

**City of Brownsville**  
*Linn County, Oregon*

**TOTAL MAXIMUM DAILY LOAD  
(TMDL) IMPLEMENTATION PLAN**

*2024 - 2029 (updated - September 2023)*



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**Project No. 201.00**

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City of Brownsville  
Linn County, Oregon

# Total Maximum Daily Load (TMDL) Implementation Plan

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Adam Craven, Mayor

**September 28<sup>th</sup>, 2023**

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Date

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# 1. TMDL Introduction & Background

## 1.1. Purpose and Scope

This document is the TMDL Implementation Plan for the City of Brownsville (City) and has been prepared in accordance with the Oregon Department of Environmental Quality (ODEQ) and the Oregon Administrative Rule (OAR) 340-042-0080(3). This TMDL Implementation Plan will replace the City’s previous TMDL Implementation Plan and was created to comply with new requirements as provided in the 2019 ODEQ Final Revised Willamette Basin Mercury Total Maximum Daily Load (TMDL) and WQMP. The contents of this plan apply to areas within the jurisdictional limits of the City.

The purpose of the plan is to minimize the discharge of pollutants to streams and waterways through existing treatment strategies, potential proposed methods for monitoring, education, and other implementation activities. The plan focuses on the minimization, or when possible the elimination of heat, bacteria, and mercury contributions to surface waters influenced by the City of Brownsville.

## 1.2. City of Brownsville General Description

The City of Brownsville, Oregon is a small rural community located in the southern Mid-Willamette Valley. Brownsville was originally settled in the mid 1840’s. The City was an important industrial center in the 19<sup>th</sup> Century after the development of the Brownsville Millrace which provided power to several local industries. Brownsville is located five miles east of Interstate 5 on State Highway 228 at the edge of the Cascades foothills.

**Figure 1.2 – City Location & Upstream Drainage Basin**

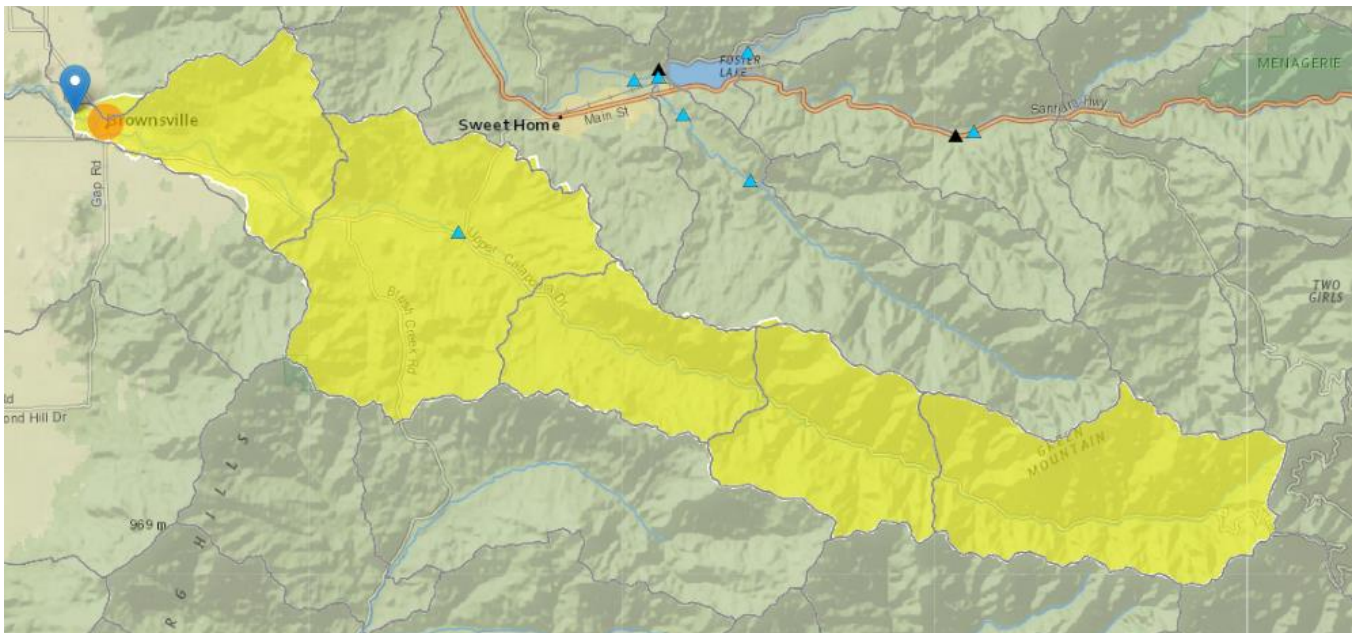


Figure 1.2 – USGS StreamStats delineation of drainage basin at point just downstream of City limits

The City of Brownsville is a relatively small community (current population approximately 1,700) and is located amongst the agricultural areas of the southern Willamette Valley, but few of the residents are directly involved in the agricultural industry. Due to its isolation from centers of employment most residents either commute to jobs in Eugene, Albany, Corvallis or Salem or are retired or self-employed.

Climate is typical of that of the southern Willamette Valley. The soils are usually moist and are saturated with water during the winter and spring. The mean annual soil temperature is 52 to 55 degrees F.

Approximately seventy-five percent (75%) of the City's area is essentially flat with slopes of less than 0.5 percent and are located at the eastern edge of the Willamette Valley. Approximately forty percent (40%) of the City's area lies within the 100-year floodplain of the Calapooia river, which runs through the middle of town. Approximately twenty-five percent (25%) of the City is on the Cascades foothill, ranging in slope up to thirty percent (30%). Existing Land Use is described in the City's Comprehensive Plan and includes residential, commercial, industrial and public lands.

## **2. Responsibilities**

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### **2.1. Mayor and City Council**

The City Council shall continue to ensure assignment of responsibility for implementing the contents of this TMDL Plan, its review, and that any pertinent changes are made as required. Council shall receive an update from staff twice a year in May & November. Council shall review and approve any changes made to this plan. Upon assignment, the assignee shall compile required evaluations and submit a summary as required to the Oregon Department of Environmental Quality (DEQ).

### **2.2. City Administrator**

The City Administrator is responsible for ensuring the Mayor and City Council are made aware of the assignment responsibilities, its requirements, and that review and reporting of this Plan is completed as required. The TMDL is reviewed in May & November of each calendar by City Staff and the Council.

### **2.3. Brownsville Residents**

Brownsville residents are responsible for complying with any City ordinances put in place to meet TMDL requirements. In addition, residents are expected to comply with all state and federal regulations governing erosion and sediment control, pet and animal waste disposal control, and all other pertinent government ordinances and regulations.

### **2.4. Land Use Compliance**

All strategies and activities listed in this Plan and Implementation Matrix are consistent with the City of Brownsville's land use plans. The Plan has been reviewed by City staff for consistency with local and state planning goals. All revisions to the TMDL implementation Plan will include a review for land use compatibility with the City staff. The City will also consider this Plan when developing or revising City ordinances that involve land use.

