City of Coburg
Total Maximum Daily Load
(TMDL) Implementation Plan

Adopted by Coburg City Council
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Section One – Introduction

This document is the total maximum daily load (TMDL) Implementation Plan for the City of Coburg. This Plan describes the strategies that the City will implement to reduce temperature, bacteria, and mercury pollution in the Upper Willamette subbasin of the Willamette River. Implementation Plans from designated management agencies (DMAs), such as the City of Coburg, are required to comply with the Willamette Basin TMDL order and to help meet pollutant load allocations for the Upper Willamette subbasin as approved by the US Environmental Protection Agency (EPA) in September 2006.

This plan is organized into five sections. This first section introduces the Plan followed by the second section which gives a brief overview of the TMDL program, describes each of the three major pollutants addressed in the Willamette Basin TMDL (Temperature, Bacteria, and Mercury), and explains the region's water resources, land use, and important issues related to water quality. Section three provides an overview of the City of Coburg, explains what Coburg is currently doing to address water quality issues, and examines where gaps exist in addressing TMDL parameters. Section four is the "core" of this Implementation Plan and portrays what the City plans to do to address TMDL issues. The matrix included in this section clearly displays when and how strategies will be implemented. This section also identifies how effective implementation will be measured. The final section identifies and outlines opportunities within the Willamette Headwaters region to join efforts with other jurisdictions in working to reach water quality goals.

The overarching goal of this Implementation Plan is to minimize or, wherever possible, eliminate heat, bacteria, and mercury contributions to surface waters within the jurisdictional control of the City of Coburg. Through a multi-faceted approach of incentives, land use mechanisms, public operations, partnerships, and education this plan targets specific sources of contamination within the city's jurisdiction.

Section Two – Background

The Willamette River is a very important commercial, municipal, cultural, recreational, ecological, and aesthetic asset. Working to preserve and maintain water quality will ensure prosperity, productivity, and quality of life for the entire Willamette region now and in the future. Water quality in the headwaters region of Lane County is especially vital in maintaining the functionality of this versatile river system.

The Willamette spawns from humble beginnings. In the southernmost part of the Willamette Basin, upland forest streams begin as spring-fed rivulets, snowmelt drainages, or small mountain lakes. These watercourses join with other small streams and flow into major tributaries; the Mohawk, McKenzie, Middle Fork Willamette, Row, Coast Fork Willamette, and Long Tom Rivers. These rivers comprise the headwaters of the Willamette River as it proceeds to flow northward 186 miles to the Columbia and then to the Pacific Ocean. The City of Coburg lies just inside on the southwestern edge of the Upper Willamette Subbasin.

On its way to the Columbia River, the Willamette passes the state's three largest cities and nearly 2 million people (DEQ, 2006). In the next 45 years, an additional 1.7 million people are expected to be living on the land adjacent to the Willamette River and its tributaries (Sinclair, 2005). Functional water resources are essential to protecting the future health and prosperity of the Willamette Valley. The Oregon Department of Environmental Quality (DEQ) has set water quality standards for the waterways in the region to protect beneficial uses such as drinking, fishing, swimming, fish spawning, and irrigation. Streams, lakes, and rivers that do not meet these standards are included in the statewide 303(d) list of impaired waterbodies.

Overview of TMDL Requirements

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'" (DEQ, 2004). 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 waterbodies, the DEQ issued TMDLs for the entire Willamette Basin in September, 2006.

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 (DEQ, 2004)

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 wasteload allocations for point sources such as wastewater treatment plants and industrial discharges. They develop load allocations for non-point pollution such as erosion, animal waste, and stormwater from agricultural, urban, and forestry lands

The Oregon Administrative Rule (OAR 340-042-0025) that addresses TMDLs requires 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, and state agencies such as the Department of Forestry and the Department of Agriculture. In addition all counties and incorporated cities within the Willamette Basin have been classified as DMAs. According to OAR 340-042-0025, TMDL Implementation Plans must include the following five elements:

1. Management strategies that will be used to achieve load allocations

2. A timeline and schedule to achieve measurable milestones

3. A plan for periodic review and revision of the implementation plan

4. Evidence of compliance with applicable statewide land use requirements

5. Any other analyses or information as specified in the Water Quality Management Plan

In the Willamette Basin, DMAs are to develop and submit these plans to the DEQ within 18 months after the release of the final TMDLs. On September 21, 2006, the Willamette Basin TMDL was issued as an order by the DEQ. TMDL Implementation Plans are due on April 1, 2008.

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.

The Lane County portion of the Willamette River Basin includes the McKenzie, Middle Fork, Coast Fork subbasins and the southern portion of the Upper Willamette subbasin where Coburg is located. Within this headwaters region, there are eleven local government DMAs including Lane County and ten cities.

TMDL Parameters

Temperature, bacteria, and mercury are the three parameters that have been included in all of the Willamette Basin TMDLs. Although others are included in subbasin TMDLs, these three pollutants are the major concerns throughout the entire Willamette Basin. Following are brief summaries of these three parameters, but more in-depth information on these pollutants and the processes used to develop the TMDLs can be found in Chapters 2, 3, and 4 of the *Willamette Basin TMDL* (DEQ, 2006). 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.

Temperature

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

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 streambank stabilization, increasing stream flows, decreasing channel width, and restoring channel complexity.

Temperature TMDLs have been developed for the Willamette subbasins and mainstem Willamette River within Lane County. The DEQ used two different approaches in developing the temperature TMDLs. One TMDL focuses on the mainstem 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.

There are 46 stream segments, nearly 380 miles of waterways (DEQ, 2002), listed as impaired for temperature in the Lane County portion of the Willamette Basin. Stream segments considered as a part of the Mainstem Willamette temperature TMDL in Lane County are the Mckenzie River, Middle Fork, Fall Creek, Row River, Blue River, Coast Fork, and the Long Tom River up to the lowest reservoir on each river. All other 303(d) listed stream segments are assessed through sub-basin TMDLs. The City of Coburg lies just 2.5 miles northeast of the confluence of the McKenzie and Mainstem Willamette River. Drainage from the Coburg area generally travels northwesterly towards the Mainstem of the Willamette making the Coburg area part of the Upper Willamette subbasin.

The maximum temperature increase in the waters of the state from all human activities can be no more than 0.3 degrees 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 mainstem Willamette River by 0.7 degrees Celsius (DEQ, 2006).

The amount allocated to each source of thermal pollution varies by location, but, generally, non-point sources are allowed to contribute no more than 0.05 degrees C, point sources can contribute up to .25 degrees C, and the TMDL allocates 0.0 degrees C to the U.S. Army Corps of Engineers Willamette Project reservoirs. The DEQ factors in .05 degrees 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 implication of the temperature TMDLs is the protection and restoration of streamside vegetation. Examples of options to address thermal pollution include mechanisms such as:

- Develop materials that explain why landowners should preserve natural streamside vegetation
- Implement demonstration projects on public land to illustrate potential riparian management techniques
- Institute a riparian ordinance that prohibits the removal of native streamside vegetation
- Acquire critical streamside property
- Become involved in a water quality trading program
- Actively restore riparian areas on public land and help private property owners restore riparian areas on private land

Bacteria

Jurisdictions in the Upper Willamette subbasin are facing unique problems related to the high levels of bacteria in the waterways. The DEQ reports that the Long Tom River

increases bacterial concentrations in the mainstem of the Willamette River by 77 percent (DEQ, 2006).

The Long Tom River, Fern Ridge Reservoir, and Coyote Creek are not meeting water quality criteria for bacteria (fecal coliform). For this reason, Coburg and other cities in the Upper Willamette subbasin should focus their efforts on reducing bacteria levels. The Upper Willamette Basin TMDL calls for reductions of 80 – 94 percent from urban sources of bacteria.

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), so the focus of the TMDL implementation efforts should be on non-point sources. Models indicate that if these allocations are met within each subbasin, the entire upper reach of the mainstem Willamette River will be in compliance with water quality standards.

Seventy percent of the flow in the upper reach of the Willamette is from the Coast Fork, Middle Fork, McKenzie, and North and South Santiam Rivers (DEQ, 2004). These rivers effectively dilute bacterial concentrations from other tributaries in the mainstem of the Willamette River. It is important to maintain low bacteria levels in the headwaters region to preserve the ability of the Willamette River to meet water quality standards in the lower region.

Bacteria violations of water quality standards are most common in creeks and streams that drain urban and agricultural land. The mainstem 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 streambank 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 Coburg's urban area include:

- Preventing erosion and controlling sediment from new construction
- Detaining and treating stormwater prior to discharge into waterways
- 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

- Wastewater treatment facility to eliminate potential contributions from septic systems

Mercury

Mercury is a very complex pollutant. The way it acts in nature and the different forms it takes make it difficult to understand and accurately monitor. Mercury has no regard to local, state, or even international boundaries. It can be transported in the air after soil disturbance, automobile emissions, and industrial emissions across many miles and deposited by rainfall. 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 sediment that has been deposited long ago is re-suspended due to high flows or a significant disturbance. Stormwater runoff suspends mercury molecules and carries them to waterways.

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. The DHS specifically advises against consuming large amounts of fish from the Willamette due to the high levels of mercury.

