○	Public Works Department	• Develop volunteer GSI cleaning program by June 30, 2024. • Implement program beginning July 1, 2024	• Progress towards program development of volunteer GSI cleaning program • Number of facilities cleaned by volunteers
PC-1	Post-Construction Design Standards	Post-Construction Stormwater Management	●	●	●	Public Works Department	• Update SRC Chapter 71 by November 1, 2024. • Review and update the Stormwater Management Design Standards by November 1, 2024.	• Status on updating SRC Chapter 71 • Updates to the Stormwater Management Design Standards
PC-2	LID/GSI Strategy	Post-Construction Stormwater Management	●	●	●	Public Works Department (Stormwater Services)	• Prepare LID/GSI Prioritization Strategy document, submit with November 2023 Annual Report, and post to the SWMP Document Library.	• Status on developing LID/GSI Prioritization Strategy document
PC-3	Development Review for Stormwater	Post-Construction Stormwater Management	●	●	●	Public Works Department (Utilities Planning, Engineering, Development Services, Stormwater Services)	• Review and update (if needed) the stormwater submittal requirements checklist following updates to the post-construction design standards. • Review and update (if needed) the internal stormwater plan review SOP following updates to the post-construction design standards. • Review all residential, commercial, and industrial plans submitted for City-issued permits for compliance with the Stormwater Management Design Standards and associated SRC provisions. • Review all Willamette Greenway Permits for compliance with the Stormwater Management Design Standards and associated SRC provisions. • Conduct inspections once construction is completed to ensure work was done in accordance with approved plans.	• Status of stormwater submittal requirements checklist • Status of internal stormwater plan review SOP • Number of plans reviewed and permits issued for compliance with the Public Works Design Standards • Number of plans reviewed for projects requiring Willamette Greenway Permits • Number of final inspections
OM-1	Asset Management and Systemwide Mapping	Pollution Prevention for Municipal Operations				IT Department (GIS Section) Public Works Department (Stormwater Services, Wastewater Collections)	• Continue to perform routine maintenance and updates to the GIS database(s) annually. This includes the addition of new public and private BMP installations and drainage areas. • Continue to review and refine the database of maps and waterways.	• Record maintenance/updates made to the GIS database(s) • Track completion of additional ground-truthing activities and waterways map updates
OM-2	Public Stormwater Facility Inspection and Maintenance	Pollution Prevention for Municipal Operations	●	●	●	Public Works Department (Stormwater Services)	• Develop a stormwater management facility inspection schedule in 2023. • Add all newly constructed stormwater management facilities to the digital inventory when they come into public ownership and maintenance responsibility. • Inspect 100% of public stormwater management facilities within the permit cycle. • Generate work orders based on inspections and track progress toward completing work orders.	• Status of stormwater management facility inspection schedule • Number of public stormwater management facilities in the digital inventory • Percent of stormwater management facility inspections per year • Number of generated and completed maintenance work orders for public facilities

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Table 3-2. City of Salem Stormwater Program Implementation Activities