## 3. Plan Overview

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### 3.1. TMDL Requirements

The Oregon Department of Environmental Quality (DEQ) established a Total Maximum Daily Load (TMDL) for the Willamette Basin in an order signed on September 21, 2006 which was later revised to incorporate mercury requirements and established in another order signed on February 4, 2021. The TMDL requires designated agencies and municipalities to implement actions to improve water quality. The pollutants addressed in the 2006 Willamette Basin TMDL and the 2019 Final Revised Willamette Basin Mercury TMDL that are likely to affect Brownsville are bacteria, temperature, and mercury.

The Clean Water Act of 1977 authorizes the U.S. Environmental Protection Agency (EPA) to “restore and maintain the physical, chemical, and biological integrity of all waters of the nation”. In response to the Clean Water Act, the EPA designated state agencies 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. As a component of the overall effort to protect and restore the beneficial uses of Oregon’s water bodies, the DEQ issued TMDLs for the entire Willamette Basin.

The TMDL process begins when a stream, lake, or river does not meet water quality standards and is classified as water quality-limited on the state’s 303(d) list. TMDLs identify the maximum amount of a specific pollutant that can be present in a water body without violating water quality standards. This is known as the loading capacity.

After extensive water quality monitoring and modeling efforts, TMDLs establish the difference between the loading capacity and the current pollutant load. TMDLs are expressed as numeric standards or percent pollutant reductions that need to be met to bring water bodies into compliance with water quality standards. The difference between the current load and the loading capacity is known as excess load.

The excess load is split up between the different sources of pollution according to their contribution to the overall pollution load. Any difference between the waterway’s loading capacity and the current pollutant load must be mitigated by pollution reduction activities. The DEQ develops waste load allocations for point sources such as wastewater treatment plants and industrial discharges. They also develop load allocations for non-point pollution from agricultural, urban, and forestry lands such as erosion, animal wastes, and stormwater.

The Oregon Administrative Rules in Chapter 340 Division 42 addresses the requirements for local governments and other agencies to develop TMDL Implementation Plans. Responsible parties that are able to implement pollution reduction strategies are classified as Designated Management Agencies (DMAs). In the Willamette Basin, DMAs include federal agencies such as the Bureau of Land Management, state agencies such as the Department of Forestry and the Department of Agriculture, counties, cities, and others.

The Oregon Department of Agriculture (ODA) is working with farmers to address contributions from farmland, the Oregon Department of Forestry is addressing contributions from forestland, and federal land management agencies are implementing TMDLs according to their internal procedures. Point sources, such as wastewater treatment facilities will be addressed through their individual permitting processes. Cities and counties must address contributions through the development of Implementation Plans.

According to OAR 340-042-0080, TMDL Implementation Plans must include the following elements:

1. Identify the management strategies the DMA or other responsible person will use to achieve load allocations and reduce pollutant loading;
2. Provide a timeline for implementing management strategies and a schedule for completing measurable milestones;
3. Provide for performance monitoring with a plan for periodic review and revision of the implementation plan;
4. 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
5. Provide any other analyses or information specified in the WQMP.

### 3.1.1. Implementation Deadlines

The ODEQ provided cities with a general implementation deadline schedule to fully incorporate stormwater control measures into their implementation plans (Table 13-14, DEQ 2019 TMDL & WQMP); however, smaller cities such as Brownsville received alternate deadlines for implementing the six Stormwater Control Measures. The City’s basin coordinator issued the implementation deadline schedule shown in Table 3.1.1 below.

**Table 3.1.1. – TMDL Implementation Deadline Schedule**

<b>Stormwater Control Measures</b>	<b>Implementation Deadline (City Population Less than 5,000)</b>
1. Pollution Prevention and Good Housekeeping for Municipal Operations	9/3/2025
2. Public Education and Outreach	9/3/2025
3. Public Involvement and Participation	9/3/2025
4. Illicit Discharge Detection and Elimination	3/3/2027
5. Construction Site Runoff Control	3/3/2032
6. Post- Construction Site Runoff for New Development and Redevelopment	3/3/2032



### 3.1.2. Stormwater Control Measures

In addition to the NPDES permitted stormwater requirements for reducing pollutant discharges, ODEQ has required designated management agency's (DMA) to begin implementing the six required stormwater measures as mentioned in Table 3.1.1. The six required stormwater measures and a brief description for each of the requirements is shown in Table 3.1.2. below.

**Table 3.1.2. – TMDL Implementation Minimum Requirements**

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

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

Stormwater Measure	Requirements
<p>6. Post-Construction Site Runoff for New Development and Redevelopment</p>	<p>DMA's must develop, implement, and enforce a program to reduce discharges of pollutants and control post-construction stormwater runoff from new development and redevelopment project sites in its jurisdictional area.</p> <p>Through ordinance or other regulatory mechanism, the DMA must require the following for project sites discharging stormwater to the storm water conveyance system that create or replace 10,890 square feet (one quarter of an acre) or more of new impervious surface area:</p> <ul style="list-style-type: none"> <li>(A) The use of stormwater controls at all qualifying sites.</li> <li>(B) A site-specific stormwater management approach that targets natural surface or predevelopment hydrological function through the installation and long-term operation and maintenance of stormwater controls.</li> <li>(C) Long-term operation and maintenance of stormwater controls at project sites that are under the ownership of a private entity.</li> </ul> <p>The DMA must target natural surface or predevelopment hydrologic function to retain rainfall on-site and minimize the offsite discharge of precipitation utilizing stormwater controls that infiltrate and evapotranspire stormwater. For projects that are unable to fully retain rainfall/runoff from impervious surfaces on-site, the remainder of the rainfall/runoff from impervious surfaces must be treated prior to discharge with structural stormwater controls. These stormwater structural controls should be designed to remove, at a minimum, 80 percent of the total suspended solids.</p> <p>The DMA must maintain records for activities to meet the requirements of the post-construction site runoff program requirements and include a descriptive summary of their activities in the TMDL Annual Report.</p>

### 3.2. TMDL Parameters

Temperature, bacteria, and mercury are the three parameters that have been included in all of the Willamette Basin TMDLs. Although other parameters are included in sub basin TMDLs, these three pollutants are the major concerns throughout the entire Willamette Basin.

The following subchapters contain brief summaries of TMDL parameters, but more in-depth information on these parameters and the processes used to develop the TMDLs can be found in Chapters 2, 3, and 4 of the Willamette Basin TMDL (DEQ, 2006), and in the Final Revised Willamette Basin Mercury Total Maximum Daily Load (DEQ, 2019). The summaries below include basic information about the characteristics of the parameter, the potential sources of each pollutant, waterways in the region not meeting water quality standards, and a brief list of potential strategies to address each parameter.

### **3.2.1. Potential Non-Point Sources (NPS) of Contaminants**

Contaminants can enter the soils, storm water, and sanitary sewer system from the following potential and/or identified sources:

- Improperly applied pesticides, herbicides and fertilizers from both homeowners and agricultural applications.
- Leaking above and underground storage tanks.
- Chemical spills on highways, railways, and from business activity.
- Improperly installed or old domestic wells.
- Poorly maintained septic systems.
- Unpermitted or unauthorized waste disposal sites or dumping.

Entry from improperly installed or domestic wells can occur because of a couple of factors. Nitrates tend to stay on top of the aquifer. When a well begins pumping at a fast rate, it pulls down the top waters (containing nitrates) and pumps them for use. If the well is pumped at a slower rate, it will draw the waters from the lower portion of the well. Also, State requirements for well casing are to install to 18 feet, with an additional foot above the surface. Another method of entry is at the well top. If the well is not packed or backfilled correctly with concrete and/or the appropriate materials; contaminants can enter from the surface in and around the top of the casing.