In the upper reaches of the Coast Fork subbasin, legacy mines were thought to be a large contributor of mercury pollution. Monitoring shows that mines are a significant source in the Cottage Grove area, but results from the Dorena Lake area show that there are many other sources of mercury. According to the TMDL, mines contribute 0.0% of the mercury load in the Dorena area and runoff from air deposition contributes 79.4% of total mercury loads. In the Cottage Grove area, however, mines contribute 75.2% and runoff from air deposition contributes 19%. These findings not only indicate that the Coast Fork subbasin is facing a unique challenge with the legacy mines in the Cottage Grove area, but also that the rest of the Lane County portion of the Willamette Basin needs to address mercury-laden runoff and erosion of native soils. The table below outlines the sources of mercury and percent reductions needed to achieve water quality standards for the Willamette Basin, Dorena Lake, and Cottage Grove Lake.

Table 1: Willamette Basin Mercury TMDL Sources and Reductions Needed

Pollutant	Sources	Reductions
Mercury	**Willamette Basin*** ▪ Erosion of native soil (47.8%) ▪ Atmospheric deposition and runoff, including stormwater (47.7%) ▪ Point sources (3.9%) ▪ Legacy mines (0.6%) ▪ Low levels are naturally occurring	Willamette Basin: 26.4% (128.5 kg/year)
	Dorena Lake ▪ Atmospheric deposition and runoff (31.1%) ▪ Erosion from disturbed forest land (68.9%)	Dorena Lake: 29.8% (2.08 kg/year)
	Cottage Grove Lake ▪ Mines (74.4%) ▪ Atmospheric deposition and runoff (8.0%) ▪ Erosion from disturbed forest land (17.6%)	Cottage Grove: 67.8% (3.13 kg/year)

* Annual mean estimate. Mercury load contributions change significantly during winter high flows. During high winter flows, 69.2% of the load is from sediment re-suspension, 0.2% from mines, 1.2% from point sources, 14.7% from erosion, and 14.7% from air deposition.
Source: Department of Environmental Quality, Willamette Basin TMDLs, 2006

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. The goal of the mercury TMDL is "to reduce mercury levels in the basin to a point where fish are no longer unsafe to eat" (DEQ, 2006).

To begin addressing the mercury problem in the Willamette Basin, the DEQ has developed interim allocations for point sources and non-point sources while they conduct more in-depth research. Instead of specific allocations, the DEQ calculates the interim mercury TMDLs based on two categories: non-point and point sectors. The DEQ expects all non-point sources to begin implementing mercury reduction management strategies and policies. The TMDL will be revised in the future to be more specific according to the results of further research.

Implementation plans must include a mercury reduction strategy "that includes feasible measures to minimize mercury runoff" (DEQ, 2006). 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
- Preparing and using a stormwater management 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

Summary

Table 2 below summarizes the parameters addressed in the Willamette Basin TMDL, the major sources of that pollutant, and reductions needed to meet water quality standards.

Table 2 Willamette Basin TMDL Parameters, Sources and Reductions Needed

Parameters	Sources	Reductions
Temperature	▪ Streamside vegetation removal ▪ Wastewater discharge ▪ Industrial point sources ▪ Channel modification ▪ Water extraction ▪ Disruption of seasonal cooling and warming patterns ▪ Dam and reservoir operations	Willamette Basin: Varies All Subbasins: Average of 23%
Bacteria	▪ Stormwater discharge ▪ Construction site erosion and runoff ▪ Failing septic systems ▪ Illegal discharges ▪ Wastewater treatment plants and other point source treatment failures ▪ Sewer overflows during wet weather ▪ Surface runoff ▪ Animal wastes	Urban: 80 - 94% Agricultural: 66 – 83%
Mercury	▪ Erosion from urban, farm, and forest land ▪ Construction site erosion and runoff ▪ Atmospheric deposition and runoff, including stormwater ▪ Other (dentist offices, fluorescent light bulbs, etc.) ▪ Point sources ▪ Legacy mines ▪ Naturally occurring ▪ Mines	Willamette Basin: 26.4% Dorena Lake: 29.8% Cottage Grove: 67.8%

Source: Department of Environmental Quality, Willamette Basin TMDLs, 2006

Headwaters Region of the Willamette Basin

The Lane County portion of the Willamette Basin could be considered the Headwaters region of the entire Basin because it forms the southernmost, furthest upstream area of the Basin. There are four subbasins within the Headwaters region; Upper, Middle Fork, McKenzie, and Coast Fork. Understanding the characteristics and unique issues in the Upper Willamette subbasin as well as the other subbasins assists in coordinating efforts and identifying opportunities for the region as a whole.

The area encompasses 3,769 square miles and is home to approximately 300,000 people. There are eight incorporated cities outside the Eugene-Springfield metropolitan area in the Lane County portion of the Basin. There are approximately 27,660 people living in these urban incorporated areas (PSU Population Research Center, 2004) and

56,733 rural residents living in unincorporated areas outside Urban Growth Boundaries (Lane Council of Governments, 2000).

The McKenzie, Middle Fork Willamette, Coast Fork Willamette, and the Upper Willamette subbasins contain thousands of waterways, the quality of which is impacted by adjacent land uses. There are many different types of waterways in this region including a network of higher elevation rushing forest streams, channelized urban stormwater conduits, agricultural irrigation ditches, rural roadside ditches, mid-sized tributary rivers, and the beginnings of the broad, meandering Willamette River. The surrounding land uses are also very diverse. Table 3 shows the land area for each of the subbasins.

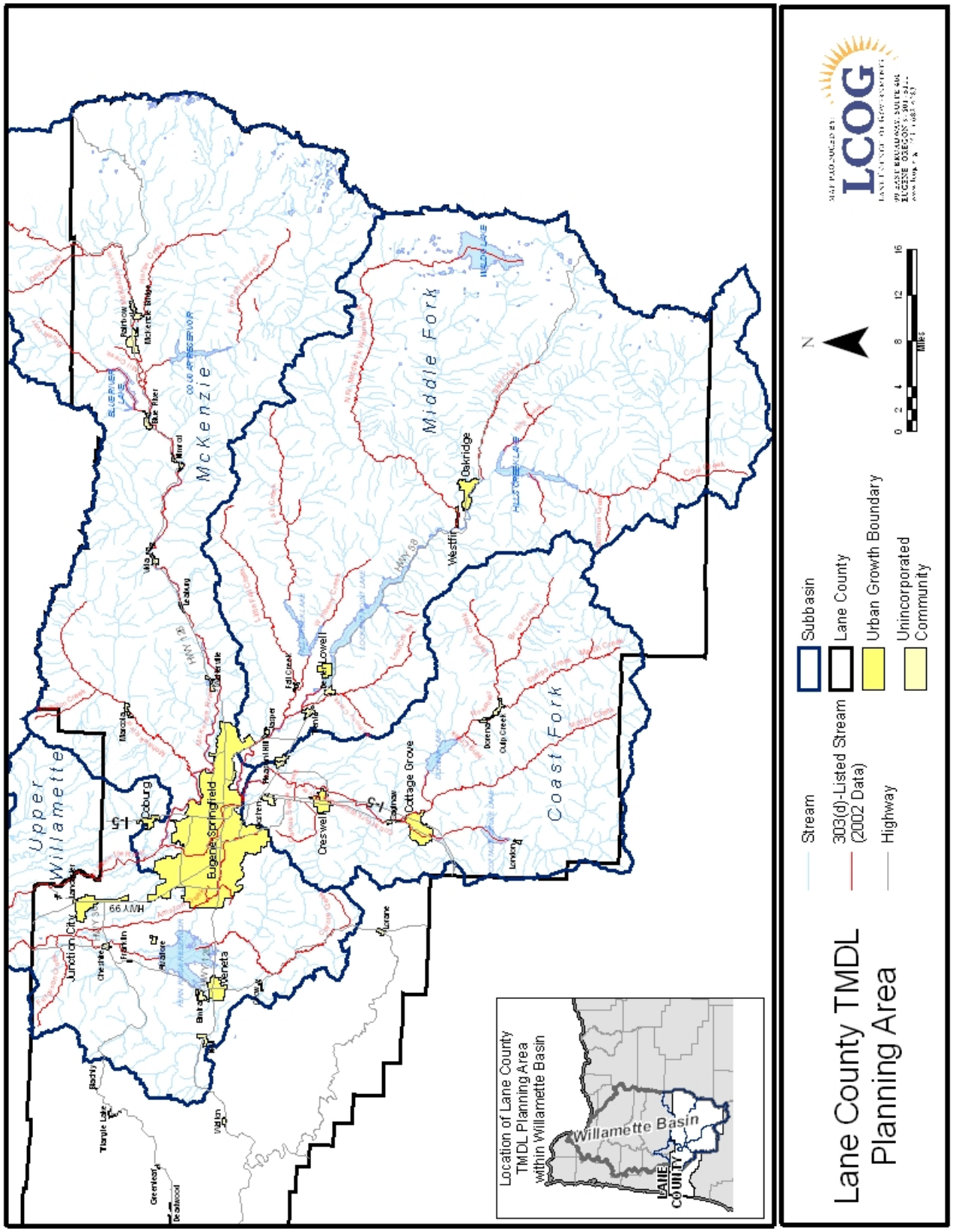
Table 3: Subbasin Land Area in Lane County

Subbasin	Area (square miles)
Coast Fork	666
Middle Fork	1,355
McKenzie 1,338	
Long Tom portion of the Upper Willamette	410 (includes some land outside Lane County)
Total 3,769	

Source: Willamette Basin TMDL Chapters 10,11,12,13 and Long Tom Watershed Council

These four subbasins are a patchwork of ownership and land use. The higher elevations on the western slopes of the Cascades are mostly federally managed forestland. Rural residential settlement has followed the river valleys of the Mohawk, McKenzie, Middle Fork, Coast Fork, Long Tom, and other smaller valleys. Near the Middle Fork and Coast Fork confluence and the Willamette and McKenzie confluence, urban settlement dominates the landscape. Map 1 shows the four Willamette subbasins and 303d listed streams within Lane County.

