

City of Springfield

Total Maximum Daily Load

Implementation Plan



Cedar Creek, near the McKenzie River, 2005

April 2009

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Section One – Introduction

This document is the City of Springfield's Implementation Plan (IP, or the "Plan") for the Total Maximum Daily Load (TMDL) program, a key component of the federal Clean Water Act. This Plan describes the strategies that the City will implement to reduce temperature, bacteria, and mercury pollution in the Willamette and McKenzie Rivers. This IP is a required submittal, to comply with the Willamette Basin TMDL order (issued by DEQ, Sept 21, 2006) and to help meet pollutant load allocations for the Upper Willamette sub-basin as approved by the US Environmental Protection Agency (EPA) in September 2006.

As importantly, it compliments Springfield's existing stormwater management efforts based in the Clean Water Act, Endangered Species Act, Safe Drinking Water Act, and Springfield's endorsed "Key Outcomes for Stormwater." This last measure is a Council-endorsed statement of desired conditions for Springfield's open waterways. The Key Outcomes ensure that stormwater management is focused on creating safe, clean, and attractive community amenities from Springfield's many open waterways.

The Plan is organized into five sections: This first section introduces the Plan, and explains the organization and goals of the Plan.

Section Two provides a brief overview of the City of Springfield, the TMDL program, and TMDL development process. It describes each of the three major pollutants addressed in the Willamette Basin TMDL (Temperature, Bacteria, and Mercury), their sources in Springfield, and explains the region's water resources and important issues related to water quality. This section also includes a description of Springfield's public involvement in this planning effort.

Section Three provides an overview of the City's current and proposed programs and efforts to address TMDL pollutants and identifies gaps in the existing plans and programs with regard to these pollutants.

Section Four identifies strategies, tasks, and measurable goals the City plans to take to address the identified pollutants. A matrix included in this section outlines these strategies and includes a schedule of when the various tasks will be accomplished. It also includes measures or metrics that will be used to track how effective the implementation of the Plan is, and how progress will be monitored.

Section Five outlines how the effectiveness of the Plan will be measured and how the Plan will be adaptively managed to remain effective. It also includes discussion of how this Plan complies with various other local land use plans.

The overall goal of this Plan is to identify and prioritize measures that the City will take to minimize, to the extent practicable, temperature, bacteria, and mercury contributions to surface waters within the jurisdictional control of the City. It does not propose ordinances, or establish or limit land use, but focuses on a multi-faceted approach of

education, inspection, municipal operations, and partnerships to reduce specific sources of contamination within the City's jurisdiction to improve water quality.

Section Two – Background

Plan Jurisdiction

The City of Springfield lies south of the McKenzie River, and north and east of the Willamette River, approximately a mile south of their confluence, in the southern Willamette Valley. The area includes river side channels and tributary streams, including the historic Springfield Mill Race and Cedar Creek, which are salmon bearing waterways, as well as other open channels and drainageways, and a piped storm sewer system. Springfield is a Designated Management Agency (DMA), with jurisdiction over portions of the McKenzie and Willamette Rivers and their tributaries within or adjacent to its Urban Growth Boundary, as well as its own municipal stormwater drainage system.

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 and/or conduct assessments to understand current conditions, determine sources of pollution, and develop and establish metrics for pollutant loading (the TMDLs) as a tool to improve water quality.

The Oregon Department of Environmental Quality (DEQ) set water quality standards for 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 a list of impaired waterbodies. This list, developed in response to Section 303(d) of the Clean Water Act, is referred to as the 303(d) list, and contains the names and descriptions of waterways, or sections of waterways that have been shown to not meet state water quality standards for any listed pollutants.

Both the McKenzie and Willamette Rivers fail to consistently meet State water quality standards for temperature; the Willamette also fails to meet water quality standards for bacteria, and through a complex analysis, has been listed as not meeting state standards for mercury. Springfield’s public stormwater drainage system discharges to both of these waterways, and the City controls urban land use activities that impact the waterways, and therefore, City is a DMA for both of these waterways.

TMDL Development

The federal Clean Water Act defines *Total Maximum Daily Load* as the maximum amount of any pollutant that can be safely assimilated by a waterway in one day without significant degradation of water quality. This is the Total Maximum Daily Load for that pollutant. Establishing an acceptable pollutant discharge quantity and determining which parties may contribute portions of that total amount are two prime objectives of the TMDL program. TMDL development begins when water quality monitoring demonstrates that a stream, lake, or river does not meet State water quality standards. This waterway is classified as water-quality limited and is placed on the state's 303(d) list of water-quality limited waterways.

After extensive water quality monitoring and modeling efforts, TMDLs are developed in Oregon by the DEQ, and establish the difference between the capacity of a waterbody to assimilate pollutants, and the current pollutant load. TMDLs are expressed as numeric standards or percent pollutant reductions that are required to achieve 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 apportioned to 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, and load allocations for non-point source pollution from agricultural, urban, and forestry lands such as erosion, animal wastes, and stormwater.

The Oregon Administrative Rule (OAR 340-042-0025) that addresses TMDLs requires local governments, agencies, or major facilities to develop TMDL Implementation Plans for 303(d)-listed waterways within their jurisdiction. These responsible parties are classified as DMAs. In the Willamette Basin, DMAs include federal agencies such as the Bureau of Land Management, state agencies such as the Departments of Forestry and Agriculture, and jurisdictions such as counties, municipalities, and others. 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, and
5. Any other analyses or information as specified in the Water Quality Management Plan.

In the Willamette Basin, DMAs are required to develop and submit these plans to the DEQ within 18 months of 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 were due on April 1, 2008. The DEQ and the City of Springfield have been engaged in ongoing discussions since 2008 working to finalize this plan.

TMDL Parameters

Temperature, bacteria, and mercury are the parameters included in all of the Willamette Basin TMDLs (See Table 5, *TMDL Implementation Tracking Matrix*). Although other parameters are included in sub-basin TMDLs, these three are major concerns throughout the entire Willamette Basin.

Brief summaries of these pollutants, as well as their sources and impacts, are included below. More in-depth information 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 and potential sources of each pollutant and the waterways in the region not meeting its respective water quality standard for that pollutant. They also include a brief list of potential strategies to address each parameter.

Temperature

Warm water, when it outfalls to surface waterways, is considered a pollutant, since its effect on plant and animal life is similar to that of many chemical or organic pollutants. In the Willamette Basin, the temperature concern is that the surface waterways are too warm at certain times of year, and pose a threat to fish species such as salmon, which require cold water habitats to complete their life cycle. Water warmer than certain established limits, which vary from season to season and reach to reach, is considered thermal pollution.

Removal or disturbance of streamside vegetation is a primary activity that negatively impacts stream temperature, since the loss of streambank shade cover allows direct sunlight on the water surface, and hence warmer water. Another is the discharge of non-contact cooling water from industrial operations. However, water temperature also is affected by erosion, warming of urban runoff across un-shaded impervious surfaces, loss of channel complexity, low streamflows, and dams.

Other major sources of thermal pollution addressed by the DEQ for the Willamette Basin temperature TMDLs include industrial dischargers, wastewater treatment facilities, and dam and reservoir operations. Point sources will continue to be regulated through the existing National Pollution Discharge Elimination System (NPDES) permit methods. Wastewater treatment plants, as well as large industrial permitted discharges, will be assigned waste heat load allocations, temporary allocations of reserve capacity and compliance requirements during the next renewal of their NPDES permits.

Springfield is a partner in the Metropolitan Wastewater Management Commission's (MWWMC's) regional wastewater facilities, and a contributor to the public wastewater system. Wastewater discharges from MWWMC facilities to the Willamette River may, on occasion, be warmer than normal streamflows. However, discharges from this facility will be covered under that facility's own NPDES Permit, and are not addressed in this document.

The focus of the non-point source temperature TMDL, as it relates to municipalities like Springfield, is to minimize or mitigate the removal or disturbance of streamside vegetation. Maintaining this riparian-area vegetation is believed to be the most effective way to minimize thermal pollution. This is accomplished by protecting and re-establishing vegetation along waterways to provide shade cover. Temperature benefits also can be realized through stream restoration projects including stabilizing streambanks, increasing stream flows, decreasing channel width, and restoring channel complexity.

The maximum allowable temperature increase in the waters of the state from all human activities can be no more than 0.3 degrees Celsius. 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 allocated among 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. above the ambient water temperature. 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, 2004).

Based on historical data supplied by the point sources, discharger, 100% of the reserve capacity will need to be issued on a temporary basis, through NPDES permit renewals in order to avoid putting any of the dischargers at risk of immediate non-compliance. In actuality, it is unlikely that any reserve capacity will be available for growth in the near term.

The primary strategy for the reduction of thermal loading is the protection and restoration of streamside vegetation. Examples of options to address thermal pollution include mechanisms such as:

- **Education** - Develop and distribute materials that explain why landowners should preserve natural streamside vegetation.

- **Outreach** - Implement demonstration projects on public land to illustrate potential riparian management techniques.
- **Ordinance** – Institute or enhance riparian ordinances that prohibit the removal of native streamside vegetation, and provide for restoration activities where appropriate.
- **Acquisition** - Acquire critical streamside property for public ownership and eventual restoration and/or riparian enhancement.
- **Partnerships** - Become involved in a water quality trading program, engage business and industry in mutually-beneficial restoration/mitigation programs and projects.
- **Public Sector Leadership** - Actively restore and/or enhance riparian areas on public land, help private property owners restore and/or enhance riparian areas on private land, and provide a forum to coordinate public and private resources.

Bacteria

The Mainstem Willamette River was listed on the 1996, 1998, and 2002 303(d) lists. The Middle Fork Willamette was listed on the 1996, 1998, and 2002 lists. The McKenzie River is not listed for bacteria.

While bacteria levels on the Willamette show general improvement, the DEQ has set planning targets for DMAs in order to prevent the degradation of water quality. Chapter Two of the Willamette Basin TMDL states that “In subbasins with no listings, generalized reductions will be used as planning targets by designated management agencies” (DEQ, 2006). The bacteria targets are generalized into percent reduction ranges that are applied in all the sub-basins of the Willamette Basin. These planning targets have been allocated among the two major land uses that contribute bacteria to waterways: agricultural and urban. The Willamette Basin Bacteria TMDL states that urban areas must reduce their bacteria contributions by 80-94% to meet water quality standards.

According to the Willamette Basin TMDL, point sources in the upper Willamette Basin cause less than a one percent increase in the bacteria concentrations over natural conditions (DEQ, 2006). Therefore, the focus of the TMDL implementation efforts is on non-point sources. Models indicate that if these allocations are met within each sub-basin, the entire upper reach of the mainstem Willamette River will be in compliance with water quality standards.