The Calapooia River valley is home to both significant livestock populations and rural residential development along the river, both of which may contribute coliform bacteria to the river. The headwaters of the Calapooia River begin forty-four (44) miles from Brownsville in the Tidbit Mountains of the Cascade Range. The BLM and agriculture lead to most of the ‘contamination’ of the Calapooia River.

### **3.2.2. Temperature**

The temperature problem in the Willamette Basin is the water is too warm at certain times of the year which poses a threat to cold water fish species such as salmon. This is known as thermal pollution. Removal or disturbance of streamside vegetation is the primary activity that negatively impacts stream temperature due to the loss of shade cover, but water temperature is also affected by erosion, loss of channel complexity, low stream flows, dams, and heated discharges from industrial or municipal operations.

Warmer in-stream temperatures of the Calapooia River are believed to be caused by historic removal of shade-producing vegetation along streams. Decreased summer flows are also most likely a result of logging activities throughout the upper watershed as well as long-term climatic changes. Channelization of the river and an increased gravel load have resulted in large areas of shallow riffles and a decrease in the number of deep holes, also contributing to higher summer temperatures.

The major sources of thermal pollution that the DEQ evaluated for the Willamette Basin temperature TMDLs are wastewater treatment facilities, dam and reservoir operations, and the loss of streamside vegetation. Point sources will continue to be regulated through the existing National Pollution Discharge Elimination System (NPDES) permit methods. Sewage treatment plants, as well as large industrial permitted discharges, will be allocated heat loads during the next renewal of their NPDES permits.

The focus of the non-point source temperature TMDL is to mitigate the removal or disturbance of streamside vegetation. The most effective way to minimize thermal pollution is by reducing the amount of solar radiation that reaches the water. This is accomplished by protecting and reestablishing vegetation along waterways to provide shade cover. Temperature benefits can also be realized through stream restoration projects including stream bank stabilization, increasing stream flows, decreasing channel width, and restoring channel complexity. Attainment and preservation of effective shade levels on smaller tributaries associated with system potential vegetation will eliminate most anthropogenic nonpoint source heat loads.

Temperature TMDLs have been developed for the Willamette sub basins and mainstream Willamette River. The DEQ used two different approaches in developing the temperature TMDLs. One TMDL focuses on the mainstream Willamette River and its major tributaries up to the first dam. Using the other approach, the DEQ developed TMDLs on a more localized scale for stream segments upriver from dams.

The maximum temperature increase in the waters of the state from all human activities can be no more than 0.3° C. This was designated by the State of Oregon in Oregon Administrative Rule 340-041-0028. In the TMDLs, this allowance is known as the Human Use Allowance and is split up between various sources of human-caused thermal pollution. Models indicate that restoring shade cover to natural levels could reduce temperatures in the mainstream Willamette River by 0.5° Celsius (DEQ, 2006).

The amount allocated to each source of thermal pollution varies by location. Generally, non-point sources are allowed to contribute no more than 0.05° C, and point sources can contribute up to .25° C. The TMDL allocates 0.05° C to the U.S. Army Corps of Engineers Willamette Project reservoirs. The DEQ factors in 0.05° as a reserve capacity that will be set aside now to accommodate future growth by meeting the increased demand for industrial and municipal wastewater discharges.

On average, waterways in the Willamette Basin need to receive 23 percent less thermal input than is currently being received (DEQ, 2006). The major consequence of the temperature TMDLs is the need to protect and restore streamside vegetation. Thermal pollution can be addressed by a variety of measures, including:

- Develop materials for landowners explaining the benefits of preserving natural streamside vegetation.
- Implement demonstration projects on public land to illustrate potential riparian management techniques.

- Actively restore riparian areas on public land and help private property owners restore riparian areas on private land.
- Institute a riparian ordinance that prohibits the removal of native streamside vegetation.
- Acquire critical streamside property.
- Become involved in a water quality trading program.

### **3.2.3. Bacteria**

To develop the 2006 Bacteria TMDL, The Calapooia River Watershed Council monitored E. coli concentrations at seven stream locations from November 2002 through late April 2003. ODEQ collected samples at eight sites over a 3- day storm during an intensive survey in late January 2003. A GIS-based model was used to evaluate bacteria loading to the Calapooia Watershed. The model estimated upland runoff volume using the SCS method and applied Event Mean Concentrations to estimated relative bacteria loading from various land uses within individual watersheds. Watershed composite maximum bacteria loads were then calculated to meet the state water quality criterion concentration. Results of the 2006 TMDL showed that the Calapooia River Watershed requires a 65% reduction over all flow regimes to bring the river into compliance with bacterial loading criteria; however, reductions should be applied on a land use specific basis, and only to the reach specified (DEQ, 2006).

According to the Willamette Basin TMDL, point sources in the upper reaches of the Willamette Basin cause less than a one percent increase in the bacteria concentrations over natural conditions (DEQ, 2006). Accordingly, the focus of the TMDL implementation efforts should be on non-point sources.

Bacteria violations of water quality standards are most common in creeks and streams that drain urban and agricultural land. The mainstream Willamette River is water quality limited for bacteria during the high flows of the fall-winter-spring months, but is in compliance during summer low flows when there is the least amount of runoff.

Above Willamette Falls, violations in the bacteria standards are usually single sample events that are related to high levels of precipitation and the resulting runoff. The major sources of bacteria in the urban and rural residential areas are stormwater runoff, erosion, domestic and wild animal waste, failing septic systems, and municipal sewer overflows. Other sources of bacteria include livestock, irrigation runoff, and stream bank erosion.

Local jurisdictions can focus on urban issues to ensure that the quality of water does not degrade due to current land use, population growth, and land use changes. Strategy options to address bacteria in the urban area include:

- Preventing erosion and controlling sediment from new construction.
- Detaining and treating stormwater prior to discharge into waterways.
- Keeping stormwater conveyance channels clear of organic matter.
- Controlling animal waste.

- Maintaining and restoring riparian buffers.
- Encouraging better site design to decrease runoff.
- Preventing non-stormwater and illegal discharges.
- Developing stewardship and educational programs to prevent pollution.
- Street sweeping.

### **3.2.4. Mercury**

Mercury is a very complex naturally occurring pollutant. Mercury can be transported in the air after soil disturbance, automobile emissions, or industrial emissions and can travel in the airstream many miles before being deposited back to the surface by weather events such as rainfall.

Air deposition from emissions is one of many ways that mercury moves through the environment. Some point sources, including timber processing plants and mills, discharge low levels of mercury in their wastewater effluent. Stormwater runoff suspends mercury molecules and carries them to waterways.

Mercury is naturally occurring at low levels, but when native soil erodes at an accelerated rate those molecules are released in abnormal amounts. Mercury is also set in motion when old or ancient sediment deposits are disturbed by events such as construction activity or high water flows.

High mercury levels in the Willamette Basin have resulted in fish consumption advisories. To protect public health, especially that of pregnant women and young children, the Department of Human Services (DHS) has issued advisories recommending that people limit the amount of fish they consume from certain waterways. For example, the DHS specifically advises against consuming large amounts of fish from the Willamette River due to the high levels of mercury.

