City of Oakridge Surface Water Management Program

December 2013 | **Final Report**

Prepared for:
The City of Oakridge

Prepared by:
Community Service Center

UNIVERSITY OF OREGON

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Oakridge Water Quality Partners

Louis Gomez – City Administrator

Jeff Ziller – Oregon Department of Fish and Wildlife (ODFW)

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Barrett Frobose/Eve Montanaro – Middle Fork Willamette Watershed Council (MFWWC)

Dave Downing – Upper Willamette Soil and Water Conservation District

Maria Cahill – OSU Extension / Green Girl Land Development Solutions

CSC Staff

Project Director

Bob Parker AICP, Director of the Community Service Center and Community Planning Workshop, University of Oregon

Project Managers

Rebecca Harbage, Community Planning Workshop Project Coordinator, Graduate Teaching Fellow, University of Oregon

Casey Hanson, Community Planning Workshop Project Coordinator

Research Team

KC McFerson

Alex Page

Michael Varien

Ben Protzman

Geoff Ostrove

Erik Forsell

About the Community Planning Workshop

Community Planning Workshop (CPW) is one of the core programs of the University of Oregon's Community Service Center (CSC) (csc.uoregon.edu). Established in 1977, CPW provides students the opportunity to address planning and public policy problems for clients throughout Oregon. Students work in teams under the direction of faculty and Graduate Teaching Fellows to develop proposals, conduct research, analyze and evaluate alternatives, and make recommendations for possible solutions to planning problems in rural Oregon communities.

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EXECUTIVE SUMMARY

The Middle Fork Willamette River is recognized as a community resource for both wildlife and recreation activities. Communities along the Middle Fork and Salmon Creek have a commitment to maintain and enhance the health of the river through responsible actions and behaviors. The Community Planning Workshop (CPW), through the University of Oregon's Community Service Center, and the City of Oakridge collaborated to create the following Surface Water Management Program (SWMP) that addresses water quality issues and helps guide the City of Oakridge to better support water resources.

The intent of this SWMP is to provide Oakridge with the tools to protect the water as a community resource. The City of Oakridge borders almost three miles of the northern bank of the Middle Fork Willamette River. In 2006, the state, county, and city, in accordance with the Environmental Protection Agency guidelines and DEQ's water quality management plan nonpoint source guidelines established a set of actions to protect and maintain water quality in the Willamette Basin. As a result, between 2008 and January 2011, the City and the Middle Fork Willamette Watershed Council created a Total Maximum Daily Load (TMDL) Implementation Plan. The SWMP intends to partially address the goals in the City's TMDL plan and tasks in the City's Action Matrix. More broadly, the program intends to complement the City's land use and water quality objectives along with its strategic goals. The core of the program is a five-year water quality action plan that articulates specific activities and investments the City will make as a part of the program.

The action plan emerged through a collaborative process between the City, representatives of state and regional agencies, and the Community Planning Workshop (CPW) and the Department of Environmental Quality (DEQ)-approved Oakridge TMDL Implementation Matrix. The Oakridge Surface Water Management Action Item Matrix (Figure S-1) contains goals and strategies that serve as the guiding vision of the program and specific actions designed to meet the previously adopted obligations to the DEQ, protect water quality through Low Impact Development standards that provide flexibility to landowners, and educate the community about water issues.

The Action Item Matrix shows a high-level summary of actions for each goal and strategy. Each action has a primary responsible party who will carry out that action to achieve the desired outcome within the allotted timeframe. The starting point for all timelines begins when the City of Oakridge City Council and public formally accepts and adopts the Surface Water Management Program. In other words, an action with a timeline of Month 2 means that the responsible party will complete that action by the end of the second month from which Oakridge formally accepted the SWMP.

The matrix is not only a quick reference for goals, strategies, actions, and general responsibilities, but also a tool the City will use to monitor progress on the SWMP. Since the City of Oakridge is the lead agency implementing the program, the Oakridge City Administrator will serve as the program administrator and take the lead on implementing the actions in the SWMP, delegate responsibilities to appropriate staff, monitor progress to

the satisfaction of the DEQ, and report to and advise the Council on progress. Using the Action Item Matrix will help the City Administrator delegate responsibilities and monitor progress - actions can be marked as In Progress or Completed.

This program cannot succeed without the City Council's support. The City Council will need to dedicate the necessary time and resources so the City Administrator can make the execution of specific actions and implementation of the program possible.

Aside from monitoring the progress of implementation, the City must determine if the program is effective in protecting riparian areas and thus the river. For example, an effective program will contribute to increased riparian vegetation. To help develop an effective monitoring program, the city will use a three step monitoring process which focuses on plant survival and growth rate measurements, a photo point analysis, and new development assessments.

Oakridge Surface Water Management Plan Action Item Matrix

Goals	Strategies	Actions	In Progress	Completed	Who	Timeline	Monitor
Goal 1: Lead the community effort to improve and maintain water quality and water resource protection.	Strategy 1.1: Lead the community by example in implementing strategies to improve water quality.	Action 1.1.1 Acquire and maintain local and regional partnerships to ensure that actions are implemented successfully.			City Administrator	Quarterly	Document the nature of the partnership.
		Action 1.1.2 Identify safe and secure stable funding from local, regional, and national sources.			City Administrator	Month 1, Month 6	Track acquired grant funding and stable city funds.
	Strategy 1.2: Stay up-to-date on current water quality status, activities, and needs.	Action 1.2.1 Have appropriate staff attend DEQ TMDL meetings.			City Administrator	Starts 2014	Track meeting attendance and regularly update City Council.
Goal 2: Adopt, implement, and promote low impact development strategies.	Strategy 2.1: Encourage and champion low impact development practices through code amendments and demonstration sites.	Action 2.1.1 Adopt LID code amendments.			City Council, Planning Commission	Month 6	Report adopted amendments and document which were not adopted.
		Action 2.1.2 Use LID strategies in public projects.			City staff, departments	Ongoing	Develop a list of projects that utilize LID.
	Strategy 2.2: Coordinate low impact development strategies with the existing stormwater management plan.	Action 2.2.1 Minimize discharge and runoff from at-risk areas.			Public Works, City Administrator, St. Vincent dePaul	Month 4, Year 1, Year 2	Document properties' participation and evaluate effectiveness.

Goals	Strategies	Actions	In Progress	Completed	Who	Timeline	Monitor
Goal 3: Increase community engagement and awareness of water quality issues.	Strategy 3.1: Alert residents of safe and healthy ways to manage wastewater.	Action 3.1.1 Provide landowners with septic system resources on methods to protect the river.			City Council, Public Works	Year 1-3	Document and evaluate adopted policy recommendations.
	Strategy 3.2: Engage residents in activities that raise awareness about water quality issues.	Action3.2.1 Establish a process in which volunteers and interns can assist the city in meeting surface water management objectives.			Volunteers, City Admin., RARE	April 2014, ongoing	List intern/RARE participant's responsibilities. Document volunteers used at events.
		Action 3.2.2 Develop and distribute educational materials at public and private facilities.			City staff	Month 1	Report all educational and outreach strategies.
		Action 3.2.3 Educate residents about the importance of removing yard debris and animal waste from waterways & riparian areas.			Public Works	Month 8	Deliver dates of published fact sheet and articles and provided DEQ with a copy
Goal 4: Preserve, restore and enhance riparian areas to ensure a health community.	Strategy 4.1: Preserve and enhance native vegetation on public property.	Action 4.1.1 Incorporate riparian protection language into existing city plans.			City Council, Planning Commission	Year 1	Report adopted amendments and document which were not adopted.
		Action 4.1.2 Plant native or non-invasive vegetation in problem areas.			City staff, UWSWCD, MFWWC	Month 2	Bi-annually report the number of native shrubs and trees planted. Document planting projects.
	Strategy 4.2: Preserve and enhance native vegetation on private property.	Action 4.2.1 Provide resources to residents to plant native vegetation on their properties.			City staff, UWSWCD, MFWWC	Month 5	Track number of riparian restoration projects on private properties.
		Action 4.2.2 Promote information and materials related to stream bank stabilization.			City staff, UWSWCD, MFWWC	Month 5	Track restoration projects. Report property owner's feedback on effectiveness.