BMP Number	BMP Name	Program Element(s)	Addresses Bacteria?	Addresses Mercury?	Addresses TSS?	Responsible City Department	Measurable Goals (2022 SWMP)	Annual Tracking Measures
OM-3	Private Stormwater Facility Inspections and Maintenance Program	Pollution Prevention for Municipal Operations	●	●	●	Public Works Department (Stormwater Services)	• Add all newly constructed private stormwater management facilities to the digital inventory with links to maintenance agreements. • Update maintenance education handout for private owners. • Mail annual maintenance reminders to inventoried private facility owners. • Inspect 100% of inventoried private stormwater management facilities per permit term.	• Number of private stormwater management facilities in the digital inventory. • Status of maintenance education handout. • Number of maintenance reminder letters sent. • Percent of private facility inspections conducted per year and in relation to total.
OM-4	Conveyance System Inspection and Cleaning	Pollution Prevention for Municipal Operations	●	●	●	Public Works Department	• Inspect 120,000 LF of stormwater conveyance pipe annually to identify maintenance and repair needs. • Clean a minimum of 300,000 LF of stormwater conveyance pipe annually. • Inspect 50% of catch basins annually. • Clean any catch basin that meets a 30 percent sediment accumulation threshold during the inspection. • Regularly inspect and maintain 100% of City ditches using appropriate water quality BMPs.	• Length of conveyance system inspected. • Length of conveyance system cleaned. • Number of catch basins inspected • Number of catch basins cleaned and amount of sediment removed. • Length of ditch maintenance performed (cleaning and mowing) and sediment removed.
OM-5	Street Sweeping and Debris Control	Pollution Prevention for Municipal Operations	●	●	●	Public Works Department (Signs and Sweeping, Streets Maintenance)	• Review street sweeping program annually for effectiveness and any necessary revisions to sweeping schedules. • Continue sweeping City streets on a four-zone schedule, sweeping the heaviest zone 13 times per year and the lightest zone 6 times per year. • Continue sweeping City-owned parking lots as needed. • Update waste processing facility disposal protocols and include in OPPP. • Continue to support the Fall Leaf Haul effort.	• Provide information on changes • Number of curb-miles of streets swept • Status of the update to waste disposal protocols • Fall Leaf Haul dates and collection amounts
OM-6	Winter Road Maintenance	Pollution Prevention for Municipal Operations		●	●	Public Works Department (Signs and Sweeping, Streets Maintenance)	• Continue current deicing operations to prevent stormwater pollution. • Continue to research potential cost-effective reuse opportunities for deicing sand materials.	• Dates of annual inspections and training related to deicing • Deicing quantities applied annually including number of events and general locations
OM-7	Integrated Pest Management Procedures	Pollution Prevention for Municipal Operations				Public Works Department (Stormwater Services, Parks Operations)	• Create and adopt city-wide IPM Policy by June 2023. • Once IPM Policy is adopted, update and implement the Operational Plan by December 2025. • Conduct routine inspections of storage facilities for proper storage of materials and chemicals.	• Progress on adoption of policy • Progress on implementation
OM-8	Pollution Prevention for Operations	Pollution Prevention for Municipal Operations	●	●	●	Public Works Department (Stormwater Services, Operations)	• Expand and update the OPPP. • Provide at least one training per year for municipal staff on the updated OPPP.	• Updates/revisions to the OPPP • Number of trainings provided and number of attendees
SP-1	Intergovernmental Coordination	Stormwater Program Implementation				Public Works Department	• Continue participation with SKAPAC based on current group coordination level. • Attend ACWA committee meetings and workshops as scheduled.	• Report on updates to SKAPAC Agreement and other inter governmental agreements (IGAs) • Document participation in ACWA committee meetings
SP-2	Retrofit Progress Report	Stormwater Program Implementation	○	○	○	Public Works Department	• Complete Retrofit Progress Report by November 1, 2023.	• Status of completing Retrofit Progress Report
SP-3	Hydromodification Progress Report	Stormwater Program Implementation	○	○	○	Public Works Department	• Complete Hydromodification Progress Report by November 1, 2023.	• Status of completing Hydromodification Progress Report
SP-4	Permit Renewal Package	Stormwater Program Implementation				Public Works Department	• Develop and submit permit renewal application to DEQ by March 30, 2025 (or alternate date determined by DEQ)	• Status of completing permit renewal application
SP-5	Implement Stormwater CIP	Stormwater Program Implementation	●	●	●	Public Works Department	• Review, prioritize, and budget for identified capital improvement projects annually. • Implement capital improvement projects based on prioritization and available funding.	• Confirm stormwater capital projects included in annual CIP budget • Number and description of completed capital improvement projects related to stormwater and water quality

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Section 4

Management Strategies for Nonpoint Sources (LAs)

The 2006 Willamette Basin TMDL and 2008 Molalla-Pudding River TMDL require DMAs, including the City of Salem, to develop TMDL implementation plans to address elevated temperature. These plans must describe how each DMA will reduce temperatures to meet water quality standards.

Salmonids require cool, well-oxygenated water to survive. Elevated water temperature is a common problem in many tributaries to the Willamette River. Water temperatures in excess of water quality standards make streams unsuitable for cold-water fish and other cold-water aquatic species. Excessively warm streams lead to a variety of ill effects on many salmon and trout species, ranging from decreased spawning success to death (Willamette Basin TMDL, 2006). Depending on the life-stage and species, water temperatures of less than 18 degrees Celsius (C) are necessary for habitat. For spawning, water temperatures of less than 11 degrees C are needed.

Waterbodies that exceed water quality standards for aquatic life and habitat are documented in the TMDLs and have established LAs designed to protect and remedy impaired aquatic habitats.

This section describes the City's TMDL implementation plan to address temperature. Section 4.1 provides a summary of the LAs and shade curves/targets provided in the Willamette Basin and Molalla-Pudding TMDL documents. Section 4.2 summarizes current management strategies to address the temperature LAs, including results of the 2009 modeling effort to define a functional shade area and riparian shade zone specific for Salem. Section 4.3 provides a summary of the City's proposed future temperature management strategies to help meet the TMDL LAs. Section 4.4 outlines the timeline and schedule for implementation, and Section 4.5 summarizes proposed monitoring and reporting.

4.1 TMDL LAs for Temperature

Several factors can contribute to elevated in-stream temperatures, such as changes in channel morphology, climate, geographic location, riparian vegetation, dams, reservoirs, and point sources such as industrial wastewater discharges (DEQ, 2006). DEQ has found that the largest contributor to elevated temperature in the Willamette Basin is the increased impacts from solar radiation loads due to disturbances of riparian vegetation. In response to this finding, DEQ has defined effective shade targets as a surrogate measure for addressing temperature. Effective shade is determined through the use of shade curves developed specifically for particular geomorphic classifications. DEQ has developed 15 shade curves for the Middle Willamette subbasin and 16 shade curves for the Molalla-Pudding subbasin. Five shade curves are applicable to the City, based on the defined geomorphic classifications within city limits. The shade curves, along with stream orientation and width, provide a target for percent-effective shade and corresponding solar radiation loading (DEQ, 2006).