Despite the uncertainty and complex nature of mercury, there are steps that can be taken to minimize the amount of mercury that is deposited in waterways and accumulated in the tissues of fish, wildlife, and humans. One of the primary goals of the Final Revised Willamette Basin Mercury TMDL is to reduce mercury levels in the basin to a point where fish are no longer unsafe to eat.

To begin addressing the mercury problem in the Willamette Basin, DEQ developed wasteload allocations for point sources and load allocations for non-point sources (DEQ, 2019). The DEQ developed allocations for the Final Revised Willamette Basin Mercury TMDL and were calculated as percent reductions and compared to the load capacity for non-point sources and point sources (DEQ, 2019).

The DEQ expects all non-point sources to begin implementing mercury reduction management strategies and policies based on the load allocations defined in the Final Revised Willamette Basin Mercury TMDL (DEQ, 2019). Implementation plans must include a mercury reduction strategy that incorporates the six stormwater control measures as defined in the 2019 Final

Revised Willamette Basin Mercury TMDL. The minimum stormwater control measures required by the DEQ include:

- Pollution Prevention and Good Housekeeping for Municipal Operations
- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination
- Construction Site Runoff Control
- Post Construction Site Runoff for New Development and Redevelopment

DMAs have an array of options to reduce mercury pollution. Many of the management strategies that address mercury pollution also address bacteria and temperature. Potential management strategies include:

- Working with dentist offices to properly dispose of mercury wastes.
- Establishing a stormwater plan.
- Stormwater detention and treatment prior to discharge into waterways.
- Establishing an erosion prevention and sediment control program.
- Regular street sweeping and stormwater system maintenance.
- Limiting land disturbance whenever possible.

### **3.3. Water Quality Efforts & Implementation Strategies**

#### **3.3.1. Ground Water**

The City of Brownsville operates a municipal drinking water system. The water source is described as groundwater under the influence of surface water. There are two sources of water, a series of four wells and an infiltration galley, both of which are located close to the Calapooia River and receive water from the Calapooia after it travels through the gravel layers under and adjacent to the river. These areas are both located in Pioneer Park on public property. The City protects these areas by carefully limiting or avoiding the use of any fertilizers / herbicides / pesticides in Pioneer Park, as well as by providing a network of pet waste collection stations throughout the park. Pioneer Park has a significant tree canopy as well and natural vegetation along the full run of the riparian area of the Calapooia River.

#### **3.3.2. Ground Water Protection**

The City has been flexible and progressive in dealing with proposed improvements for both residential and commercial projects. The City requires the use of bio-swales and settling ponds where possible to limit the impacts of storm runoff in Brownsville and intends to continue this practice.



### **3.3.3. Stormwater Conveyances**

Stormwater conveyance through the City is achieved through a series of ditches with very little underground piping systems. [Eighty percent (80%) of the City's 'system' consists of open ditches.] The Brownsville Mill Race forms an important part of the City's stormwater system in the middle of the City. Stormwater drains to three general places out of the City of Brownsville. The drainage on the south end of Brownsville flow to Lake Creek, on the north end to Cochran Creek and all ultimately feed back into the Calapooia River. The City completed a Drainage Master Plan in 1997 as prepared by Lee Engineering, Inc. Consulting Engineering of Oregon City, Oregon. The Plan concludes by stating, "...most of the City of Brownsville's current storm system (are) inadequate and do not exist."

For new developments, design standards are in place to ensure adequate stormwater detention and conveyance through piping, swales, and other detention systems. Strict adherence to the City's Public Works Standards is a requirement of all applicants. The Public Works Superintendent, City Administrator, Administrative Assistant in charge of Planning, the Planning Consultant and the City Engineer work in coordination to ensure regulations and requirements are met.

### **3.3.4. Description of City of Brownsville Sewage Treatment Permit and Facility**

#### National Pollutant Discharge Elimination System (NPDES) Permit Description

The City of Brownsville operates two separate wastewater treatment systems, one located north of town on Seven Mile Lane and the other located off Hwy. 228 at the western City Limits. This is due to a ridge which runs through the middle of the downtown area and splits the town into two drainages. The City holds a National Pollutant Discharge Elimination System (NPDES) Permit from the ODEQ pursuant to ORS 468B.050 and subsequently The Federal Clean Water Act. The permit covers the cities STEP Stabilization Lagoon for treated wastewater, and for potential reclaimed water reuse, or irrigation. The receiving stream is the Calapooia River in the Upper Willamette River sub-basin located in Linn County. Discharge only occurs during the winter months during periods of high flow.

Treated effluent parameters include BOD, TSS, E. coli Bacteria, pH, and Total Chlorine. Other details and specifications for this system are on file within the City office, the DEQ, and as required within NPDES permit applications.

#### Sewage Treatment Plant

Brownsville Municipal Code 13.05.150 requires all buildings located within two hundred (200) feet of a street which has or could have a municipal wastewater main to connect to the City sewer system. This requirement has been in place since 1964 and currently all residences within the City are connected to City sewer system except for two homes located in a remote location at the northeast part of town where sewer service is not available at this time. The City has historically not had a cross connection problem due to the installation of the original wastewater system and policies in 1964.

The City sanitary sewage treatment plants are described as follows. As previously noted, there are two separate systems which have recently been interconnected. The original major sewer construction took place in 1964, with major additions being completed in 1978. The City completed an \$8.5 million upgrade to the sewer system which began in 2007. The North system consists of two lagoons, a primary and a secondary. The treated output of the secondary lagoon can be used to spray irrigate a hay field in the summer when there is agricultural demand. In the winter, the discharge is chlorinated and then pumped through a force main almost a mile south to the South Lagoons where it is combined with the output of that system and discharged in to the Calapooia River through a multi-port diffuser system.

The South Lagoon system consists of a three-cell lagoon system with a total of approximately thirty (30) acres. Effluent is chlorinated, then de-chlorinated and discharged to the Calapooia River per a hydrologic discharge schedule developed in accordance with DEQ. Discharge occurs only during the winter months when flows are high and temperatures low. The lagoons are shallow and maintain a temperature close to that of the Calapooia River. Effluent flows are low compared to the flows of the river at the time of discharge as required by the NPDES permit; the permit was updated in 2017.

The City completed an \$8.5 million project to upgrade both the lagoon treatment systems and the collection system. Collection system improvements are designed to reduce the amount of inflow and infiltration and improve system capacity to prevent accidental system surcharges which have occurred in the past during high flow conditions before 2008. Lagoon system improvements have enhanced the quality of the effluent and to add a de-chlorination phase to the project in addition to providing a winter discharge point for the North Lagoon system. The new facilities have been on-line since late February, 2008. The wastewater collection lines were completed July 2008. During construction, the City found only four illegal cross-connections which were taken care of during the construction phase.

The City completed a major repair to the Millhouse Sanitary Sewer collection line in 2014 which made significant improvements near the Mill Race. Forty-five (45%) of the City's sanitary sewer lines are at or beyond their useful life.

### **3.3.5. Municipal Code**

The City of Brownsville Municipal Code provides requirements for the protection of the City's storm drainage system by reducing illegal discharges and cross connections. Code sections in place to protect the storm drainage system are summarized below:

#### 13.05.040 Prohibited discharges

No person shall discharge to any natural outlet within the City of Brownsville, or in any area under the jurisdiction of said City, any sewage, industrial waste, or other polluted water or wastes except where suitable treatment has been provided in accordance with the provisions of this chapter.