CHAPTER ONE: INTRODUCTION

This document presents the City of Oakridge Surface Water Management Program. The program intends to partially address programs and tasks in the City's January 2011 locally adopted *Total Maximum Daily Load* (TMDL) Implementation Plan. More broadly, the program intends to complement the City's land use, and water quality objectives.

The core of the program is a five-year water quality action plan that articulates specific activities and investments the City will make as a part of the program. Finally, the program includes guidance on how the City will monitor and evaluate progress towards the stated surface water management goals.

Rivers and streams provide many important functions for people and wildlife. For a community that has developed around a river like Oakridge, the waterway has acted as scenic and recreational attraction. Another important function of streams is their ability to support a healthy *riparian area*. Riparian areas are those plant communities adjacent to and affected by surface water bodies such as rivers, streams, lakes, and drainage ways. These areas serve a number of useful purposes, including: providing habitat for wildlife, reducing the force and volume of floods, and absorbing *pollutants* before they reach a stream.[1]

Not only is the purpose of this program to improve the lives of people and wildlife, but also to keep the political desires of the community in mind. The community desires a voluntary approach to manage surface water quality issues in a place of a regulatory one. This program allows for flexibility in managing the riparian areas in Oakridge while still providing an adequate amount of protection for the waterways of the city and the residents who live along these waterways.[2]

Background

In September 2006, the Oregon Department of Environmental Quality (DEQ) finalized the development of the Middle Fork Willamette TMDL, which established *pollution* load limits for water quality impaired waterways within the Middle Fork Subbasin and Willamette River Basinwide. The City of Oakridge is located within the Middle Fork Willamette Subbasin and, as a result, assigned a TMDL based on the impairments of the Middle Fork of the Willamette River. The TMDL includes strategies for the City to follow in improving the condition of the Middle Fork.

The DEQ approved Oakridge's TMDL actions and strategies in January 2011. In the fall of 2012, the City partnered with the Community Service Center (CSC) at the

[1] "Fact Sheet #1: Functions of Riparian Areas for Flood Control," Commonwealth of Massachusetts. http://www.mass.gov/dfwele/der/riverways/pdf/riparian_factsheet_1.pdf

[2] The program includes a set of performance measures that allow monitoring and evaluation of how well the City is meeting stated programmatic objectives. If DEQ determines the program is not adequately addressing the Middle Fork Willamette TMDL, it may require the City take regulatory action to address identified water quality issues.

University of Oregon to explore approaches to addressing the City's TMDL obligation. In November of 2012, the City formally moved to participate in a technical assistance project with the CSC's Community Planning Workshop (CPW). While the City initially committed to using regulatory measures (the Oakridge TMDL Implementation Plan identified a Riparian Ordinance as a key outcome), DEQ is allowing Oakridge to test a voluntary strategy. With respect to the Riparian Ordinance (e.g., the regulatory approach), it became clear as the City moved forward with this process the community had substantial concerns and opposition to this strategy. In light of this, the DEQ granted the City an opportunity to test a voluntary management approach which has led to the development of this Surface Water Management Program (SWMP).

The core of the Oakridge SWMP focuses on outreach and engagement with the community, enhancement of riparian areas on city-owned property, and voluntary action by riverfront property owners. The City's intent as articulated in the Surface Water Management Program is to address its TMDL obligations largely through voluntary means, respecting the community's desires of minimal government regulation.

In other words, this SWMP is an alternative to the adoption of a riparian ordinance as originally listed in the Oakridge TMDL Implementation Plan adopted by the Oakridge City Council in February 2011. The Oregon DEQ considers the voluntary approach described in the SWMP an "adaptive management" approach that allows Oakridge to defer and potentially avoid the adoption of a riparian ordinance. The SWMP outlines monitoring requirements that the City will need to gather data on to demonstrate compliance with its TMDL. If DEQ determines that Oakridge is making inadequate progress, it may require the city adopt a riparian ordinance.

Purpose

The purpose of the Oakridge SWMP is to enhance the scenic and natural value of the Middle Fork Willamette River, increase biodiversity and native vegetation, and protect human life and property while recognizing the importance of maintaining private property rights. The City of Oakridge believes in creating healthy natural systems, increasing public awareness of environmental issues, and adhering to state and federal requirements. The SWMP is a pilot program in partnership with DEQ that will allow Oakridge to comply with state and federal water policy primarily through education and outreach programs and voluntary action. It also includes development code amendments to mitigate potential water quality impacts from new development. The objectives of the Oakridge SWMP are to:

1. Engage and inform the community regarding water management issues, with an emphasis on riverfront property owners.

2. Adopt and implement strategies to protect riparian areas within the City's limits.

3. Partner streamside property owners with the city and regional organizations to restore and maintain riparian areas through voluntary measures.

4. Implement *low impact development* (LID) strategies for inclusion in the City's municipal code and educate residents about the benefits of managing stormwater.

5. Establish the City as a community leader in water quality protection by demonstrating LID and riparian protection on City owned land.

The ultimate goal of the program is to improve water quality through the preservation and enhancement of riparian areas within the city as well as through incorporation of LID strategies to mitigate the impacts of *impervious surfaces* and runoff on water quality. The City's dedication to allocate adequate time and resources to further the objectives of this voluntary program will rely on securing local and regional partnerships with organizations and institutions. Support for the SWMP requires creative funding solutions, often facilitated through these partnerships.

Methodology

The SWMP emerged through a collaborative process between the City, representatives of state and regional agencies, and the Community Planning Workshop (CPW). CPW performed a rapid assessment that involved a review of the City's municipal code, interviews with key stakeholders, and research of the Oakridge community context to help learn the key water quality issues currently facing Oakridge. The CPW team met with city staff and council, once in March and once in May, to discuss the different options for a riparian ordinance and the process moving forward.

After the City decided to move forward with the SWMP in lieu of a riparian ordinance, CPW organized a community outreach event which was held in July 2013. The City was in attendance along with representatives of state and regional agencies and nonprofit organizations. All Oakridge residents were invited and streamside property owners were the target audience. The purpose of the event was to clear up any misconceptions about an ordinance, give residents the appropriate resources to make informed decisions, and gather their comments, questions, and concerns.

CPW supplemented the feedback gathered from the event with research on best practices related to surface water management, existing riparian ordinances, LID best practices, and review of the City's existing TMDL Implementation Plan. With this information CPW drafted the SWMP, including recommendations for incorporating LID strategies into the municipal code. CPW built from previous projects it completed for the cities of Turner, Gold Hill and Shady Cove. This report is the outcome of this collaborative, non-regulatory approach to improving water quality through reducing pollution and protecting riparian areas.

Organization of this document

The remainder of this report is organized into four chapters and several appendices.

