



To: The Mayor and Members of the City Council
From: Shannon Beaucaire, City Manager
Subject: Mercury Total Maximum Daily Load (TMDL) Draft Implementation Plan
Date: November 2, 2021

Recommendation

After Council review and discussion, please advise of any additional input to be included in the plan before submission to DEQ.

Background

In April 2017, the U.S. District Court issued a ruling requiring the U.S. Environmental Protection Agency (EPA) to revise the 2006 mercury TMDL by November 2019. EPA, with input from the Oregon Department of Environmental Quality (DEQ), led the technical work associated with modeling the amount of mercury gained and lost by stream systems, as well as the concentration of mercury in the aquatic food web. DEQ led the development of a water quality management plan (WQMP) to describe the overall framework for implementing the TMDL. The WQMP describes activities, programs, legal authorities and other measures for which DEQ and other designated management agencies (DMAs) have regulatory responsibility. A DMA is “a federal, state or local governmental agency that has legal authority of a sector or source contributing pollutants and is identified as such by the DEQ in a TMDL.”

The DEQ has named Carlton as a DMA in the Yamhill Subbasin because the City has legal authority within its city limits, and because the City’s stormwater drains to a tributary of the Yamhill River. The tributary flows into the Yamhill River at river mile 9. Under the TMDL, the City of Carlton must develop a non-point source TMDL implementation plan to address mercury in the drainage basins, including the Yamhill River and Hawn Creek. This memorandum represents the required Yamhill Subbasin TMDL implementation plan for the City of Carlton.

This plan is due to DEQ by September 2, 2022. Following DEQ plan approval, the City Council will formally adopt the plan within 60 days. DEQ has requested that plans be submitted to them in the fall of 2021 to allow for plenty of review time.

City Engineer, Gordon Munro will be at the meeting to discuss the plan and answer any questions.

Fiscal Impact

The plan will require budgetary considerations to implement strategies outlined in the plan.

Exhibits

1. Draft Carlton Mercury TMDL Implementation Plan

City of Carlton

Mercury TMDL

Total Maximum Daily Load Implementation Plan

September 30, 2021

BACKGROUND

Willamette River Basin Water Quality

The City of Carlton is in the Yamhill Subbasin, one of the subbasins that make up the drainage basin of the Willamette River. Surface waters in this subbasin fail to meet water quality standards for mercury. The broader Willamette River basin also fails to meet water quality standards for mercury.

The water quality standards were established to ensure that beneficial uses of the river and tributaries, such as swimming, fish consumption and fish rearing, are protected. When water quality standards are not met, the federal Clean Water Act requires a total maximum daily load (TMDL) to be established. A TMDL defines how much pollution can be added to the river without exceeding water quality standards.

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City of Carlton Overview

Area Description

The City of Carlton is in Yamhill County west of Newberg (Section 21, Range 4 West, Township 3 South). Its current population is approximately 2,200. The City is in the northwest quadrant of the Willamette Valley, with

elevations from 160 to 210 feet above sea level. The terrain is characterized by slopes of 0 to 20 percent with moderately well-defined drainage patterns. The predominant U.S. Soil Conservation Service soil type is Carlton Silt Loam. The soil is classified as a fine-silty, mixed, mesic Aquultic Haploxerolls, indicating a moderately impervious, moderately well-drained soil.

The area climate is a marine west coast climate. Rainfall events typical of the area are large, intermittent frontal storms that move in from the Pacific Ocean. High intensity, short duration events are uncommon. The mean annual precipitation is 42 inches, approximately 45 percent of which falls in the springtime.

Drainage Infrastructure

The City's stormwater conveyance system consists of roadside ditches, pipes installed by the City over the years, pipe systems constructed with recent developments, and culverts installed with road projects. The pipes range in diameter from 6 inches to 48 inches.

Most of the City's stormwater runoff flows to a partially piped system that includes some ditches and culverts. The system discharges the majority of runoff to Hawn Creek at multiple outfall locations. Some runoff is also discharged to the Yamhill River, and some is discharged cross country. Figure 1 is a map of the City and its drainage system.