Map One: Lane County TMDL Planning Area



Upper Willamette Subbasin
The Upper Willamette subbasin crosses many political boundaries and contains a number of different land uses. The Lane County boundary covers the southernmost third of the subbasin with the rest of the land extending northward into Linn, Benton, and Polk counties. The majority of the land in the Lane County portion of the Upper Willamette subbasin is within the Long Tom watershed boundary.

The eastern edge of the subbasin contains some urban lands in west Eugene. Amazon Creek and its associated channels drain this urban area into Fern Ridge Reservoir and the Long Tom River. Veneta, Coburg, and Junction City are the other major incorporated areas in the Lane County portion of this subbasin. Coburg and Junction City are close to the mainstem Willamette River, but have no jurisdiction over lands directly adjacent to the river. There are eleven small, but densely populated, unincorporated rural communities scattered throughout the Lane County portion of this subbasin. Forested land is predominant from the foothills to the crest of the Coast Range along the western edge of the subbasin. A number of small farms exist in the areas where foothills give way to the valley floor.

TMDLs have been developed for temperature, bacteria, dissolved oxygen, and turbidity in the Upper Willamette subbasin. The Long Tom River downstream of the Fern Ridge Reservoir is listed for temperature and is addressed through the mainstem Willamette temperature TMDL. The only two waterways listed for temperature that are not included in the mainstem Willamette temperature TMDL in the Lane County portion of the Upper Willamette subbasin are Ferguson Creek and Muddy Creek . These stream segments exceed the temperature standards for salmonid fish species migration and rearing.

Five stream segments in the Upper Willamette subbasin and the Fern Ridge reservoir do not meet bacteria water quality standards. Since this subbasin contains 303(d) listed streams for bacteria, the DEQ has determined specific load allocations, not just planning targets, which must be met to bring these waterbodies into compliance. The Upper Willamette TMDL separates the subbasin into smaller watersheds and calculates percent reductions for each land use. Urban areas must reduce bacteria contributions by 80 to 94 percent. This can be accomplished through stormwater management, erosion control, animal waste management, and many other methods. More in-depth information can be found in the Upper Willamette Subbasin TMDL.

The Upper Willamette subbasin TMDL also includes the dissolved oxygen TMDL for Coyote Creek and the Amazon Diversion Channel and the turbidity TMDL for Fern Ridge Reservoir. Many of the strategies that address bacteria, mercury, and temperature will also help improve turbidity and dissolved oxygen conditions in these waterways.

Coburg
The topography in Coburg is flat and most of the area has very porous soils. Muddy Creek and Mill Slough are the main stormwater channels, with dry wells and a network of roadside ditches encouraging infiltration throughout the city. Both Muddy Creek (to

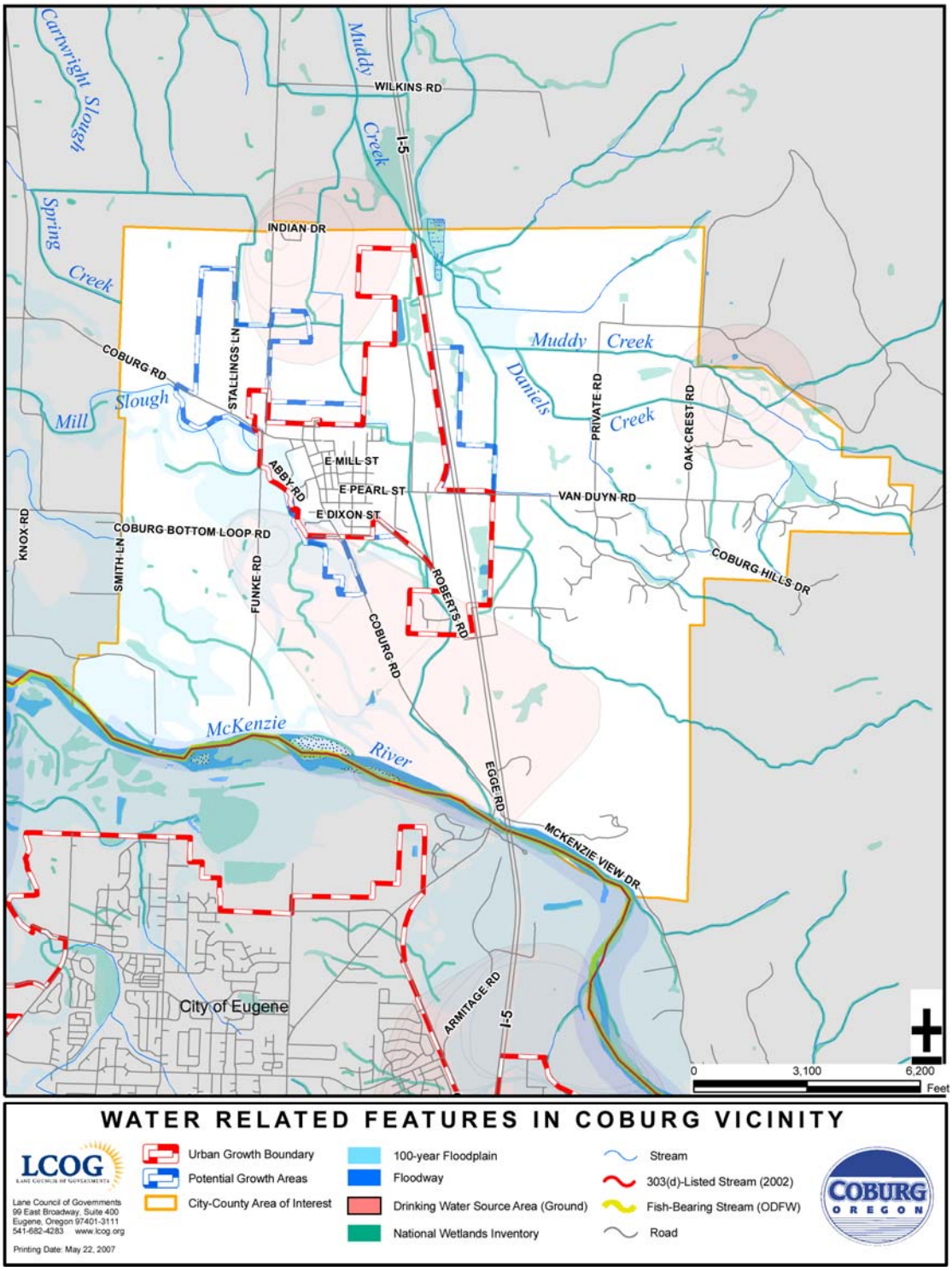
the east of Coburg) and Mill Slough are currently in compliance with water quality standards.

There are 531 acres of the land within the urban growth boundary (UGB). About 31 percent of this land is under commercial or industrial use and 16 percent is residential. Nearly 34 percent of the land in the UGB is undeveloped indicating likelihood of future growth. The City has designated 40 percent of the land in the UGB as residential and 39 percent as light industrial. If a municipal wastewater system is put into operation, development could occur very rapidly.

According to estimates based on the Preferred Growth Strategy of the 2050 process, Coburg's population may nearly triple over the next 50 years to over 3,800 residents. To accommodate this growth, the existing UGB may be expanded by 272 acres by 2055. These acres would include an additional 15 acres of associated development (mostly residential) occurring within the 100-year floodplain. This is in addition to 43 acres of planned residential development within the City's current UGB also within the 100-year floodplain. With only 2.2 miles of streams within Coburg's UGB and potential growth area, any development within the floodplain may affect water quality due to the loss of riparian buffers and approximately 6.5 acres of wetlands. Standards and programs can be initiated now to protect water quality as the City of Coburg develops.

The map on the following page displays water features within Coburg and its vicinity as well as potential growth areas as identified in the Region 2050 process.

Map Two: Coburg Water Features and Potential Growth Areas



Section Three – Water Resource Assets and Gaps

The City of Coburg is already doing many things to protect and restore water quality. Additional actions are identified in this Implementation Plan that will continue to protect waterways and prevent further water quality degradation.

Along with other jurisdictions in Lane County, Coburg completed a *Gaps Analysis Worksheet* (see Appendix One) to initiate the information gathering and planning process necessary to meet TMDL requirements. The analysis of this comprehensive inventory of water quality related programs and policies helped identify where both assets and gaps exist. The worksheet provides a mechanism to:

1. Develop a record of all water quality-related activities underway in Coburg.
2. Utilize this record of activities to identify water quality protection assets and gaps
3. Prioritize efforts to fill gaps
4. Identify opportunities and commonalities with other jurisdictions in Lane County

Assets

There are currently many water quality efforts underway in Coburg. Coburg was the first Oregon city to complete a Drinking Water Protection Plan demonstrating willingness and leadership to protect water quality. This plan includes suggested management strategies to minimize non-point source pollution which will benefit both ground and surface water quality. The City is one of the few in Lane County that has a local wetland and riparian inventory and assessment. In 1999, a Storm Drainage Master Plan was completed for the City to help guide system development. As part of the stormwater system Coburg has constructed and maintains two bioswales and one sandfilter catch basin. The public works department performs leaf pick-up in the fall to keep the drainage system clear and the City provides pet waste pick-up bags in parks. These operations help to keep bacteria levels low in stormwater runoff. Table 4 displays an inventory of water quality related measures and documents already in place within the City of Coburg.