Shade is generally more effective in reducing the temperature in narrower streams (less than 25 feet wide) than in wider streams because shadows from trees in the riparian zone will cover a larger percentage of the water surface. In Salem, approximately 90 miles of creeks and waterways ultimately discharge into the Willamette River, and a majority of tributary streams have an average summer width of less than 25 feet, so it is anticipated that the City can achieve an increased level of shade through the protection and restoration of streamside vegetation. Exceptions to this include the

Willamette River and Willamette Slough and the downstream reaches of the Pudding River, Mill Creek, and Shelton Ditch.

Using Map 7.11 and Figure 7.8 from Chapter 7 of the Willamette Basin TMDL, there are four potential geomorphic classifications and associated shade curves that can be applied in Salem (geomorphic classifications Qg1, Qff2, Tcr, and Qalc). Given Salem's average stream width of approximately 25 feet, the average effective shade goal should range between 65 and 90 percent. This is interpreted to mean that historically prevalent riparian vegetation should block the majority (at least 65 percent) of solar radiation loading from the streams' water surfaces.

Using Figure 2-31 and 2-34 from Chapter 2 of the Molalla-Pudding TMDL, there are three potential geomorphic classifications and associated shade curves that can be applied in Salem (geomorphic classifications Qff2, Tcr, and Tvw). Consistent with the Middle Willamette subbasin, given Salem's average stream width of approximately 25 feet, the average effective shade goal should range between 65 and 90 percent.

To meet the effective shade goal established by DEQ, the City needs to plant and/or retain the system potential vegetation capable of providing significant shade benefit to surface waters. DEQ's definition of "system potential" does not consider management or land use as limiting factors; it is an estimate of the vegetated condition where the human-generated impacts to riparian vegetation that cause stream warming are minimized.

4.2 Management Strategies to Address LAs

Background

Since 2008, the City has been implementing activities targeted at temperature reduction. Such activities were outlined in the City's prior TMDL Implementation Plans (2010 and 2016). To date, the City has completed a majority of the specific temperature management strategies that were identified and it continues to conduct ongoing activities at the frequencies specified.

Many implementation activities stem from the development of the City's Riparian Protection Program and Riparian Action Plan (July 2009). As part of the Riparian Action Plan, the City commissioned Pacific Habitat Services (PHS) to develop a riparian shade inventory and conduct shade modeling to assess existing riparian shade conditions. This information was used by the City to help identify locations where vegetation restoration and enhancement would be needed to show progress toward meeting effective shade goals. Results of the riparian inventory were compiled into a Riparian Prioritization Report to identify specific parcels to develop riparian restoration and planting projects.

4.2.1 Riparian Action Plan

In September 2007, the City began work to develop a Riparian Protection Program to support implementation of the requirements of the City's temperature TMDL while working to achieve City Council Goals 7F and 7G (restoring fish populations in urban streams and providing habitat). The Riparian Action Plan, developed in July 2009, was prepared to prioritize elements of the Riparian Protection Program and identify staffing and budget needs in conjunction with a strategic timeframe.

The Riparian Action Plan documented the three major priorities of the Riparian Protection Program: protect existing riparian areas, increase riparian coverage, and increase public awareness of riparian benefits and good development practices. Under each priority, the City documented various objectives and tasks/actions to be conducted. Each task/action item was prioritized and staff/resource needs were identified.

The Riparian Action Plan formed the basis for the City's 2010 and 2016 TMDL Implementation Plans including the TMDL Implementation Plan BMP Progress Matrix. Revisions to SRC Chapter 68 (now SRC 808) to provide for greater enhancement and riparian buffer protection were identified under Objective A3: Develop SRC Chapter 68 Code Recommendations/Modifications and Objective B2: Develop SRC Chapter 68 Revisions for Enhancement and Greater Buffer Protection. Development of a Riparian Inventory Report and a Riparian Prioritization Report were two action steps under Objective A1: Develop Riparian Shade Inventory.

4.2.2 Salem Shade Modeling and Riparian Inventory Report

As mentioned previously, in 2009, PHS developed a shade model and conducted an inventory of riparian vegetation along Salem's streams. Results were documented in the City of Salem Shade Modeling and Riparian Inventory Report (September 2009).

The shade model was developed to compare summer condition radiation loading with and without a vegetated buffer. Model results were used to establish a minimum and optimum vegetated buffer width for stream reaches, depending on orientation and slope. According to the PHS modeling effort, a minimum 35-foot vegetated buffer is needed (from the top of the bank), with an optimum range of 35 to 55 feet. Ninety-eight percent of the direct shade benefit was identified from planting the first 50 feet of riparian area from the top of the bank.

Using geographic information system (GIS) data and results of the shade model, PHS delineated a functional shade buffer (FSB) or targeted shade area, along Salem streams. The FSB was delineated as a variable-width buffer, reflecting a minimum width of 35 feet and a maximum width appropriate for the stream's orientation and topography. The total FSB area for the City was calculated as approximately 1,212 acres.

A separate exercise was completed to identify current vegetative cover conditions and constraints to planting. Using digital aerial photography, PHS evaluated the current (as of 2009) percent cover by trees and identified contiguous segments of each shade category (e.g., <25 percent cover, 25-75 percent cover, and >75 percent cover). Of the mapped FSB, approximately 570 acres (or 50 percent of the FSB) were identified as Category 1, which reflects less than 25 percent of existing tree cover and areas where planting and restoration are needed. Constraints were defined as "hard" constraints (areas that cannot be planted) and "soft" constraints (areas where planting may be accommodated but site constraints [i.e., utility easements, playgrounds, athletic fields] would limit installation of the preferred system potential vegetation). Constrained areas were subtracted from the total FSB area to result in a plantable FSB of 1,018 acres (i.e., 194 acres are associated with planting constraints).