Water Quality Issues

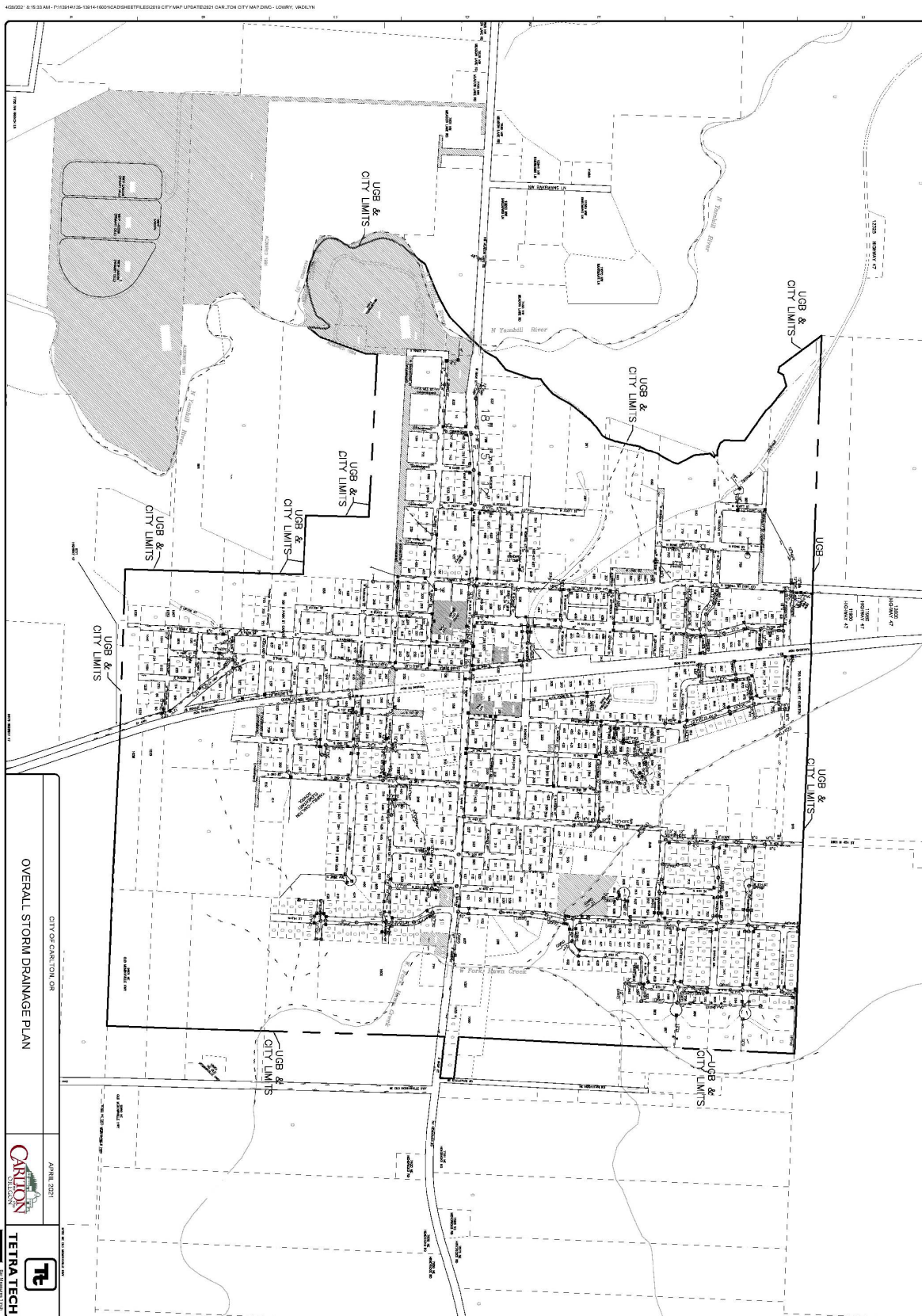
City programs to protect surface water and groundwater include infrastructure for drinking water, stormwater conveyance, and an intergovernmental contract with Yamhill County for review of building permits. The City uses Panther Creek as its drinking water source. Panther Creek is located approximately 8 miles west of town, and it is not affected by the City's storm drainage. The water is treated at the City of Carlton's Water Treatment Plant located on Panther Creek Road. The water is then gravity fed into two elevated water storage tanks.