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 minimal summer flows when there is the least amount of stormwater runoff. This indicates that significant sources of bacteria likely originate and accumulate on land, and are then carried into waterways through stormwater 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 sanitary waste from illegal camping, irrigation runoff, and illicit discharges and waste dumping. The Eugene/Springfield/Lane County Wastewater Treatment Facility operated by the MWMC has bacteria limits in its own NPDES wastewater discharge permit that address bacteria from that source.

Strategy options included in available guidance documents to address increased bacteria levels in the urban area include measures such as:

- **Erosion Prevention** - Preventing erosion and controlling sediment from new construction sites.
- **Stormwater Pre-treatment** – Applying BMP’s to treat stormwater runoff prior to discharge into waterways.
- **Ditch Cleaning** - Keeping stormwater conveyance channels clear of organic matter while preserving the pollution-removal benefits of vegetation.
- **Animal/Pet Wastes** - Controlling pet wastes through pet waste stations and pet owner education, and limiting the number and concentration of wild animals.
- **Riparian Protection** - Maintaining and restoring riparian buffers to allow them to function as vegetative areas to help filter pollutants from runoff.
- **Post-construction Stormwater Management** - Encouraging better site design of new developments, to decrease runoff and/or treat runoff prior to discharge to the storm system.
- **Illegal Discharge Detection and Elimination** - Preventing non-stormwater and illegal discharges to the system, through inspection and compliance actions as well as outreach and education.
- **Education and Outreach** - Developing stewardship and educational programs through schools and civic groups, as well as business and industry, to prevent pollution.
- **Good Housekeeping** - Street sweeping, material handling, and good work practices to eliminate pollution from municipal maintenance activities.

Mercury

Managing mercury contamination in rivers and streams is complex, due to the diverse and difficult-to-control sources of the pollutant. Further, mercury is toxic in very small amounts, and tends to accumulate in the tissues of animals that ingest or are otherwise exposed to it, effectively concentrating the exposure to animals or people ingesting the contaminated species.

Mercury assumes several forms in nature, both organic and inorganic. Most are powerful toxins, and many are readily assimilated by humans through ingestion. Once ingested, they act on the nervous system, especially the brain, where they adversely impact IQ, language, and physical coordination skills. These effects are even more pronounced in fetal development.

Mercury levels observed in fish tissue in the Willamette Basin have resulted in the Oregon Department of Human Services (DHS) issuing advisories recommending that people limit the amount of fish they consume from mercury-contaminated water bodies. The DHS specifically advises against consuming large amounts of fish from the Willamette River, Coast Fork Willamette River, Dorena Reservoir, and Cottage Grove Reservoir due to the high levels of mercury.

In Oregon, naturally-occurring mercury is found in many local soils, and very high concentrations exist in some in areas. It can be transported through the air after soil disturbance or become airborne as a contaminant from the combustion of waste materials, fossil fuels or even wood. In this manner it can travel for hundreds, or even thousands of miles from its source and be deposited by rainfall.

A few industrial sources discharge low levels of mercury in their wastewater effluent and it may be discharged from municipal wastewater treatment plants, where it originates from paint, rubber, and other sources, as well as small amounts from dental offices. It is a common pollutant from combustion of coal or petroleum. Runoff and seepage from legacy gold and mercury mines in the Coast Fork Willamette area also contributes mercury directly to the Willamette River, through leaching of mercury from waste piles and contaminated mine drainage that flows down the Coast Fork.

Legacy mines located in the Coast Fork Willamette drainage basin are significant contributors of mercury pollution in the upper Willamette area. Monitoring shows that mines are a significant source in the Cottage Grove Lake area, where they contribute 74% of the mercury contamination, and runoff from air deposition contributes 19%. Table 1, below, outlines the sources of mercury and percent reductions needed to achieve water quality standards for the Willamette Basin.

However, monitoring conducted by the DEQ indicates that atmospheric deposition, primarily from coal burning in Asia, is the single largest contributor of mercury to Oregon’s waterways. Since minimizing this source is beyond the scope of Springfield’s influence, control of this source is linked to minimizing stormwater runoff and controlling soil erosion, which washes mercury-laden sediments into surface waters. Mercury-laden sediments are also exposed when sediment deposited long ago is re-suspended as a result of high stream flows or a significant disturbance of soil.

Table 1: Willamette Basin Mercury TMDL Sources and Reductions Needed

Sources	Reductions
Willamette Basin	
<ul style="list-style-type: none"> ▪ 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)

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

The DEQ has developed interim mercury allocations for point and non-point sources while more research is conducted. The DEQ expects all non-point sources, such as the City of Springfield, to begin implementing mercury reduction management strategies and policies, while the TMDL is revised to reflect the results of further research.

Implementation plans must include a mercury reduction strategy “that includes feasible measures to minimize mercury runoff” (DEQ, 2006). The DEQ has proposed options to reduce mercury pollution, many of which Springfield has either already implemented, or will implement as part of its NPDES Stormwater Management Plan. Many of the management strategies that address mercury pollution also address bacteria and temperature. Potential mercury management strategies include:

- **Erosion and Sedimentation Management-**
 - Stormwater treatment and/or flow control prior to discharge into waterways.
 - Operate an erosion prevention and sediment control program for construction and land development activities.
 - Development Code provisions for riparian area protection.
- **Street sweeping and stormwater system maintenance –**
 - Control deposition from mobile combustion sources (vehicles) and tire/rubber/toxin deposits from vehicle wear.
 - Optimize stormwater system inputs and control structure efficiency.
- **Illicit discharge outreach, education, and compliance assurance –**
 - Outreach and education for the general public and business community to help minimize the frequency of spills and dumping.

Springfield’s mercury-control practices will extend to both the McKenzie and Willamette Rivers.

Springfield has conducted water quality monitoring to detect mercury in stormwater runoff, which has been detected only at one sample location, and only on one occasion (as of Spring, 2008). This observation was in an area of heavy industrial use, and was detected at an extremely low concentration. No direct source was determined.

Summary of TMDL Parameters

Table 2 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	<ul style="list-style-type: none"> ▪ 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 Sub-basins: Average of 23%
Bacteria	<ul style="list-style-type: none"> ▪ Stormwater discharge ▪ Construction site erosion and runoff ▪ Failing septic systems ▪ Illegal discharges ▪ Wastewater treatment plants & other point source treatment failures ▪ Sewer overflows during wet weather ▪ Surface runoff ▪ Animal wastes 	Urban: 80 - 94%
		Agricultural: 66 – 83%
Mercury	<ul style="list-style-type: none"> ▪ 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%

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

Springfield Basin Description

The City of Springfield is located between the McKenzie River to the north, the Middle Fork Willamette on the south, and the Main Stem Willamette on the west. The Coast Fork Willamette joins the Middle Fork just southwest of the City's Urban Growth Boundary (UGB) to form the Mainstem, which flows generally northward before joining with the McKenzie, northwest of Springfield. While portions of the McKenzie and Middle Fork are contiguous to the City's UGB, only the Mainstem Willamette flows completely through Springfield's jurisdiction. This occurs from near the confluence of the Middle Fork with the Coast Fork, to where the Mainstem flows under the Interstate 5 Bridge and into Eugene's jurisdiction.

Springfield discharges stormwater to all three of the sub-basins listed above, including discharging directly into Eugene's jurisdiction. In Eugene, it flows on to the Mainstem Willamette, and on into Lane County's jurisdiction. Springfield stormwater runoff also discharges directly to the McKenzie River and its tributaries Cedar Creek and the Keizer Slough. Discharges occur to the Middle Fork Willamette River, as well as to waterways within Lane County's jurisdiction. Springfield works cooperatively with various agencies and citizen groups to actively support appropriate management of both Cedar Creek and other waterways lying outside of the jurisdiction of the City and the TMDL Implementation Plan. The Springfield Mill Race which carries stormwater from urban

development and the Jasper Slough discharges into the Main Stem Willamette near Island Park in Downtown Springfield. From the standpoint of the City's TMDL-IP efforts, no distinction is made in how stormwater runoff and the associated pollution control strategies will be managed from one basin to the next.

Springfield's jurisdiction on the 303(d) listed waterways is determined by the DEQ as those portions within or adjacent to the City's Urban Growth Boundary. However, the measures included in this IP will apply to all City outfalls, whether they discharge directly or indirectly to 303(d) listed waterway segments.

The approximate drainage basin area for each of the waterways is shown on Table 3, Basin Drainage Area by Waterway, below:

Table 3 Basin Drainage Area by Waterway

Drains to	# of Drainage Basins	Combined Area, in acres
McKenzie River	5	8,651
Willamette River	8	6,417
Eugene, then Willamette	2	4,294

Source: City of Springfield

The area included inside the planning area (the UGB) is approximately 14,500 acres in 2007. It includes approximately 196 miles of stormwater conveyance systems, including both piped and open channel systems, in 13 small open channels, ditches, or sloughs, and 14 larger open waterways. There are approximately 6,000-owned catchbasins and area drains, and numerous private facilities that contribute to the public storm system. The system currently includes 9 city-owned stormwater quality facilities. The number of facilities owned or maintained by the City changes yearly as development occurs.

A small portion of the drainage from the McKenzie River seasonally flows through the stormwater drainage system in the City, and is directed into surface waterways which eventually flow to the City of Eugene, and then to the Willamette. In this fashion, a small percentage of McKenzie River water is diverted into the Willamette River, well upstream of the confluence of the two rivers.

Most of the open drainage systems in the City have gradients that are low, with culverts and other impingements that are designed to accommodate expected flows. Riparian areas are frequently impacted with invasive species and lack shade partially as a result of previous urban development practices and agricultural uses.

