
CITY OF ROSEBURG

TMDL IMPLEMENTATION PLAN

Prepared for
City of Roseburg

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Oregon DEQ

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Prepared by
HDR Engineering
1001 SW 5th Ave. Suite 1800
Portland, OR 97124
503.423.3700

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TMDL Implementation Plan

This TMDL Implementation Plan is intended to address water quality mitigation issues as detailed in the Umpqua Basin Total Maximum Daily Load (TMDL), 2006. This plan is designed to assist the City of Roseburg in reducing pollutant loading in the Umpqua River basin to help restore and protect water quality. The goal of this section is to assist the City in reducing pollution sources related to its land uses within city limits in order to prevent water quality excursions in dissolved oxygen, temperature, biological criteria, phosphorous, bacteria, and pH.

This plan provides an overview of the City and also reviews the current water quality issues in the South Umpqua River and Deer Creek within city limits and potential methods to control pollutant loading. These measures are recommendations that can be implemented by the City depending on needs and funding. Some measures may already be in place as part of day-to-day operations and maintenance practices.

Background

The City of Roseburg is the county seat of Douglas County and has a population of about 21,000 people. The average annual precipitation in the City is 32.4 inches with most rainfall occurring in December and the least in July. The primary economic activities in the county are timber, mining, and agriculture. The top agricultural products are nursery products, cattle and calves, hay, wine grapes, and vegetable crops.

The City is located along the South Umpqua River in Southern Oregon. The City area is approximately 10,500 acres and includes six major drainage basins within the 2008 Urban Growth Boundary and several smaller areas that are directly connected to the South Umpqua River. The major basins are Parrott Creek, Newton Creek, Deer Creek, Ramp Creek, Rifle Range Creek, and Davis Creek. As of 2008, only the South Umpqua and Deer Creek are 303(d) listed streams. Other streams within city limits include: Newton Creek and unnamed tributary, Parrot Creek, Sweetbriar Creek, and two unnamed tributaries to South Umpqua River.

The City of Roseburg is listed as a DMA (Designated Management Agency) in the *Water Quality Management Plan* (WQMP), Chapter 7 of the *Umpqua Basin TMDL*. Generally, the City of Roseburg is responsible for its governmental operations as well as zoning and permitting, urban runoff and drainage systems, streets and roads, and riparian protection.

Clean Water Act (CWA)

The 1972 Clean Water Act (CWA) set forth the legal framework for surface water protection. The CWA resulted in a series of programs including National Pollutant Discharge Elimination System (NPDES) discharge permits; Section 303(d) listings of impaired water bodies, and Total Maximum Daily Loads (TMDLs) to create watershed-based approaches to identify and minimize pollutant loadings. Within the State of Oregon, the Department of Environmental Quality (ODEQ) implements the CWA programs listed below on behalf of the Environmental Protection Agency (EPA).

NPDES MS4

In 1987 the CWA was amended to create a comprehensive national program to address storm water discharges from municipalities called Municipal Separate Storm Sewer Systems (MS4s). This program was implemented in two phases. Phase I (1990) included larger municipalities

and Phase II (1999) extended coverage of the NPDES stormwater program to small MS4s. Municipalities are “automatically” part of the NPDES Phase II program when the population reaches 50,000 persons with a density of 1,000 persons per square mile. The City of Roseburg is not currently considered a Phase II MS4, but this designation is expected to change in the future.

NPDES MS4 program requires the development of a Stormwater Management Program to address stormwater quality and must include the development, implementation, and evaluation of best management practices (BMPs) within the following categories:

- Public Education and Outreach on Stormwater Impacts;
- Public Involvement/Participation;
- Illicit Discharge Detection and Elimination;
- Construction Site Stormwater Runoff Control;
- Post-Construction Stormwater Management for New and Redevelopment; and
- Pollution Prevention for Municipal Operations.

This report describes how the City plans to use these six minimum measures to address the TMDLs.

Section 303 CWA

Section 303 of the CWA establishes a process to designate beneficial uses of water and establishes water quality standards to protect these uses. Water quality standards are developed by ODEQ for a wide range of pollutants, including toxic chemicals, nutrients, and parameters such as dissolved oxygen and pH.

Under Section 303(d), ODEQ is required to maintain a list of waterbodies that do not meet one or more of these water quality standards. Once a waterbody is included on the 303(d) List, ODEQ develops a Total Maximum Daily Load (TMDL) for each pollutant. The TMDL is an estimate of the waterbody’s ability to assimilate pollutants while still meeting the designated beneficial uses. The result of the TMDL process is an allocation of pollutant loading (i.e., allowable discharges) to various parties. Point source discharges are issued “waste load allocations” and non-point discharges (i.e., stormwater) are issued “load allocations.” Load allocations may be issued to a group of management agencies (e.g., Department of Agriculture) for collective implementation. TMDL loads are also reflected in the various NPDES permits (both point and non-point) that regulate discharges.

The South Umpqua River is listed on the 2002 303(d) List for several parameters within the City limits. Deer Creek is also 303(d) listed. A TMDL process to address these parameters has begun and the approved TMDLs are available from the Oregon Department of Environmental Quality. It is possible that additional listings for additional river miles of existing 303(d) streams, new 303(d) streams, or new pollutants will occur in the future.

Pollutants of Concern

As mentioned above, under section 303(d) of the CWA the South Umpqua River is designated as being impaired for temperature, pH, phosphorus, chlorine, arsenic, cadmium, dissolved oxygen, aquatic weeds or algae, and fecal coliform (i.e., bacteria) and other biological criteria. These listings are all for river reaches within the City limits. Urban stormwater runoff can contribute to these impairments; however the contribution can also vary by specific basin.

Increased temperature is generally a result of removed riparian canopies, water/channel alterations (i.e., low flows), and dams or diversion structures that increase water residence time. Stormwater collection and conveyance contribute to a reduction in groundwater recharge and lower stream base flows.