Results from the shade modeling effort were used to prioritize and develop specific planting projects (see Section 4.2.3). However, as documented in the Riparian Inventory Report, the FSB extends from between 35 and 75 feet from the stream bank, depending on stream aspect and angle. The current SRC Chapter 111 defines the riparian corridor to be 50 feet from the top of the bank for streams with less than 1,000 cubic feet per second (cfs) of flow and 75-feet from the top of bank for streams with greater than 1,000 cfs of flow. Therefore, the portions of the FSB between 50 and 75 feet from the top of the bank are currently only regulated as a riparian buffer along larger waterbodies (i.e., the Willamette River).

Additionally, the City contracted for an update to the shade analysis to determine the change in streamside canopy over a 10-year period (2009 – 2019). The results of the project are anticipated in fall 2022 and will also help the City focus its efforts to increase shade in low-canopy.

4.2.3 Riparian Parcel Prioritization Guidance Document

In 2011, the City contracted with GeoEngineers to help develop a prioritization tool and document that prioritizes sites for restoration or preservation. City and regional GIS coverages were used to define parcels adjacent to stream channels for consideration in the assessment. The prioritization focused on four key site attributes: current riparian shade conditions (per the Riparian Inventory Report), ownership status, habitat quality, and hydrology. Each attribute had a possible score between 1 and 5, and scores were assigned to the entire parcel. Parcels were scored according to whether they required restoration (i.e., poor existing shade conditions) or preservation (i.e., good existing shade conditions). Following initial scoring, weighting factors were assigned to prioritize ownership, riparian shade conditions, and habitat quality scores. Results of the parcel prioritization process were mapped and tabulated to allow for site-specific project development.

4.2.4 Ongoing Implementation Efforts

In conjunction with planning efforts described in the previous section, ongoing implementation efforts to address temperature are being conducted in conjunction with continued review of SRC and associated Administrative Rules, and additional outreach activities designed to encourage tree planting on private and public properties. Details related to these ongoing implementation efforts are outlined here.

To address riparian vegetation and protection, the City has continued to implement the provisions of SRC Chapters 600 (Willamette Greenway) and 808 (Preservation of Trees and Vegetation) to preserve and protect riparian habitat and limit tree removal within the riparian corridor. Current code requirements limit certain development activities and tree removal within the riparian corridor.

Implementation of SRC Chapter 71 and the City's Design Standards also promote a reduction in surface water temperatures through requirements to install stormwater treatment facilities that utilize infiltration. The City's NPDES MS4 permit required an update to post-construction stormwater management standards to prioritize LID and green infrastructure and reduce site-specific post-development stormwater runoff volume, duration, and rates. The City adopted the new Design Standards in January 2014. Because development activities result in increases in impervious area, infiltration decreases and hence groundwater recharge is also decreased. This can result in a reduction of summer stream base flows, which, in turn, results in higher temperatures due to unnaturally shallow base-flow conditions. With implementation of the new Design Standards, the number of structural stormwater treatment facilities that promote the infiltration of runoff will increase, thus supporting the augmentation of stream flows during the warmer dry season and reducing temperature impacts.

The City's current riparian planting program is focused on restoring streamside property of Salem-area parks in partnership with Friends of Trees and providing ongoing education and incentives to encourage planting of riparian corridors on private property. The City actively participates in watershed councils to help inform the public about grant opportunities. Incentives include technical assistance and planting materials (trees). Providing financial assistance and materials to the public and nonprofit organizations has been well-received by the community.

In 2021, the City participated in the DEQ-led Temperature TMDL 5-survey review in preparation of updating temperature strategies. The proposed management strategies (outlined in Section 4.3) build upon the City's previous efforts and the surveys.

4.3 Proposed Management Strategies to Address LAs

This section describes the proposed strategies that the City will undertake to continue to address temperature through riparian area management, including streambank stabilization projects and public education and outreach. Details regarding the proposed strategies are identified in Appendix A.

Ongoing implementation of the City's Design Standards (SRC Chapter 71) is not referenced specifically as a proposed management strategy to address LAs, as it is accounted for and will continue to be reported on as a proposed management strategy to address WLAs in conjunction with the City's NPDES MS4 permit.

4.3.1 GIS Data Review and Assessment

Per Appendix A, Management Strategy No. 1 is to utilize GIS data to assess shade coverage and evaluate changes in the City's tree canopy, document planting projects, assess damage due to the February 2021 ice storm, and improve mapping for updates to the Local Wetland Inventory.

The City is in the process of refining the 2009 Riparian Shade Inventory to look at the change in canopy over a 10-year period. Also included is a separate analysis of the impact to the canopy from the February 2021 ice storm. The City maintains a GIS database to document all City-implemented or City-funded upland and riparian planting projects.

4.3.2 Trees and Native Vegetation

Per Appendix A, Management Strategy No. 2 is to increase the number of trees and native vegetation throughout the City by contracting or partnering with local agencies, businesses, nonprofit organizations, volunteer groups, and local residents to coordinate planting efforts and invasive plant removal along Salem streams.