The City adopted a Parks Development Plan in 2019. The Plan establishes a goal of removing noxious vegetation and improving the riparian area in the Wennerberg park which is adjacent to the Yamhill River. At the Hawn Creek Park the floodplain shall remain open space to provide a natural storm water and drainage system.

The City holds a National Pollutant Discharge Elimination System (NPDES) permit for discharge of treated effluent from its wastewater treatment plant to the Yamhill River between October 1 and May 31. When the NPDES permit is up for renewal, DEQ will ensure that all TMDL issues for the treatment plant discharge are addressed in the renewed permit. The City may need to collect data at that time to assess the plant's contribution of mercury to the Yamhill River. Such efforts will be conducted as part of the permit renewal and therefore are not included in this TMDL implementation plan.

According to the Willamette Basin TMDL, mercury contributions to the Yamhill River and Hawn Creek are primarily from a combination of local, regional, and global sources. Regional and local contributions include mercury from nearby natural source (air, water, and soil), gold mining activities, and combustion. Global contributions include mercury added to the Earth's atmosphere from natural sources (such as volcanic eruptions and forest fires) and human activities, such as large scale combustion. The City of Carlton will consider strategies for mercury reduction.

FIGURE 1.



Implementation Plan Overview and Adoption

This Yamhill Subbasin TMDL implementation plan for the City of Carlton includes the following components required under Oregon Administrative Rules (OAR 340-042-0080.3):

- Identify the management strategies the City will use to reduce pollutant loading.
- Provide a timeline for implementing management strategies.
- Provide a plan for periodic review and revision of the implementation plan.
- Provide evidence of compliance with applicable statewide land use requirements.
- Provide any other analyses or information specified in the WQMP. For this implementation plan, these elements include the following from the Yamhill Subbasin WQMP:
 - Public involvement plan for strategy implementation
 - Fiscal analysis for resources needed to develop, implement and maintain plan
 - Steps to reduce mercury entering streams via erosion of sediments.
 - Stormwater control measures—DMAs with populations under 10,000, such as Carlton, are required to consider the following stormwater control measures to address nonpoint sources of mercury, but are not necessarily required to implement all of them:
 - Pollution prevention in municipal operations
 - Public education and outreach on stormwater impacts
 - Public involvement in plan implementation
 - Detection and elimination of illicit discharges
 - Construction site stormwater runoff control
 - Post-construction stormwater management in new development and redevelopment.

This plan is due to DEQ by September 2, 2022. Following DEQ plan approval, the City Council will formally adopt the plan within 60 days.

PARAMETER OF CONCERN

Table 1 summarizes general information on mercury, the parameter of concern for this implementation plan. Details of are provided below.

TABLE 1. GENERAL INFORMATION ON WATER QUALITY PARAMETERS OF CONCERN			
Parameter	General Sources	Allocations/Reductions for TMDL	General Strategies
Mercury	In-stream sediment from runoff and stream bank erosion	27% Reduction Willamette Basin-Wide	Reduce sediment delivered to streams by various means including riparian protection, erosion control and stormwater control and treatment, low impact development.

Mercury

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

MANAGEMENT STRATEGIES AND SCHEDULE

The City's proposed management strategies for TMDL implementation are listed in the matrix shown in Table 2. The matrix also identifies the sources of pollutants addressed by each strategy and provides a general timeline for implementation. The City of Carlton's actions in the matrix support the necessary TMDL reductions. Most of the strategies are underway and considered ongoing. New strategies will be phased in over time, and ongoing strategies will be assessed for improvements.

MONITORING, REPORTING AND ADAPTIVE MANAGEMENT

The City will monitor TMDL implementation activities and report to DEQ by **June 30** of every year on annual progress and qualitative effectiveness. Monitoring document plan performance and progress. When applicable, the effectiveness of each management strategy in reducing pollutant loads will be assessed qualitatively and documented in the report. In addition to narration and illustrations, the matrix provided in Table 3 will be used to describe TMDL implementation activities for this annual report.