Acidic or basic pH readings are generally attributed to industrial point-source discharges, algal growth, or the use of salts for de-icing. If the pH changes are linked to algal growth, then ODEQ may even more closely regulate phosphorus in stormwater runoff as excess phosphorus can encourage algal growth.

Bacteria are found in urban stormwater runoff. Animal and pet wastes can contribute to high amounts of bacteria in urban stormwater. Specific water quality treatment measures (e.g., large extended wet ponds) can also increase bacteria counts by attracting wildlife. However, the larger contributing factors are typically failing septic systems, leaking sanitary infrastructure, and cross connections.

To date, pollutants typically associated with urban stormwater include total suspended solids, turbidity, heavy metals (e.g., lead, copper), oils and grease, and fertilizers (e.g., phosphorus, nitrogen). ODEQ has set standards for toxics (i.e., metals, chemicals), sedimentation (i.e., total suspended solids), nutrients, and turbidity. The turbidity standard is currently being revised. Additionally, some pollutants (e.g., phosphorus) are regulated by ODEQ as surrogates to address other standards. For example, there is a water quality standard for chlorophyll a, which was developed to protect aquatic life. Increased chlorophyll a is considered a result of increased phosphorus loading to waters that then promotes aquatic growth. Therefore, ODEQ will regulate phosphorus through TMDLs and discharge permits.

Condition Assessment and Problem Description

The Umpqua Basin has demonstrated water quality deficiencies in many categories considered in this plan: temperature, bacteria, dissolved oxygen, aquatic algae/weeds, pH, phosphorous, and biological criteria. Table 2-1 lists the 303(d) listed streams and the parameters exceeding Oregon water quality standards within the City of Roseburg.

The following parameters are addressed by this TMDL Implementation Plan:

- Dissolved oxygen
- Temperature
- Biological criteria
- Bacteria
- Phosphorous
- pH

TABLE 2-1

Roseburg 303(d) and TMDL Regulated Waterbodies
 Roseburg: TMDL Implementation Plan

Waterbody	Parameter	Season	RM¹	List Date ²	TMDL³
South Umpqua	Aq. weeds/algae	Summer	0-15.9	1998	Yes
	Cadmium	Year round	0-15.9	2002	No
	Arsenic	Year round	0-15.9	2002	No
	Temperature	Year round	0-68.8	2004	Yes
	Fecal coliform	Summer	0-15.9	1998	Yes
	Biological criteria	Undefined	0-15.9	1998	Yes
	Phosphorus	Summer	0-15.9	1998	Yes
	pH	Year round	0-15.9	2004	Yes
	Dissolved oxygen	Year round	0-68.8	2004	Yes
Deer Creek	Temperature	Year round	0-9.6	1998, 2002	Yes
	Fecal coliform	Year round	0-9.6	1998	Yes
	E. Coli	Fall/winter/summer	0-9.6	2004	Yes
	Dissolved oxygen	Year round	0-9.6	1998	Yes

¹ RM = River miles

² 303(d) list date

³ TMDLs approved April 2007

1.1 Beneficial Uses

Water quality standards are designed to protect the most sensitive of the beneficial uses of a water body. The beneficial uses occurring in the South Umpqua River within City limits include:

- Public domestic water supply
- Private domestic water supply
- Industrial water supply
- Irrigation
- Livestock watering
- Boating
- Hydropower
- Aesthetic quality
- Salmonid fish spawning
- Salmonid fish rearing
- Resident fish and aquatic life
- Anadromous fish passage

- Wildlife and hunting
- Fishing
- Water contact recreation
- Commercial navigation and transportation

1.2 Existing Sources of Water Pollution

There are many possible sources of water pollution, “point” sources such as temperature from wastewater treatment plants and “nonpoint” sources such as nutrient loadings from neighborhood landscaping chemicals. Both point and nonpoint pollution sources can be difficult to curtail and in some cases even difficult to identify. The following paragraphs describe some of the existing sources of water pollution in the City of Roseburg.

Temperature is greatly influenced by anthropogenic activities near the water body. While some human activities can help reduce stream temperatures (reservoir releases, riparian area replanting) most activities contribute to warming trends through direct or indirect action. The five most prevalent human effects are:

1. Disturbance of riparian vegetation, especially removal and thinning as these reduce stream shading, thereby increasing exposure to the sun,
2. Channel widening (increased width-to-depth ratio) is often caused by loss of riparian vegetation, this puts more stream surface in contact with solar radiation,
3. Increased withdrawals from and high temperature discharges to the water body, or
4. Reduction in groundwater recharge due to disconnected floodplains.

The most likely sources of dissolved oxygen depletion and nutrients (specifically phosphorous) in the Umpqua Basin within the City of Roseburg are:

- Wastewater treatment plants and sanitary sewer systems
- Discharges from permitted sites other than publicly owned treatment works (POTWs)
- Urban runoff
- Rural runoff including septic systems
- Instream and near-stream erosion caused by human activity contributes sediment-bound nutrients

There are many possible sources of bacteria in the Umpqua Basin; the following list contains some of the most probable sources within the City of Roseburg:

- Wastewater treatment plants and sanitary sewer systems
- Cross connections between sanitary and storm sewers
- Discharges from permitted sites other than wastewater treatment plants
- Direct deposition from pets, livestock, and wildlife

- Illegal dumping, especially of human waste
- Urban runoff
- Rural runoff including septic systems

As with the other pollutants, there are many possible sources for increased pH within the Umpqua Basin:

- Imbalances in dissolved oxygen and biochemical oxygen demand
- Phosphorus loading
- Discharges from permitted sites other than wastewater treatment plants
- Illegal dumping or discharges
- Urban or rural runoff

The two final TMDLs, for aquatic weeds and algae and biological criteria, are dependent upon meeting water quality goals outlined above. Aquatic weeds and algae growth result from high nutrient loading and warm, stagnant water. Controlling phosphorus is essential to controlling algal growth, which in turn contributes to dissolved oxygen and pH issues. Biological criteria, or biocriteria, are a measure of the health of a waterbody “to support aquatic species without detrimental changes in the resident biological communities” (OAR 340-041-0011). There are currently no numeric criteria for this TMDL and biological criteria should improve as stream water quality conditions improve through implementation of the remaining TMDLs.