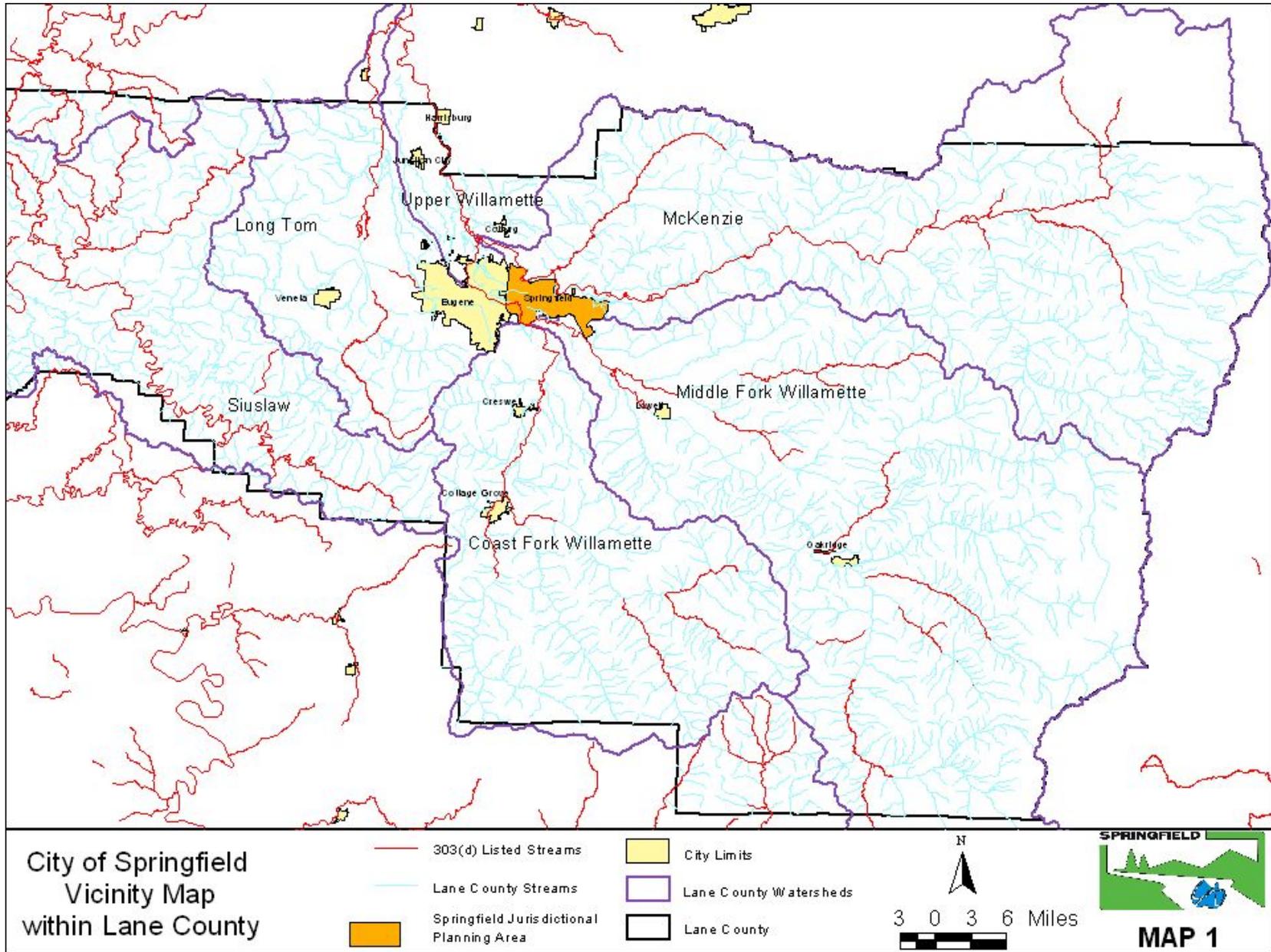
Land uses that exhibit large amounts of impervious areas tend to generate larger amounts of stormwater runoff, which can be a contributing factor to increased amounts of erosion and pollutant transport. In addition, unmitigated runoffs from impervious surfaces tend to exhibit higher runoff temperatures. However, in Springfield, high bacteria levels typically are associated with less-impervious residential areas. Measurable amounts of mercury, which in Springfield is believed most closely associated with erosion and sedimentation, have only been detected in one waterway,

which flows from a mixed residential and commercial area past an industrial facility, and have not been associated with construction-related soil erosion.

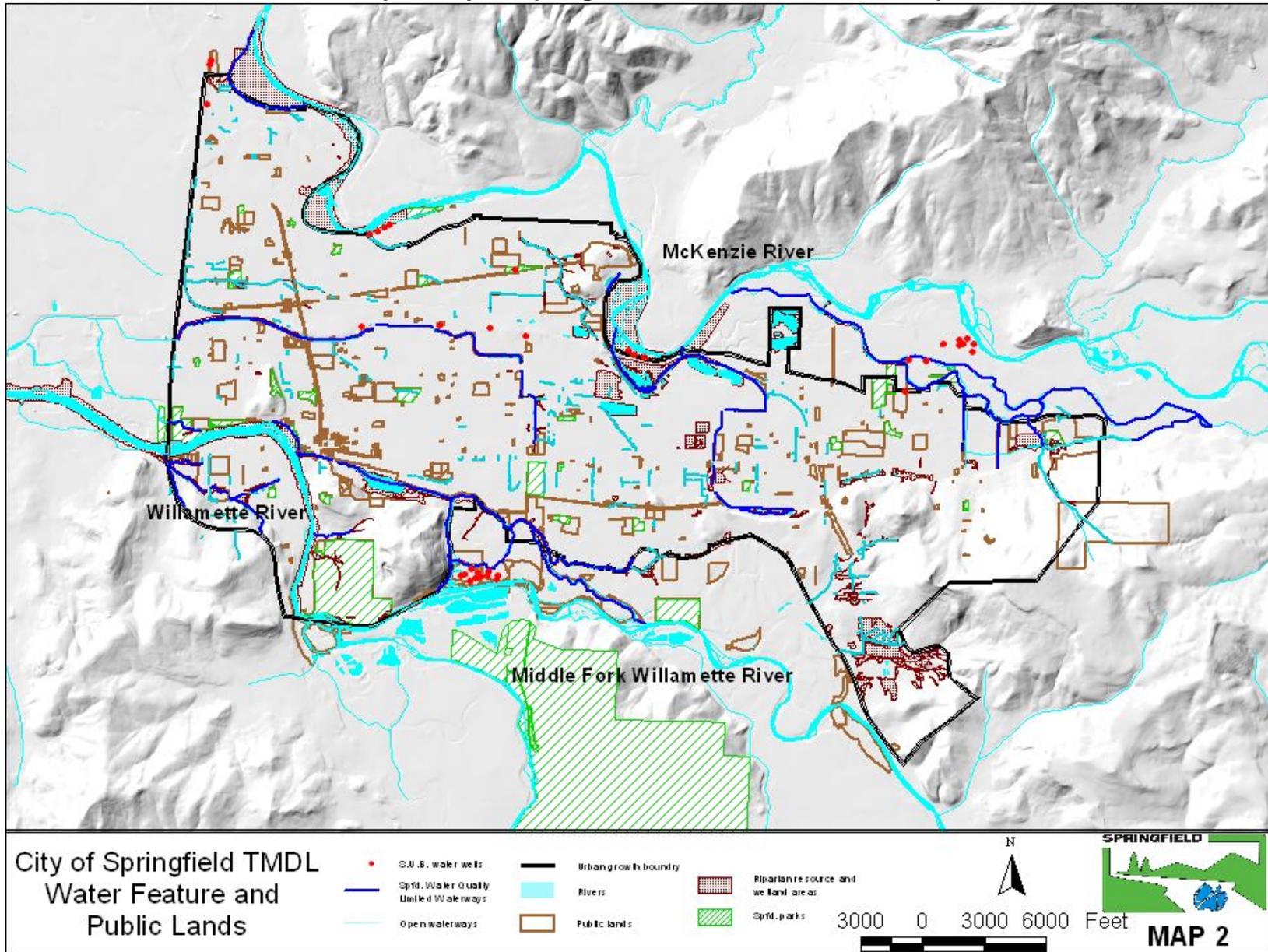
Map 1 on the following page shows Springfield's location in Lane County of Oregon and the surrounding watersheds, including area cities and 303(d) listed waterways.

Map 2 shows public lands and water-related features within and near the City of Springfield. This map is included to show where public ownership adjacent to waterways exists, as an indicator of potential publicly-initiated riparian restoration/enhancement sites. Riparian restoration/enhancement actions will address temperature, bacteria and mercury through stormwater filtering and reduced erosion.

Map 1: City of Springfield Vicinity Map, within Lane County



Map 2: City of Springfield TMDL Water Feature Map



Section Three – Existing Resources, Programs, and Gaps

Several water-quality related programs are already in place in Springfield, and have direct application to managing TMDL pollutants. Primary among them is Springfield's status as a Phase II city under the provisions of the Clean Water Act's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) program. As such, the City has received an NPDES MS4 stormwater discharge permit, which authorizes the City to discharge stormwater to the Waters of the State and the U.S. Only under the condition that it reduces pollutants "to the maximum extent practicable." The City's required Stormwater Management Plan (SWMP), adopted in 2004, and currently under implementation, outlines actions the City will take to identify and implement Best Management Practices (BMPs) in 6 operational areas over which the City has authority.

This program has guided the development of numerous water-quality related programs within the City and will continue to do so as the SWMP's defined implementation schedule is put in place. Many, but not all, of the measures in the SWMP directly or indirectly address temperature, bacteria, or mercury pollution. A discussion of the practices and programs applicable to the control of TMDL pollutants is included in this section.

Other regulatory programs that Springfield is currently involved in that have the potential to impact TMDL pollutants include:

- **Safe Drinking Water Act** - Springfield utilizes wells for municipal water supply and has established a Drinking Water Protection Plan (adopted 1999) that establishes wellhead protection zones, with protective measures implemented in these zones.
- **NPDES 1200CA Permit** - for construction and maintenance activities carried on by the City.
- **State Land Use Planning Goals** - specifically Goal 5, requiring riparian and wetland protection of identified areas within the City, and Goal 6, which requires air, water and land discharges to not exceed the carrying capacity of resources, or degrade or threaten the availability of such resources. Springfield has inventoried these protected areas and developed ordinances in the Development Code to comply with State law.
- **Endangered Species Act** - requires that the City protect water quality as it impacts threatened and endangered aquatic species. In Springfield, this protection is focused on anadromous salmonid species, but also includes Oregon Chub, Pacific Lamprey, Western Pond Turtles, and others.

Resources

Water quality efforts currently underway in Springfield cover a broad range of programs. Provisions of the NPDES MS4 program require that the SWMP address the following areas:

- **Citizen Involvement** – Involving the public in the process of the SWMP development, as well as subsequent updates, revisions, and amendments of the SWMP and other stormwater-quality related planning efforts.
- **Public Education and Outreach** – Ensuring that stormwater education for businesses, industries, and citizens is a primary emphasis of the plan.
- **Illicit Discharge Detection and Elimination** – Identifying and eliminating sources of dumped, spilled, or illegally discharged pollutants, including inspections, incident tracking, and compliance/enforcement efforts.
- **Construction Site Erosion Control** – Ensuring that erosion at construction sites is minimized through permitting, inspections, and compliance efforts.
- **Post-Construction Stormwater Management** – Ensuring that development provides for long-term stormwater runoff treatment, through effective municipal and development codes and plan review.
- **Good Housekeeping for Municipal Operations** – Reviewing and adapting standard maintenance procedures to ensure that the City’s normal maintenance practices, such as equipment operation and maintenance, or landscape/waterway management do not contribute pollutants to Springfield’s stormwater system

Table 4 on the following page displays an inventory of measures contained in the SWMP that are directly relevant to the control of temperature, bacteria, and mercury.