Carlton will evaluate this implementation plan for updates every five years following submittal. The evaluation will include a review of existing quantitative data (water quality data and other information) to evaluate the effectiveness of the plan relative to the pollution reduction goals. The five-year report will describe what information was used in the evaluation and the findings of the evaluation. If the evaluation indicates that the plan is not likely to be adequate to meet pollution reduction goals, the report will describe how the City will modify the plan or undertake other efforts to achieve the goals, and the timeline for accomplishing this. The five-year report will be due by **June 30, 20XX**.

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

**TABLE 2.
MATRIX OF MANAGEMENT STRATEGIES FOR TMDL IMPLEMENTATION**

Management Strategy	Goal	Pollutant Source Addressed	Specific Actions	Results Monitoring	Timeline	Funding Source
Management Strategies for Reduction of Mercury						
Require stormwater detention and water quality measures with development	Reduce flows and contamination to predevelopment levels	Increased impervious surface with development	Require stormwater detention with new development in accordance with development code	Maintain records of detention and water quality facilities	Ongoing	Developer Funded
Solicit public input on TMDL implementation plan	Facilitate public involvement	N/A	Present TMDL Plan to City council and public	Document public outreach efforts and public input	2022	General Fund
Require erosion control for construction sites	Reduce construction site stormwater runoff	Erosion from construction sites	Require DEQ 1200C erosion control permit for more than 1 acre of soil disturbance; City enforced erosion control for smaller projects	Maintain records of 1200C permits submitted to DEQ	Ongoing	Developer Funded
Actively maintain Hawn Creek Drainageway	Reduce erosion along Hawn Creek Drainageway	Bank erosion due to high flows	Maintain vegetation along drainageway, remove debris as needed	Document existing conditions and riparian vegetation retained	Ongoing	Stormwater Fund
Require erosion control for City construction projects	Reduce sediment laden runoff from City projects	Erosion from City projects	Educate city staff about erosion control	Document staff training about erosion control	Ongoing	General Fund
Receive and respond to complaints regarding water quality problems (erosion; illicit discharge)	Eliminate illicit discharges	Domestic waste; erosion	Enforce nuisance control ordinance; Coordinate complaint with code enforcement	Maintain records of number of complaints handled, number of referrals	Ongoing	General Fund
Maintain maps of City stormwater and sanitary sewer systems	Eliminate illicit discharges	Illicit connections to sewers	Update existing maps periodically	Document all updates of system maps	Ongoing	Sewer Fund
Hold annual public cleanup day	Reduce debris in the drainage system	Contamination from trash and debris	Plan and publicize cleanup day	Document participation in Annual Cleanup Day; Document Public Works cleanup activities	Ongoing	Stormwater Fund
Establish a riparian corridor for the Hawn Creek Drainageway	Reduce erosion and regulate the overland flow of water to the creek	Surface runoff and shallow ground water	Designate riparian area and obtain easement	Document existing conditions and riparian vegetation retained	Ongoing	Stormwater fund

Establish landscaping guidelines for the parks along Hawn Creek and the Yamhill River	Reduce erosion and regulate overland flow to the water ways	Surface runoff and shallow groundwater	Develop landscape guidelines	Document when guidelines are developed	2025	General fund
Require regular street sweeping and cleaning of catch basins	Reduce sediment from entering the drainage ways	Sediment from streets	Street sweeping and catch basin cleaning	Document when this is done	Ongoing	Stormwater fund

LAND USE COMPLIANCE

The management strategies proposed in this plan will be thoroughly cross-checked with the City’s Comprehensive Plan to ensure compliance with land use requirements. Based on the review to date for the proposed management strategies, the TMDL implementation plan is consistent with the City’s Comprehensive Plan. The management strategies can be implemented in a manner that complies with the statewide land use goals and be compatible with the provisions of the Comprehensive Plan. The City will evaluate and maintain consistency with local and statewide land use laws in any future actions related to TMDL implementation.