Goals and Objectives

The overall goal of this TMDL Implementation Plan is to outline strategies to meet water quality standards for each of the 303(d) listed water bodies in the City of Roseburg. Specifically, this TMDL Implementation Plan is a guide for the City to select the programs and measures to be implemented within the City’s jurisdiction that best protect water quality in the Umpqua Basin from the following pollutants:

- Dissolved oxygen
- Temperature
- Bacteria
- Phosphorous
- pH

Successful implementation of these TMDLs will improve the final two TMDLs parameters, which do not have numerical goals:

- Biological criteria
- Aquatic weeds and algae

Proposed Management Strategies

The expectation of this TMDL Implementation Plan is to propose Best Management Practices (BMPs) to meet load allocations for 303(d) listed water bodies in the City of Roseburg. (This discussion is organized by BMP category; to see BMPs for each pollutant, please see the Implementation Matrices at the end of the plan.) The following BMPs address the primary pollutants of concern listed above:

- Public education and outreach – Develop and distribute educational materials and conduct public outreach workshops aimed at informing citizens about the impacts of activity in riparian zones and the importance of storm water in stream health.
- Public involvement and participation – Involve the public in developing and implementing the stormwater management program.
- Illicit discharge detection and elimination – Adopt an ordinance to develop and implement a program for detecting and eliminating illicit discharges to the storm drain system. This includes storm system mapping, dry weather sampling, TV pipe inspections, and citizen information activities.
- Construction site storm water runoff control – Management of this program has been returned to Oregon ODEQ for construction sites one acre or greater. For smaller sites, the City will investigate adding an erosion control checklist to their building permit package. Currently all construction inspection is performed by the county so an agreement would be necessary to coordinate this management strategy.
- Post-construction storm water management – Develop, implement, and enforce a program and standards to control the discharge of polluted runoff from new development and redeveloped sites. This can include structural treatment and detention systems as well as resource protection measures (wetland protection, habitat protection, etc.) and pollution prevention planning. This program will be supported by new construction design guidelines that incorporate stream offsets to preserve riparian areas which also may abate stream temperature increases.
- Pollution prevention in municipal operations – Develop, implement, and enforce a program to control the discharge of polluted runoff from municipal operations (road maintenance, vegetation management, storm drain maintenance, etc.).

1.3 TMDL Implementation Plan Component Summaries

The TMDL proposed management strategies are detailed below. Some of the activities are continuations of existing City programs; others are new activities that will be needed to meet the future NPDES requirements. Many of them can be conducted regionally with other jurisdictions. The activities associated with each minimum requirement are summarized below.

1.4 Public Education and Outreach

Both workshops and publications are beneficial forums for exposing the public to water quality protection information. The City of Roseburg will collaborate with other local agencies such as watershed councils, home builders associations, environmental groups, and the public works,

community planning, and parks and recreation departments to conduct workshops educating streamside landowners about simple practices that improve water quality including:

- Managing and maintaining roads to reduce water quality impacts
- Managing riparian areas for water quality and wildlife habitat
- Water conservation
- Stream-friendly home site development
- Landscaping with native plants
- Septic system maintenance

Publications that could be prepared by the City include fact sheets and brochures that provide information to residential landowners, builders, and real estate agents regarding existing ordinances and permits as well as BMPs including the basic message that dumping anything in a storm drain is illegal as they drain to streams and not sewers. These publications would be similar to workshop topics and would be available online, in the city library, by mail to streamside landowners, realtors, and home builders groups. They could also be distributed in the city planning office and provided to real estate agency offices.

1.5 Public Involvement and Participation

Roseburg will investigate participation in a regional water quality public involvement and participation program with other stakeholders in the Umpqua Basin. The program would be a combination of regional efforts and activities at the local level. The following activities could be included:

- Public Review/Public Meetings – The City would work with other stakeholders to investigate ways to encourage the involvement of the public in water quality preservation or remediation activities. Interested individuals or groups could assist the City by performing restoration projects within the riparian zones and other sensitive areas, for example blackberry removal and native tree planting.
- Distribute News Releases – The distribution of news releases will be provided when the local press is available and interested in water quality topics. Opportunities would depend on the news agencies' interest in water quality activities.

1.6 Illicit Discharge Detection and Elimination

Development of a formal illicit discharge detection and elimination program for the City will be investigated. Currently the Roseburg Fire Department is haz-mat trained and handles all spills for Douglas County. The following elements of the program are outlined in the Stormwater Management Program (appended to the 2008 Stormwater Master Plan):

- Storm Sewer/Sanitary Sewer System Maps – Create maps of current infrastructure to assist local municipal and emergency agencies in spill prevention during maintenance and emergency activities, include water bodies and their 303(d) status.
- Ordinance to Prohibit Non-Stormwater Discharges – The existing ordinances will be revised as needed to comply with NPDES Phase II and local TMDLs.

- Detect and Address Non-Stormwater Discharges – An Illicit Discharge Plan will be prepared, with procedures for inspection and detection of illicit discharges. The following components will be included in the plan:
 1. Develop database of assessment information and complaint responses
 2. Identification of priority areas for assessment
 3. Field assessment activities
 4. Routine schedule for system inspection
 5. Characterization of any discharges found
 6. Procedures to trace an illicit discharge
 7. Procedures to remove an illicit discharge
- Conduct Field Inspections – The Illicit Discharge Plan will provide a schedule and reporting procedures for inspections. At a minimum each outfall will be inspected on a three-year rotation. Appropriate actions will be taken to determine the source of any illicit discharges found during the inspections.
- Spill Response Plan – The City would create a spill response plan that coordinates alerting the Oregon Emergency Network and efforts to protect water quality.
- Plan for Enforcement Actions – Enforcement action will be documented, and all records will be reported annually to the DEQ as a measure of progress on this initiative.
- Train Municipal Staff on Spill and Illicit Discharge BMPs – City of Roseburg fire department staff are trained in the proper BMPs to use for spill response and illicit discharge detection and removal through their hazardous materials program. Refresher training will update staff on changes to the procedures as needed.