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

NPDES Minimum Control Area	Programs, Ordinances, and Practices	Impact on TMDL Pollutants	Primary TMDL Pollutants Affected		
			Temp	Bacteria	Hg
Public Education	Outreach with regional partners	Reduce erosion			
	Education in schools and public events	Enhance riparian protection and improve water quality			
	Brochures, handouts on water quality and spill prevention	Reduce dumping and spills	X	X	X
	Catch basin curb marker program	Increase citizen awareness			
	Education and outreach to business	Increase citizen awareness			
Citizen Involvement	Public events for SWMP development and amendments	Encourage support for clean water			
	Outreach to citizen and business partners	WQ awareness	X	X	X
Illicit Discharge Elimination	Auto shop inspections	Reduce incidences of dumping and illicit discharges			
	Pet waste stations				
	Spill response / compliance	Enhance spill response	X	X	X
	Pressure and car washing programs	Increase citizen and business awareness of WQ			
	Water quality monitoring				
Construction Site Runoff Control	As required, review of City Capital Improvement Projects to ensure consistency with 1200C permit requirements	Manage construction activities			
	Erosion control Land Development and Alteration Permit (LDAP) program for construction	Reduce erosion and sediment	X	X	X
	Development and municipal code requirements	Reduce dumping/spills			
Post-Construction Stormwater Management	Development code requirements	Enhance shading and riparian areas in new developments	X	X	X
	Plan review requirements	Reduce runoff and urban pollutants			

Good Housekeeping in Municipal operations	Work practice review and BMP Manual for Maintenance activities	Reduce erosion			
	Review vegetation management/riparian enhancement	Reduce dumping/spills and temperature			
	Routine staff training	enhance spill response	X	X	X
	SWPCP for Maintenance Facility and fire training facility	WQ awareness			
	Pollutant control through street sweeping, catchbasin cleaning and storm line cleaning	Contaminant reduction			

Data Gaps/Analysis

An important part of this Plan is reviewing existing programs and identifying gaps where they can be supplemented to more adequately address pollutants, or new programs developed to directly fill those gaps. While the summary above shows existing programs are broad, some gaps do exist.

Strategies included in this document are intended to address the gaps, based on discussions with City Engineering and Water Resources staff, review of citizen complaints and response logs, and DEQ guidance.

TEMPERATURE – The Plan proposes measures to both support and refine existing programs and develop new programs to address gaps in the City’s temperature management. These focus on supporting or upgrading programs in the following areas where gaps exist.

Inventory Existing and Potential Shade & Enhancement Areas

- Develop priority project list for shading.
- Work to develop public/private partnerships for demonstration projects.
- Evaluate tree planting requirements for new development
- Review City tree-planting program for streetscape shading opportunities

Riparian Protection

- Review Development Code and subsequent enhancement for riparian setbacks, buffers, and riparian vegetation management requirements, as appropriate.
- Work with Army Corp of Engineers to continue Mill Race Restoration and Temperature Mitigation project.
- Enhance and broaden outreach and education to groups, citizens, businesses, and industry.

- Pursue additional or alternative funding sources for shade development projects, as well as project prioritization and phasing to initiate these shading projects.

Industrial Discharges

- Work with warm water point source dischargers and the DEQ to address point sources through the NPDES permit program.

BACTERIA – Springfield’s existing water quality programs include BMPs to address bacterial contamination; the strategies below build on or refine existing programs.

Sanitary Sewer Overflows – Work Practices

- Review current standard operating procedures for spill response. Amend or revise if appropriate to ensure rapid and effective sewer overflow response, cleanup and reporting.
- Review contractor work provisions to ensure that contractors know and understand Springfield’s requirements for dealing with sanitary spills and are aware of the required cleanup and reporting regulations.

Animal/Pet Wastes – Program Enhancement

- Coordinate with Willamalane Park and Recreation District to identify locations for additional pet waste disposal stations in public areas used by pet owners, and work cooperatively to assist with station maintenance and new installations as appropriate.
- Inspect pet “parks” and pet day care sites to ensure proper waste handling.
- Conduct outreach to recreational wildlife feeders to discourage feeding wildfowl and nutria.
- Enhance existing pet waste outreach and education; work with citizen groups, students, and at public events.

Septic Tank, Transient Camping and Private Sanitary Infrastructure Outreach and Education

- Identify septic systems within the City limits, and assess feasibility or need for connection to the City’s sanitary sewer system.
- Initiate education and outreach to septic owners where options for hookup to the sanitary sewer system exists.
- Continue investigations into illicit recreational vehicle and commercial business waste disposal and sewer cross-connects.
- Focus on illegal transient camper enforcement procedures and at sites where wastes impact open waterways. Seek enforcement through existing camping regulations and local codes.

MERCURY – The City does not have focused mercury control programs, but does have successful erosion control programs for construction sites and other sources. Mercury control efforts focus on supporting and refining existing programs to minimize

stormwater runoff and erosion and exploring a post-construction inspection program for stormwater BMPs.

The City also presents activities such as “Spring Cleanup Day” with free disposal of household waste, and partnering with other agencies in a “Pollution Prevention Coalition” to sponsor events such as school lab cleanups and mercury thermometer exchanges.

Construction Site Erosion Program Review

- Review LDAP (Land and Drainage Alteration Permit construction site erosion control) program, identify program needs, and assist with any program adaptation or support.

Post Construction Support

- Continue participation in plan review; expand review by water resources staff into broader involvement, specifically on smaller projects.
- Initiate development of an ongoing, post-construction BMP inspection program to ensure ongoing maintenance of stormwater facilities on both public and private sites.

Street Sweeping Review

- Ongoing review of the existing sweeping program, including equipment, sweeping schedule, and any needed support efforts for equipment upgrades, schedule revisions or service level adjustments, within resource limitations, to optimize program effectiveness.

Section Four – Implementation Strategies

This section presents refinements to the strategies listed in Section 3, including details on how and when the strategies will be implemented. The goal of program implementation will be to ensure flexible, cost effective, and robust programs, collaboration with citizens and businesses, and an educational approach.

Temperature Reduction Strategies – Based on support and refinement of existing programs, and selected new programs.

Strategy T1 - Inventory Existing and Potential Shade & Enhancement Areas

Task - “Develop a priority project list for shading.”

Developing streamside shade first requires an inventory of prospective sites. Once inventoried, sites can be evaluated for their potential, with regard to effectiveness, potential shade, cost, etc and so prioritized. Springfield staff will review maps and aerial photos of the City as well as past waterway inventories and assessments to identify sites with the potential for developing shading projects. This list will then be reviewed and prioritized to facilitate developing and implementing projects.

Measurable Goal

- Conduct a “desktop” assessment and inventory of surface waterways with regard to shade potential, including evaluation for feasibility of shade development projects. A prioritization of potential sites will follow. Complete this task by May, 2009.

Task - “Work to develop public/private partnerships for demonstration projects.”

Public involvement in shade development can, where appropriate, leverage the City’s resources. Public/private partnerships will be pursued with businesses, schools and citizen groups to participate in developing shading projects.

Measurable Goal

- Develop a proposal for partnering on shading projects, meet with selected businesses and citizen groups, and propose partnerships to develop shading projects at selected public sites. Complete proposal development by July, 2009 and target one public/private shading project for completion each year for 5 years. Note that this level of success is a target, as the potential for private partnering is undetermined at this point.

Strategy T2 - Riparian Area, Parking lot, and Streetscape Shade Enhancement

Task - “Code review, evaluation and enhancement for parking lot, streetscape shade and riparian vegetation management, setbacks and buffers and retrofit practices if appropriate.”

Springfield’s Development Code already includes riparian setbacks for protected waterways, as well as requirements for street trees and parking lot landscape planning. Staff will review these provisions, and determine if additional riparian protection or impervious surface shading is feasible and called for to meet thermal load reduction objectives. Urban stormwater retrofit practices, low impact development (LID) and green infrastructure practices will be encouraged for new and/or redevelopment projects under the existing review process and code. Code updates are complex, and occur only when a broad package of amendments are developed and brought forward for adoption. These amendments, if any, would be included in such an amendment/update package.

Measurable Goals

- Review the Development Code with key planning staff, and determine if shading or riparian protection amendments are appropriate, by May, 2009.
- If amendments are deemed appropriate, staff may develop and initiate proposed changes for review by City Council, or work to include them in an amendment package to Council, by December, 2010.

Task – “Mill Race Restoration and Temperature Mitigation.”

The City has identified restoration of the Springfield Mill Race as a priority project to enhance fish passage and reduce water temperature. The Army Corps of Engineers (ACOE) has also participated in this project, but work has been limited by federal funding shortfalls. Staff will continue to work with the ACOE, while exploring alternative funding sources to augment or “jump start” restoration efforts, particularly in areas outside of the ACOE project area.

Efforts will be made to obtain grants, develop partnerships, and explore other funding. Alternative project phasing will be fully explored to determine the feasibility of developing priority projects over a longer time period, to better utilize limited funding sources.

Measurable Goals

- Continue to fully participate with Army Corps of Engineers for the Mill Race Restoration project through existing staff contacts and regularly-scheduled meetings. Participation is on-going.
- Explore additional or alternative funding sources, as well as alternative project phasing to initiate compatible projects. This includes, but is not limited to,

applying for private, state or federal grant funding for watershed enhancement as opportunities are identified, and to the extent that staff can respond. Alternative project phasing will be investigated by July, 2009. Exploring alternative funding sources will begin by December, 2009, and will be ongoing.

- In cooperation with ACOE staff, identify discrete project tasks that can be accomplished to advance and compliment the overall restoration project. These include work both inside and outside of the initial ACOE study area, such as in the Lower Mill Race. Develop a priority list of these tasks. Complete by December, 2009.

Task - “Outreach and education to groups, citizens, businesses and industry.”

Springfield’s present outreach and education program addresses aspects of water quality and urban stormwater runoff as part of the City’s NPDES MS4 Stormwater Management Plan. This will be expanded to include warm water temperature as a recognized priority pollutant. This will also support citizen, business, and industry involvement with potential for public/private partnerships for shading projects.

Measurable Goals

- Include discussions of heat as a pollutant in the existing outreach and education program. This addition to the program will include projects such as the development of brochures and handouts, and inclusion of water temperature management in school presentations, public events, and meetings with industry. Integration and adaptive program management of the temperature component of the education/outreach program will be in place by May, 2009.

Strategy T3 - Manage Industrial Warm Water Discharges

Task - “Work with industrial sources and Oregon DEQ to address warm water discharges for point sources through the NPDES permit program.”

Presently, several industrial point sources discharge non-contact cooling water to the City’s stormwater system. These businesses have expressed interest in working with City staff for solutions to these discharges which have overall positive effects on stream flow and temperature.

Measurable Goals

- Staff will continue to work collaboratively with industry representatives and state water quality regulators to arrive at acceptable resolutions to manage industrial warm water inflows to the stormwater drainage system. This work has begun and will proceed as DEQ and industry staff pursue revisions to the industries’ discharge permits.

Strategy T4 – Public Outreach and Education

Task – “Develop and distribute outreach and education materials to the public.”