Chapter Two provides the regulatory framework of the project. The chapter describes the state and federal regulations that necessitated this project as well as the specific regulatory obligations of the City of Oakridge.

Chapter Three is a brief geographical analysis of the land and natural resources in Oakridge. For context, the chapter includes a map of the city, including the urban growth boundary, tax lots, and water features. The chapter also provides an analysis of the land that is potentially impacted by water features such as the floodplain, floodway, and the Middle Fork Willamette River itself.

Chapter Four is the most critical piece of this program. It contains the action plan through which the City of Oakridge will manage its surface water resources. The chapter is broken into broad goals and strategies and provides detailed information about the specific actions the City will take to implement this program.

Chapter Five addresses program implementation including a discussion of the funding, administration, and evaluation aspects of the program. This chapter provides broad information to assist the City of Oakridge in implementing this Surface Water Management Program.

This report also includes four appendices:

Appendix A contains a copy of the City of Oakridge's TMDL Implementation Plan Matrix, as adopted by the City and approved by the Department of Environmental Quality (DEQ).

Appendix B provides a list of regional organizations that have expressed a willingness to partner with the City of Oakridge in implementing this program. The appendix includes names and contact information for the organizations as well as a brief description of the potential role of each organization.

Appendix C includes a preliminary summary of available grant funding that may be applicable to many of the actions included in this program.

Appendix D is a glossary of key terms used in related water quality documents. It contains the definitions of key terms used throughout this report, which are italicized and underlined the first time they are used to indicate that readers can refer to the appendix for a definition.

CHAPTER TWO: REGULATORY FRAMEWORK

This chapter provides the regulatory framework of the project by describing the state and federal regulations that necessitated this project as well as the specific regulatory obligations of the City of Oakridge.

Policy Context

The *Clean Water Act* (CWA) of 1972 regulates water quality by requiring the Environmental Protection Agency (EPA) to set water quality standards. To address the standards, states and tribes review, revise, and adopt water quality standards pursuant to the CWA's action-forcing statutes, including the Water Quality Standards Regulation (40 CFR 131). The core component of addressing the standards requires the states and tribes to specify and examine "beneficial uses" of water bodies in their jurisdictions. Examples of beneficial uses include public water supply, fish, wildlife, recreation, agriculture, and industry.[3] In order to protect beneficial uses, the CWA regulates pollution that enters water bodies through *point sources* (i.e. from a discrete point such as a wastewater pipe) and *nonpoint sources* (i.e. from diffuse sources such as fertilizer permeating the ground and subsequently entering the water).

Under Section 303(d) of the CWA, states, territories, and authorized tribes must develop lists of "water quality" impaired waters. These impaired waters do not meet water quality standards even after point sources of pollution have installed the minimum required levels of pollution control technology. Jurisdictions rank impaired waterways on their "303(d) list" and develop a plan for these waters. Next, under Section 303(c) of the CWA, the EPA can review, approve, disapprove, and promulgate separate water quality standards.

To bring impaired water bodies into compliance with water quality standards, states define an upper limit – Total Maximum Daily Load (TMDL) – for each pollutant affecting the water body. The upper limit is an amount of pollution that each water body can receive while still meeting water quality standards and maintaining all beneficial uses. The state publishes a TMDL report for each impaired water body, which includes a geographic description, identification of pollutants, applicable standards, source assessment, description of data collected, loading capacity, allocation of loads, and margin of safety.

In September 2006, the Oregon Department of Environmental Quality (DEQ) adopted the Middle Fork Willamette River Basin TMDL. This TMDL established pollution limits to protect human health and salmon and trout in the *watershed*. In the Middle Fork Willamette River Basin, the DEQ identified temperature and bacteria impairments, and reductions for mercury that applied to the Willamette River Basinwide. Therefore, the Middle Fork Willamette River and its tributaries in

[3] "Water: Water Quality Standards. Designated Uses," Environmental Protection Agency, last modified March 22, 2013, http://water.epa.gov/scitech/swguidance/standards/uses.cfm.

and around Oakridge have pollution limits for temperature, bacteria, and a concern for mercury.

Oakridge's Requirements

To meet the requirements of the Middle Fork Willamette Subbasin TMDL, Oakridge, with the help of DEQ and MFWWC in partnership with LCOG, developed a TMDL implementation plan. The implementation plan contains a list of pollutants, proposed treatment strategies, an implementation timeline, reporting requirements, and proposed methods for monitoring and evaluation of progress. The Oakridge City Council adopted the Oakridge TMDL Implementation Plan in December 2010. The Oakridge Surface Water Management Program (SWMP) intends to address selected strategies previously identified in the City's TMDL implementation plan.

Total Maximum Daily Load

A Total Maximum Daily Load, or TMDL, is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards and maintain beneficial uses. The TMDL is the sum of the allowable load from current sources, load set aside for future sources, and load set aside to account for uncertainty. Allowable loading from point sources is termed Waste Load Allocations and allowable loading from nonpoint sources is termed Load Allocations. Point and nonpoint sources are discussed later in this section. Allowable loading set aside for future sources is the Reserve Capacity and allowable loading set aside to account for uncertainty is the Margin of Safety. The Margin of Safety may be implicit, as in conservative assumptions used in calculating the loading capacity, Waste Load Allocations, and Loading Allocations. The Margin of Safety may also be explicitly stated as an added separate allocation in the TMDL calculation.

Middle Fork Willamette Subbasin TMDL

The Middle Fork Willamette Subbasin TMDL[4] applies to all perennial and intermittent streams, rivers, and lakes within the Middle Fork Willamette River Basin. This TMDL excludes areas where TMDLs already exist. The 1,355 square mile Middle Fork Willamette Subbasin is located within Lane and Douglas Counties in Oregon and comprises 10 different watersheds. Watersheds and rivers comprise a system that impacts all communities; actions upstream have consequences for communities downstream. Therefore, DEQ requires all cities to develop a TMDL implementation plan.

Each city is treated as a *Designated Management Agency* (DMA) and has 18 months to create an implementation plan starting from the point the TMDL is created as an executive order. Each city's TMDL implementation plan contains a matrix with management strategies, specific actions, measures of progress/benchmarks, fiscal analysis, and a timeline to reduce pollutants identified in the TMDL within the city

[4] "Chapter 7: Middle Willamette Subbasin," Oregon Department of Environmental Quality, accessed August 2013, http://www.deq.state.or.us/wq/tmdls/docs/willamettebasin/willamette/chpt7midwill.pdf.

limits. In the section of the Middle Fork Willamette River running through Oakridge, temperature and bacteria are the primary nonpoint source pollutants in the Middle Fork Willamette Subbasin TMDL. According to the Middle Fork Willamette Subbasin TMDL, temperature causes concerns because fish are sensitive to warmer temperatures and can affect their rearing and migration as well as spawning. Similarly, bacteria causes concerns in regards to recreational contact because it increases the risk of pathogen induced illnesses, such as gastrointestinal or respiratory diseases. Mercury is a basinwide concern, and TMDL Plans must document efforts to reduce erosion of sediment through stormwater controls and riparian vegetation.

Oakridge's TMDL Implementation Plan

As mentioned jurisdictions in the Middle Fork Willamette River Basin, such as Oakridge, must create implementation plans with specific management measures to mitigate temperature and bacteria pollution. MFWWC contracted through LCOG worked with Oakridge to create the Oakridge TMDL Implementation Matrix that DEQ approved in January 2011 and City Council adopted in December 2010.