1.7 Construction Site Stormwater Runoff Control

Erosion control permitting and inspection responsibilities have been granted to Oregon ODEQ under the NPDES 1200 process for all sites larger than one acre. For this reason, the City will no longer require erosion control plans to be submitted with construction documentation. Applicants must present proof the permit was acquired before beginning construction activities on sites larger than one acre.

For sites less than one acre, the City will investigate adding an erosion control checklist to their building permit package. This checklist could be combined with a brochure on erosion and sediment control methods to illustrate basic BMPs use. Currently developers submit their plans to the City for a land use compliance verification and if the documentation is in order, the City approves the plans and the developer can submit them to the County. In 2007, the City began contracting with the County for building permit services. In accordance with this agreement, the County performs all construction inspection so a modification would be necessary to coordinate this management strategy. The existing land use ordinance would need to be modified to require the use of the checklist, a 2-year process. The City will investigate coordination activities with the County to have sites less than one acre inspected for erosion and

sediment control. An example checklist and BMP selection matrix are included at the end of this document in Appendix A.

1.8 Post-Construction Stormwater Management

Design standards for the City of Roseburg are currently being updated, and preservation of habitat and water quality are addressed within the new standards. Additionally, ensuring long-term maintenance, operation, and enforcement of the new ordinances will be included in the design standards. In addition to developing design standards, the City will also consider the following activities: revising the existing setback ordinance, investigating developed areas that drain to streams instead of the City storm drains, and investigating a stormwater rate reduction incentive for landowners to reduce their contribution to stormwater flows.

An additional measure the City may consider is revisiting the current “setback ordinance” that requires developers and landowners to maintain a “buffer” or “setback” from the water body in order to maintain thickly vegetated riparian zones. These zones provide shade, which is most likely the largest factor increasing stream temperature in the City of Roseburg. Currently the setback for residential zones adjacent to the South Umpqua is 50 feet from top of bank and 25 feet from top of bank for Deer Creek. The setback for commercial zones is 50 feet from top of bank for both the South Umpqua and Deer Creek.

The City will investigate the following activities and determine if these actions will continue to be allowed under the current setback ordinance:

- Non-native vegetation may be removed and replaced with native plant species, subject to a landscape plan approved by the Oregon Department of Fish and Wildlife (ODFW)
- Vegetation may be removed if necessary for the development of water-related or water-dependent uses, subject to a landscape plan approved by ODFW and Oregon Department of State Lands
- Vegetation may be removed for forestry activities that have been granted a permit under the Forest Practices Act

It is recommended that inspections be performed in order to discover and address violations of the ordinance. The City will investigate revising the setback ordinance if necessary to proactively protect water quality.

Some developed areas within City limits do not drain to the City storm drain system. The City of Roseburg has previously allowed some small mixed-use areas to convey stormwater flows to adjacent creeks instead of the City storm drain system. These areas are exempt from stormwater utility fees. The City will investigate stormwater treatment in these areas to determine if they are providing any water quality or quantity treatment.

The City will consider creating an incentive program to encourage landowners to manage some stormwater onsite. Due to the clayey local soils and steep hillsides, this decision will require careful consideration as landowners will have few options for stormwater management.

1.9 Pollution Prevention in Municipal Operations

Most City operations already meet NPDES pollution-prevention requirements, but the City will develop a formal operations and maintenance (O&M) plan to document existing activities, with

minor modifications to reduce pollutants. This plan will also reduce non-point discharges into local water bodies. The stormwater management program outlines the following activities:

- Operation and Maintenance Plan – The City of Roseburg will review existing public works O&M activities and document the activities in a plan that will include the following:
 1. Descriptions of required maintenance activities and procedures,
 2. Identification of the departments and personnel responsible for each activity,
 3. A schedule of activities, including maintenance, inspections and reports, and
 4. Rules for the use of herbicides and pesticide by the Public Works Department.
- Park and Open Space Maintenance – The Public Works Department Parks Division will work to implement BMPs such as reducing and monitoring fertilizer, herbicide and pesticide application (with the ultimate goal of eliminating their use); vegetation maintenance and disposal; and trash management.
- Vehicle and Equipment Washing – Roseburg will implement vehicle and equipment washing practices as outlined in the O&M Plan. All publicly owned vehicles are washed in a self-contained covered building or a designated wash area. The City constructed a vehicle and equipment washing facility during 2005 and a public safety facility for washing fire and police vehicles will be completed in 2009.
- New Construction and Land Disturbances – Roseburg currently requires that BMPs be followed for public construction projects. This practice will continue once the O&M Plan is developed. Public construction projects will be required to follow the same requirements and procedures as private development.
- Dust Control Practices – Erosion control and dust control are currently required for all public construction projects as part of the bid documents and specifications.
- Stormwater System Maintenance – Roseburg will continue its existing stormwater system maintenance schedule, which includes the following:
 1. Storm line cleaning – 5-year rotation,
 2. Culverts – 5-year rotation,
 3. Drainage ditches – as needed, some cleaned each year,
 4. Creeks – annual vegetation maintenance and debris removal (2 miles per year),
 5. Inlets – 5-year rotation and as needed,
 6. Trash racks – monthly in winter, and
 7. Manholes – 5-year rotation.