The City has identified a number of measurable goals and milestones to continue efforts and initiate new planting activities. Efforts/measurable goals are summarized in the following:

- Continue to utilize contracted services to coordinate multi year riparian planting projects on City-owned parcels. The City commits to managing (planting and/or completing invasive vegetation removal) 150 linear feet (minimum) of stream bank on public property.
- Contract with arboriculture companies to provide street tree plantings.
- Continue to offer native vegetation to select streamside property owners.
- Collaborate with organizations or agencies to assist streamside property owners in Salem with invasive vegetation removal and control.

4.3.3 Stream Mitigation Banking

Per Appendix A, Management Strategy No. 3 is to implement a stream mitigation banking program as means to offset impacts to waterways from public improvement projects. The City's stream mitigation bank on Waln Creek will be monitored for conservation threats and maintained for flood storage, water quality, and habitat.

4.3.4 Streambank Stabilization and Riparian Enhancement

Per Appendix A, Management Strategy No. 4 is to pursue options for streambank stabilization and riparian enhancement projects that incorporate bioengineering practices. Over the Plan term, the City will complete at least one streambank stabilization/enhancement project that incorporates bio-engineering practices and instream placement of large wood. Additionally, the City will provide information and resource assistance to streamside owners regarding stream stabilization and riparian enhancement projects.

4.3.5 Public Education and Outreach

A number of public education efforts and campaigns are implemented in conjunction with the City's NPDES MS4 permit. With nearly 90 miles of streams in Salem and the majority of those land in private ownership, the City recognizes the importance of communicating directly with streamside property owners. Salem recently hired a new position, the Urban Streamside Program Coordinator, to help coordinate outreach to those residents.

Per Appendix A, Management Strategy No. 5 is update the Riparian Outreach Plan and include multiple ways to engage streamside landowners (i.e., mailers, informational website, public presentations), develop and pilot a backyard buffer program, develop a new homeowner packet, and work with local partners to encourage activities to promote shade.

4.3.6 Internal Communication

Per Appendix A, Management Strategy No.6 is to ensure internal awareness of TMDL requirements and management strategies for temperature control. The City will be preparing an information report for City Council that outlines requirements of this Plan to highlight the accomplishments made during the 5-year term. The City will also ensure that event information is communicated via management reports. Staff will also work to coordinate with the Climate Action Plan to identify items that help decrease stream temperatures and mercury reduction since many activities outlined in these Plans require coordination with other internal departments and utilize tools and activities conducted with other program needs in mind.

4.4 Timeline and Schedule

This Plan is effective for 5 years from the date of approval by DEQ.

Specific to the management strategies reported in Section 4.3, Appendix A summarizes measurable goals (targets), milestones, and annual tracking measures for each activity. The tracking measures reflect the timeframe and schedule for implementing the specific strategies.

4.5 Monitoring and Reporting

The 2006 TMDL Guidance Document requires the DMA to submit two types of reports to DEQ on a regular basis: a progress report and an implementation plan review report.

The progress report is submitted to DEQ annually and provides information related to implementation of identified management strategies, as described in Section 4.3. To consolidate reporting requirements, DEQ allows the TMDL Implementation Plan annual progress report to be submitted with the NPDES MS4 annual report. Such annual reports are due November 1 of each year, reflecting implementation of activities over the previous fiscal year (July 1 to June 30). Appendix A is formatted in a manner that is consistent with how the TMDL Implementation Plan progress reports will be submitted in the future and includes measurable goals and tracking measures for the purposes of monitoring progress.

Every 5 years, the City is required to review the TMDL Implementation Plan to assess progress toward meeting goals and propose changes to the management strategies, and update the TMDL Implementation Plan as appropriate. Updates are based on review of existing data and activities relative to pollutant reduction goals. Existing strategies are then refined to reflect progress made over the previous 5 years. The City underwent this DEQ-led process for temperature in 2021 and the changes are relected in the current plan.

Important upcoming dates relative to this plan are outlined in Table 4-1 below.

Table 4-1. Important Dates

2019 TIP Implementation	3/1/19 - 12/31/23
Letter Describing Mercury Strategies to Address the 2021 Mercury TMDL	Submitted to DEQ 8/29/22
2022 Updated TIP (to incorporate the 2022 SWMP)	Submitted to DEQ 11/1/22
2022 TIP Implementation	9/3/22 – 12/31/26
TIP Five-year Review	Due 11/1/26
2026 TIP Update	Due 11/1/26
2026 TIP Implementation	11/1/26 – 11/30/30
Annual Reports	November 1 each year (except in years when five year reviews are due)

Section 5

Evidence of Compliance with Applicable Land Use Requirements

OAR 340-042-0080(3)(a)(D) defines one of the required elements of a TMDL implementation plan to be evidence of compliance with applicable statewide land use requirements. Per the TMDL Implementation Plan Guidance Document, this consists of the following:

- Identify applicable acknowledged local comprehensive plan provisions and land use regulations.
- Explain how the implementation plan is consistent with these local planning requirements or what steps will be taken to make the local planning requirements consistent with the implementation plan.