#### 15.85.110 Drainage plans.

Drainage plans shall show how the drainage system will relate to natural features, be designed to minimize existing and potential drainage and erosion problems related to the development.

15.05.050 Provisions for flood hazard reduction.

Prohibit encroachments, including fill, new construction, substantial improvements, and other development unless certification by a registered professional civil engineer is provided, demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.

### **3.3.6. City of Brownsville – Standards for Public Improvements**

The City of Brownsville recently updated the and adopted the City of Brownsville – Standards for Public Improvements (Standards). There are many sections within the Standards that are related to water quality and erosion prevention. A partial list of related water quality protection efforts is summarized below:

Section I(N) – Submittal Requirements

Contractors are required to submit erosion control plans.

Section I (U) – Erosion Prevention, Protection, and Restoration of Landscape

Provides standards for erosion control prevention and restoration of vegetation.

Section III – Storm Drainage

Some site characteristics and uses may generate specific pollutants of concern or levels of pollution that are not addressed solely through implementation of the pollution reduction requirements. The City of Portland’s publication Stormwater Management Manual (SWMM) defines these characteristics and uses and identifies structural source controls that must be implemented to manage the pollutants at their source (see City of Portland SWMM Chapter 4, Source Controls). The City of Brownsville requires that any project of any size that introduces these site characteristics or uses must comply with the City of Portland SWMM source control requirements. This includes development, tenant improvements, and changes to site uses or activities, including changes to specific site or activity areas, even if no impervious area is added or replaced.

### **3.3.7. 2020 Brownsville Park Master Plan**

The newly updated Park Master Plan lists riparian area restoration projects that the City will look into completing over time and as funding becomes available. The two potential riparian restoration projects are for the Washburn Property and Pioneer Park.

### **3.3.8. Street Sweeping Program**

The City of Brownsville maintains a street sweeping program through an IGA contract with the City of Lebanon for monthly street sweeping. The City will continue this program and ensure sweeping is completed on a monthly basis.

### **3.3.9. Stormwater System Maintenance**

The City’s Public Works Department takes charge of stormwater related issues and maintenance. The City’s staff is aware of the requirements of the TMDL and works with care to maintain and prevent open drainage way issues.

### **3.3.10. Pet Waste**

Dog Waste Stations have been provided at Pioneer Park and Downtown Brownsville and a City annual budget has been established to maintain these dog waste stations. Additionally, the City provides awareness to these stations and bacteria related issues regarding pet waste.

### **3.3.11. Water Conservation Outreach**

City Website has been developed and offers information on water conservation methods and examples. City will maintain this information on the City's website.

## **3.4. Performance Monitoring**

The City of Brownsville understands the importance of monitoring the implementation strategies addressed in this TMDL Implementation Plan. The City will actively track the implementation progress of the strategies as outlined in this Plan and TMDL Implementation Matrix (Section 6). This matrix will be used to track the effectiveness of the City's efforts in reducing pollutant loads.

Prior to the regular annual review of this implementation plan, the City will complete a qualitative analysis and review to ensure strategies and goals are being met as intended. As part of the qualitative review, the City will evaluate and identify any adaptations that may be necessary to the implementation strategies for items that are found to be ineffective or that may become more effective by modifying implementation of the strategy.

## **3.5. Review and Evaluation**

A review of the TMDL Plan will also be conducted as required under OAR 340-042-0080(3) (a) (C) and Water Quality Management Plan (WQMP) once every five years. The review will include a summary of accomplishments and describe the effectiveness of the strategies implemented during the preceding 4 years. The evaluation will also note any adaptations to the plan or any hindrances that have or will affect implementation progress. Revisions, additions, or restructuring required to create a new, modified plan will be coordinated with DEQ. Both the annual and five year reviews will be presented to City Council for review. The City Staff and Council will review the plan as part of two (2) regular Council sessions in May and November of each year. Results of that review will be submitted to the DEQ. Modifications will be made in accordance with state requirements.

## **3.6. Reporting**

The City will provide DEQ with an annual review of the Plan and Matrix which will include the status, progress, and/or effectiveness of each implementation strategy that was selected for pollutant reductions. Through an adaptive management approach, the review will also highlight any updates or revisions to the Plan or Matrix that may be required.

## 4. Fiscal Analysis & Funding

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### 4.1. TMDL Funding

It is the responsibility of the Mayor and City Council to determine funding sources for this plan as funds are available within the general budget of the City of Brownsville. It is anticipated that any funding required will be taken out of associated areas of responsibility (e.g. parks, sewer, drainage, etc.), but will primarily come from the General Fund. Recent City wastewater and water system critical improvements have led to \$8M in bonded debt on a very limited customer base. The bonded debt is in effect until 2038. The City is also looking at a major Water Treatment Plant renovation in 2024 which will require additional bonding. The City is responsible for over \$42M in assets with nearly 40% of the facilities & systems in poor or critical condition.

The City has many amenities supported by the General Fund including an extensive park system with many capital assets at the end of their useful life, a City Hall that was originally a church circa 1860's, a City Shop building circa 1950's, a Library circa 1970's and several other aged facilities.

The City receives just over \$600,000 in General Fund money annually. The City spends between \$1,750,000 to \$2,300,000 annually depending on what major capital improvement or pressing need the City must address. The City simply does not have adequate funding to keep pace with current infrastructure needs and there is currently no adequate source of funding for stormwater capital infrastructure available to the City.

The City has been actively attempting to keep up with vital capital infrastructure projects without going to the voters for additional bond debt. The City's attentiveness to the needs of the capital infrastructure has led to the completion of nearly \$4 million of capital improvements since 2007. Below is a list of some of the general improvements that have been made:

## ***Projects Since 2007***

<b>Project Description</b>	<b>\$</b>	<b>Total</b>
WWTP (N & S)	\$	8,500,000
Stanard Culvert & Water Line	\$	380,000
WTP Filters	\$	180,000
WTP Computers/Telemetry	\$	30,000
Robe Street Water Line	\$	185,000
Calapooia River Crossing	\$	50,000
S. Oak Street Water Line	\$	190,000
Averill/GR 12 Water Line	\$	320,000
Washburn Water Line	\$	168,000
School Hill, Various	\$	65,000
Millhouse SS	\$	285,000
Pump Station	\$	42,000
Paving (Various Locations)	\$	360,000
Pioneer Park Restroom	\$	96,000
Backhoe	\$	93,000
Vehicles	\$	95,000
City Hall	\$	130,000
Rec Center	\$	150,000
Pioneer Park Various Improvements	\$	58,400
Signage (Various Locations)	\$	11,000
Library Various Improvements	\$	107,500
Sidewalks (Various Locations)	\$	32,000
Inspections	\$	16,800
Public Works Standards	\$	3,800
Red Barn	\$	6,200
Bishop Way Water Line	\$	312,000
Downtown Sewer and Water Line Replacement	\$	534,754
<b>TOTAL</b>	<b>\$</b>	<b>12,401,454</b>

### **4.2. Funding Strategies**

This section provides general funding strategies for the City’s TMDL. The following table contains a partial list of funding programs that the City may consider for implementing current and future TMDL pollutant reduction strategies.