The management measures to meet the TMDL load and waste load allocations differ depending on the source of the pollutant. For example, one of the management measures in Oakridge's implementation plan for bacteria is the prevention of contamination from animal waste, which can be accomplished by strategically locating pet waste pick-up stations and educating residents about the importance of picking up waste. An example of one of the measures to mitigate temperature pollution is to work with private property owners on riparian restoration projects. Appendix A includes a copy of Oakridge's TMDL Implementation Plan Action Matrix which is designed to address temperature, bacteria, and mercury. Following is a summary of the overarching strategies that Oakridge proposed in their TMDL implementation, and which this SWMP addresses:

1. Provide outreach and education to residents on the importance of riparian restoration and opportunities available to interested landowners. This could include educational forums, workshops, and informational newsletters.

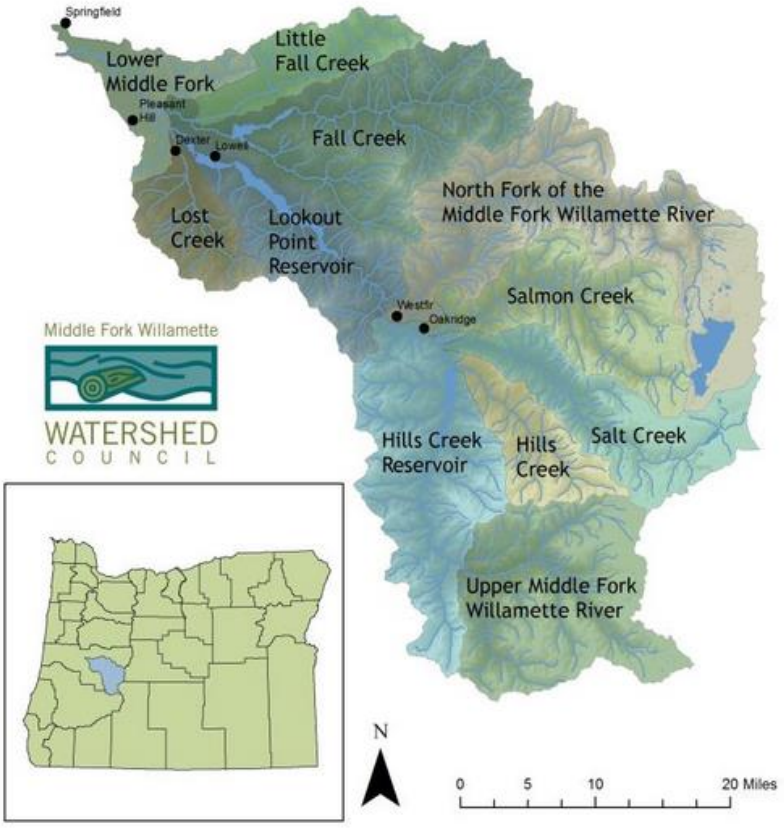
2. Work with regional partners to develop a strategy for identifying and prioritizing restoration, planting, and protection areas.

3. Adopt riparian regulations or programs to protect existing native vegetation including restoration of riparian buffer and mitigation of potential impacts from new development.

CHAPTER THREE: ANALYSIS OF DEVELOPMENT ALONG OAKRIDGE'S FLOODPLAIN

Oakridge is located in the Middle Fork Willamette Subbasin (refer to Figure 3-1), a watershed that encompasses 1,355 square miles in the larger 11,500 square mile Willamette Basin.[5] The Middle Fork Willamette Subbasin is almost 95% forest and home to many endangered species that depend on the river or the riparian area such as the Chinook salmon, Oregon chub, Bull trout, and Bradshaw's lomatium.[6] The Middle Fork forms Oakridge's southern boundary, which has played a large role in shaping the City (refer to Map 3-1 below).

Map 3-1: Middle Fork Willamette Subbasin[7]



[5] "The Willamette Basin," Willamette Partnership, accessed August 2013, http://willamettepartnership.org/about-the-willamette-basin.
[6] "Middle Fork Willamette Watershed," Middle Fork Willamette Watershed Council, accessed August 2013, http://www.mfwwc.org/middlefork.html.
[7] "Middle Fork Willamette Watershed."

The Middle Fork provides the City with valuable recreational amenities, particularly in regards to fishing, mountain biking nearby the river, and rafting. Recreational amenities, in conjunction with the scenic value of the river, have enticed residential development along the river's edge. The Middle Fork has an average flow rate of approximately 1,320 cubic feet per second at the Middle Fork below the North Fork near Oakridge, Oregon.[8]

Rivers and streams hold a lot of economic and scenic value and, as a result, development along the Middle Fork and Salmon Creek has flourished. Yet due to Oakridge's location along the Middle Fork, ***floodplain*** regulations impact both private and public properties within the city. These riverfront properties are highlighted in Map 3-1 along with the location of the floodplain and ***floodway***. Areas within floodways and floodplains frequently have riparian vegetation, which can have water quality as well as flood benefits.

A total of 79 properties (with 649 total acres) have river frontage— meaning that they include riparian areas. About 108 acres of the 1,538 acres of total land within the city limits – in other words about 7% of land falls within the 100-year floodplain, which includes the floodway. However as shown in Table 3-1, the 100-year floodplain impacts more private riverfront property by count and percent of land impacted. Seventy-nine parcels border the river, 22 are public and 57 private. Almost 47% of the total acreage for private property is in the floodplain. Only 13% of the public property along the river falls within the floodplain which is due to the size of the public parcels compared to the private parcels. Within riverfront properties, 28 buildings are located in the floodplain, which on average are 108 feet in distance from the Middle Fork.

Riverfront properties may also be affected by the presence of riparian vegetation, which provides benefits to water quality, such as slowing the speed of runoff, preventing bank erosion, reducing the temperature of runoff, and filtering pollutants before runoff enters the river. Because of these diverse benefits, it is important to ensure that riverfront landowners have the necessary resources to effectively identify, maintain, preserve, and enhance riparian vegetation if they choose to do so. Map 3-2 provides an aerial view of properties and what areas may have more or less vegetation along the riparian area.

[8] http://waterdata.usgs.gov/or/nwis/nwisman/?site_no=14148000

Table 3-1: Acres of Public and Private Parcels Impacted by Floodplain

	Total Acres	Lots in Floodplain	Lot Acres Located in Floodplain[9]	Lot Acres in Floodway
Publicly-Owned Parcels	534	22	54	9
Privately Owned Parcels	115	57	54	25
Total	**649**	**79**	**108**	**34**

Source: CPW; LCOG Shapefiles.