Table 4: City of Coburg Existing Water Quality Related Program and Policy Inventory

Programs, Ordinances, and Practices	Documents
• Two bioswales and one sandfilter catch basin • Pet waste bags provided in parks • Leaf pick-up program • Stormwater maintenance program • Site plan review within jurisdictional wetlands • Public works employee orientation • Flood hazard ordinance	▪ Comprehensive Plan and Amendments ▪ Zoning Code ▪ Drinking Water Protection Plan ▪ Storm Drainage Master Plan ▪ Local Wetland and Riparian Inventory and Assessment ▪ Source Water Assessment ▪ Region 2050 Planning Documents

Gaps

Specific water quality gaps have been identified through the gaps analysis and a review of related water quality materials including the Willamette Basin TMDLs. Analysis of existing policies and programs indicates that Coburg should focus on constructing a wastewater treatment facility, protecting and restoring streamside vegetation, and also strengthening the mechanisms designed to minimize erosion. Some aspects of these efforts can be integrated into stormwater planning as well as other existing plans and programs. At the present time, all of Coburg relies on on-site systems to treat wastewater, including residences and the large industrial park west of Interstate 5. The City is currently in the process of securing funds to connect buildings in Coburg to a municipal wastewater treatment system. Developing a wastewater treatment plant is probably the City's biggest water quality gap and is currently a top priority for the City to address.

A level of priority for actions was determined by comparing the inventory of existing water quality-related programs and policies to the strategies identified in the DEQ's Water Quality Management Plan. The table below provides a synopsis of existing water quality program gaps (strategy category). The table indicates a high, medium, or lower priority to seven major focus areas using the methodology described above.

Table 5
Pollutant Reduction Focus Areas for the City of Coburg

Strategy Category	Related Parameters	Priority Ranking
Septic system management (or connection to wastewater treatment facility)	Bacteria	High
Stormwater planning and management	Bacteria, Mercury	High
Erosion control	Bacteria, Mercury	High
Illegal discharges	Bacteria, Other	Medium
Riparian protection	Temperature, Mercury	High
Animal Waste	Bacteria	Medium
Education/training	All	High

Section Four – Implementation Strategies

Coburg has selected a package of strategies to meet the following objectives:

- reduce heat loads to Muddy Creek Irrigation Channel
- meet a planning target of 80-94 percent reduction in bacteria loading, and
- minimize mercury contributions.

Coburg compared the results of the gaps analysis with potential actions to minimize pollutants of concern. The lists of some of the potential actions that were considered are included in Appendix Two. To reduce contributions of heat, bacteria, and mercury, Coburg will pursue nearly 30 water quality protection actions. Following is an overview of the actions categorized by focus areas.

Riparian / Wetland Protection and Restoration

Public works staff supports protecting, restoring and managing the riparian and wetland areas. Currently the City of Coburg does not have sufficient funds to make improvements to riparian and wetland areas. The city would rely on grant funds to make any improvements.

Animal Waste Management

Currently six animal waste stations have been installed in Coburg's city parks, nature trails and walking areas. More animal waste stations will be installed in the near future. Pet owners are taking advantage of the animal waste stations. This has become a very beneficial program.

Storm Water Planning and Management

It is the opinion of Coburg Public Works that proper storm water design and management is one of the key elements of a TMDL program. It is critical that creative methods of treating storm water are implemented. The current storm water plan needs to be updated. A component of the updated plan will include a capital improvement plan, new storm water treatment methods and design standards. The city will rely on grant funds to make improvements to current storm water collection systems.

Erosion Control

Meet DEQ standards.

Education/ Training

Articles will be included in the local news letter.

Implementation Matrix

The following matrix details the strategies that will be implemented within the next five years. Some of these strategies will be pursued only if funding allows. The matrix displays the pollutant being addressed, the strategy to address it, when that strategy will be implemented, and how to measure progress and successful implementation. This matrix will also serve as a tracking tool for annual reporting to the DEQ.

TMDL Implementation Tracking Matrix

POLLUTANT *What pollutants does the TMDL address?*	SOURCE *What sources of this pollutant are under your jurisdiction?*	STRATEGY *What is being done, or what will you do to reduce and/or control pollution emanating from this source?*	HOW *Specifically, how will this be done?*	BENCHMARK *What intermediate goals will be achieved, and by when, to know progress is being made?*	MEASURE *How will you demonstrate successful implementation or completion of this strategy?*	TIMELINE *When will the strategy begin? Be completed?*	STATUS
Temperature	Solar radiation input due to loss of riparian shading particularly along the Muddy Creek Drainage Channel.	Identify and prioritize potential riparian restoration and protection areas	Discuss Muddy Creek enhancement w/Irrigation District	Establish contacts w/Muddy Creek Irrigation District. Meet and discuss enhancement opportunities.	Agreement reached about enhancement	Fall 2008	
			Create inventory of potential restoration and protection areas	Base map of waterways, wetlands, and other water-related features created	Inventory of high-priority restoration and protection areas created	Fall 2008 Complete Spring 2009	
			Adopt riparian buffer protection ordinance or overlay zone	Draft ordinance or create overlay zone for riparian buffers that includes an adopted map integrated into the existing Environmental Constraints Map, and restricts building in identified areas in the Zoning Code	Riparian protection ordinance or overlay zone is adopted by City.	Begin Winter 2008 Complete Spring 2009	
			Work with developer, watershed council, public, businesses, and/or irrigation district to enhance Muddy Creek Irrigation Channel.	• Participate in wastewater treatment facility planning and development process in order to secure a facility for safe wastewater management, lowering the potential for contamination of Muddy Creek • Participate in I-5 Coburg Interchange facility planning which includes addressing flood issues adjacent the interchange currently affecting Muddy Creek	Having attended and contributed to both I-5 Coburg Interchange and wastewater treatment facility planning and development process	Ongoing though 2010	
Bacteria	Pet and animal waste	Install new pet waste stations and continue providing pet waste bags in parks	Stock adequate supply of pet waste bags in parks and notify residents of their availability	Increased numbers of pet waste bags distributed to parks	Maintain record of the number of pet waste bags distributed to parks	Summer 2008 and ongoing	
		Adopt pet waste pick-up ordinance	Research pet waste pick-up ordinances to use as template	Draft ordinance created	• After ordinance is adopted, maintain enforcement record • Conduct public survey	Begin Fall 2008 Complete Spring 2009	
	Stormwater runoff from existing com./ind. areas and future development of residential areas	Require water quality control facilities for new and redevelopment in residential and commercial areas	Enforce new DEQ regulations for drywells and bioswales	Publish brochure and post at City Hall for public	Public reads brochures, people are observed reading information booth information, and additional questions are asked of staff on how to better implement	Winter 2008 and ongoing	
		Conduct public outreach campaign to	Develop and publish brochure, public	Publish brochure and post at City	Public reads brochures,		

		inform residents of stormwater connection to water quality	works writes an occasional article in the local newsletter, and display board is designed for City information booth	Hall for public	people are observed reading information booth information, and additional questions are asked of staff on how to better implement	Spring 2009 and ongoing	
		Investigate city-sponsored rain barrel distribution program	Develop and publish brochure, public works writes an occasional article in the local newsletter, and display board is designed for City information booth	Publish brochure and post at City Hall for public	Public reads brochures, people are observed reading information booth information, and additional questions are asked of staff on how to better implement	Summer 2008 and ongoing	
	Septic Systems – Especially those installed prior to 1974 and other failing systems within Coburg	Inform residents of need to regularly inspect and maintain septic systems	Develop and publish brochure, public works writes an occasional article in the local newsletter, and display board is designed for City information booth	Publish brochure and post at City Hall for public	Public reads brochures, people are observed reading information booth information, and additional questions are asked of staff on how to better implement	January 2010 (with wastewater implementation)	
		Build and test public wastewater treatment facility	Finish planning, build, test, and operate new wastewater facility	Build collection system (January 2008)	An operational wastewater facility for the community	January 2010	
	Illegal discharges to water bodies	Investigate and maintain reports of illegal discharges	Develop program that includes site visits to determine locations of illegal discharge and report results	• Provide City with annual report • Designate/fund staff time for program development	Reduction in violations based on quantitative data	January 2010 and ongoing	
	Erosion and sedimentation	Establish conditions of approval for new development review (1200C permit)	Adopt 1200C permit approval prior to final approvals for new and redevelopment in the Zoning Code	Print DEQ permit and have available with local building permits at City Hall	Approved 1200C permits are submitted to City prior to tentative approvals	March 2008 and ongoing	
Mercury	Stormwater runoff and erosion and sedimentation in new development that is expected once wastewater treatment facility is constructed	Establish water quality treatment requirements (bio-swales, etc) for new development especially in residential areas	Develop and adopt procedure and design standards into Zoning Code	Draft procedure and design standards for Zoning Code	Amended Zoning Code	2009 and ongoing	
		Establish conditions of approval for new development review (1200C permit)	Adopt 1200C permit approval prior to final approvals for new and redevelopment in the Zoning Code	Print DEQ permit and have available with local building permits at City Hall	Amended Zoning Code and approved 1200C permits are submitted to City prior to tentative approvals	2009 and ongoing	
		Inform single lot developers of the erosion and sediment control plan (1200 C Permit) requirements under which the lot was created	Develop and publish brochure and provide permit application	• Publish brochure and post for public and • Distribute permit applications for DEQ at City Hall	Approved 1200C permits are submitted to City prior to tentative approvals	November 2008 and ongoing	