The Salem Area Comprehensive Plan (Plan) collectively includes several different documents and maps that are intended to guide long range development in the Salem urban area. This Plan has been acknowledged by the Land Conservation and Development Commission (LCDC) to be in compliance with Oregon Statewide Land Use Goals, and is periodically reviewed and updated to ensure continued compliance. The Plan is intended to be implemented over a period of 20 years, and serves as a framework for orderly development and general guide for everyday zoning and subdivision decisions. As such, provisions and regulations related to this TMDL Implementation Plan can be found in the SRC and Administrative Rules. All of the strategies outlined in this TMDL Implementation Plan are considered to be consistent with the City's land use plans and codes. The City will continue to evaluate consistency with local and statewide land use laws in any future actions related to TMDL implementation.

Section 6

Additional Requirements

The fifth component of TMDL implementation plans required by OAR 340-042-0025 is "any other analyses or information as specified in the Water Quality Management Plan (WQMP)." The WQMP for the Willamette Basin TMDL requires a fiscal analysis and a summary of legal authority. This section addresses these requirements. Because the City of Salem is located upstream of RM 50, cold-water refugia does not have to be addressed.

6.1 Legal Authority

The City maintains ordinances that provide authority for implementation of portions of this TMDL Implementation Plan.

The City currently operates under an NPDES MS4 permit that requires ordinances for illicit discharges, erosion control, and postconstruction site runoff, as necessary, to implement the BMPs outlined within it. The NPDES MS4 permit also includes specific management strategies as described in Section 3 to address bacteria, TSS, and mercury. SRC Chapter 71 (Stormwater), Chapter 73 (Sewers), and Chapter 75 (Erosion Prevention and Sediment Control) include the legal authority to implement provisions of the NPDES MS4 permit. NPDES MS4 annual compliance reports submitted to DEQ also include, as required, a demonstration of continued legal authority to implement the programs and BMPs outlined in the SWMP.

The City operates its wastewater collection system, River Road Wet Weather Treatment Facility, and Willow Lake Water Pollution Control Facility in accordance with its DEQ-issued NPDES permit. The legal authority governing the system's operation is generally set forth by SRC Chapter 73 (Sewers), with much more specific authority and responsibilities set forth by SRC Chapter 74 (Pretreatment Provisions).

Finally, as described in Section 4.2.4 and Section 5, the City also has ordinances to implement natural resource protection efforts. SRC Chapter 600 (Willamette Greenway), Chapter 601 (Floodplain Overlay Zone), and Chapter 808 (Preservation of Trees and Vegetation) include requirements related to preserving riparian buffers and tree cover. Detail related to specific code provisions and consistency with the comprehensive plan are described in Section 4.2.4 and Section 5, respectively. All pertain to the City's authority to implement the management strategies proposed to address the temperature TMDL (Section 4).

6.2 Funding

On December 6, 2010, Salem City Council approved the adoption of a stormwater utility with a separate stormwater fee. The stormwater fee consists of both a base fee and a fee that is calculated based on the impervious surface area associated with each ratepayer's property. The stormwater utility now provides an equitable and stable funding mechanism that supports citywide stormwater management activities per the conditions specified in the City's NPDES MS4 permit.

The stormwater utility also supports many of the management strategies for non-point source pollutants that have been identified in this TMDL Implementation Plan. Specifically, the stormwater utility will continue to fund public education and outreach, riparian tree planting and enhancement strategies, and support GIS data analysis and refined tracking mechanisms. Options for additional support

for riparian enhancement and streambank stabilization activities through the City's capital improvement plan will be explored during this TMDL Implementation Plan cycle.

6.3 Public Involvement

The City addresses public involvement for the management strategies described in Section 3 in conjunction with its NPDES MS4 permit requirements.

Public involvement will be provided for this TMDL Implementation Plan update (and associated management strategies highlighted in Section 4.3) through use of the City's website. The plan will be posted on the City's website, available for public review. Comments will be received, logged, and considered by City staff.

Section 7

Limitations

This document was prepared solely for the City of Salem in accordance with professional standards at the time the services were performed and in accordance with the contract between the City and Brown and Caldwell, dated October 19, 2021. This document is governed by the specific scope of work authorized by the City; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. Brown and Caldwell has relied on information or instructions provided by the City and other parties and, unless otherwise expressly indicated, has made no independent investigation as to the validity, completeness, or accuracy of such information.

Section 8

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Appendix A: Temperature Management Strategies

	Management Strategy		Measurable Goals	Milestones	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	Annual Goal Tracking
GIS Data Review & Assessment	1. Utilize GIS data to assess shade/canopy cover, prioritize sites, and document planting projects and to identify wetlands.	1A	Assess potential impact to stream canopy due to the February 2021 ice storm.	Secure imagery from before (August 2020) and after (May 2021) the ice storm to use for the determination of the change in canopy.	x					Tracking of imagery procurement.
				Conduct desktop/field analysis of riparian canopy before and after the February 2021 ice storm internally or with assistance of consultant services.	x					Tracking progress of study.
				Create a project summary and map showing change of canopy.	x					Summary of findings. Development of map.
		1B	Document all upland and riparian planting projects in a GIS database.	Update the project map annually at the end of the planting project season.	x	x	x	x	x	Map updated with locations of project sites and with number or volunteers and trees/shrubs planted.
				Make map accessible to the public.	x					Status of map availability.
		1C	Assess potential impact to citywide canopy due to the February 2021 ice storm.	Secure imagery from before (August 2020) and after (May 2021) the ice storm to use for the determination of the change in canopy.	x					Tracking of imagery procurement.
				Conduct desktop/field analysis of riparian canopy before and after the February 2021 ice storm internally or with assistance of consultant services.	x					Tracking progress of study.
				Create a project summary and map showing change of canopy.	x					Summary of findings. Development of map.