- Open Channels and Structural Stormwater Controls – Open channels and structural stormwater controls will be inspected and maintained regularly. Waste from the stormwater controls will be disposed of properly, and records of cleaning and maintenance will be kept. Roseburg currently conducts annual vegetation maintenance and debris removal in creeks.
- Road, Highway and Parking Lot Maintenance – The City's Road Department currently follows pollution prevention practices for sanding and street sweeping. Once the O&M Plan is adopted, the Road Department will continue to follow practices outlined in the Plan for snow removal. Roseburg purchases de-icing chemicals from the Oregon Department of Transportation for use in city equipment. De-icing occurs only on overpasses. All sanding materials are kept in a concrete bin specifically for that purpose. The City conducts street sweeping on all curb-and-gutter streets every three to four weeks with a regenerative street sweeper. Streets that have been sanded are swept when the sand is no longer needed.
- Flood Management Projects – The City will implement review procedures for flood management projects. All new flood management projects will include water quality considerations. Previously identified priority flood management projects will be reevaluated for water quality considerations. Low impact development (LID) techniques applicable to the City's terrain and soils will be investigated as a possible method of reducing flood flows and providing water quality treatment. Potential LID BMPs are described in the City of Roseburg Stormwater Master Plan.
- Employee Training on O&M Implementation – City staff will be trained on O&M procedures. The training will occur in combination with training for the illicit discharge and spill plan. Training will be general for all municipal employees, with more specific training for specific program areas. Refresher training will update staff on changes to the procedures as needed. Materials for several trainings are available from Oregon ODEQ and USEPA.

Management Strategy Summary

The following table of activities is recommended to address TMDLs within the City of Roseburg:

TABLE 5-1

Management Strategy Summary
Roseburg: TMDL Implementation Plan

Management Measure/Source Category	TMDL Parameter					
	Temperature	Biocriteria	Dissolved O ₂	Phosphorous	pH	Bacteria
<i>Public Education and Outreach</i>						
Create and present stormwater workshops for streamside land owners and general public	X	X	X	X	X	X
Add stormwater quality information to city website	X	X	X	X	X	X
Develop a water quality news releases	X	X	X	X	X	X
Install stations with signage, ordinance for pet waste collection						X
Create water quality brochures for the general public	X	X	X	X	X	X
Develop a water quality traveling display	X	X	X	X	X	X
Targeted water quality brochures for streamside landowners	X	X	X	X	X	X
<i>Public Involvement and Participation</i>						
Hold public reviews/ meetings to encourage public water quality stewardship	X	X	X	X	X	X
Complete storm drain marking		X	X	X	X	X
Coordinate with watershed council for riparian vegetation restoration projects and incentive program for land owners	X	X	X	X		
<i>Illicit Discharge Detection and Elimination</i>						
Adopt ordinance to prohibit non-stormwater discharges	X	X	X	X	X	X
Create illicit discharge and spill response plans	X	X	X	X	X	X
Perform stream surveys to detect illicit discharges and illegal intakes	X	X	X	X	X	X
<i>Construction Site Stormwater Runoff Control</i>						
Sites one acre or larger - NPDES 1200-C through Oregon DEQ	X	X	X	X	X	
Sites less than one acre - erosion control checklist and inspections		X	X	X	X	
<i>Post-Construction Stormwater Management</i>						
Develop City's design standards to protect water quality, including landscaping with native plants	X	X	X	X		X
Refine setback ordinance to protect riparian areas	X	X	X	X		X
Stormwater retrofits in areas not connected to City storm drains		X	X	X	X	X
Incentives for decreasing stormwater flows to storm drains		X	X	X		
<i>Pollution Prevention in Municipal Operations</i>						
Develop formal public works O&M plan	X	X	X	X	X	X
Optimize park and open space maintenance to minimize fertilizing and watering, maximize use of native plants	X	X	X	X		X

TMDL Implementation Matrices

The TMDL Implementation Matrices at the end of this document in Appendix B summarize the text in terms of the six management strategies with checkboxes to indicate which TMDL parameters each activity addresses. The matrices are intended to facilitate tracking of individual implementation plan components at annual and 5-year reviews. The City of Roseburg can update the “status” column of the matrices and submit the tables to DEQ as evidence of progress on TMDL initiatives.

Performance Monitoring

Progress reports will be requested by ODEQ annually after this TMDL implementation plan is approved. ODEQ groups performance monitoring into two categories: implementation monitoring and effectiveness monitoring.

Implementation monitoring would include updating the TMDL implementation matrices’ “status” column to gage completion and progress on those tasks and provide a description of progress on the different management strategies.

For effectiveness monitoring, a description of the effectiveness of the TMDL implementation efforts in reducing pollutant loads will be included in progress reports. The City of Roseburg is expected to coordinate with the watershed council, soil and water conservation district, and ODEQ to ensure that any monitoring and evaluation strategies do not duplicate other efforts or involve unnecessary data collection. The intent of effectiveness monitoring is to evaluate if the actions are stringent enough to produce reductions in pollutant loading in the watershed. Field measurements are essential to making this conclusion.

Plan Review, Revision, and Reporting Requirements

The City of Roseburg is required to establish a process by which the TMDL implementation plan is reviewed annually and progress evaluated. City staff will provide interim progress information in the annual report to ODEQ, including updating the “status” column in the implementation matrices. The annual report will include details on whether the plan is meeting pollution reduction goals and description of how the plan is to be modified if it is found lacking (adaptive management).

The City of Roseburg will review the plan every five years following ODEQ approval of the final version of the implementation plan. Revisions, restructuring, and additions will be coordinated with ODEQ at that time.

In addition, the City of Roseburg will review and revise this plan as needed following ODEQ reevaluation of the TMDL. According to the WQMP, “ODEQ will collect and review information for TMDL Implementation Plans on an annual basis and will periodically review available environmental data. However, an in-depth review of all data and information collected by all entities will be evaluated with the next Umpqua Basin TMDL cycle. Typically, the evaluation would be done on a 5-year schedule; the next overall review for the Umpqua is currently planned for 2011. In addition, the Technical Advisory Committee of the Partnership for Umpqua Rivers (formerly Partnership for the Umpqua Rivers) has compiled an inventory of all monitoring currently being conducted in the Umpqua Basin. Monitoring for TMDL implementation will build on existing monitoring programs.”