All pollutants	Stormwater runoff particularly from the Roberts Crt. Area and potential new development that will occur once the wastewater treatment facility is constructed	Maintain two existing bioswales and investigate construction of new one along Roberts Road	• Continue existing maintenance • Establish contacts w/businesses along Roberts Road • Investigate funding through SRF funds or grants.	• Meetings held to discuss bioswale construction w/businesses along Roberts Road • Funding options investigated and option selected	Bioswale constructed once funding is found	Begin Fall 2008 Completion within one year after funding secured	
		Work with businesses in Roberts Road and Crt. Areas to test soils and retrofit parking lots with infiltration strips	Transition voluntary test soil program to mandated one	Propose mandated program to elected officials/decision making body	A mandated test soils program	2010 and ongoing	
		Seek “eco-friendly” developers for new project construction	Hire developers and engineers with bioengineering experience/expertise for City capital improvement projects	• Develop an RFP list that includes bioengineering experience/expertise • Bioengineers submit proposals to City for projects	Developers and engineers with bioengineering experience/expertise are hired for City capital improvement projects	October 2008 and ongoing	
		Implement outreach and education activities	Develop and publish brochure, public works writes an occasional article in the local newsletter, and display board is designed for City information booth	Publish brochure and post at City Hall for public	Public reads brochures, people are observed reading information booth information, and additional questions are asked of staff on how to better implement	2009	
		Secure funding for stormwater system upgrades and encourage best management practices in new developments	Advocate for grant funding and ‘United Front’ priority	• Apply for grants and use mayoral priority opportunities • Be awarded funding	Awarded funding catalyzed completed project	2008	
		Zoning Code enhancement for water quality (e.g. reinforces stormwater treatment and septic tank standards)	Amend Zoning Code	Acquire funding for Zoning Code audit for water quality	Acquired funding lead to audited and amended Zoning Code	2010	
		Ensure riparian protection	Maintain bioswales and Mill Slough which are in riparian areas	Continue operational maintenance of existing bioswales	Cleaner water after infiltration based on tests	Ongoing	
		Planning and Development	Promote planning and development that serves multiple functions (e.g. provides both open space, recreation amenities as well as provides stormwater mitigation)	Amend Zoning Code to allow developers – both subdivision and commercial – to build bio swale and green street infiltration systems as part of open space and park requirements for new development (and redevelopment?)	Adopted Code	Early 2008	
		Stormwater Masterplan	Development and adoption of Stormwater Masterplan which includes capital improvement projects and format suitable for System Development Charges methodology development	Acquired funds to hire bioengineer to draft Masterplan	An adopted Stormwater Masterplan	2009	

Measuring and Monitoring Progress

The ultimate success of TMDL implementation activities will be measured by the de-listing of 303(d) listed streams throughout the Willamette Basin. Located in the headwaters region of the Basin, Coburg has the opportunity to positively influence water quality and the de-listing of waterways throughout the downstream portion of the Basin. Those de-listings will occur once supported by water quality monitoring data at key points throughout the Basin. Those sampling activities are best conducted by entities with broad oversight and/or involvement rather than by individual jurisdictions like Coburg. However, if an organization, such as the DEQ or the Watershed Council determines that a sampling site within the City of Coburg is important to an overall sampling program the City will support them in their efforts to establish a consistent sampling location.

For some strategies, such as planting trees along waterways, it may take years to reap the heat load reduction benefits sought. For others, such as constructing a wastewater treatment facility, the City may see fairly immediate benefits in preventing further water quality degradation. Coburg recognizes that progress towards lowering pollutant loads will be best measured by tracking accomplishments towards implementing the strategies identified in this Implementation Plan. Target dates for having implementation completed are identified for each strategy in the Coburg TMDL Implementation Tracking Matrix.

The City of Coburg and the DEQ will periodically review the Implementation Plan and implementation progress. The Plan will be adapted as necessary. At the City of Coburg or DEQ request, the DEQ will meet with the City annually to review implementation progress and any barriers to implementation success. Every five years, a more comprehensive review will take place and the Plan will be adapted if necessary.

Every five years, the City of Coburg will provide the DEQ with a report documenting and tracking implementation activities. The report will contain a summary of accomplishments and any changes within the city that may influence how water quality management should be addressed. The report will contain a copy of the Implementation Matrix and indicate which strategies in the matrix were implemented. If there are strategies in the matrix that have not been completed within the targeted time frame, the Coburg will provide an explanation as why the strategy was not completed and an estimation of when the strategy will be completed or removed from the list of implementation measures.

The City, in collaboration with DEQ, will conduct an evaluation of the success of the Plan including an assessment of progress made by the City, a review of existing water quality data, and other information to assess the effectiveness of the Plan relative to pollution reduction goals. The results of the evaluation will be incorporated into a joint report describing what information was used in the evaluation, the findings of the evaluation, and the basis of decisions related to the evaluation. If the evaluation indicates that the Plan is not likely to be adequate to meet pollution reduction targets,

the DEQ will work with the City to adapt the Plan to meet these targets and a timeline for accomplishing new actions.

Compliance with Statewide Land Use Goals
This plan is in compliance with the 19 Statewide Land Use Goals. Coburg Comprehensive Plan (Ord. A-199) objectives and policies directly support these Goals as illustrated with the corresponding Goal.

Goal 1: Citizen Involvement: To develop a citizen involvement program that ensures the opportunity for citizens to be involved in all phases of the planning process.

This Plan was developed and presented to City Council and Planning Commission at four respective public meetings. There was consensus from the decision-making bodies on the intent and content of this Plan.

Goal 2: Land Use Planning: To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions.

Refinement Plans

Policy 3: The City may use Refinement Plans to refine the Comprehensive Plan and/or the zoning ordinance in order to further implement the Comprehensive Plan policies. A Refinement Plan designates specific land use, transportation, and other elements through broad local participation. Refinement Plans may be developed in a single linear process, including neighborhood workshops, Planning Commission hearing(s), and the City Council adoption hearing(s).

Policy 4: Refinement Plans may be used as a tool for coordinating development in a specific area, such as a new neighborhood. Refinement Plans should implement coordinated development while integrating surrounding uses and transportation linkages.

While this Plan is not a refinement plan to the Comprehensive Plan, it will be used for prioritizing projects and leveraging refinement planning processes and projects.

Goal 3: Agricultural Lands: To preserve and maintain agricultural lands.

Policy 7: The City s upports, and shall pu rsue, establishment of a southern greenbelt that ensures a permanent open character for the area between Coburg and the McKenzie River.

Policy 8: The City shall protect high quality farmland surrounding the community from premature development.

Goal 4: Forest Lands: To conserve forest lands by maintaining the forest land base and to protect the state's forest economy by making possible economically efficient forest practices that assure the continuous growing and harvesting of forest trees species as the leading use on forestland consistent with sound management of soil, air, water, and fish and wildlife resources and to provide for recreational opportunities and agriculture.

Coburg Objective: To conserve forest lands existing within the City and Its Area of Influence as shown on Map 6.

Policy 1: To the extent that the City has jurisdiction, forest lands will be created and protected for use as urban buffers, habitats, scenic corridors and recreational uses (Map 8).

Policy 2: The City shall require the replacement of trees removed or destroyed during new development and encourage the replacement of those trees destroyed or removed in the past, as per the provisions of the Zoning Code.

Goal 5: Open Spaces, Scenic and Historic Areas, and Natural Resources: To protect natural resources and conserve scenic and historic areas and open spaces.

Coburg Objective: To protect, restore and enhance open space, scenic and historic areas, and, to promote a healthy and visually attractive environment in harmony with the natural landscape.

<u>Open Spaces</u>

Policy 1: The City shall maintain and enhance parks and open spaces in the community.

Policy 2: Open space in the form of city parks shall be retained through application of provisions of the Zoning Ordinance.

<u>Natural Resources</u>

Policy 14: Lands within natural drainage ways, Muddy Creek irrigation channels, farmland, and landscaped areas such as parks and school grounds will be preserved in an open character to the greatest extent possible through provisions of the Zoning Ordinance. This policy includes the retention of existing vegetation and natural banks for flood protection, wildlife habitat, water quality, open space and other benefits to the community along the Muddy Creek irrigation canals and other natural drainage ways.

Policy 16: Fish and wildlife habitats including rivers, wetlands, and forests shall be protected and conserved to the extent the City has jurisdiction.

Policy 17: Significant natural areas and habitats of rare or endangered species shall be retained in open space whenever possible and to the extent the City has jurisdiction.

Policy 18: Areas containing any other unique ecological, scenic, aesthetic, scientific or educational values shall be considered in the planning process.

Policy 19: The Cities Wetland Map identifies areas of inventoried as wetlands. This map should be used to identify properties that may need a wetland permit from the Oregon Division of State Lands and the U.S. Army Corps of Engineers prior to development. The City shall consider additional code authority to enforce protection of wetlands.

Policy 20: Lands classified as wetlands by the DSL or the Army Corps of Engineers shall be subject to site review approval by the City of Coburg. The purpose of the site review will be to determine the significance of the site and, if the resource is found to be significant, apply the statewide planning Goal #5 ESEE analysis.

Policy 21: The City shall protect, restore, manage, and enhance important natural resources; maintain high quality air, water, land and historic resources; and provide green spaces in and around the community.

Policy 22: The City shall protect or mitigate, whenever possible, fish and wildlife habitats including rivers, wetlands, and forests, and significant natural areas and habitats of rare or endangered species.