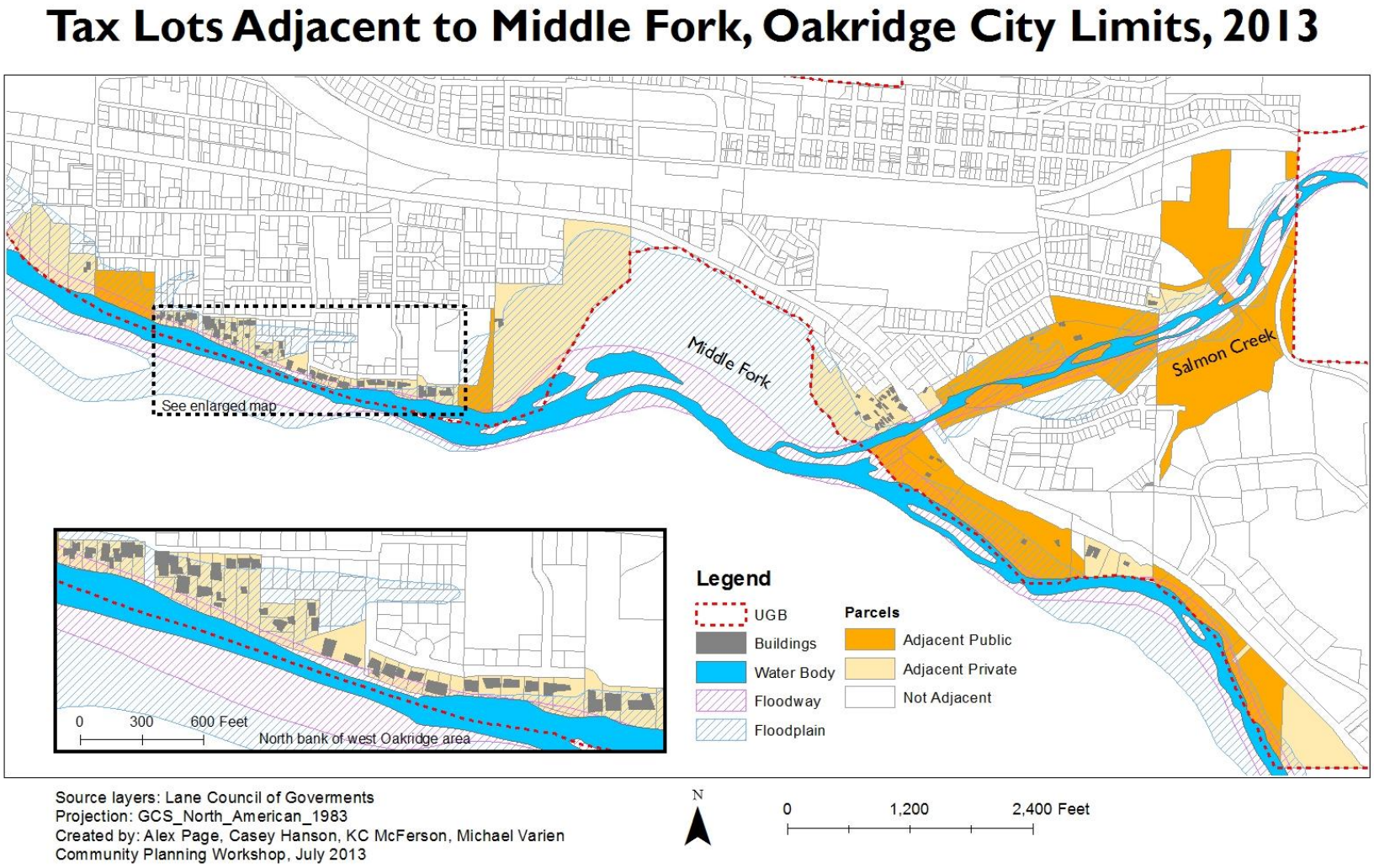
Although the City is taking a voluntary management approach to satisfying its TMDL requirements, documenting development capacity provides insight on how a riparian ordinance might affect future development along the Middle Fork. When riparian ordinances are adopted, existing development is grandfathered in which means only future development from the point of adoption is limited. A city with many undeveloped properties may face greater advantages in protecting water quality using a riparian ordinance than a city with few. Because the City is incorporating riparian protection for public land, this development capacity analysis only used private properties.

For the purposes of the inventory, properties with $10,000 or less in improvement value were treated as undeveloped. Considering this, 15 properties of the 57 are undeveloped; approximately 26% of all private property (see Map 3-3). Additionally, there are two different sets of properties where two adjacent properties have the same owner. With only a quarter of the land considered undeveloped and ample participation, it is promising that this surface water management program may accrue greater benefits in improving water quality than a riparian ordinance. In sum:

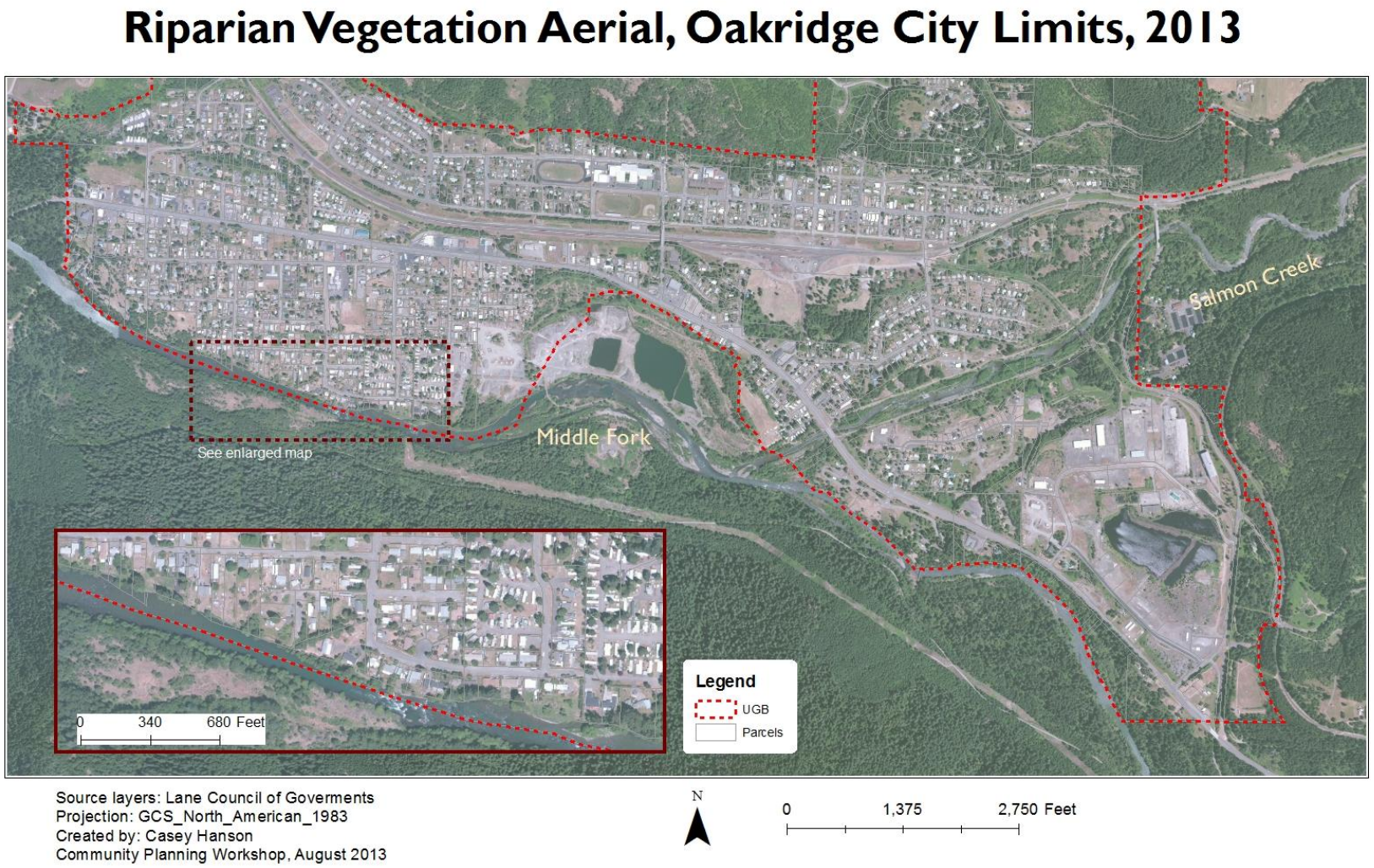
- Fifty-seven private parcels are located along streams.
- Seven percent of land falls within the floodplain. Half of that land is public and half is private in terms of acreage.
- Two-and-a-half more private properties fall within the floodplain than public properties.
- Forty-seven percent of the total acreage for private properties falls within the floodplain.
- Thirteen percent of the total acreage of public properties falls within the floodplain.
- Twenty-eight buildings fall within the floodplain.