	1. Utilize GIS data to assess shade/canopy cover, prioritize sites, and document planting projects and to identify wetlands	**1D**	Improve GIS mapping for updates of the Local Wetland Inventory (LWI).	Add new delineated wetlands and track State removal/fill permits.			x	x	x	Annual update that includes number of wetlands added, wetlands filled, and/or edits made, if applicable.
Trees & Native Vegetation	**2. Partner with local agencies, non-profits, volunteer groups, and local residents to coordinate plantings and to control invasive vegetation along Salem streams, streets, and in natural areas.**	**2A**	Continue to use contracted services to coordinate upland planting and multi-year riparian restoration projects on City-owned parcels.	Update annual Scope of Work with contractor to outline project location(s), site preparation, planting plan, maintenance needs, and estimated schedule of activities.	x	x	x	x	x	Annual project scoping meeting with consultant. Development of annual plan.
				With consideration for the time needed for site prep and invasive vegetation removal, ensure that at least 150 linear feet of streambank are planted with native trees and shrubs and/or receive targeted invasive vegetation removal each year.	x	x	x	x	x	Annual tracking of the number of linear feet planted, number of trees/shrubs planted, and number of volunteers who participated.
				Reassess contract renewal/continued contracting needs for future planting events.	x	x	x	x	x	Annual signed contract.
		2B	Contract with arboriculture companies to provide street tree plantings.	Provide Scope of Work identifying street tree locations and suitable tree species. Focus work in low canopy areas and along major roads.	x	*x*				Number of trees planted.
				Ensure water and maintenance of newly planted trees for three years.	x	*x*	*x*	*x*	*x*	Number of trees watered and maintained.
				Reassess contract renewal/continued contracting needs for future planting events.		*x*	*x*			Annual signed contract.
		2C	Continue to offer native vegetation to select streamside properties.	Offer native vegetation to streamside residents through the Free Tree and Shrub program to supplement public planting projects.	x	x	x	x	x	Track number of participants and number of plants provided.

	2. Partner with local agencies, non-profits, volunteer groups, and local residents to coordinate plantings and to control invasive vegetation along Salem streams, streets, and in natural areas.			Offer native trees, shrubs, and invasive plant removal where needed for up to 20 streamside property owners in low-canopy tree areas. Determine follow up needs.	x	x	x	x	x	Identify properties. Track number of properties offered plants, number that participated, and the number of plants provided.
		2D	Collaborate with organizations or agencies to assist streamside property owners in Salem with invasive vegetation removal and control.	Review existing streamside data and identify a proposed list of taxlots to receive assistance.	x	x	x	x	x	Develop taxlot list.
				Seek permission from identified streamside residents and initiate control efforts.	x	x	x	x	x	Number of permissions received and assistance provided.
				Develop treatment list and follow up with treatment success at sites each summer upon availability of staff/stream crew participation.	x	x	x	x	x	Estimated rate of success, which can include number of properties that need retreatment and reduction or elimination of plant population on site.
Stream Mitigation Bank	**3. Implement Stream Mitigation Banking (SMB) Program as a means to offset impacts to waterways from public infrastructure improvements projects.**	**3A**	Implement the Waln Creek Mitigation Bank Long-Term Management Plan.	Monitor the site for occurrence of conservation threats, such as accumulation of sediment, illegal dumping, and invasive weeds.		x	x	x	x	Record findings via GIS app or asset management software and provide a monitoring report including map of invasive species extent and location of conservation threats and list of management strategies needed.
				Maintain the area within the Mitigation Bank for enhanced flood storage, improved water quality, and habitat functions.	x	x	x	x	x	Report of site maintenance performed.

Stream Stabilization	**4. Pursue options for streambank stabilization and riparian enhancement projects that incorporate bioengineering practices, the instream placement of woody debris, and native plants.**	**4A**	Initiate at least one streambank stabilization/habitat enhancement project per TMDL plan cycle that incorporates bioengineering practices and/or the instream placement of large woody debris.	Identify location and evaluate options for project funding.	x	*x*				Determine location and funding mechanism.
				Finalize project scope and design.		x	x			Consultant hired. Project and scope identified.
				Secure permits for project(s), if needed.			x	x		Permits identified and applied for.
				Initiate project implementation per final scope and design.					x	Efforts to construct project.
		4B	Provide information and resource assistance to streamside owners regarding stream stabilization and riparian enhancement projects.	Identify and designate lead staff person to conduct site visits and to coordinate with other City personnel.	x					Staff identified. Number of site visits requested/ conducted.
				Continue to offer the Watershed Protection and Preservation Grant to assist with funding for erosion control and streambank stabilization projects.	x	x	x	x	x	Number of grant applications provided, submitted, and approved. Track grant process including permit status, if needed.
				Develop streamside erosion information webpage for streamside home and business owners.		x	x	x	x	Staff meetings to draft content. Development of materials, if needed. Final webpage layout and information.
				Conduct at least one streamside restoration project and/or site monitoring with the Stream Crew in years that the Stream Crew is available.	x	x	x	x	x	Site identified. Plan created and completed. Monitor shading, survival, and maintenance needs at restoration sites.