Presently ESD staff has evaluated various activities that involve warm water discharges and have developed a variety of hand outs and fact sheets addressing the issues and concerns. In addition, the City is working with other local agencies in the evaluation, development and distribution of additional public outreach materials and has developed hand outs, fact sheets and radio ads. The most common non-industrial warm water discharges being addressed are carpet cleaning, steam cleaning, heated pressure washing, residential hot tub water disposal and sanitary treatment effluent.

The City has established a web site that also provides links to water quality information and fact sheets addressing temperature issues. Additional outreach is provided to City staff through the City’s newsletter and to the public at public events such as the Springfield Cleanup, Home and Garden Show and Earth Day.

Measurable Goals

- Staff will continue to work with other agencies and independently in the development, evaluation, addressing needs and discussions on types of temperature related activities effecting water quality. Staff will continue to develop/distribute material and research options and sources. Re-evaluate existing material effectiveness and develop additional material if needed, addressing other possible temperature sources by January, 2010.

Bacteria Reduction Strategies

Strategy B1 - Sanitary Sewer Overflows – Work Practices

Task - “Review current standard operating procedures for spill response. Amend or revise if appropriate to ensure rapid and effective sewer overflow response.”

Springfield will review the current written Standard Operating Procedures and Practices (SOPPs) for addressing sanitary sewer spills, overflows, and repair of damaged sanitary sewer pipes, to ensure that responses are timely, procedures are appropriate and comply with current regulations and documentation and reporting is accurate and on-time.

Measurable Goals

- Formal review of relevant SOPPs by January, 2009
- Development of new or amended SOPPs if needed, by July, 2009

Task - “Review contractor work provisions to ensure that contractors know and understand Springfield’s requirements for dealing with sanitary spills.”

Springfield staff will review the City's standard contract specifications to identify shortfalls regarding contractor work practices, spill response procedures, and general obligations regarding working on or around the sanitary system, and ensure that shortfalls are addressed through amendments or revisions to the City's contracting efforts.

Measurable Goals

- Formal review of relevant contract specifications by July, 2009.
- Formal revisions, if needed, by December, 2009.

Strategy B2 – Animal/Pet Waste Program Enhancement

Task - "Coordinate with Willamalane Park and Recreation District to identify locations for additional pet waste disposal stations in public areas used by pet owners, and assist with station placement and maintenance."

Springfield presently coordinates with the Willamalane Park and Recreation District to operate pet waste disposal stations throughout the City. In this cooperative agreement, the City provides supplies and some of the actual disposal stations, and Willamalane provides maintenance and service for re-stocking supplies. The City will continue to work cooperatively with Willamalane to identify additional sites, and if appropriate sites are identified, facilitate the installation and service of these sites.

Measurable Goals

- Collaborate with Willamalane and City Maintenance staff to identify prospective pet waste station sites by January 2009, and on an ongoing basis.
- Coordinate or otherwise assist with installation and maintenance of any new sites by July, 2009, and on an ongoing basis.

Task - "Inspect pet "parks," kennels, and pet day-care sites to ensure proper waste handling."

Springfield staff will work to identify development proposals for pet parks, kennels and pet day care, and ensure proper waste management facilities and programs are implemented at these sites as part of the development review process. Staff will conduct inspections, and work cooperatively with owners and site managers to properly manage pet wastes at these sources to minimize bacteria-contaminated stormwater runoff.

Measurable Goals

- Identify existing or proposed pet park, kennel, or pet day care facilities, and ensure implementation of an appropriate pet waste management program for the facility by August, 2009, and ongoing.

Task - “Continue pet waste outreach and education work with citizen groups, students, and at public events, and include outreach to targeted businesses.”

Proper management of pet waste is a priority of Springfield’s existing stormwater management outreach and education program. Staff will continue to emphasize proper pet waste management through public events, brochures, posters, and citizen contacts. To further this effort, staff will visit pet supply centers, such as feed stores and pet stores, and supply and promote educational brochures to willing business owners for distribution to their customers.

Measurable Goals

- Identify animal and pet supply stores within Springfield and promote distribution of pet waste informational brochures to them, by January, 2009.
- Review and update educational material as needed, and distribute it to willing business owners by July, 2009.

Task – “Waterfowl and Nutria feeding outreach and education.”

Recreational feeding of waterfowl and invasive nutria populations along waterways results in concentrations of wildlife that far exceed the natural carrying capacity of the local waterways. This results in degraded stream banks, erosion, and high levels of fecal contamination. Identifying popular wildlife feeding areas and focusing education and outreach efforts to citizens through educational signs and handouts will discourage feeding, encourage wildlife populations to disperse, and allow riparian areas to recover. The City will continue to discourage invasive nutria through existing pest-control measures.

Measurable Goals

- Coordinate with Willamalane Park and Recreation District and City maintenance staff to identify locations where wildlife feeding is concentrated. Initiate this effort by July 2009, and ongoing.
- Develop educational signage related to wildlife feeding impacts to water quality. Work to post signs where feasible, to begin December, 2009 and ongoing.

Strategy B3 - Septic Tank, Transient Camping and Private Sanitary Infrastructure Outreach and Education

Task - “Identify septic systems within the City limits, and assess feasibility and need to connect these systems to the City sanitary sewer.”

Springfield has a small number of residences within the city limits using private septic systems; however, the permitting authority typically lies with the Lane County Sanitarian. Where Lane County identifies septic issues within the Springfield UGB, staff will collaborate with County officials related to extending urban services consistent with current County/and or City land use regulations.

Some of these residences have a public sanitary sewer system available but have not connected for various reasons. Currently, there is no mandatory connection to the public sanitary sewer for existing and properly functioning septic systems. However, where private septic systems are found failing, connection to the municipal sanitary system may be required.

Staff will identify existing septic systems within the City and assess the age and, to the extent feasible, the overall condition of these systems. Staff will work cooperatively with owners and encourage them to hook up to the public sanitary system where appropriate.

Measurable Goals

- Initiate a septic system inventory program for the City by July, 2009.
- Contact known septic system owners and seek to gather information on system condition, and assess the need or desire to connect to the City's system by December, 2009.
- Develop and deliver outreach and education literature to private septic system owners by January, 2010.

Task - "Continue investigations into illicit commercial waste disposal practices."

Springfield currently operates an Illicit Discharge Detection and Elimination (IDDE) program to detect and eliminate illegal discharges to the storm drainage system. Examples include automobile repair facilities, and pet and paint waste management programs. However, certain other categories of activities will be included for targeted outreach efforts.

Springfield will develop a targeted outreach/education program to address private waste-generating businesses and activities, for example, RV owners, mobile carpet cleaners, auto body/paint shops, and mobile pressure washing businesses, to educate them regarding proper disposal of sanitary and commercial wastes and washwater.

Measurable Goals

- Identify target audiences, and develop and distribute outreach materials to them, to include best practices, relevant regulatory requirements, and lists of resources and phone numbers for additional information. Complete by January, 2010.

Task - "Review transient camping enforcement procedures and focus additional efforts on sites where sanitary or other wastes impact open waterways. Seek enforcement through existing local codes, and/or other statutes, as resources allow."

Transient campers may pollute waterways adjacent to illegal campsites with sanitary and other wastes. Springfield presently addresses illegal camping; however, limited resources do not provide for removal and cleanup of all camps. Since camps near

waterways present the most pressing water quality hazard, focusing camp elimination based on a priority system is appropriate where resources are limited.

Springfield will continue working towards a goal of eliminating and cleaning up all transient campsites. Camps will be removed, and the sites cleaned of refuse and sanitary wastes, to the extent possible within existing resource constraints.

Measurable Goals

- Develop procedures and priority site determination criteria, in conjunction with Springfield Police Department and Maintenance Division staff, by July, 2009.
- Work with private land owners to enforce illegal camping regulations on private property. Assist private landowners to locate resources such as cleanup contractors and identify deterrents, such as fencing or brush clearing, for landowner consideration. Initiate updated program by July, 2009.
- Assess known campsites on public land, establish a priority list for removal, and investigate campsite-deterrent measures by December, 2009.

Strategy B4 – Public Outreach and Education

Task – “Develop and distribute outreach and education materials to the public.”

Presently ESD staff has evaluated various activities that involve bacteria and have developed a variety of hand outs and fact sheets addressing the issues and concerns. The most common sources being addressed are domestic pet waste, failing septic systems and wild animal feeding. The City has established a web site that also provides links to water quality information and fact sheets addressing bacteria issues. Additional outreach is provided to City staff through the City’s newsletter and to the public at public events such as the Springfield Cleanup, Home and Garden Show and Earth Day.

Measurable Goals

- Staff will continue to work with other agencies and independently in the evaluation, addressing needs and discussions on types of bacteria related activities effecting water quality, Staff will continue to develop/distribute material and research options and sources. Re-evaluate existing material effectiveness and develop additional material if needed, addressing other possible bacteria sources by January, 2010.

Mercury Reduction Strategies – Enhancement of Existing Programs

Strategy M1 – Limit Construction Site Erosion

Task - “Review existing Land Drainage Alteration Program (LDAP) construction site erosion control program, identify any additional program needs, and assist with program modifications or support to enhance program effectiveness.”

Springfield’s LDAP program is an effective construction site erosion control program based on permitting, inspections, and outreach to contractors and developers. Springfield staff will conduct an evaluation of the program to identify limitations on program effectiveness, and work cooperatively with LDAP and other Public Works staff, to enhance program effectiveness. To support increased efforts in both limiting site erosion and ensuring compliance to the 1200-C NPDES permit requirements, city staff may begin to initiate discussions with DEQ staff for Springfield to receive delegated authority from DEQ related to all 1200-C NPDES permitted activities within the Springfield City Limits

Measurable Goals

- Conduct programmatic review of the LDAP program, including interviews with staff and contractors to determine if program revisions, enhancements, or modifications are appropriate. Complete by January, 2010.
- Begin initiation and discussions with DEQ staff for Springfield to receive delegated authority from DEQ on all 1200-C NPDES permitted activities within the City Limits. Target date for Draft “Memorandum of Understanding” by December, 2010.

Strategy M2 – Enhance Post Construction Support

Task - “Continue Water Resources planning staff participation in the City’s existing development plan review process; expand review by Water Resources staff into more comprehensive involvement in the approval process.”

Environmental Services water quality professionals currently assist with the review of large-scale development proposals to help identify potential water quality impacts related to new development design. Staff will expand its level of review by engaging in a review at the earlier, initial phases of the process, when significant design alterations to enhance water quality are more feasible, and will engage in the review of smaller-scale developments.

Measurable Goals

- Review development proposals requiring engineering review, for water quality impacts, starting in January, 2009

Task - “Initiate development of a post-construction BMP inspection program to ensure maintenance of water quality BMPs at private development sites.”

New private development projects are currently inspected during construction and upon completion. Subsequent inspections are only conducted on a complaint basis, and evidence suggests that BMPs and water quality design features may deteriorate over time, as a result of limited maintenance.