[9] The 100-year floodplain includes the floodway.

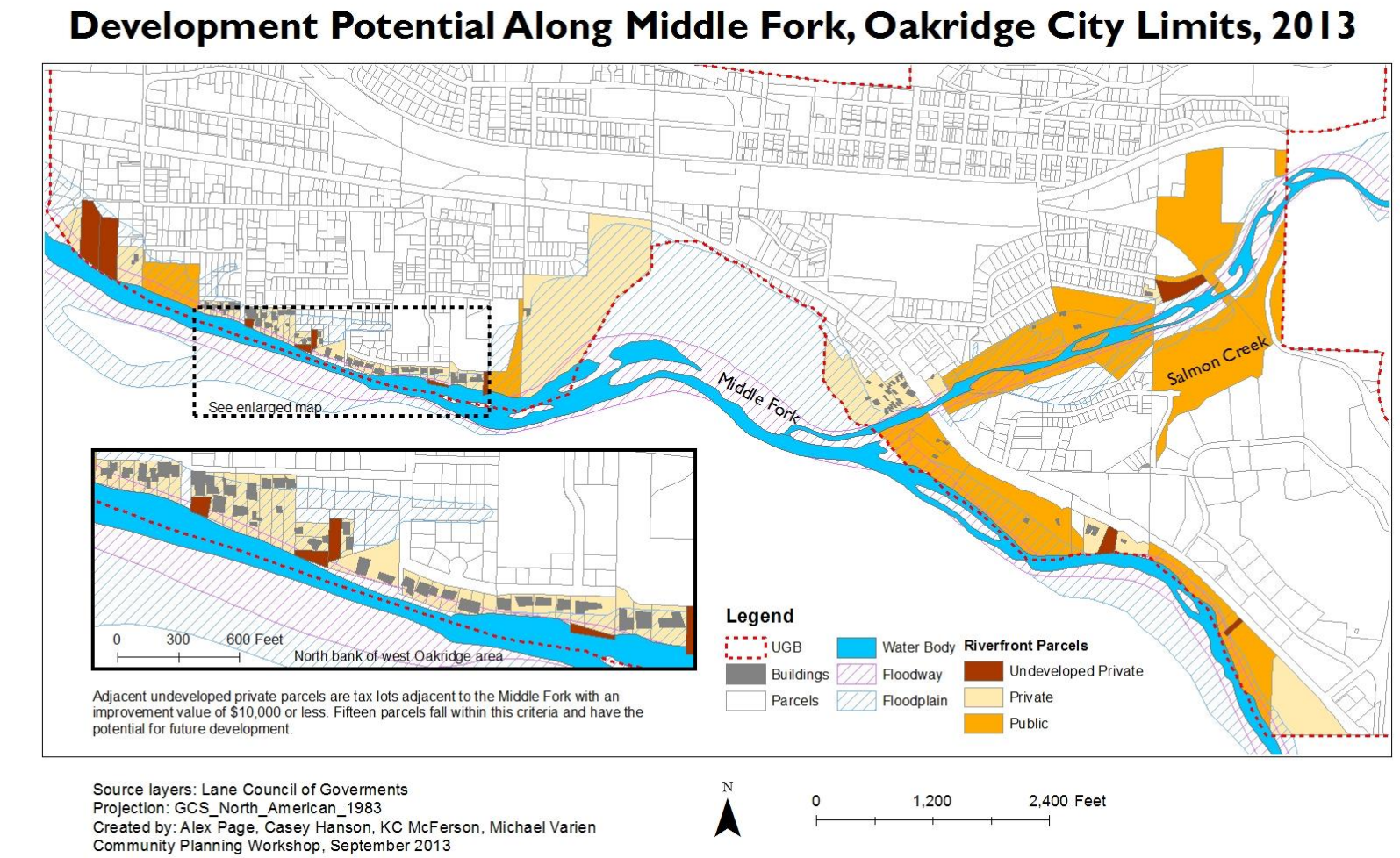
Map 2-1: Oakridge Parcels and Water Features Map



Map 2-2: Aerial of Oakridge Vegetation



Map 3-3: Development Capacity along Middle Fork/Salmon Creek



CHAPTER FOUR:
WATER QUALITY ACTION PLAN

Between 2008 and 2013, Oakridge took a number of steps to protect water quality along the Middle Fork and Salmon Creek. Examples include riparian plantings, installing pet waste stations, creating and adopting a stormwater plan, adopting a floodplain ordinance, and street sweeping. Most of which are strategies already listed in the Oakridge TMDL (TMDL) Implementation Plan. These efforts have put the City on a productive path to enhancing the water quality of nearby water bodies and helped satisfy some of the City's existing TMDL requirements.

Chapter Four presents a series of actions (called the "action plan") that will build off of existing efforts the City has taken to address water quality. Implementing these actions implements the Oakridge Surface Water Management Program (SWMP) and addresses outstanding activities identified in the Oakridge TMDL Implementation Plan.

The action plan includes goals that address the City's water quality obligations under the Middle Fork Willamette TMDL, as discussed in Chapter Two. Many of these goals are voluntary in nature, with some approaches containing an administrative component to ensure the City meets these standards. Each goal consists of a strategy and one or more actions for accomplishing the strategy. Actions can complement multiple goals. Strategy and actions provide increased specification as to how the City intends to accomplish its goals. Under each action will be an explanation that includes:

- what the action proposes to accomplish;
- the partners involved in developing and implementing the action;
- the timeframe in which responsible parties will execute the action; and
- the desired outcome.

The strategies and actions that follow are presented for a five-year schedule and timeframes refer to the adoption of the program as the starting point. The Action Plan assumes the City is the lead organization and will either be responsible for implementation of actions, or of coordinating their implementation.

It is the objective of the City of Oakridge that through the coordinated success of the strategies listed below the City will increase the sustainability of its natural systems, provide a healthy environment for people and wildlife, and enhance economic stability. Furthermore, the partnerships and funding mechanisms that develop as a result of this program will provide a foundation for cooperative resource management for Oakridge well into the future.

Goal 1: Lead the community effort to improve and maintain water quality and water resource protection.

Water resource protection provides the City with an opportunity to lead by example regarding water quality issues and help the community learn how to protect water resources. To accomplish this goal, the City will show leadership through remaining informed about water quality status, maintaining and establishing partnerships, and establishing funding sources to support the implementation of this program. By taking a strong lead, the City can inspire and engage the Oakridge community around water quality issues.

Goal 1: Lead the community effort to improve and maintain water quality and water resource protection.	Strategy I.I: Lead the community by example in implementing strategies to improve water quality.

Action 1.1.1: Acquire and maintain local and regional partnerships to ensure that actions are implemented successfully.

Rationale:

The Department of Environmental Quality (DEQ) is the state administrator of the Clean Water Act and related regulations in Oregon. As such, the agency will ultimately determine whether or not Oakridge is successfully following its TMDL Implementation Plan. Implementing actions, especially ongoing ones, requires commitment and resources, which Oakridge alone cannot provide. Thus, partners will play a very valuable role in ensuring that this program is successful by assisting the city in implementing and sustaining actions by providing in-kind and monetary contributions.