Evidence of Compliance with Land Use Requirements

All of the strategies outlined here and listed in the implementation matrices are consistent with the City of Roseburg's land use plans. The City will evaluate and maintain consistency with local and statewide land use laws in any future actions related to TMDL implementation.

Program Funding

The City of Roseburg's stormwater program is part of the Street Division of the Public Works Department. This division is funded by Public Works budget and via the Storm Drainage Utility. The City may seek grant funding to offset costs for some of the most labor intensive implementation plan components such as stream surveying and water quality data collection. The City will also investigate opportunities to workshare with the watershed council to achieve goals common to both organizations.

The costs associated with this TMDL implementation plan are provided by task in the implementation matrices.

Conclusion

The content of this report and attached matrices are intended to meet the requirements for the TMDL implementation plan. All of the strategies outlined are consistent with City of Roseburg regulations. As was stated earlier in this report, the TMDL implementation plan is established to function in concert with the specifications of the stormwater management plan. The six minimum control measures addressed in that document are reflected in this plan and the attached implementation matrices. This document has been reviewed by management staff for accuracy. The City's stormwater utility and public works budget makes funding for proposed strategies possible.

Appendix A - Example Erosion and Sediment Control Checklist

Appendix B - TMDL Implementation Matrix

Appendix A - Example Erosion and Sediment Control Checklist

RECOMMENDED EROSION AND SEDIMENT CONTROL BMPs FOR SITES LESS THAN 1.0 ACRE

Roseburg: TMDL Implementation Plan

Erosion and Sediment Control Best Management Practices (BMP) for Sites Less than 1.0 Acre	Applicable Site Condition					
	Slopes < 2%	Slopes 2 to 20%	Slopes > 20%	Stockpiles	(Open)	(Open)
<i>Site Entry BMPs</i>						
Rock construction entrances	X	X	X			
Wheel wash structures			X			
Curb ramps	X	X	X			
<i>Perimeter Sediment Control BMPs</i>						
Sidewalk subgrade barriers	X	X				
Temporary sediment control (silt) fences	X	X	X	X		
Filtration bags and socks	X	X	X	X		
Fiber rolls and wattles	X	X	X	X		
Vegetated buffers	X	X				
Storm drain inlet protection	X	X	X			
Filtration berms	X	X				
<i>Stormwater Control BMPs</i>						
Interceptor dikes and swales		X	X			
Check dams		X	X			
Pipe slope drain		X	X			
Stormwater barriers (e.g. hay bales, triangular silt dikes, plastic dams, rock sack berms)		X	X	X		
Sediment traps and ponds	X	X				
<i>Erosion Prevention BMPs</i>						
Surface roughening	X	X	X			
Temporary grasses and permanent vegetative cover	X	X	X	X		
Mulch	X	X	X	X		
Erosion control blankets		X	X	X		
Plastic sheet covering				X		
Armoring			X			
Live stakes			X			
Live fascines			X			
<i>Development Activity Control BMPs</i>						
Spill prevention and control	X	X	X			
Solid waste and materials management (including concrete waste)	X	X	X			
Vehicle and equipment fueling and maintenance	X	X	X			
Structure preparation and painting	X	X	X			

For additional information about the BMPs included in this table refer to the City of Portland Erosion and Sediment Control Manual, Chapters 4 and 5 (<http://www.portlandonline.com>). Another online resource is the Oregon DEQ Erosion Control Manual (<http://www.deq.state.or.us/wq/stormwater/docs/escmanual/manual.pdf>).



CITY OF ROSEBURG

DRAFT -- SMALL SITE EROSION CONTROL REQUIREMENTS FORM

Project or Permit #:

Project Address:

Name of responsible party (print):

Day phone:

FAX:

email:

Erosion control inspections are required and it is your responsibility to request these inspections from Douglas County at (541) 440-4284.

Erosion control measures **are required** on this site. Because of the size, a drawn plan is not required. Erosion control measures will be evaluated each time an inspector is on-site. This form may be used only for sites less than one acre. Sites larger than one acre are required to complete an 1200-C permit through Oregon DEQ. Applicant should refer to City of Roseburg *Stormwater Design Standards* and *Hillside Development Ordinance* for specific design criteria.

This is an agreement that the applicant and/or responsible parties will use erosion control during this project as required. The applicant and/or responsible party must sign this form to comply with Section XXX of the City of Roseburg Code. Details for the measures outlined below are located in the City of Portland *Erosion and Sediment Control Manual*, available online at: <http://www.portlandonline.com/bds>.

Minimum Erosion Control Requirements	Additional Requirements
1. Temporary sediment control (silt fences, bio-filter bags or fiber rolls, storm drain inlet protection)	Prevent the transport of sediment from the site. These items must be provided even with undisturbed vegetative buffers.
2. Stabilize access points by installing a gravel construction entrance. Do not use rock or dirt ramps in the gutter; use a wood ramp if needed to get over curb.	Limit construction vehicle access, whenever possible, to one route. Stabilize access points. Provide street cleaning by sweeping or shoveling any sediment that may have been tracked out. Place sediment in a suitable disposal area where it will not erode again.
3. Stabilize all soils, including stockpiles that are temporarily exposed. Use one or more of the temporary soil stabilization Best Management Practices (BMP's): temporary grasses, mulch applications, erosion blankets, or plastic sheeting.	Soil Stabilization
4. Maintain erosion controls identified in requirements 1 through 3 above according to specifications prescribed in the manual.	Inspect and maintain required erosion and sediment controls to ensure continued performance of their intended function.
5. Comply with the necessary development activity controls, including controls for fuel spill control, waste removal, concrete waste management, or painting preparation.	During construction, prevent the introduction of pollutants in addition to sediment into stormwater.
6. Use one or more of the following to permanently stabilize soils before final building inspection: Permanent vegetative cover, mulch applications or application of sod.	After construction but before project completion, permanently stabilize all exposed soils that have been disturbed during construction.
7. Prevent sediment from entering all storm drains, including ditches, which receive runoff from the disturbed area	Remove temporary drain inlet protection measures after final site clean-up.
8. Post signage on-site that identifies the City's Erosion Control complaint number	The sign will be provided upon approval of the pre-construction inspection. It must be maintained on-site until the final inspection.