**Table 4.2 – TMDL Implementation Funding Programs**

<b>Program</b>	<b>General Description</b>	<b>Contact</b>
Clean Water State Revolving Fund	Loan program for below-market rate loans for planning, design, and construction of various water pollution control activities.	DEQ
Conservation Reserve Enhancement Program (CREP)	Provides annual rent to landowners who enroll agricultural lands along streams. Also cost-shares conservation practices such as riparian tree planting, livestock watering facilities, and riparian fencing.	NRCS, SWCDs, ODF
Conservation Reserve Program (CRP)	Competitive CRP provides annual rent to landowners who enroll highly erodible lands. Continuous CRP provides annual rent to landowners who enroll agricultural lands along seasonal or perennial streams. Also cost- shares conservation practices such as riparian plantings.	NRCS, SWCDs
Conservation Stewardship Program (CSP)	Provides cost-share and incentive payments to landowners who have attained a certain level of stewardship and are willing to implement additional conservation practices.	NRCS, SWCDs
Drinking Water Source Protection Fund	These funds allow states to provide loans for certain source water assessment implementation activities, including source water protection land acquisition another types of incentive-based source water quality protection measures.	Oregon Health Authority
Emergency Watershed Protection Program (EWP)	Available through the USDA-Natural Resources Conservation Service. Provides federal funds for emergency protection measures to safeguard lives and property from floods and the products of erosion created by natural disasters that cause a sudden impairment to a watershed.	NRCS, SWCDs
Emergency Forest Restoration Program (EFRP)	Available through the USDA-Natural Resources Conservation Service. Helps owners of non-industrial private forests restore forest health damaged by natural disasters.	USDA, ODF
Environmental Protection Agency Section 319 Grants	Fund projects that improve watershed functions and protect the quality of surface and groundwater, including restoration and education projects.	DEQ, SWCDs, Watershed Councils
Environmental Quality Incentives Program (EQIP).	Cost-shares water quality and wildlife habitat improvement activities, including conservation tillage, nutrient and manure management, fish habitat improvements, and riparian plantings.	NRCS, SWCDs
Farm and Ranchland Protection Program (FRPP)	Cost-shares purchases of agricultural conservation easements to protect agricultural land from development.	NRCS, SWCDs, ODF
Federal Reforestation Tax Credit	Provides federal tax credit as incentive to plant trees.	Internal Revenue Service
Grassland Reserve Program (GRP)	Provides incentives to landowners to protect and restore pastureland, rangeland, and certain other grasslands.	NRCS, Farm Service Agency, SWCDs
Landowner Incentive Program (LIP)	Provides funds to enhance existing incentive programs for fish and wildlife habitat improvements.	U.S. Fish and Wildlife Service, ODFW

<b>Program</b>	<b>General Description</b>	<b>Contact</b>
Oregon Watershed Enhancement Board (OWEB)	Provides grants for a variety of restoration, assessment, monitoring, and education projects, as well as watershed council staff support. 25 percent local match requirement on all grants.	SWCDs, Watershed Councils, OWEB
Oregon Watershed Enhancement Board Small Grant Program	Provides grants up to \$10,000 for priority watershed enhancement projects identified by local focus group.	SWCDs, Watershed Councils, OWEB
Partners for Wildlife Program	Provides financial and technical assistance to private and non-federal landowners to restore and improve wetlands, riparian areas, and upland habitats in partnership with the U.S. Fish and Wildlife Service and other cooperating groups.	U.S. Fish and Wildlife Service, NRCS, SWCDs
Public Law 566 Watershed Program	Program available to state agencies and other eligible organizations for planning and implementing watershed improvement and management projects. Projects should reduce erosion, siltation, and flooding; provide for agricultural water management; or improve fish and wildlife resources.	NRCS, SWCDs
Resource Conservation & Development (RC & D) Grants	Provides assistance to organizations within RC & D areas in accessing and managing grants.	Resource Conservation and Development
State Forestation Tax Credit	Provides for reforestation of under-productive forestland not covered under the Oregon Forest Practices Act. Situations include brush and pasture conversions, fire damage areas, and insect and disease areas.	ODF
Stewardship Program	Provides cost share dollars through USFS funds to family forest landowners to have management plans developed.	ODF
State Tax Credit for Fish Habitat Improvements	Provides tax credit for part of the costs of voluntary fish habitat improvements and required fish screening devices.	ODFW
Stewardship Incentive Program (SIP)	Cost-sharing program for landowners to protect and enhance forest resources. Eligible practices include tree planting, site preparation, pre-commercial thinning, and wildlife habitat improvements.	NRCS, SWCDs, ODF
Wetlands Reserve Program (WRP)	Provides cost-sharing to landowners who restore wetlands on agricultural lands.	NRCS, SWCDs
Wildlife Habitat Incentives Program	Provides cost-share for wildlife habitat enhancement activities.	NRCS, SWCDs
Wildlife Habitat Tax Deferral Program	Maintains farm or forestry deferral for landowners who develop a wildlife management plan with the approval of the Oregon Department of Fish and Wildlife.	ODFW, SWCDs, NRCS
Funding Resources for Watershed Protection and Restoration	<a href="#">EPA website</a> containing numerous links to funding sources	



### **4.3. Limitations to TMDL Implementation**

The City of Brownsville recognizes and understands the programmatic efforts being made to reduce overall pollutant loading by the Environmental Protection Agency (EPA) through the DEQ under the Clean Water Act. The City is interested in promoting these programmatic efforts as local funding allows. Public education is a major component of the City's TMDL Plan. The other major component of the plan is to ensure that new developments and re-developments implement stormwater best management practices to minimize the overall effect to the City's stormwater management concerns.

The City of Brownsville completed a Drainage Master Plan in 1997 in response to the flood of 1996. The outcome of the report was that the City did not have an adequate drainage system (as previously discussed in Section 3.3.3. stormwater is primarily conveyed to waterbodies via open drainage ditches). The Drainage Master Plan also provided an estimated cost of over \$3 million to implement a skeletal stormwater system, with design based off the Rational Method for a 5-year storm event. The City has not yet created a stormwater utility due to the major needs the City has for existing water and sanitary systems improvements.

The City has significant capital responsibilities to continue to provide for public safety including a municipal court, a full-service library, a road system, Public Works fleet management, an extensive park system including a recreation center, a cemetery, City Hall, the City Public Works Shop among other assets. Council must also have a qualified, competent Staff to carry out the responsibilities of the Brownsville Municipal Code and other programmatic efforts of other governments. The City has a significant investment in employees training, salary and benefits.

## 5. Conclusion

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The City of Brownsville, Oregon has chosen a variety of strategies critical to the success of the TMDL Plan and to reduce pollutant loading. Because of financial limitations, the City has chosen those strategies it believes can be easily integrated into design and development code within the existing processes and protocols for development. Many of the City's strategies focus around education and can be accomplished with assistance from agencies like the Department of Environmental Quality, Watershed Councils, and resources such as Oregon State University. There are some strategies, however, that may require additional funding from outside sources (e.g. grants) due to the limited financial resources of the City. The Calapooia Watershed Council does a tremendous job in Brownsville with public education and plantings throughout the riparian areas of the Calapooia River.