At a glance:

Who:

- City Administrator
- Regional partners

Timeline:

- Quarterly

Outcomes:

- Help execute and support SWMP actions

Funding:

- Staff time

Monitoring:

- Document partners' help with each action

Who: The City Administrator will designate staff to be the primary contact with regional partners. Partners that will work with the City to execute actions within the Surface Water Management Program include: Oregon Department of Fish and Wildlife, Upper Willamette Soil and Water Conservation District, Oregon State University extension/Green Girl Land Development Solutions, and Middle Fork Willamette Watershed Council.

Timeline: The City will communicate quarterly with partners to report on updates and events and more frequently if needed.

Outcomes: Partnerships with regional organizations provide many positive outcomes for the City. The City can use the TMDL meetings (see Action 1.2.1) and the required TMDL check-in with DEQ as a way to get counsel and information about water quality issues.

Funding: The City will work with partners to determine if funding above and beyond City staff time is necessary for collaborative actions.

Monitoring: When the City completes an action in the SWMP that allows for an opportunity to partner with regional organizations, the SWMP program administrator will document the nature of the partnership for the purpose of reporting progress to the DEQ

Goal 1: Lead the community effort to improve and maintain water quality and water resource protection.	Strategy 1.1: Lead the community by example in implementing strategies to improve water quality.

Action 1.1.2: Identify and secure stable funding from local, regional, and national sources.

Rationale:

Many of the strategies proposed in this program will require some degree of funding; however, the City does not possess the economic resources to pay for the entire program on its own. Acquiring funding from outside sources that have an interest in the City's water quality objectives will help alleviate this burden.

At a glance:

Who:

- City Administrator
- City Council

Timeline:

- Month 1 and Month 6

Outcomes:

- Help execute and support actions in the SWMP

Funding:

- Staff time

Monitoring:

- Track grant funding
- Track city funds

Who: The City Administrator will determine if the City will apply for any grants. Appendix C contains a list of available funding opportunities. A more sustainable funding method will also be necessary because grants alone cannot guarantee the operations of a program on a long term basis. The City Council will need to agree to committee these funds to the Surface Water Management Program. One possible option is allocating a portion of the stormwater fee to the finances of this program.

Timeline: The City will apply for grants as soon as resources permit. The CPW team recommends applying for grants before the program starts or as close to the start as possible to help with the initial start-up of the program. The City should identify grants to apply for the upcoming fiscal year no later than Month 6. In addition to the grants, the City will also need to identify a stable city source to fund the program by Month 1.

Outcomes: Oakridge will apply for federal, state, and regional grants. When possible, the City will consider developing and implementing a fundraising plan. This alleviates some of the financial burden for the City. The City could also allocate a portion of the stormwater fee to support the program.

Funding: City funds will pay for staff time. Tasks include researching grants, applying for grants, overseeing the budget for awarded grants and city funds as well as coordinating any fundraising events or other tasks relate to funding the program.

Monitoring: The City will track any acquired grant funding and stable city funds. Amount of funds will be adjusted annually.

Goal 1: Lead the community effort to improve and maintain water quality and water resource protection.	Strategy 1.2: Stay up-to-date on current water quality status, activities, and needs.

Action 1.2.1: Have appropriate staff attend DEQ TMDL meetings.

Rationale:

DEQ TMDL meetings present an opportunity for the City to learn about the status of water quality in Oakridge and in the larger Willamette watershed. Learning about water quality and activities will ensure that the steps that the City takes will be informed and important steps toward protecting local water quality. Reporting back to the City Council will enable all City officials to stay current on water quality issues and strategies. Although this is not something required through 2013, DEQ will ask Oakridge to attend these meetings and add this task to its 2014-2018 TMDL plan.

At a glance:

Who:

- City Administrator
- DEQ

Timeline:

- As scheduled starting 2014

Outcomes:

- Remain informed on TMDL updates

Funding:

- Staff time

Monitoring:

- Document staff attendance

Who: The City Administrator or designated staff person will attend these meetings. It will be the responsibility of the City Administrator to report on these to City Council for robust information sharing on water quality issues with staff.

Timeline: The City will communicate with the DEQ to determine the ongoing schedule. The City Administrator or designated staff will attend appropriate DEQ TMDL meetings starting 2014.

Outcomes: The City will remain informed about water quality status and will learn about new strategies other localities are implementing that might work in Oakridge. In this way, the City will avoid being surprised by new policies related to surface water management and will stay in close contact with partners at the DEQ in case any issues should arise.

Funding: City funds will pay for staff time and resources to complete this action. Most time and resources includes travel to meeting and staff attending these meetings in addition to taking the time to report to City Council.

Monitoring: The City Administrator will ensure that a staff person attends these meetings and presents regular updates to the City Council. The staff will prepare a list of meetings that the City has attended each year and will include it in its report to DEQ.

Goal 2: Adopt, implement, and promote low impact development strategies.

Low impact development (LID) strategies are a combination of practices that conserve natural resource areas and use existing natural site features with distributed, small-scale stormwater management practices to capture and treat runoff with vegetation and soil similar to a well-vegetated undeveloped landscape. They are also design standards for developments to ensure that development works in conjunction with nature, instead of in opposition to it.

The use of LID strategies throughout the City will help to mitigate water quality and flood issues through the filtration of non-point source pollution, and infiltration of stormwater runoff. The City will accomplish this through breathing flexibility to use LID into the City Code, prioritizing and considering LID in applicable public projects, and minimizing overflow in problem areas. The efforts will allow the city to lead by example and engage the community in water quality protection.

Goal 2: Adopt, implement, and promote low impact development strategies.	Strategy 2.1: Encourage and champion low impact development practices through code amendments and demonstration sites.

Action 2.1.1: Adopt LID code amendments.

Rationale:

Based on CPW's review, the municipal code contains barriers to implementing LID strategies in development and redevelopment projects. The proposed code amendments create flexibility so that future development projects can include water quality protection and the often cost-saving LID strategies.

At a glance:

Who:

- CPW
- City Council
- City Administrator
- Planning Commission

Timeline:

- Month 6

Outcomes:

- Increase flexibility to use LID in code

Funding:

- Staff time

Monitoring:

- Report amendments to DEQ

Who: The CPW team developed a list of recommended code amendments to incorporate LID strategies into the existing municipal code. The City Council is responsible for adopting the amendments. The Planning Commission will also have to review and recommend the amendments to Council for adoption through a public hearing process.

Because the code amendments are legislative changes to the municipal code, the City is obligated to provide notification to the Department of Land Conservation and Development at least 35 days before the first evidentiary hearing. Moreover, the City is obligated to provide notification to affected property owners of the code amendments consistent with the municipal code and Measure 56. The intent of that step is to provide an opportunity for public input on the code amendments.

Timeline: CPW presented draft amendments to the planning commission in fall 2013. The City's contract planner will present the amendments to the City Council and the Council will conduct hearings on the amendments by month 6. CPW may assist in presenting amendments to the City Council.

Outcomes: A revised city code will reduce barriers residents and developers may face in implementing LID strategies and promote policy measures that support water quality in the city.

Funding: City funds will pay for staff time and resources to complete this action. This includes preparing for and holding hearing and meetings related to the code amendments as well as other administrative tasks to execute this action.

Monitoring: The City Administrator will report to the DEQ when the City Council adopts the proposed amendments. The report should include which proposed amendments have and have not been adopted.