I agree to meet each requirement and use appropriate control measures as outlined above to prevent erosion and sedimentation from leaving the site of project/permit number referenced. I understand that all County inspections will include an evaluation of site erosion and sediment control effectiveness, and that failure to install or maintain adequate measures may result in a re-inspection fees or fines. A permanent erosion control inspection will be performed during the final building inspection.

Signature of Responsible Party
Property Owner or Owner's Agent

Date:

Appendix B - TMDL Implementation Matrix

Table 1: Public Education and Outreach

STRATEGY: Public Education and Outreach					City of Roseburg: TMDL Implementation Tracking Matrix									
WHAT <i>What is being done, or what will you do, to reduce and/or control pollution for the selected TMDL parameters?</i>	FISCAL ANALYSIS <i>What is the expected resource need? Are there existing resources budgeted? If not, where will the resources come from?</i>	MEASURE <i>How will you quantitatively or qualitatively demonstrate successful implementation or completion of this strategy?</i>	TIMELINE <i>When do you expect it to be completed?</i>	MILESTONE <i>What intermediate goals do you expect to achieve, and by when, to know progress is being made?</i>	TMDL PARAMETER					STATUS <i>Include summary and date, assess progress annually</i>				
					Temperature	Biocriteria	Dissolved Oxygen	Phosphorous	pH	Bacteria				
Add stormwater water quality information to city website	Staff time	Website counter, public requests for additional information	2010	Draft contents and layout by 06/2009 Complete and online by 12/2009	X	X	X	X	X	X			2008	2009 2010 2011 2012 2013
Storm drain markers	Funded	Number installed	Ongoing		X	X	X			X			Currently required on all new construction, all new manhole covers also have signing	
Traveling water quality display to be used in public settings	Staff time	Number of events attended	2010	Draft contents by 06/2009 Draft layout by 12/2009 Complete by 12/2010	X	X	X			X				
Get article in local paper to raise awareness	Staff time	Article in paper	Summer 2009	NA	X	X	X			X				
Mailings to homeowners and businesses regarding use of fertilizers	Staff time	Mailings	2010	Draft contents by 06/2009 Draft layout by 12/2009 Complete by 12/2010			X							
Mailings to residential and commercial developers regarding use of fertilizers and use of native vegetation in landscaping	Staff time	Mailings	2010	Draft contents by 06/2009 Draft layout by 12/2009 Complete by 12/2010			X							
Educate public on benefits of landscaping with native plants	Staff time	Mailings	2010	Draft contents by 06/2009 Draft layout by 12/2009 Complete by 12/2010			X							
Signing in public areas with native plant landscapes	Not funded			Draft contents by 06/2009 Draft layout by 12/2009 Complete by 12/2010			X						City will research grant opportunities and investigate adding as future budget item	
Erect signage and provide dog waste bags in parks to prevent pet waste from reaching waterways	Funded	Check bag supply weekly; reduction in bacterial loading in runoff	All parks equipped in 2010	Put together brief usage survey to post at stations with drop box - 6/2009	X	X	X			X			Many parks already equipped	
Design a pet waste program with "backyard focus"	Staff time	Community feedback	2012	Research and draft study complete by 2010, implement program by 2012	X	X	X			X				
Implement a "smart watering" campaign to limit water use on lawns	Staff time	Reduction in bacterial loading in runoff and stormwater	2012	Research and draft study complete by 2010, implement program by 2012	X	X	X			X				
Mail ODEQ information to homeowners regarding septic system failures	Staff time	Number of brochures mailed	Once every two years by June 1	Contact RUSA to identify homes with septic systems by 6/2010, approach those landowners by 12/2010	X					X			Septic systems not allowed within city limits, may exist in UGB, City will investigate	
Identify "hobby farms" within UGB. Mail educational materials to residents	Staff time	Track properties, owners and contact dates	2012	Property and owner list complete by 2010, mail materials by 12/2010	X					X			Hobby farms not allowed within city limits, may exist in UGB, City will investigate	

Table 2: Public Involvement and Participation

City of Roseburg: TMDL Implementation Tracking Matrix									
STRATEGY: Public Involvement and Participation			STATUS						
WHAT	FISCAL ANALYSIS	MEASURE	TIMELINE	MILESTONE	TMDL PARAMETER				
What is being done, or what will you do, to reduce and/or control pollution for the selected TMDL parameters?	What is the expected resource need? Are there existing resources budgeted? If not, where will the resources come from?	How will you quantitatively or qualitatively demonstrate successful implementation or completion of this strategy?	When do you expect it to be completed?	What intermediate goals do you expect to achieve, and by when, to know progress is being made?	Temperature	Biocriteria	Dissolved Oxygen	Phosphorous	pH
Work with homeowners to set a timeline for failing septic tank repairs	Staff time	Track # of reports, outcome of inspection (failing or not) and date of follow-up that confirmed repairs were made	Ongoing	Contact RUSA to identify homes with septic systems by 6/2010, approach those landowners regarding inspections by 12/2010	X	X			X
Incentives for streamside property owners to remove blackberries and replant with large native conifers	Not funded	Keep track of miles of bank restored and number of property owners utilizing the program	2009 and ongoing	Approach watershed council in 2009, have program and database online by 12/2010	X	X			
Hold public reviews/meetings to encourage public water quality stewardship	Staff time	Community feedback	2009 and ongoing	Annual meeting summaries	X	X	X	X	X