The management strategies are consistent with previous City planning documents and code as follows:

- The natural resources element of the City’s Comprehensive Plan has identified the drainage channel through Hawn Creek to be a designated riparian area with natural area buffers on each side.
- The City code includes requirements for stormwater management for new development that are consistent with current best management practices, including stormwater detention, water quality facilities and erosion control.
- The City prepared a Stormwater Master Plan in 2002 that includes recommended design standards for drainage facilities that are consistent with current best management practices.
- The City code requires development to be in accordance with the current stormwater Master plan.
- The City design standards only require detention for limited circumstances and does not require stormwater treatment.

**TABLE 3.
IMPLEMENTATION PLAN MONITORING AND UPDATING MATRIX**

Management Strategy	Specific Actions	Results Monitoring	Status of Accomplishments, Proposed Changes, Plans for Coming Year
Require stormwater detention and water quality measures with development	Require stormwater detention with new development in accordance with development code	Maintain records of detention and water quality facilities	
Solicit public input on TMDL implementation plan	Present TMDL Plan to City council and public	Document public outreach efforts and public input	
Require erosion control for construction sites	Require DEQ 1200C erosion control permit for more than 1 acre of soil disturbance; City enforced erosion control for smaller projects	Maintain records of 1200C permits submitted to DEQ	
Actively maintain Hawn Creek Drainageway	Maintain vegetation along drainageway, remove debris as needed	Document existing conditions and riparian vegetation retained	
Require erosion control for City construction projects	Educate city staff about erosion control	Document staff training about erosion control	
Receive and respond to complaints regarding water quality problems (erosion; illicit discharge)	Enforce nuisance control ordinance; Coordinate complaint with code enforcement	Maintain records of number of complaints handled, number of referrals	
Maintain maps of City stormwater and sanitary sewer systems	Update existing maps periodically	Document all updates of system maps	
Hold annual public cleanup day; continue ongoing cleanup by Public Works	Plan and publicize cleanup day	Document participation in Annual Cleanup Day; Document Public Works cleanup activities	
Establish a riparian corridor for the Hawn Creek Drainageway	Designate riparian area and obtain easement	Document existing conditions and riparian vegetation retained	
Establish landscaping guidelines for the parks along Hawn Creek			
Require regular street sweeping and cleaning of catch basins			

WQMP REQUIREMENTS

Public Involvement

Public involvement will be included in the City Council review and adoption process for this plan and any subsequent updates. Once approved by DEQ, the current plan will be presented to the City Council for adoption within 60 days. Future changes to the plan will be presented to the City Council for review and approval. The City Council will review and approve annual and 5-year reports prior to submitting them to DEQ.

Fiscal Analysis

To the extent possible, the selection of ongoing and new strategies is driven by the greatest opportunities for achieving pollutant reductions. The City has confirmed existing resources for maintaining ongoing activities into the future and determined what additional resources are necessary to develop, implement, and maintain the new management strategies over time. Funding resource limitations require that new strategies in the matrix be prioritized and phased in over time. The funding column in Table 2 identifies the source of funding that will be relied upon to implement each management strategy.

Consideration of Stormwater Control Measures

Table 4 identifies stormwater control measures that relate to individual management strategies.

<p align="center">TABLE 4. APPLICABILITY OF STORMWATER CONTROL MEASURES TO PROPOSED MANAGEMENT STRATEGIES</p>						
Management Strategy	Pollution prevention in municipal operations	Public education and outreach	Public involvement	Illicit Discharge Detection & Elimination	Construction Runoff Control	Post-Construction Stormwater Management
Require stormwater detention and water quality measures with development						X
Solicit public input on TMDL implementation plan			X			
Require erosion control for construction sites					X	
Actively maintain Hawn Creek Drainageway	X					X
Require erosion control for City construction projects	X					
Receive and respond to complaints regarding water quality problems (erosion; illicit discharge)				X		
Maintain maps of City stormwater and sanitary sewer systems				X		
Hold annual public cleanup day; continue ongoing cleanup by Public Works		X	X			
Establish a riparian corridor for the Hawn Creek Drainageway	X					X
Establish landscaping guidelines for the parks along Hawn Creek	X					X
Require regular street sweeping and cleaning of catch basins	X					

APPENDIX



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