Goal 6: Air, Water and Land Resources Quality: To maintain and improve the quality of the air, water, and land resources of the state.

Policy 1: All future development shall be in accordance with the Department of Environmental Quality (DEQ) air quality maintenance plan and applicable primary and secondary standards of the Lane Regional Air Pollution Authority.

Policy 2: The City shall coordinate all major land use decisions with DEQ and LRAPA. The City shall consult with LRAPA prior to the approval of an industry that might affect the airshed of the Eugene-Springfield metropolitan Area.

Policy 3: All waste and process discharges from development will not violate applicable state and federal environmental quality statutes, rules and standards.

Policy 4: Future development shall be accomplished in accordance with the Coburg Sewerage Facilities Plan.

Policy 5: The city shall control sources of noise, water and air pollution through amendment of its Nuisance Abatement Ordinance (A-108b).

Policy 6: The City shall maintain water quality through cooperation with all appropriate federal and state agencies, including but not limited to DEQ.

Policy 7: The City shall evaluate new industry for its potential to contribute particulate to the Eugene-Springfield metropolitan airshed.

Policy 8: The City shall seek intergovernmental agreements to enhance air, water and land resources.

Policy 9: The city shall provide sanitary sewer and abandon existing septic systems as a way to lessen the impact on groundwater contamination within the city and exception areas immediately east of the city, outside the urban growth boundaries.

Policy 10: The city shall participate in the future Southern Willamette Valley Groundwater Management Area process with the Oregon Department of Environmental Quality to deal with ground water contamination issues in the area.

Policy 11: The City shall protect and preserve groundwater and drinking water by implementing policies contained the Coburg's Drinking Water Protection Plan, adopted by Resolution 97-7.

Policy 12: The City shall promote the natural infiltration of stormwater runoff by encouraging the retention of pervious surfaces in new development and re-development.

Goal 7 - Areas Subject to Natural Disasters and Hazards: To protect life and property from natural disasters and hazards.

Policy 2: Grading and excavation shall, whenever possible, the natural configuration of the topography.

Policy 3: Development shall not exceed the level of use that can be accommodated without irreversible damage to or impairment of the natural resources or their quality.

Policy 4: Any development on lands designated as having inherent natural hazards such as high water table, soil slippage, etc., shall conform to all applicable regulations of the Uniform Building Code as adopted by Lane County.

Policy 5: The developer shall be responsible for correcting or eliminating hazards that result from new development such as, but not limited to, runoff from paving projects and soil slippage due to weak foundation soils.

Policy 6: The City shall continue to participate in the Federal Flood Insurance Program (FEMA) and shall require that all development within the 100 year flood hazard area (as identified by HUD and city plan map) shall be developed in accordance with all FEMA standards, applicable requirements of the Uniform Building Code as adopted by Lane County and applicable requirements of city ordinances.

Goal 8 - Recreational Needs: To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts.

No current recreational policy is directly related to, nor contradicts any Coburg Comprehensive Plan policy.

Goal 9 - Economic Development: To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare and prosperity of Oregon's citizens.

Policy 14: The City shall encourage environmentally friendly, low-polluting industries.

Goal 10 - Housing: To provide for the housing needs of citizens of the state.

No current housing policy is directly related to, nor contradicts any Coburg Comprehensive Plan policy.

Goal 11 - Public Facilities and Services: To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.

Policy 3: Water and wastewater service shall not be provided outside the urban growth boundary except to areas to be specified in the Coburg Comprehensive Plan that provides benefits to the city, such as: water service to Pioneer Valley Estates.

Policy 4: In accordance with Statewide Planning Goals and administrative

rules, urban water, wastewater and stormwater facilities may be located on agricultural land and urban water and wastewater facilities may be located on forest land outside the urban growth boundary when the facilities exclusively serve land within the urban growth boundary, pursuant to Oregon Administrative Rules (OAR) Chapter 660 Divisions 006 and 033. The construction of these facilities will require close coordination with and permitting by Lane County and possible amendments to the Lane County Rural Comprehensive Plan.

Policy 5: In accordance with Statewide Planning Goals and administrative rules, water and wastewater facilities are allowed in the public right-of-way of public roads and highways.

Policy 8: Provide a municipal wastewater treatment and collection system to serve existing residents and businesses and to meet the needs for growth consistent with the community's vision.

Policy 9: The city shall construct water system improvements, in conformance with the Water Master Plan, Resolution 99-13.

Policy 10: The City shall implement the recommendations contained in Coburg's Drinking Water Protection Plan, Resolution 97-7.

Policy 11: The City shall designate minimum and maximum development densities that are adequate to support the installation and maintenance of a community wastewater system and that will ensure efficient use of land and public facilities.

Policy 12: The city shall construct a wastewater facility, in conformance with the Wastewater Facility Plan, 2003-2.

Policy 13: The city shall plan to provide sanitary sewer service to properties within the city and within the city's urban growth boundary.

Policy 14: The city shall plan to provide sanitary sewer service to all developments within the urban growth boundary.

Policy 15: The city shall expand the urban growth boundary and city limits and provide sanitary sewer service, when available, to existing exception areas, immediately east of the Interstate and other appropriate areas to accommodate these uses.

Policy 16: The city shall work with the county, state and property owners to properly abandon septic systems as they are connected to sanitary sewer service.

Policy 17: The City shall consider the downtown area as the preferred location for all civic buildings. (e.g. City Hall, Library)

Solid Waste

Policy 18: The City shall coordinate with Lane County on solid waste disposal and potential recycling plan options with regards to the Lane County Solid Waste Plan as revised, updated and adopted.

Goal 12 – Transportation: To provide and encourage a safe, convenient and economic transportation system.

Policy 6: Protect the groundwater, storm run-off, and surface water when any road construction or improvements are made.

Where appropriate, utilize the street system and its infrastructure as an opportunity to convey and treat stormwater runoff.

Roadway construction projects, while being sensitive to the protection of groundwater, shall conform to regulatory requirements and standards.

Goal 13 - Energy Conservation: To conserve energy.

No current energy conservation policy is directly related to, nor contradicts any Coburg Comprehensive Plan policy.

Goal 14: Urbanization: To provide for an orderly and efficient transition from rural to urban use.

No current urbanization policy is directly related to, nor contradicts any Coburg Comprehensive Plan policy.

Goal 15 - Willamette River Greenway: To protect, conserve, enhance and maintain the natural, scenic, historical, agricultural, economic and recreational qualities of lands along the Willamette River as the Willamette River Greenway.

No areas of the Willamette River Greenway are located inside the Coburg City limits.

Goal 16: Estuarine Resources; Goal 17: Coastal Shorelands; Goal 18: Beaches and Dunes; and Goal 19: Ocean Resources

Goals 16, 17, 18, and 19 do not apply to the City of Coburg.

Cost Analysis

Implementation of the strategies identified in this Plan is critical to the overall success of the Plan and the eventual reduction of pollutants from the City of Coburg. The City has chosen a variety of strategies to address TMDL pollutant parameters. Some are small in nature and are easy to implement. Most of these types of strategies will be integrated into the workloads of existing staff using Coburg general funds that are either currently allocated or that will be allocated in future years. Some strategies are larger in scope such as updating the Stormwater Master Plan and will likely require additional outside funding. As such, some strategies are relatively easy to integrate into existing staffing and budgets or future Coburg budgets, whereas others are dependent on finding grants and/or allocating larger amounts from future general fund budgets.

While not being all-inclusive as to incorporating every potential strategy possible, Coburg has selected those that can be reasonably done and that meet the local needs and potential resources of Coburg. Some of the strategies outlined in the Plan already have funding and the momentum to be completed within the next year or two. But Coburg also wants to include strategies that can be implemented if funding becomes available. Like other small cities in the region, the Coburg budget is already stretched with many competing issues to meet the needs of City citizens. Moving forward with the implementation of the strategies in this Plan will require a combination of existing funding, future budgeting, existing grants, and future grants.

Table 6 identifies the funding source and status for the strategies in this Plan.

Table 6: Funding analysis for TMDL Implementation

Funding Sources (current and future) for TMDL Strategy Implementation					
	Strategy	**Funding/Resources Type and Status**			
		***General Funds (current)**	**General Funds (future)**	**Grants (secured)**	**Grants (future)**
Temperature	Identify and prioritize potential riparian restoration and protection areas	Public Works Parks Fund	Public Works Parks Fund	none	none
Bacteria	Install new pet waste stations and continue providing pet waste bags in parks	Public Works Parks Fund	Public Works Parks Fund	n/a	n/a
	Adopt pet waste pick-up ordinance	Public Works Parks Fund	Public Works Parks Fund	n/a	n/a
	Require water quality control facilities for new and redevelopment in residential and commercial areas	Public Works Water Fund	yes, undetermined source	n/a	n/a
	Conduct public outreach campaign to inform residents of stormwater connection to water quality	Public Works Water Fund	yes, undetermined source, possible urban renewal district partnership	none	yes, but undetermined
	Investigate city-sponsored rain barrel distribution program	Public Works Water Fund	Public Works Water Fund	none	yes, undetermined
	Inform residents of need to regularly inspect and maintain septic systems	none	Sewer Fund	none	none
	Build and test public wastewater treatment facility	Urban Renewal Funds for wastewater facility	Urban Renewal Funds for wastewater facility	n/a	n/a
	Investigate and maintain reports of illegal discharges	Public Works General Fund and Planning Assistance	Public Works General Fund and Planning Assistance	n/a	n/a
	Establish conditions of approval for new development review (1200C permit)	Planning Assistance Funds	Planning Assistance Funds	n/a	n/a