# 6. TMDL Implementation Matrix

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The following matrix details the strategies that will be implemented over the next five years. Some of these strategies will be implemented only as funding allows. The matrix shows the pollutant being addressed, the strategy to address it, the time table for implementation, and how progress and success will be monitored. This matrix will serve as the tracking tool for annual reporting to DEQ.

# Implementation Tracking Matrix – Year 5 Review September, 2023 City of Brownsville, OR

## Receiving Bodies of Water: Calapooia River

POLLUTANT	SOURCE	STRATEGY What we are doing and will do to reduce pollution from this source	ACTIONS Specific ways to implement strategies	MEASURE How we will track successful implementation or completion	TIMELINE	STATUS
Temperature	Lack of shading in riparian areas	1. Riparian Vegetation:  Protect existing riparian vegetation.	City arborist inspects vegetation at least once annually; vegetation maintained as needed.	Track inspections & routine maintenance of the park vegetation abutting the Calapooia River.	Ongoing; Annual Review	
	Lack of shading in riparian areas	2. Education:  Inform residents of significance of riparian areas and measures they can take to improve water quality.	Provide information to residents via City Newsletter, make material available on City website.	Track information provided in newsletter annually; website maintained with updated and relevant information.	Ongoing; Annual Review	
	Lack of shading in riparian areas	3. Wastewater Treatment Plant Monitoring:  City discharges during cool temperature months of November – March only. Maintain low effluent temperatures.	Meet requirements of NPDES permit. Staff measure the pH & temperature of the Calapooia River and the City’s effluent every day.	Discharge occurs under permit conditions only.	Ongoing; Annual Review	
	Lack of shading in riparian areas	4. Tree City:  Maintain the requirements of the Tree City USA designation by properly caring for and planting trees through the community with special focus on riparian areas.	Monitor tree health during regular system maintenance and monthly meter reading	Continue to check tree health and plant necessary trees; track status of Tree City USA designation.	Ongoing; Annual Review	

POLLUTANT	SOURCE	STRATEGY What we are doing and will do to reduce pollution from this source	ACTIONS Specific ways to implement strategies	MEASURE How we will track successful implementation or completion	TIMELINE	STATUS
<b>All Pollutants:</b> Bacteria, Mercury, and Legacy Pesticides	Stormwater, erosion, and sedimentation	1.a. Pollution Prevention and Good Housekeeping for Municipal Operations:  Street sweeping.	Public Works Operations:  Continue contract for sweeping services and maintain records of activities.	Ensure monthly sweeping is carried out per contract.	Monthly	
	Stormwater, erosion, and sedimentation	1.b. Pollution Prevention and Good Housekeeping for Municipal Operations:  Leaf collection.	Public Works Operations:  Continue Annual Park Clean-Up and maintain records of activities.	Annually clean-up park.	Annually	
	Stormwater, erosion, and sedimentation	1.c. Pollution Prevention and Good Housekeeping for Municipal Operations:  Keep infiltration and inflow of the City's sewer system to a minimum. <i>(This issue is related to mainly stormwater).</i>	Inflow & Infiltration:  Public Works performs annual ditch maintenance.	Update maintenance inventory on annual basis; track maintenance completed and cost.	Ongoing; Annual review	
	Stormwater, erosion, and sedimentation	1.d. Pollution Prevention and Good Housekeeping for Municipal Operations:  Ensure effluent quality meets the requirements contained in the NPDES Permit.	Wastewater Treatment Plant Discharge:  Monitor and report effluent discharges to the river as required by the DEQ NPDES permit.	Staff reports daily.	Ongoing; Annual review	
	Stormwater, erosion, and sedimentation	1.e. Pollution Prevention and Good Housekeeping for Municipal Operations:  Reduce runoff and erosion directly to waterbodies by continuing to enforce the Drainageway Dedication Policy for new development and redevelopment projects per the City Standards for Public Improvements Section III (J)(2).	Reduce runoff and erosion directly to waterbodies:  Continue to enforce Public Works Standards and Municipal Code requirements.  City Engineer and staff meet and review applications/plans prior to permitting.	Track number of developments and redevelopments that require drainageway dedication area to protect riparian habitat.	Ongoing; Annual review	

POLLUTANT	SOURCE	STRATEGY What we are doing and will do to reduce pollution from this source	ACTIONS Specific ways to implement strategies	MEASURE How we will track successful implementation or completion	TIMELINE	STATUS
<p style="text-align: center;"><b>All Pollutants:</b> Bacteria, Mercury, and Legacy Pesticides</p>	Stormwater, erosion, and sedimentation	<p>1.f. Pollution Prevention and Good Housekeeping for Municipal Operations:</p> <p>Reduce runoff and erosion directly to waterbodies by monitoring vegetation (condition, health, growth of invasive or problematic species) in City owned riparian areas.</p>	<p>Reduce runoff and erosion directly to waterbodies:</p> <p>Monitor and maintain riparian vegetation and develop riparian restoration projects as needed.</p> <p>Promote public involvement and participation for riparian restoration projects via City newsletter and website.</p> <p>Provide webpage link to <a href="https://extension.oregonstate.edu/water/riparian-areas">https://extension.oregonstate.edu/water/riparian-areas</a> to provide public information on native riparian vegetation and invasive species via the City website.</p>	<p>Track quantity and stages of riparian restoration projects as they become available.</p> <p>Track number of riparian zone invasive plant species cases reported by the public.</p>	<p>Ongoing: Update website with relevant information; include information in annual newsletter.</p> <p>Ongoing; Annual review of riparian restoration projects or funding needed to complete projects.</p>	
	Stormwater, erosion, and sedimentation	<p>2.a. Public Education and Outreach:</p> <p>Inform residents of potential sources of mercury contamination to sewer systems.</p> <p>Provide information regarding stormwater issues that are significant to the City of Brownsville and the overall impacts of stormwater discharges on waterbodies with steps to reduce pollutants in stormwater runoff.</p>	<p>Stormwater BMP's:</p> <p>Identify existing educational materials and distribute to residents regarding mercury reduction.</p>	<p>Track information distributed to residents via semi-annual newsletter and website.</p>	<p>Ongoing: Update website with Relevant information; include information in annual newsletter.</p>	
	Stormwater, erosion, and sedimentation	<p>2.b. Public Education and Outreach:</p> <p>Inform residents about potential bacterial and mercury water contamination from animal waste.</p>	<p>Reduce Pet and Animal Waste in Stormwater runoff:</p> <p><b>Short term:</b> Provide information in City Newsletter and provide dog waste bags in City parks.</p> <p><b>Long term:</b> Ongoing education to reinforce message.</p>	<p>Newsletter distributed. Resident feedback.</p>	<p>Annual</p>	