Springfield will, within existing resource limitations, work to develop a program to conduct inspections of privately-owned water quality facilities to ensure long-term functionality.

Measurable Goals

- Identify program operating parameters, assess staff and financial resource needs for program implementation, and identify funding sources and any resource constraints. Complete by December, 2009.
- Pursue program implementation within funding and staffing limitations, including database development, inspection protocols, and education/compliance protocols. Initiate by July, 2010.

Strategy M3 – Evaluate/Enhance Street Sweeping, Catch Basin, and Pipe Cleaning Programs

Task - “Review, with Public Works Maintenance staff, the current programs for street sweeping and catch basin and storm drainage pipe cleaning, including equipment, schedules, DEQ and EPA program guidelines, and any identified programmatic gaps.”

Springfield’s street sweeping program has been reviewed as part of the City’s SWMP and subsequently upgraded in capacity and efficiency. This measure will focus on ongoing review, identification and resolution of any remaining programmatic gaps of this successful program. Similarly, cleaning and maintaining catch basins and drainage pipes is critical maintaining the effectiveness of these BMPs.

Measurable Goals

- Meet with Maintenance staff annually not later than May, 2009, to discuss sweeping and catch basin and pipe maintenance equipment and technology, citizen complaints, work schedules, and any proposed improvements or modifications to the City’s program. Work cooperatively with Public Works Maintenance and management staff to develop and implement adaptive management measures as appropriate to maximize program effectiveness.

Strategy M4 – Hazardous Waste Control

Task - “Use household hazardous waste collection events to reduce the improper disposal of items containing mercury.”

Springfield along with other local agencies and solid waste handlers sponsor periodic household waste collection events throughout the year. Springfield will continue to be an active partner in promoting and sponsoring event as well as evaluating existing collection activities/programs and researching other creative options available.

Measurable Goals

- Springfield will continue to participate in the support of the Lane County household hazardous waste events including outreach at public events such as the Lane County Fair, Springfield Cleanup and Earth Day.

Task - “Continue the implementation of a pollution management practices (PMP) program for local dental offices designed to address and prevent mercury wastes from dental amalgam from entering the wastewater system.

Measurable Goals

- Springfield’s Industrial Pretreatment program will continue the administration of a dental PMP program in cooperation with the Oregon Dental Association. Records are maintained through this program and reported as required. Program evaluation and site inspections expected by January, 2010.

Strategy M5 – Public Outreach and Education

Task – “Develop and distribute outreach and education materials to the public.”

Presently ESD staff has evaluated various activities that involve mercury and have developed a variety of hand outs and fact sheets addressing the issues and concerns. The most common sources being addressed are thermometers and florescent lights. Mercury switches in thermostats and inside automobiles are also prime contributors, as these items are typically destroyed in junkyards, and so result in a mercury release. The City has established a web site that also provides links to water quality information and fact sheets addressing mercury issues. Additional outreach is provided to City staff through the City’s newsletter and to the public at public events such as the Springfield Cleanup, Lane County Fair and Earth Day.

Measurable Goals

- Staff will continue to work with other agencies and independently in the evaluation, addressing needs and discussions on types of mercury related activities effecting water quality, Staff will continue to develop/distribute material and research options and sources. Re-evaluate existing material effectiveness and develop additional material if needed, addressing other possible mercury sources by January, 2010.

Implementation Matrix

The following matrix details the strategies that will be implemented within the next five years. 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.

Table 5 - TMDL Implementation Tracking Matrix

POLLUTANT	SOURCE of POLLUTANT	STRATEGY <i>What we are doing & will do to reduce pollution from this source</i>	ACTIONS <i>Specific ways to implement strategies</i>	BENCHMARK <i>Intermediate indicators to know progress is being made</i>	TIMELINE	MEASURE <i>How we will track implementation & completion</i>	STATUS
Temperature	Solar radiation to surface waters	T1 - Inventory Existing and Potential Shade and Enhancement Areas	Develop a priority project list for shading.	Conduct a desktop inventory and assessment process for identifying shade potential sites.	By May, 2009	Prioritization list of potential sites.	100% complete
			Work to develop public/private partnerships for demonstration projects.	Develop a proposal for partnering on shading projects.	By July, 2009	Meet with selected groups and propose partnerships to develop shading projects.	25% complete
		T2 - Riparian Area, Parking Lot, and Streetscape Shade Enhancement	Code review, evaluation and enhancement for parking lot, streetscape shade and riparian vegetation management, setbacks and buffers, and retrofit practices if appropriate.	Review the Development Code with key planning staff, and determine if shading or riparian protection amendments are appropriate.	By May, 2009	Review of Development Code for enhancement of riparian setbacks.	100% complete
				If amendments are appropriate, develop & propose to Council or work to include them in an amendment package.	By December, 2010	Proposals brought to Council.	100% complete
			Mill Race restoration and temperature mitigation.	Continue to fully participate with ACOE staff contacts and meetings.	Participation is on going	Continue to participate with ACOE staff contacts and meetings.	ongoing
				Explore additional or alternative funding and project phasing & explore alternative funding options & sources.	Phasing by July, 2009 Funding by Dec., 2009	Development of alternative projects, funding options and source list.	50% complete
	Work with the ACOE in identifying discrete project tasks that can advance overall restoration.	Priority tasks list by December, 2009	Development of a priority project tasks list	50% complete			
	Outreach and education to groups, citizens, businesses and industry.	Include discussion of heat as a pollutant into the existing outreach and education program.	By May, 2009	Development & inclusion of temperature management in education materials, presentations, public events & meetings with industry.	100% complete and ongoing		
	Warm water discharges	T3 - Manage Industrial Warm Water Discharges	Work with industrial sources and Oregon DEQ to address warm water discharges thru the NPDES permit program.	Staff will continue to work with industry and State regulators to find acceptable management resolutions.	In process and ongoing until revisions made to industry discharge permits	Acceptable management resolutions and revision made to industry's discharge permits by the DEQ.	50% complete
	Public Interaction	T4 – Public Outreach and Education	Develop and distribute outreach and education materials to the public.	Staff will evaluate needs, types of temperature related activities effecting water quality, material options and sources.	In process and ongoing, re-evaluation by January 2010	Staff will continue to work with other agencies and independently in the evaluation, addressing needs and discussions on types of temperature related activities effecting water quality, Staff will continue to develop/distribute material and research options and sources.	ongoing
Bacteria	Sanitary sewer system	B1 - Sanitary Sewer Overflows - Work Practices	Review current standard operating procedures for spill response. Amend or revise if appropriate.	Review relevant SOPPs for spills and overflows.	By January, 2009	Review completed	100% complete
			Develop/amended SOPPs, if needed.	Develop/amended SOPPs, if needed.	By July, 2009	Adoption of new or amended SOPPs if appropriate	80% complete
			Review contractor work provisions to ensure contractors know and understand Spfld. requirements for sanitary spill.	Conduct review of relevant Springfield standard contracting specifications.	By July, 2009	Review of contract specifications	5% complete
			Develop revisions, if needed	Develop revisions, if needed	By December, 2009	Adoption of new or amended contractor work provisions, if needed	5% complete
	Animal/Pet waste	B2 - Animal/Pet Waste - Program Enhancement	Coordinate with Willamalane Park & Recreation Dist. to identify additional sites for pet waste disposal stations in public area used by pet owners. Assist with placement and maintenance.	Meet with Willamalane and Maint. staff to identify prospective locations for pet waste stations.	By January, 2009	Development of a list of possible locations. Program is ongoing.	90% complete
		Coordinate installation of new sites if appropriate locations found.	Coordinate installation of new sites if appropriate locations found.	By July, 2009	Installation completed at sites.	5% complete	

Table 5 - TMDL Implementation Tracking Matrix

Bacteria	Animal/Pet waste (cont.)	Animal/Pet Waste - Program Enhancement (cont.)	Inspect pet parks, kennels, and pet day care sites to ensure proper waste handling.	Identify existing/proposed pet parks, kennels and pet day care facility owners/operators to ensure proper pet waste management.	By August, 2009	List developed of dog park owners, kennels & pet day care facilities. Contact facilities & request inspections for waste management.	80% complete	
			Continue pet waste outreach and education work with citizen groups, students, at public events and include targeted businesses.	Identify pet supply stores within Spfld. and promote pet waste management brochure distribution to them.	By January, 2009	A list of Spfld. pet supply stores and facility contact made.	80% complete	
				Review and update educational material for distribution as needed, and distribute to willing business owners.	By July, 2009	Review and approval of updating current material and the development of new material.	100% complete and ongoing	
			Waterfowl and Nutria feeding outreach and education.	Coordinate with Park & Rec and City Maintenance staff to identify area locations of wildlife feeding.	By July, 2009	List developed of locations.	5% complete	
				Develop educational signs related to feeding wildlife and the impacts on water quality.	By December, 2009	Signs developed and posting started.	5% complete	
	Sanitary wastes	B3 - Septic Tank, Transient Camping and Private Sanitary Infrastructure Outreach and Education	Identify septic systems in the City limits; assess feasibility or need for connection to City sanitary sewer.	Initiate a septic system inventory program for the City.	By July, 2009	Development of septic system inventory program and tracking database.	90% complete	
				Contact owners – gather condition information and interest.	By December, 2009	Contact owners, information gathered	5% complete	
				Develop and deliver outreach and educational materials to owners.	by January, 2010	Distribution of outreach and educational material	5% complete	
			Continue investigations into illicit commercial waste disposal practices.	Continue current efforts, AND develop informational handouts targeting other possible sources.	By January, 2010	Review and approval of updating current material and the development of new materials.	5% complete	
			Review transient camping procedures, and focus additional efforts where sanitary waste or other waste impact open waterways. Seek enforcement through existing codes/statutes, as resources allow.	Develop procedures and priority site determination criteria with PD and Maintenance staff.	By July, 2009	Review and development of policies and procedures. Development of a priority list, deterrent option list and a tracking program.	Not started	
				Work with land owners to enforce illegal camping regulations.	By July, 2009		Not started	
				Assess known campsites on public land and establish a priority list for removal. Investigate campsite deterrent measures.	By December, 2009		5% complete	
	Public Interaction	B4 – Public Outreach and Education	Develop and distribute outreach and education materials to the public.	Staff will evaluate needs, types of bacteria related activities effecting water quality, material options and sources.	In process and ongoing, re-evaluation by January 2010	Staff will continue to work with other agencies and independently in the evaluation, addressing needs and discussions on types of bacteria related activities effecting water quality, Staff will continue to develop/distribute material and research options and sources.	Ongoing	
	Mercury	Construction site soil erosion	M1 - Limit Construction Site Erosion	Review existing LDAP program, identify any additional program needs & assist with modifications to enhance program effectiveness. Initiate discussions with DEQ staff for Spfld. to receive delegated authority from DEQ on 1200-C NPDES permitting within the City limits	Review program, determine program revisions and enhancements, if appropriate.	By January, 2010	Review and updates made to the current program, if needed.	100% complete & ongoing
					Draft "MOU" between Springfield and DEQ	By December, 2010	City Council approval of "MOU"	Not started
M2 - Enhance Post Construction Support		Continue Water Resources staff participation in plan review & expand reviews by Water Resource staff into more involvement in the approval process.	Expand level of review involvement by engaging in the review process for proposals requiring engineering review.	By January, 2009	Expanded involvement in review development proposals requiring engineering review for water quality impacts.	90% complete and ongoing		
		Initiate development of a post-construction BMP inspection program to ensure maintenance of WQ BMPs at private sites.	Identify needs, assess available staff and resources.	By December, 2009	Staff and resource needs assessed. Development of an inspection program, if funding and staffing is determined to be feasible.	80% complete & ongoing		
			Pursue program implementation within resource limitations.	By July, 2010		Not started		