Mercury	Establish water quality treatment requirements (bio-swales, etc) for new development especially in residential areas	none	Planning Assistance Funds	none	none
	Establish conditions of approval for new development review (1200C permit)	Planning Assistance Funds	Planning Assistance Funds	n/a	n/a
	Inform single lot developers of the erosion and sediment control plan (1200 C Permit) requirements under which the lot was created	Public Works General Funds	Public Works General Funds	n/a	n/a
All Pollutants	Maintain two existing bioswales and investigate construction of new one along Roberts Road	Public Works General Funds	Public Works General Funds	none	none
	Work with businesses in Roberts Road and Crt. Areas to test soils and retrofit parking lots with infiltration strips	Public Works General Funds	Public Works General Funds	none	none
	Seek “eco-friendly” developers for new project construction	n/a policy enacted January 2008	n/a	n/a	n/a
	Implement outreach and education activities	Public Works General Funds	Public Works General Funds	none	none
	Secure funding for stormwater system upgrades and encourage best management practices in new developments	none	Public Works General Funds	none	none
	Zoning Code enhancement for water quality (e.g. reinforces stormwater treatment and septic tank standards)	none	Planning Assistance & Sewer Fund	none	none
	Ensure riparian protection	none	Public Works General Funds	none	none
	Planning and Development	Planning Assistance	Planning Assistance	none	none
	Stormwater Master Plan	none	none	none	United Front effort/ potential earmark

* General funds refer to revenue from locally generated taxes

Section Five – Regional Opportunities

A companion document to this Plan *"The Willamette Headwaters Water Quality Assets, Gaps, and Opportunities Study"*, identifies and analyzes opportunities to partner with other jurisdictions in this part of the Willamette Basin. Findings from that study are summarized below.

The DMAs outside of the Eugene/Springfield metro area vary in size, geography, and proximity to waterways, existing infrastructure, and services provided, resources available, and other aspects. Populations range from 300 to 8,500 and land under the authority of DMAs can be as little as 216 acres or as much as 670,000 acres. In spite of these differences, jurisdictions in Lane County have similar water quality conditions, challenges, and mandates due to their location within the context of the larger Willamette Basin.

Jurisdictions in the region are already taking steps to preserve and restore water quality in the region. Some jurisdictions have been able to do more than others, but all seem to recognize that water quality is a fundamental component of a healthy, appealing community. There are many opportunities to augment existing initiatives, to arrange agreements with other jurisdictions for mutual benefit, and to work with other jurisdictions that are implementing the same measures.

Based on the Water Quality Management Plan in the Willamette Basin TMDLs, materials from the DEQ, EPA, and other organizations and the Lane County Water Quality Gaps Analysis there are seven major focus areas in this region of the Willamette Basin. These represent the areas that may be considered gaps in how the region as a whole is protecting and restoring water quality. The level of priority for actions is specific to each jurisdiction. The seven major water quality focus areas are:

- Animal Waste Management
- Septic System Management
- Erosion Prevention and Sediment Control
- Illegal Discharge
- Riparian Protection and Restoration
- Stormwater Planning and Management
- Education/Training

Table 7 outlines the focus areas that are of special concern for this region. The table assigns a high, medium, or lower priority to each of the eight major focus areas for each jurisdiction. The City of Coburg has many commonalities with other local jurisdictions. For example stormwater planning and management is a high priority for all jurisdictions as well as education and training.

Table 7: TMDL Prioritization for Designated Management Agencies Outside of the Eugene/Springfield Metropolitan Area in Lane County

DMAs	Animal Waste Management	Stormwater Planning and Management	Septic System Management	Erosion Control	Illegal Discharge	Riparian Protection and Restoration	Education/ Training
Coburg	Medium High		High High		Medium	High	High
Creswell	Medium High		Lower Medi	um	Medium	High	High
Cottage Grove	Medium High		Lower High		Medium	Medium	High
Junction City	High High		Lower High		High	Medium	High
Lane County (outside Metro)	Medium High		High Medi	um	Medium	Medium	High
Lowell	Medium High		Lower High		High	Medium	High
Oakridge	Medium High		Lower Medi	um	Medium	High	High
Veneta	High High		Lower High		High	Medium	High
Westfir	Lower High		Medium High		Medium	High	High

Jurisdictions could come together and sponsor training for public works staff in the region and increase the likelihood that staff performs public operations in the best way possible. Given the high visibility of public operations, the benefits of incorporating water quality-related trainings are numerous. Riparian Protection and Restoration is the most important step a jurisdiction can take to reduce temperature loads. There is potential to initiate joint efforts that are coordinated across jurisdictional boundaries to increase effectiveness and reduce costs. Table 8 provides some examples of opportunities at a regional scale.

Table 8: Potential Multi-jurisdictional Opportunities

Common Gaps in Water Quality Management	Potential Solutions
Riparian Area Restoration Priorities and Connectivity	▪ Develop an area-wide map of existing riparian projects, public ownership, and easements ▪ Hold cooperative planning session(s) to identify areas for restoration and connectivity ▪ Develop area-wide baseline of riparian health to measure improvement
Taking Advantage of Non-point Source Grant Opportunities	▪ Work with watershed councils and/or LCOG to establish an inventory of non-point source grant opportunities ▪ Apply collectively for funding for area-wide projects and protection mechanism implementation
Regional Water Quality Program Coordination	▪ Develop an area-wide stormwater map and/or plan ▪ Initiate a multi-jurisdictional drinking water protection effort ▪ Use Source Water Assessments to target contaminant sources and initiate appropriate programs ▪ Create a Willamette Headwaters pollution prevention team ▪ Partner on an area-wide Mercury Reduction Strategy ▪ Provide free hazardous waste disposal and advertise existing programs
Public Employee Pollution Prevention Training Programs	▪ Establish a public works BMP-sharing network ▪ Use training materials from EPA and DEQ in existing training programs ▪ Sponsor training sessions for employees from multiple jurisdictions
Promotion of Water Quality Efforts	▪ Advertise successes in local media ▪ Build interpretive displays near water quality projects ▪ Develop a business recognition program for the area
Monitoring Capacity	▪ Partner with watershed councils to establish an area-wide monitoring program

Appendix One: TMDL Gaps Analysis Worksheet

TMDL GAP ANALYSIS WORKSHEET

The first steps in developing a TMDL Implementation Plan are to understand what water resources exist in your area and compile the work that is already being done to manage those resources. This short worksheet is designed to make this process as efficient and straightforward as possible. All the information will be used in the development of the TMDL Regional Implementation Plan. The more information that can be gathered through this initial stage, the less of a burden the rest of the process will be. Thank you for your time and responses.

Name: _____Jack Harris_____ **Date:** ___01.02.08_____

Position: _____Public Works, Lead Utility Worker_____

Jurisdiction: _____Coburg_____

Community Profile:

1. Which Sub-Basin is your jurisdiction located in?

__X_ Upper Willamette ___ Coast Fork Willamette ___ Mainstem Willamette

___ McKenzie ___ Middle Fork Willamette

2. Name the waterways and lakes that exist within or close to your jurisdiction.
Mill Slough and the Muddy Creek Irrigation Ditch

3. Which watershed council does your jurisdiction work with?
Unknown

4. Please indicate how familiar you are with TMDLs?

1	2	**3**	4	5
Not at all		**Somewhat**		Very

The following questions are intended to bring to light the work you are already doing that can be included in the Implementation Plan with no new or additional efforts. Some questions will be relevant to planning and others to public works. Please attach any relevant documents.

1. Indicate the programs your jurisdiction has participated in or documents your jurisdiction has prepared that can be drawn from in the process of developing a TMDL Implementation Plan. *(Planning and Public Works)*

___ EPA NPDES Stormwater Phase I and II Permit Stormwater Management Plans
___ 401 Water Quality Certification Program
___ DEQ Underground Injection Control Program
_x_ Source Water Assessment
_x_ Clean Water State Revolving Fund
___ 319 NPS and NOAA NPS Grants
___ A Watershed Council's OWEB-funded Watershed Management Plan
___ Other--Please Specify: _____

2. What zoning ordinances and/or overlays has your jurisdiction enacted that relate to water quality? (Example: Riparian Buffer) *(Planning)*

Flood Hazard Ordinance, Ordinance No. A-164 and Site Plan Review is required for any grading, filling or excavating within a jurisdictional wetland or in excess of 50 c.y.

3. Identify which part(s) of your Comprehensive Plan address water quality, non-point source pollution, stormwater, riparian zones, or water pollution control? *(Planning)*

Coburg Comprehensive Plan Public Facilities Element, Maps 1, 2 and 5 and Ordinance No. A-131-D (Amendments to the Comp. Plan)

Resolution No. 97-7, Coburg Drinking Water Protection Plan

4. Has your jurisdiction completed a Stormwater Management Plan? *(Planning and Public Works)*

Yes, Storm Drainage Master Plan completed April 1999 by KCM, Inc.

5. Has your jurisdiction completed a Drinking Water Protection Plan? *(Planning and Public Works)*

Resolution No. 97-7, Coburg Drinking Water Protection Plan

6. What steps has your jurisdiction taken to enact and/or comply with Statewide Land Use Planning Goals 5 and 6? *(Planning)*

Adoption of Flood Hazard Ordinance, Coburg Drinking Water Protection Plan and a local wetland study completed by Satre.