POLLUTANT	SOURCE	STRATEGY What we are doing and will do to reduce pollution from this source	ACTIONS Specific ways to implement strategies	MEASURE How we will track successful implementation or completion	TIMELINE	STATUS
<p style="text-align: center;"><b>All Pollutants:</b> Bacteria, Mercury, and Legacy Pesticides</p>	Stormwater, erosion, and sedimentation	<p>3.a. Public Involvement and Participation:</p> <p>Inform residents of potential sources of mercury contamination to sewer systems.</p> <p>Provide information regarding stormwater issues that are significant to the City of Brownsville and the overall impacts of stormwater discharges on waterbodies with steps to reduce pollutants in stormwater runoff.</p>	<p>Stormwater BMP's:</p> <p>Identify existing educational materials and distribute to residents regarding mercury reduction.</p>	Track information distributed to residents via semi-annual newsletter and website.	Ongoing: Update website with Relevant information; include information in annual newsletter.	
	Stormwater, erosion, and sedimentation	<p>3.b. Public Involvement and Participation:</p> <p>Maintain pet waste stations and signs in public parks to promote public involvement in pet waste cleanup.</p>	<p>Reduce Pet and Animal Waste in Stormwater runoff:</p> <p><b>Short term:</b> Provide information in City Newsletter and provide dog waste bags in City parks.</p> <p><b>Long term:</b> Ongoing education to reinforce message.</p>	Pet waste stations are kept stocked with bags.	Ongoing; Annual review	
	Illegal Dumping and Illicit Discharge	<p>4.a. Illegal Dumping and Illicit Discharge, Detection and Elimination:</p> <p>Public Education.</p>	<p>Inform public of rules regarding disposal by including articles in City newsletter, material on City website, literature available at City Hall lobby.</p> <p>Include dates for upcoming city, county and other locally sponsored household waste collection events on website and in newsletter.</p> <p>Clearly identify on City's website how community members should contact city with reports of illegal dumping and illicit discharges.</p>	<p>Track articles included in newsletter, provide information on website.</p> <p>Track information provided to public about illicit dumping/discharge impacts on water quality and city's code enforcement.</p>	<p>Ongoing: Articles and collection events are published in newsletter at least annually; website information is kept up-to-date.</p> <p>HHW Solid Waste Franchise SHS- places advertisement in the local newspaper annually.</p> <p>Ongoing: Clearly identify on city website a phone number that community members can call to report illegal dumping or illicit discharges.</p>	

POLLUTANT	SOURCE	STRATEGY What we are doing and will do to reduce pollution from this source	ACTIONS Specific ways to implement strategies	MEASURE How we will track successful implementation or completion	TIMELINE	STATUS
<p style="text-align: center;"><b>All Pollutants:</b> Bacteria, Mercury, and Legacy Pesticides</p>	Illegal Dumping and Illicit Discharge	4.b. Illegal Dumping and Illicit Discharge, Detection and Elimination:  IDDE response, tracking and enforcement.	Calls or complaints received by City Hall are reviewed in the field by Public Works Superintendent who takes any necessary remediation efforts from there with the City Administrator.	Track complaints, city response and follow-up actions.	Ongoing; Annual Review	
	Illegal Dumping and Illicit Discharge	4.c. Illegal Dumping and Illicit Discharge, Detection and Elimination:  Staff training and enforcement.	Provide annual staff training on how to detect, report and mitigate illegal dumping and illicit discharges	Track illegal dumping and illicit discharges reported and discovered, follow-up and enforcement actions.	Years 1-5: Provide biennial staff training (every other year)	
	Illegal Dumping and Illicit Discharge	4.d. Illegal Dumping and Illicit Discharge, Detection and Elimination:  Identify stormwater catch basins and label to educate public.	Label and stencil storm drain catch basins to identify them as stormwater system and inform public that they drain to streams.  Update and maintain a current map of the City's stormwater conveyance system with digital inventory of outfalls and stormwater controls.	Continue labeling; track related expenses.  Continue to update the City's stormwater conveyance system map and inventory of outfalls and stormwater controls.	Ongoing; Annual review	
	Illegal Dumping and Illicit Discharge	4.d. Illegal Dumping and Illicit Discharge, Detection and Elimination:  Municipal Code Update	Update Municipal Code to incorporate conditionally allowed discharges to the stormwater system such as groundwater, hydrant flushing, and lawn watering discharges.	Track hydrant and water system flushing dates.  Per the City's Water Management and Conservation Plan, the City will continue to encourage water saving devices and gardening techniques via brochures (flyers).	Ongoing; Annual review	



POLLUTANT	SOURCE	STRATEGY What we are doing and will do to reduce pollution from this source	ACTIONS Specific ways to implement strategies	MEASURE How we will track successful implementation or completion	TIMELINE	STATUS
<p style="text-align: center;"><b>All Pollutants:</b> Bacteria, Mercury, and Legacy Pesticides</p>	Stormwater, erosion, and sedimentation	<p>5.a. Construction Site Runoff Control:</p> <p>Maintain current development code requiring developers to adhere to ODEQ NPDES Permit requirements for erosion control for areas &gt;1 acre.</p> <p>Erosion control on new development &gt; 1 acre.</p> <p>Assist developers of individual lots in larger developments to minimize erosion and runoff.</p> <p>Provide information to builders about the 1200-C Program.</p>	<p>Erosion &amp; Sedimentation Control:</p> <p>Continue to enforce Public Works Standards and Municipal Code requirements.</p> <p>City Engineer and staff meet and review applications prior to permitting.</p>	Verification of 1200C coverage for all developments greater than one acre; track developments greater than one acre.	Ongoing; Annual review	
	Stormwater, erosion, and sedimentation	<p>5.b. Construction Site Runoff Control:</p> <p>Decrease soil disturbance in areas sensitive to erosion.</p>	<p>Erosion &amp; Sedimentation Control:</p> <p>Current development code requires engineering study with specific recommendations for erosion control on slopes &gt; 10 percent.</p>	Track and document engineering studies completed.	Ongoing; Annual review	
	Stormwater, erosion, and sedimentation	<p>6.a. Post-Construction Site Runoff for New Development and Redevelopment:</p> <p>Require stormwater best management practices for water quality for new development and redevelopment projects that create or replace a minimum of ¼ acre (10,890 square feet) of impervious surface area.</p>	<p>Stormwater BMP's:</p> <p>Continue to enforce Public Works Standards and Municipal Code requirements.</p> <p>City Engineer and staff meet and review application prior to permitting.</p> <p>Require extensive review by City Staff including the City Engineer, Planning, and Public Works.</p>	<p>Track and document that best management practices are implemented on all city permitted sites.</p> <p>Track and document the number of sites that were developed or redeveloped with a minimum of ¼ acre of impervious surface including details regarding the water quality system that was installed. Include this information in the annual report.</p>	Ongoing; Annual review	

POLLUTANT	SOURCE	STRATEGY What we are doing and will do to reduce pollution from this source	ACTIONS Specific ways to implement strategies	MEASURE How we will track successful implementation or completion	TIMELINE	STATUS
<b>All Pollutants:</b> Bacteria, Mercury, and Legacy Pesticides	Stormwater, erosion, and sedimentation	7. Council Support:  Keep Council abreast of the program and implications.  Regularly review the Drainage Master Plan, the Water Master Plan, Park Master Plan, and the condition of the Calapooia River.	TMDL WILL BE ON THE AGENDA TWICE A YEAR.  Monthly meeting focusing on the City Treasury.	Monitor progress through reporting as items are completed. Council has a goals board which is updated every TWO YEARS as to progress made.	February 2024 through February 2029	
	Stormwater, erosion, and sedimentation	8. City Staff:  Council requires Staff to continue work on TMDL and related topics.	Update plans as needed, forward necessary regulations as planned, continue implementation of applicable policies and strategies adopted by Council.	Reports from Staff monthly and through the year.	Ongoing; Annual review	