Table 5 - TMDL Implementation Tracking Matrix

	Urban street runoff	M3 - Evaluate/Enhance Street Sweeping, Catch Basin, and Pipe Cleaning Programs	Review with PW Maintenance staff the current street sweeping, catch basin & pipe maintenance programs, equipment, schedule, and identify program gaps.	Review existing sweeping and CB and pipe cleaning programs, equipment, technology and complaints with Maintenance staff and develop adaptive management measures as needed.	Annual review May, 2009	Review, approval and implementation of any updates to the current programs.	100% complete & ongoing
Mercury	Hazardous waste control	M4 - Hazardous Waste Control	Use household hazardous waste collection events to reduce the improper disposal of items containing mercury.	Springfield will continue to participate in the support of the Lane County household hazardous waste events including outreach at public events such as the Lane County Fair, Springfield cleanup and Earth Day.	Ongoing annually	Participate in Public collection events and promote outreach.	Ongoing
			Continue the implementation of pollution management practice (PMP) program for local offices designed to address and prevent mercury waste from dental amalgam from entering the wastewater system.	Springfield's Industrial Pretreatment program will continue the administration of a dental PMP program in cooperation with the Oregon Dental Association.	Ongoing with expected evaluation and site inspection by January 2010	Records are maintained through program and reported as required.	ongoing
	Public Interaction	M5 – Public Outreach and Education	Develop and distribute outreach and education materials to the public.	Staff will evaluate needs, types of mercury related activities effecting water quality, material options and sources.	In process and ongoing, re-evaluation by January 2010	Staff will continue to work with other agencies and independently in the evaluation, addressing needs and discussions on types of mercury related activities effecting water quality, Staff will continue to develop/distribute material and research options and sources.	ongoing

Section 5 – Measuring and Monitoring Progress, and Adaptive Management

Measuring and Monitoring Progress

The ultimate success of TMDL program will be the de-listing of 303(d)-listed streams throughout the Willamette Basin. Monitoring the performance of this plan requires monitoring both the success of implementing the measures outlined in the plan (implementation monitoring), and the effectiveness of the measures at reducing pollution (effectiveness monitoring).

Implementation Monitoring

The City's resources are limited. While the Implementation Schedule presented in Table 5 is realistic, unforeseeable events can, and do occur: budget shortfalls, staffing limitations, and changing priorities can impact the rate or success of implementation. For that reason, monitoring to ensure timely and effective program implementation is an important element of the Plan.

Table 5, the TMDL Implementation Tracking Matrix, includes target dates for the implementation of each of the measures included in this Plan. The Tracking Matrix, and implementation status will be updated annually, and forwarded to the DEQ to satisfy the annual Plan Implementation and Reporting Requirement.

Where implementation of a particular measure is infeasible, unavoidably delayed, or the target date is otherwise not able to be met, staff will evaluate the cause. Options include adaptively managing to facilitate implementation of the measure, developing an equivalent measure, or working with the DEQ to develop a strategy for accomplishing a similar result using an alternate method or schedule.

Effectiveness Monitoring

Some strategies, such as planting trees for shade along waterways, may take years to produce measurable benefits. Within that time frame, other factors, such as changes in streamflow, local land uses, or climate change may generate long-term alterations in temperature regimen, making monitoring results unreliable. Other measures, such as erosion and sediment control ordinances or pet waste management programs, may produce results which are not readily quantified or may result from unknown outside influences.

Springfield recognizes that the effectiveness of the Plan will be best measured by tracking implementation of strategies identified in this Plan that are generally recognized by the DEQ and other experts as effective. Therefore, implementation monitoring target dates in the plan are important measures of overall plan effectiveness. Target dates for implementation are identified for each strategy in Table 5, TMDL Implementation Tracking Matrix.

Reporting, Review, and Adaptive Management

The City must monitor both its progress with implementing the provisions of the Plan and the effectiveness of the Plan itself, including any changes or adaptive management measures proposed or incorporated into the Plan. Two reports are required to be submitted to the DEQ to track these parameters: Annual Progress Reports, which track implementation of each management strategy, and an Implementation Plan Review Report, compiled every 5 years. This is a comprehensive review and assessment of the plan, which outlines past performance and summarizes adaptive management revisions to the Plan.

Annual Progress Reports will present the implementation status of the various strategies and measures using the TMDL Implementation Matrix in Table 5. It will also include adaptive management measures taken or proposed to enhance Plan effectiveness annually.

The Review Report will evaluate the overall effectiveness of the Plan, including the annual adaptive management measures, information on the efficiency and effectiveness of the various strategies, and include an assessment of the Plan's overall effectiveness at meeting pollution reduction goals. It will also provide an opportunity to revise the Plan as needed to constructively build for success in the next 5 years.

Compliance with Statewide Land Use Goals

This section explains the relationship among the City of Springfield's Total Maximum Daily Load Implementation Plan, its Stormwater Management Plan (Stormwater Plan), Eugene-Springfield Metropolitan Area Plan (Metro Plan) goals and policies, relevant Springfield Development Code (SDC) articles and the Public Works Engineering Design Standards and Procedures Manual (EDSP Manual) regarding compliance with Land Use Compatibility Statements (LUCS).

TOTAL DAILY MAXIMUM DAILY LOAD IMPLEMENTATION PLAN

This TMDL-IP fulfills the City's requirements as a Designated Management Agency (DMA) under the TMDL provisions of the federal Clean Water Act, to develop and implement a plan to reduce the discharge of certain pollutants into identified waterways. In this case, the pollutants are excessive bacteria, mercury, and warm water, and the identified waterways are portions of the Willamette and McKenzie Rivers, near the City of Springfield.

The focus of this IP includes review, assessment, and enhancement of select, existing stormwater pollution control measures and programs found in the City's Stormwater Management Plan, which is presently being implemented (this writing, 2008). It addresses gaps in the City's pollution control programs based in the SWMP, resulting from the DEQ's designation of the TMDL pollutants indicated above. These pollutants,

and the state guidance for addressing their control, were not identified at the time of the SWMP development. Measures in the IP include, generally:

Temperature Control Measures

- Inventory existing and potential shade enhancement areas
- Riparian protection
- Managing warm industrial discharges

Bacteria Control Measures

- Sanitary Sewer overflow prevention/cleanup practices
- Pet waste, transient camping, and targeted industrial discharge management
- Private onsite sanitary sewage system assessment, outreach, and education

Mercury Control Measures

- Review of existing construction erosion control programs
- Continued participation in the City's existing design review process for new development
- Review and assessment of the existing street sweeping program

The TMDL-IP does not propose any land use changes, new fixed structures or facilities, or new municipal code provisions; its focus is on management practices and review and enhancement of existing programmatic efforts.

STORMWATER PLAN

The Stormwater Plan was developed to provide policy and management guidance for activities affecting stormwater throughout the City of Springfield and its urban area. The Stormwater Plan was adopted by the Springfield City Council in 2004. The areas of focus within the Stormwater Plan include:

- Pollution incidents and unlawful (illicit) discharges to the City's stormwater system.
- On-site management strategies of stormwater runoff to help reduce the quantity of stormwater and pollution entering the drainage system.
- Reduction and prevention of stormwater pollution from City facilities due to City activities and business practices.
- Public education geared toward community stewardship of water.
- Public awareness and involvement in the City's stormwater management.
- Targeted capital improvements and maintenance programs to improve water quality and restore high priority areas.
- DEQ-required Municipal Separate Storm Sewer System (MS4) Plan Elements.

Applicable Stormwater Plan Minimum Control Measures referenced below are found in the City's SWMP:

#4 Construction Site Stormwater Runoff Control, CSW1 Erosion and Sediment Control Regulations and CSW3 Land and Drainage Alteration Permit Program; and

#5 Post-Construction Stormwater Management for New Development and Redevelopment, especially DS1 Springfield Development Code (SDC) Standards and the Engineering Design Standards and Procedures (EDSP) Manual.

While the Public Works department has taken over the responsibility of running the LDAP program, there are still references to LDAPs in the SDC. The following is a discussion of the relationships of the Metro Plan, the SDC, the EDSP Manual and the Springfield Municipal Code (SMC), 1997. Typically, the Metro Plan is used during the review of quasi-judicial and legislative reviews of development. The SDC and the EDSP Manual are used together in the evaluation of most land use applications, especially partitions, subdivisions and site plan reviews. The SMC is used for processing LDAPs and enforcing Erosion Control regulations in the field.

METRO PLAN

The Cities of Springfield, Eugene and metro Lane County have an acknowledged Comprehensive Plan called the Metro Plan. Springfield adopted the Metro Plan by Ordinance 5024 on March 1, 1982. The Metro Plan was acknowledged by the Land Conservation and Development Commission on August 23, 1982. The Metro Plan was revised in December 1985. The Metro Plan complies with the 14 applicable State Planning Goals. The goals and policies in the Metro Plan that are applicable to the Stormwater Plan are provided below.

C. Environmental Resources Element:

Applicable Goals:

1. Protect valuable natural resources and encourage their wise management, use, and proper reuse.
3. Protect life and property from the effects of natural hazards.
4. Provide a healthy and attractive environment, including clean air and water, for the metropolitan population.

Applicable Policies:

1. Springfield, Lane County and Eugene shall consider downstream impacts when planning for urbanization, flood control, urban storm runoff, recreation and water quality along the McKenzie and Willamette Rivers.
4. Local governments shall require site-specific soil surveys and geologic studies where potential problems exist. When problems are identified, local governments shall require special design considerations and construction measures be taken to offset the soil and geological constraints present, to protect life and property, public investments and environmentally sensitive areas.
14. Metropolitan goals relating to scenic quality, water quality, vegetation and wildlife, open space, and recreational potential shall be given a higher priority than timber harvest within the urban growth boundary.
19. Local governments shall develop plans and programs which carefully manage development on hillsides and in water bodies, and restrict development in wetlands

in order to protect the scenic quality, surface water and ground water quality, forest values, vegetation, and wildlife values of those areas.