7. Has your jurisdiction received any awards or recognition due to your efforts to protect water quality and/or manage lands? If yes, please specify. *(Planning and Public Works)*

No

8. Does your jurisdiction have any stormwater treatment facilities? If yes, what kind and how many? *(Public Works)*

The City maintains two bioswales and one sandfilter catch basin.

9. What resources does your jurisdiction provide that encourages pet owners to "pick up" after their pets (waste bags, educational materials, dog parks in environmentally-friendly areas)? *(Public Works)*

Pet waste bags are provided in the parks.

10. Does your jurisdiction have a process to notify the public when heavy bacteria levels may be present in waterways due to heavy rainfalls, wastewater system backup, and/or equipment failures?*(Public Works)*

No

11. Does your jurisdiction purchase instream flow water rights to maintain adequate water flows? *(Public Works)*

No

12. What employee training programs, if any, address pollution prevention in regards to municipal sources, i.e. fleet and building maintenance, park and open space maintenance, or storm water system maintenance? *(Public Works)*

The City Public Works Department provides orientation on the above referenced topics.

13. Has your jurisdiction's public works or parks department constructed any swales, detention ponds/basins, or artificial wetlands? If yes, please specify. *(Public Works)*

The City constructed the sand filter, whereas, Lane County constructed the bioswales.

14. Does your jurisdiction encourage private developers to construct swales, detention ponds/basins, or artificial wetlands? *(Planning)*

Yes; however, there are no specific standards.

15. Does your jurisdiction offer yard waste collection services and/or recycling programs? *(Planning and Public Works)*

The City Public Works Department administers a Leaf Pick-Up Program.

16. Does your jurisdiction have a program to detect illegal discharges into waterways? *(Public Works)*

No.

17. Does your jurisdiction have a storm water system map? *(Public Works)*

No.

18. Does your jurisdiction have ordinances that *(Planning)*:

- require erosion and/or sediment control at construction sites? _No_
- require retention of vegetation and/or re-planting at construction sites? Yes
- limit impervious surfaces in new development? _No_
- limit development in floodplains? _Yes_
- require septic system inspection and maintenance? _No_
- protect riparian areas? _No_

If any were answered 'yes', please specify:

19. Does your jurisdiction perform routine maintenance of your stormwater system? If yes, briefly explain the procedures. *(Public Works)*

Yes-removal of debris and vegetative growth.

20. List any cooperative efforts between the watershed council and your jurisdiction, such as restoration projects.*(Planning and Public Works)*

None.

The following questions are to give LCOG a better idea of where we can be of assistance.

1. Please list the people from your jurisdiction that will be most involved in your TMDL Implementation planning process.

Name	Position	Phone	E-mail
Petra Schuetz	Planning Director	541-682-7858	planning@ci.coburg.or.us
Jack Harris	Lead Utility Worker	541-682-7875	jack.harris@ci.coburg.or.us

2. Please specify groups in your jurisdiction that would be especially interested in the TMDL proceedings or in volunteering.

Unknown.

3. What information does your jurisdiction already have that would be helpful during the TMDL Implementation planning process?

Drinking Water Protection Plan, Stormwater Drainage Plan and Flood Hazard Ordinance.

4. What information is lacking about water quality in your community or potential protection strategies that would be helpful during the TMDL Implementation planning process?

Stormwater Management System Map and adopted BMP's.

5. Please indicate where you would like to receive assistance from LCOG by rating the following components of TMDL planning on a scale of 1 (Highest priority) to 5 (Lowest priority).

_5_ Public outreach
_1_ Identifying potential management strategies
_5_ Public official and staff workshops
_5_ Developing educational and outreach materials
_5_ Conducting public workshops and stakeholder meetings

_1_ Drafting potential policies
_1_ Developing a performance monitoring plan
_1_ Assuring compliance with applicable administrative rules and federal regulations
_5_ GIS data integration

Additional Comments: _____
_____
_____
_____
_____

Thank you for taking the time to complete this worksheet. This information will help to streamline the rest of the TMDL Implementation planning process.

If you have any questions or comments please contact Denise Kalakay at the Lane Council of Governments.

Phone: (541) 682-6434
E-mail: dkalakay@lcog.org

Appendix Two: Potential TMDL Implementation Strategies

Gaps in Existing Water Quality Efforts for Temperature

Temperature Gaps	Potential Solutions
Streamside vegetation unprotected	▪ Provide technical assistance to landowners along waterways ▪ Demonstrate riparian area, wetland, and floodplain BMPs on publicly managed land ▪ Adopt a riparian buffer ordinance or overlay zone ▪ Educate landowners about the value of riparian areas ▪ Initiate a tree planting program along waterways
High priority riparian areas unidentified	▪ Determine areas that will yield a large benefit if protected or restored ▪ Establish framework to identify critical riparian areas ▪ Determine the feasibility of acquiring critical lands

Gaps in Existing Water Quality Efforts for Bacteria

Bacteria Gaps	Potential Solutions
Proper animal waste management	▪ Provide bags for pet owners to pick-up after pets ▪ Partnerships with watershed councils and others ▪ Erect signs to inform pet owners of the problems related to pet waste ▪ Develop educational materials about proper manure management ▪ Implement programs to manage waste in areas with high concentrations of wildlife
Reliance on septic systems and/or inadequate process to inventory, monitor, and correct failing septic systems	▪ Offer assistance for homeowners to replace a failing or outdated system ▪ Use building records to identify outdated systems that may be more likely to fail ▪ Educate homeowners on proper septic maintenance and inspection ▪ Construct or upgrade public wastewater treatment facility
Erosion prevention and sediment control at new construction sites	▪ Adopt erosion prevention and sediment control regulations for new construction ▪ Provide incentives to developers who meet certain erosion control qualifications ▪ Implement site plan review procedures that includes requirements for erosion control mechanisms ▪ Establish site inspection and monitoring procedures
Lack of a process to inventory, monitor, and correct failing septic systems	▪ Offer assistance for homeowners to replace a failing or outdated system ▪ Use building records to identify systems that may be outdated and more likely to fail ▪ Educate homeowners on proper septic maintenance and inspection
Programs to detect and eliminate illegal discharges into waterways	▪ Promote proper waste management through education ▪ Develop a stormwater system map ▪ Increase fines for illegal dumping ▪ Establish a illegal dumping control program ▪ Educate citizens about waste disposal opportunities and the hazards of improper waste disposal ▪ Develop a process to respond to and document complaints of illegal discharge
Lack of multi-objective stormwater plans	▪ Develop a stormwater system map and plan ▪ Regional stormwater map and/or plan ▪ Develop and implement operations and maintenance procedures using best management practices ▪ Integrate water quality protection and natural resource considerations in existing plans
Lack of stormwater detention facilities and incentives to encourage their construction	▪ Use an ordinance or other regulatory mechanism to address runoff from new construction projects ▪ Establish maintenance program for all stormwater features ▪ Adopt water quality standards for public works projects ▪ Provide incentives to landowners that construct on-site stormwater detention/treatment facilities ▪ Encourage stormwater features on existing open space or landscaped areas through a retrofit incentive program
Lack of process to notify public of high bacteria levels	▪ Distribute educational materials ▪ Establish a program to notify residents when high bacteria levels are present

Gaps in Existing Water Quality Efforts for Mercury

Mercury Gaps	Potential Solutions
Erosion prevention and sediment control regulations for new construction	▪ Adopt erosion prevention and sediment control guidelines for new construction ▪ Provide incentives to developers who meet certain erosion control qualifications ▪ Implement site plan review procedures that includes requirements for erosion control mechanisms ▪ Establish site inspection and monitoring procedures
Programs to work with dentists and recycle fluorescent light bulbs	▪ Contact jurisdictions with established mercury reduction programs ▪ Implement programs modeled after existing programs
Process to notify citizens of fish consumption advisories	▪ Distribute educational materials on fish consumption advisories ▪ Put up signs when fish consumption advisories are issued
Lack of stormwater detention facilities and incentives to encourage their construction	▪ Use an ordinance or other regulatory mechanism to address runoff from new construction projects ▪ Establish maintenance program for all stormwater features ▪ Adopt water quality standards for public works projects ▪ Provide incentives to landowners that construct on-site stormwater detention facilities ▪ Encourage stormwater features on existing open space or landscaped areas through a retrofit incentive program

Gaps in Existing Water Quality Efforts for All Pollutants

Gaps for All Pollutants	Potential Solutions
Monitoring capacity	▪ Partner with watershed councils to establish a region-wide monitoring program
Enforcement capacity	▪ Encourage a 'Neighborhood Watch'-type program for water quality violations
Taking advantage of non-point source grant opportunities	▪ Establish an inventory of non-point source grant opportunities ▪ Apply collectively for funding for region-wide projects and protection mechanism implementation
Regional water quality coordination	▪ Use Source Water Assessments to target contaminant sources ▪ Partnerships with watershed councils and others ▪ Region-wide stormwater map and/or plan ▪ Regional drinking water protection effort ▪ Regional pollution prevention team ▪ Regional Mercury Reduction Strategy ▪ Provide free hazardous waste disposal and advertise existing programs
Public employee pollution prevention training programs	▪ Regional public works BMP-sharing network ▪ Use training materials from EPA and DEQ in existing training programs ▪ Regional training sessions
Promotion of water quality efforts	▪ Advertise successes in local media ▪ Build interpretive displays near water quality projects
Incentives/regulations for stormwater features in new development	▪ Adopt an ordinance requiring stormwater detention and treatment in new developments ▪ Encourage stormwater features on existing open space or landscaped areas through a retrofit incentive program