Riparian Protections	**5. Continue to review and revise Salem Revised Code (SRC) provisions to ensure protection of riparian area buffers.**	**5A**	Increase riparian buffer protection through local assessment.	Coordinate with Planning Commission for implementation of Goal 5 riparian inventory.	x					Progress made on letter from Planning Commission to Council.
				If approved by City Council, begin implementation of Goal 5 Riparian Inventory work.		x	x			Hire consultant to perform inventory. Tracking of process.
				Monitor progress on the Oregon Implementation Plan for NFIP-ESA Integration.			x	x	x	Track progress for local ordinance implementation.
Public Education & Outreach	**6. Assess and engage the community in education efforts focused on stream temperature.**	**6A**	Update and implement Riparian Outreach Plan	Identify new and refined strategies, including incentives and barrier reductions, based on canopy survey results and streamside shade inventory to update the plan.	x	x				Review of study regarding incentives and barriers. Document incentives (materials, trainings, etc.) provided to residents.
				Use updated riparian shade inventory and prioritization database to identify low canopy areas for priority outreach.		x	x			Develop outreach schedule for targeted properties.
				Implement updated Riparian Outreach Plan.		x	x	x	x	Track the number of tasks implemented and their outcome(s).
				Assess and adaptively manage strategies			x	x	x	Update strategies based on review.
		6B	Use a variety of tools to convey riparian values to the general public.	Update website design for TMDL page and content and with "key components" information from Riparian Outreach Plan and information for streamside assistance as indicated in 4B.	x	x				Track number/content of updated materials to website.
				Review webpages at least quarterly to determine that content remains relevant and up to date.	x	x	x	x	x	Document outcome review for updates and changes.
				Use an assortment of means to share information, such as streamside mailers, online ads, radio, presentations, and web updates.	x	x	x	x	x	Indicate sources of outreach, frequency, and distribution, if applicable.

	6. Assess and engage the community in education efforts focused on stream temperature.	**6C**	Pilot an outreach program to help residents increase shade along their streams.	Develop a streamside buffer program.		x	x			Progress made on program development. Program included in budgeting process.
				Implement streamside buffer program.			x	x	x	Indicate number of applications, participants, and partners.
				Develop and implement streamside workshops/videos for riparian landowners.		x		x		Number of offerings and participants.
		6D	Continue/develop partnerships to share messages and leverage resources	Participate in local, regional, and/or statewide stormwater communications groups.	x	x	x	x	x	Document events and event attendance. Document project progress, outcome(s), and message(s).
		6E	Continue to support/promote weed control efforts of Salem-based projects and volunteer groups (e.g., SOLVE, No Ivy Coalition, and Willamette Riverkeeper).	Coordinate with and/or promote volunteer groups on weed control projects on or near waterbodies.	x	x	x	x	x	Track number of projects, items of coordination, and project outcome.
		6F	Provide new streamside homeowners with welcome packets.	Explore the ability of determining new streamside property owners. Only if able, develop system to identify change of property owners for new homeowner outreach.		x	x			Development and progress of a tech team to explore the possibility. List/number of streamside properties with ownership change.
				If system can be developed, create homeowner packet and provide to new owners. If it cannot, do not proceed.				x	x	Development of packet. Number of new streamside properties identified and number of packets sent.

		6G	Continue Tree City USA status.	Continue meeting the Arbor Day Foundation Tree City USA requirements.	x	x	x	x	x	Acknowledgement from Arbor Day Foundation meeting Tree City USA requirements.
		GH	Continue as Sterling Tree City USA.	Complete additional work to achieve annual Growth Award.	x	x	x	x	x	Acknowledgement from Arbor Day Foundation meeting Growth Award requirements and Sterling City status.
Internal Communication	**7. Ensure internal awareness of TMDL requirements, Implementation Plan strategies, and project updates/needs.**	**7A**	Develop informational report that provides an overview of the City's TMDL Implementation Plan (Plan) and annual reporting requirements to Salem City Council.	Provide staff report to City Council once per 5-year TMDL cycle.					*x*	Provide date of report to Council that includes progress of the 5 years. Note follow up items from the report.
			Ensure that information about TMDL requirements and/or associated tree planting events is included in management reports.	Provide opportunities for community leaders and decision makers to be involved in tree events.		x	x	x	x	Planting event calendar and event invitation(s) sent to council.
				Provide event summaries and information updates, when pertinent, in the monthly staff reports.	x	x	x	x	x	Provide number of staff reports with event summaries.
				Provide Tree Report to City Council.	x	x	x	x	x	Provide date of Tree Report to Council and any noted follow up items from the report.
				Coordinate with the Climate Action Plan to identify items that help decrease stream temperatures.				x	x	Monitor implementation of CAP for natural resource strategies and actions