Table 3: Illicit Discharge Detection and Elimination

City of Roseburg: TMDL Implementation Tracking Matrix																
STRATEGY: Illicit Discharge Detection and Elimination				STATUS												
WHAT	FISCAL ANALYSIS	MEASURE	TIMELINE	MILESTONE	TMDL PARAMETER					STATUS						
What is being done, or what will you do, to reduce and/or control pollution for the selected TMDL parameters?	What is the expected resource need? Are there existing resources budgeted? If not, where will the resources come from?	How will you quantitatively or qualitatively demonstrate successful implementation or completion of this strategy?	When do you expect it to be completed?	What intermediate goals do you expect to achieve, and by when, to know progress is being made?	Temperature	Biocriteria	Dissolved Oxygen	Phosphorous	pH	Bacteria	Include summary and date on a yearly basis.					
Refine ordinance to prohibit non-stormwater discharges, including enforcement	Staff time	Adopted ordinance	2010	Present to Public Works Commission Revise rule by 12/2011 Adoption by 06/2012	X	X	X	X	X	X	2008	2009	2010	2011	2012	2013
Create an illicit discharge plan and spill response plan	Staff time	Draft and final plans	2010	Draft plans by 6/2011 Completed by 12/2012	X	X	X	X	X	X						
Field inspections (to locate illicit discharges and intakes)	Not funded	Survey streams	2012	Secure funding and identify appropriate personnel or volunteers by 12/2011	X	X	X	X	X	X						City will research grant opportunities and investigate adding as future budget item
Train staff to use proper BMPs for spill response and illicit discharges	Funded	All appropriate staff trained	Ongoing	Annual training updates	X	X	X	X	X	X						Fire Dept. responsible for haz mat response for the City, undergoes monthly trainings
Adopt ordinance requiring owners to clean up after their pets	Staff time	Adopted ordinance	2010	Present to Public Works Commission Revise rule by 12/2009 Adoption by 06/2010	X	X	X			X						
Investigate illegal intakes stealing water from streams	Not funded	Number of citations	2012	Stream survey in 2012	X											City will research grant opportunities and investigate adding as future budget item
Enforce illicit discharge program	Not funded	No citations for illicit discharges	2012	Stream survey in 2012	X		X									Informal procedures in place, will investigate a formal manual; City will research grant opportunities and investigate adding as future budget item
Enforce O&M program, especially vehicle and equipment washing	Funded	Manual completion and facility inspections	2012	Manual complete by 2010, inspections complete by 2012			X	X	X							Informal O&M procedures in place, will investigate a formal manual and/or trainings

Table 4: Construction Site Stormwater Runoff Control

City of Roseburg: TMDL Implementation Tracking Matrix					
STRATEGY: Construction Site Stormwater Runoff Control			TMDL PARAMETER		
WHAT <i>What is being done, or what will you do, to reduce and/or control pollution for the selected TMDL parameters?</i>	FISCAL ANALYSIS <i>What is the expected resource need? Are there existing resources budgeted? If not, where will the resources come from?</i>	MEASURE <i>How will you quantitatively or qualitatively demonstrate successful implementation or completion of this strategy?</i>	TIMELINE <i>When do you expect it to be completed?</i>		MILESTONE <i>What intermediate goals do you expect to achieve, and by when, to know progress is being made?</i>
			Temperature	Biocriteria	Dissolved Oxygen
				Phosphorous	pH
				Bacteria	
Sites > 1 acre - managed by ODEQ under the NPDES 1200 process, inspections performed by Douglas County building services			X		
Sites < 1 acre - erosion and sediment control checklist to be submitted with building permit package	Staff time	Completion of checklist and its addition to building permit package; revise any ordinance language to require checklist completion	2012	Draft checklist - 6/2009 Make checklist optional - 1/2010 Revise any ordinance language - 12/2011 Implement checklist - 6/2012	County currently performs site inspections and enforces 1200-C permit City will investigate if County will perform erosion and sediment control inspections at sites less than one acre
Sites < 1 acre - develop erosion and sediment control pamphlet and/or simple illustrated manual to assist small site developers effectively apply erosion and sediment control best management practices	Staff time	Completion of pamphlet and/or simple manual for building permit applicants	2012	Draft pamphlet or manual - 1/2010 Final pamphlet or manual - 6/2012	

Table 5: Post-Construction Stormwater Management

City of Roseburg: TMDL Implementation Tracking Matrix																
STRATEGY: Post-Construction Stormwater Management				TMDL Implementation Tracking Matrix												
WHAT	FISCAL ANALYSIS	MEASURE	TIMELINE	MILESTONE	TMDL PARAMETER					STATUS						
What is being done, or what will you do, to reduce and/or control pollution for the selected TMDL parameters?	What is the expected resource need? Are there existing resources budgeted? If not, where will the resources come from?	How will you quantitatively or qualitatively demonstrate successful implementation or completion of this strategy?	When do you expect it to be completed?	What intermediate goals do you expect to achieve, and by when, to know progress is being made?	Temperature	Biocriteria	Dissolved Oxygen	Phosphorous	pH	Bacteria	2008	2009	2010	2011	2012	2013
					X	X										
					X											
					X	X	X	X	X							
					X	X	X	X	X							
Protect riparian zones with stream-friendly design standards for landscaping	Staff time	Adopt and implement standards	2010	Draft by 06/2009 Complete by 12/2009	X	X					Updated stormwater design standards included in 2008 Stormwater Master Planning process					
Protect riparian zones with stream-friendly design standards for setbacks	Staff time	Revisit standards	Ongoing	Evaluate bi-annually beginning in 2009	X	X					Setback ordinance in place					
Stormwater Best Management Practice design manual	Funded	Adoption of design manual	2009	Draft has been reviewed by City, adopt final version 12/2008	X	X	X	X	X	X	Reviewed draft design manual					
Private water quality facilities inventory	Not funded	Site visits and evaluation of all private water quality facilities within the Urban Growth Boundary (UGB)	2011	Inventory complete by 12/2010 and assessment summary complete by 6/2011	X	X	X	X	X	X	City will research grant opportunities and investigate adding as future budget item					