20. Positive steps shall be taken to protect Springfield's municipal groundwater supplies along the McKenzie River and the middle fork of the Willamette River.
21. Local governments shall continue to monitor, plan for, and enforce applicable air and water quality standards and shall cooperate in meeting applicable federal, state and local air and water quality standards.
36. Prior to the completion of the next Plan Update, the air, water, and land resource quality of the metropolitan area will be assessed.

D. Willamette River Greenway, River Corridors, and Waterway Element.

Goal:

Protect, conserve, and enhance the natural, scenic, environmental, and economic qualities of river and waterway corridors.

Applicable Policies:

2. Land use regulations and acquisition programs along the river corridors and waterways shall take into account all the concerns and needs of the community, including recreation, resource, and wildlife protection; enhancement of river corridors and waterway environments; potential for supporting non-automobile transportation; opportunities for residential development; adjoining uses; and other compatible uses.
4. Lane County, Springfield, and Eugene shall continue to participate in efforts to determine the feasibility of an urban canal that would connect Eugene's historic Millrace to Amazon Creek. Likewise, Springfield's efforts to improve the scenic quality of its Millrace should be encouraged.
5. New development that locates along river corridors and waterways shall be limited to uses that are compatible with the natural, scenic, and environmental qualities of those water features.
6. New industrial development that locates along the Willamette and McKenzie Rivers shall enhance natural, scenic, and environmental qualities.

E. Environmental Design Element.

Applicable Goals:

1. Secure a safe, clean, and comfortable environment which is satisfying to the mind and senses.
2. Encourage the development of the natural, social, and economic environment in a manner that is harmonious with our natural setting and maintains and enhances our quality of life.

Applicable Policies:

2. Natural vegetation, natural water features, and drainageways shall be protected and retained to the maximum extent practical. Landscaping shall be utilized to

enhance those natural features. This policy does not preclude increasing their conveyance capacity in an environmentally responsible manner.

8. Site planning standards developed by local jurisdictions shall allow for flexibility in design that will achieve site planning objectives while allowing for creative solutions to design problems.

G. Public Facilities and Services Element.

Goal:

Provide and maintain public facilities and services in an efficient and environmentally responsible manner.

Applicable Policies:

- G.2** Use the Planned Facilities Maps of the *Public Facilities and Services Plan* (adopted by ordinance by Lane County, Eugene and Springfield in 2001, in compliance with State-wide Planning Goal 11) to guide the general location of water, wastewater, stormwater, and electrical projects in the metropolitan area. Use local facility master plans, refinement plans, and ordinances as the guide for detailed planning and project implementation.
- G.10** Continue to take positive steps to protect groundwater supplies. The cities, county and other service providers shall manage land use and public facilities for groundwater-related benefits through the implementation of the *Springfield Drinking Water protection Plan* and other wellhead protection plans. Management practices instituted to protect groundwater shall be coordinated among the City of Springfield, City of Eugene, and Lane County.
- G.13** Improve surface and groundwater quality and quantity in the metropolitan area by developing regulations or instituting programs for stormwater to:
 - a. Increase public awareness of techniques and practices private individuals can employ to help correct water quality and quantity problem;
 - b. Improve management of industrial and commercial operations to reduce negative water quality and quantity impacts;
 - c. Regulate site planning for new development and construction to better manage pre-and post-construction storm runoff, including erosion, velocity pollutant loading, and drainage;
 - d. Increase storage and retention and natural filtration of storm runoff to lower and delay peak storm flows and to settle out pollutants prior to discharge into regulated waterways;
 - e. Require on-site controls and development standards, as practical, to reduce off-site impacts from stormwater runoff;
 - f. Use natural and simple mechanical treatment for potentially contaminated runoff waters;
 - g. Reduce street-related water quality and quantity problems;
 - h. Regulate use and require containment and/or pretreatment of toxic wastes;
 - i. Include containment measures in site review standards to minimize the effects of chemical and petroleum spills; and
 - j. Consider impacts to groundwater quality in the design and location of drywells.

- G.14** Implement changes to stormwater facilities and management practices to reduce the presence of pollutants regulated under the Clean Water Act and to address the requirements of the Endangered Species Act.
- G.15** Consider wellhead protection areas and surface water supplies when planning stormwater facilities.
- G.16** Manage or enhance waterways and open stormwater systems to reduce water quality impacts from runoff and to improve stormwater conveyance.
- G.17** Include measures in local land development regulations that minimize the amount of impervious surface in new development in a manner that reduces stormwater pollution, reduces the negative affects from increased runoff, and is compatible with Metro Plan policies.
- G.18** Work collaboratively with city staff, consultants, and Council to implement and adaptively update/append the Stormwater Facilities Master Plan for the City of Springfield to act as a guide to plan for more comprehensive, efficient, and multi-objective management of the City's stormwater management system. The SWFMP will provide the framework necessary for effective planning and prioritization of potential future capital improvement projects to address water quality and flood protection goals.

SPRINGFIELD DEVELOPMENT CODE (SDC)

The SDC is the City's zoning ordinance and is applicable both within the city limits and Springfield's urban transition area. The SDC was adopted by Ordinance 5326 in May, 1986. The SDC has been amended several times since that date. The Stormwater Plan boundary is contiguous with the SDC boundary. There are a number of SDC sections that either specifically address stormwater regulation or control development impact on stormwater:

- Section 3.3-300** Willamette Greenway Overlay District
- Section 3.3-400** Floodplain Overlay District
- Section 3.3-500** Hillside Development Overlay District
- Section 4.3-110** Stormwater Management
- Section 4.3-115** Water Quality Protection
- Section 4.3-117** Natural Resource Protection Areas
- Section 5.12-100** Land Divisions
- Section 5.15-100** Minimum Development Standards
- Section 5.17-100** Site Plan Review

The SDC includes notification and request for comments to affected agencies, including those having requirements applicable to a proposed land use, and other interested parties. Correspondence received during the comment period become part of the findings included in the staff report and may be included in conditions that must be met in resulting land use approvals. Through this process, the Public Works Department is delegated the authority to impose standards for erosion control and stormwater management for land use decisions made in accordance with the SDC.

THE ENGINEERING DESIGN STANDARDS AND PROCEDURES (EDSP) MANUAL

The EDSP Manual contains design standards and procedures that are meant to establish, clarify and assist both City staff and private engineers in creating safe, efficient, and cost-effective street, drainage and sanitary sewer projects for the City. The EDSP Manual was adopted by Resolution 02-46 in October 2002. The following sections address stormwater and related issues and are used during the development review process:

Section 3.00

Stormwater Quality. Establishes stormwater management in accordance with the provisions of SDC Article 32 to promote water quality, and to protect groundwater and the vegetation and rivers it supports.

Interim Standards. Applies design guidance documents for stormwater quality standards while the City continues to develop its overall Stormwater Management Program. Interim standards which are acceptable to the latest standards adopted by the City of Portland Bureau of Environmental Services or by Clean Water Services (formally Unified Sewerage Agency). Both use practices which are similar to those already being required of development in the City.

Section 4.00

Stormwater Capacity Standards. Implements design standards for storm drainage capacity in accordance with Springfield Drainage Master Plans, the on-going update of those plans, the SDC, and Standard Construction Specifications. Requires a complete drainage study for all public and private storm systems, including the submittal of hydrologic and hydraulic calculations. Addresses catch inlet designs, constructed channels, outfalls, downstream protection and detention ponds.

Section 7.00

Hillside Development Standards. Provides consistent design policies and standards for street, storm and sanitary sewers on existing land with slopes greater than 15 percent. Addresses special design considerations for steep hillside development.

SPRINGFIELD MUNICIPAL CODE, 1997

Section 8.00

Erosion Control. Sets forth minimum expectations to contain or minimize erosion on-site during construction and to avoid affecting adjacent properties or waterways. Includes Best Management Practices commonly used. Requires, at a minimum, the engineer of the infrastructure project to ensure that the erosion control plan and the activities on the construction site meet or exceed the performance standards within the most current NPDES Stormwater Discharge Permit (1200CA) issued to the City. This permit has been granted to the City by DEQ to allow the City to manage erosion control within our permitted construction projects within public rights-of-way and easements. The requirements for planning and implementation of management practices for erosion

control is already a City responsibility and this section of the EDSP Manual documents what we expect of ourselves and our permittees during infrastructure construction.

Section 8.300

Sets forth specific rules and regulations to control excavating, grading, and earthwork construction, including fills and embankments; establishes the administrative procedure for issuance of permits; and of safeguarding persons and property against unreasonable hazards resulting from uncontrolled grading and excavating practices in the interest of protecting the public health, safety and general welfare. The permit issued by the city for this work is called the Land and Drainage Alteration Permit. Erosion control is currently a part of the LDAP review process. However, the Public Works Department is currently preparing a separate Erosion Control ordinance to be adopted later this year.

Cost Analysis

Strategies identified in this Plan include enhancements to existing programs, as well as developing and implementing new ones. In some cases, the cost of implementation is within the range of existing staff and resources. Other programs will experience high cost variability, such as developing public-private partnerships for shade enhancement projects. Still others include significant variables, such as pursuing the Mill Race restoration, which may involve outlays in staff or resources which are not readily foreseeable; conversely, significant volunteer resources or outside funding sources may become available.

The City of Springfield anticipates a variety of strategies to address Plan implementation costs, including using existing budgets and resources, budgeting for future programs through the existing budgetary processes, pursuing grant funding, and developing collaborative, mutually-beneficial partnerships. A key to the success of this strategy is prioritization of projects where initial funding is inadequate, and a plan to pursue needed funding over time for lower priority projects. In all cases, efforts will be made to leverage Springfield's funds to the extent possible, to be responsive to unforeseen opportunities, adapt to changing economic realities, and pursue creative and innovative approaches to funding.

Table 6, TMDL Funding Sources, identifies the anticipated funding sources for the strategies in this Plan.

Table 6, TMDL Funding Sources

Funding Sources for TMDL Strategy Implementation				
	Strategy	Funding/Resources Type		
		Drainage Funds (current)	Drainage Funds (future)	Grants and other sources (future)
Temperature	Inventory existing and potential shade and enhancement areas	X	X	X
	Riparian protection and enhancement	X	X	X
	Manage industrial warm water discharges	X	X	
	Public Education and Outreach	X	X	
Bacteria	Sanitary sewer overflows – work practices	X	X	
	Pet wastes program enhancement	X	X	X
	Waterfowl and Nutria feeding outreach	X	X	
	Septic tank, transient camping and private sanitary infrastructure outreach and education		X	X
	Public Education and Outreach	X	X	
Mercury	Limit construction site erosion	X	X	
	Enhance post-construction support	X	X	
	Evaluate/enhance street sweeping/CB Maintenance	X	X	
	Hazardous Waste Control	X	X	
	Public Education and Outreach	X	X	