Goal 2: Adopt, implement, and promote low impact development strategies.	Strategy 2.1: Encourage and champion low impact development practices through code amendments and demonstration sites.

Action 2.1.2: Use LID strategies in public projects.

Rationale:

The City has already taken effort to include environmentally friendly alternatives to conventional stormwater management by implementing a bioswale along Douglas Street. Continuing this effort and incorporating LID strategies into public projects is a great way to inspire private developers and landowners to do the same. Not only could public projects benefit the community by their creation, but they could also serve as an observational or hands-on educational opportunity.

At a glance:

Who:

- City departments
- City staff
- Contractors

Timeline:

- Ongoing

Outcomes:

- Demonstrate support for LID uses
- Increase awareness

Funding:

- Staff time
- Funding/grants

Monitoring:

- Document each LID project

Who*:* All city departments, staff, and contractors involved in designing and implementing public projects. When city departments are planning a project that might provide an opportunity to allow for low impact development they will notify the responsible staff member for this task. When RFPs are developed for new projects, the City should make note that LID strategies will be given priority over conventional stormwater management strategies when feasible. Maria Cahill from Green Girl Land Development solutions would like to help Oakridge prioritize sites for LID projects.

Timeline*:* Ongoing.

Outcomes*:* Public projects that improve water quality, build a sense of community, and serve as learning sites. The City will adopt a resolution to prioritize LID design in contract bids for public projects when financially and technically feasible. If desired, the City can request contractors to provide an estimate in savings using low impact development over traditional methods so the City can advertise the benefits of using low impact development. At a minimum, the City will commit to prioritizing LID for the redevelopment of the Willamette Activity Center.

Funding: The City will fund the use of LID projects as appropriate. Depending on the type of project or LID strategy incorporated, the City can apply for special grants or other funds, see Appendix C for funding sources.

Monitoring*:* The City will document each city project that includes LID and will report those projects to DEQ in the yearly Total Maximum Daily Load review.

Goal 2: Adopt, implement, and promote low impact development strategies.	Strategy 2.2: Coordinate low impact development strategies with the existing stormwater management plan.

Action 2.2.1: Minimize discharge and runoff from at-risk areas.

Rationale:

Cross connections allow untreated wastewater to enter the river, bypassing treatment, which contributes to bacteria and other pollutants entering the waterway. Additionally, intentional illicit discharges, especially in areas where the storm drains in Oakridge discharge straight into the river, provide a threat to the health of the river. Both of these issues are concerns expressed during the landowner workshop. By implementing LID strategies strategically to both minimize discharges and inform the public about consequences of illicit discharging and cross connections, can help decrease the number of illicit discharges and increase public awareness of where the sewers drain to. This supports goal 3 of the SWMP.

At a glance:

Who:

- City Administrator
- Public Works staff
- At-risk owners
- St. Vincent de Paul

Timeline:

- Month 4, Year 1, Year 2

Outcomes:

- Reduce direct discharge and instances of I&I

Funding:

- Staff time

Who: The City Administrator will designate Public Works Department staff to work with identified at risk areas. The Public Works Department will use its stormwater system map to identify areas to protect water quality as listed in the Oakridge TMDL Implementation Plan. The mobile home park also has aging stormwater infrastructure that discharges directly to the river. Appropriate staff will begin collaboration with St. Vincent de Paul to provide resources on using LID strategies and increase awareness of illicit discharging.

Timeline: The City Administrator will designate appropriate staff by month 4. Staff will then have until Year 1 to identify at-risk areas and strategize ways to partner with them. By Year 2, the City should have a list of at-risk properties that are willing to participate and strategies the participants will apply to their properties. The City will check up annually with the partners to evaluate the progress and success of each property's approach.

Outcomes: Using the stormwater plan to identify at-risk areas complements pledged strategies in Oakridge's TMDL IP. Implemented LID strategies reduce the amount of stormwater discharging directly into the river at at-risk areas. Stenciling storm drains will also educate residents about drains that discharge directly to the river. Residents will check where existing sewer laterals exist with the city prior to tree plantings to reduce chances of I&I. The City will acknowledge and address residents' concerns about at-risk areas.

Funding: City funds will pay for staff time and resources to complete this action. The City can also look to regional partners to help reach out and provide information to at-risk areas on both public and private lands.

Monitoring:

- Check in with properties and report to DEQ

***Monitoring**:* The designated staff will touch base with participating properties annually to evaluate the progress and effectiveness of planned and implemented strategies. The staff member will report to the City Administrator so he or she can update the Oregon DEQ and City Council during scheduled updates.

Goal 3: Increase community engagement and awareness of water quality issues.

The City will facilitate community learning and participation that leads to community empowerment. It requires the creation of consistent, common, and correct, community understanding and awareness of water quality protection. Vital to this Surface Water Management Plan is the active participation of the community. To ensure the public engages in a positive manner, it is important to raise awareness of water quality issues, educate residents, and guide them with accurate resource information. There are two strategies; one focuses on information dissemination and the second on increasing community engagement.

Goal 3: Increase community engagement and awareness of water quality issues.	Strategy 3.1: Alert residents of safe and healthy ways to manage wastewater.

Action 3.1.1: Provide landowners with septic systems resources on methods to protect the river.

Rationale:

Damaged or improperly constructed septic systems lead to the deposition of effluent and other pollutants into ground and surface water, which decreases water quality and raises monitored levels of pollutants. Based on conversations during the landowner workshop, CPW learned that as of 2013, 20-25 homeowners are on septic systems within the city limit and several homeowners inside the UGB have septic systems' drain fields that are in disrepair. Lane County will not let residents with failed septic systems replace them with new ones, requiring homeowners to connect to existing sewer or continue with damaged septic systems. Statewide, approximately 10-25% of all septic systems fail, this suggests that actions should be taken to encourage and educate landowners about proper maintenance and care for their septic system.

At a glance:

Who:

- City Council
- Public Works

Timeline:

- Year 1-3

Outcomes:

- Address damaged septic systems
- Inform landowners on septic systems and water quality

Funding:

- DEQ Grant

Who: The Community Planning Workshop (CPW) team developed a list of recommended policy options to consider when addressing sewage infrastructure and septic systems in and nearby the city. City staff, including the Public Works department, should coordinate to act on this action item.

Timeline: CPW recommends that the City adopt policy recommendation 1 by year 1 so that it can move forward with more involved steps. The city will implement remaining policy recommendations by year 3.

Outcomes: Residents of Oakridge will better understand the importance of septic system maintenance and repair. Residents will also take steps towards improving and maintaining the state of septic systems to increase surface and ground water quality. The City will also take steps to reduce water quality impairment due to septic systems. Following is a list of CPW's recommended policy options to address this issue:

Recommendation 1—Develop a database and map of residents with septic systems.

Coordinate with Public Works and the planning commission to construct a list of all residents that have septic permits in and near Oakridge.

Coordinate with city staff to construct a GIS map of all known septic permits and their relative location to the Middle Fork and Salmon Creek

- Staff time

Monitoring:

- Send reports to DEQ

or other known ground or surface water areas.

Recommendation 2—Send informational material to residents with septic systems.

Utilize the EPA SepticSmart Program, it provides free informational material, brochures, door-hangers and other materials that can be printed and disseminated to residents with septic systems in and around Oakridge. The material describes the importance of maintenance and how it can provide cost saving while also promoting water quality.

Select residents who live within close proximity to ground or surface waters and send additional informational material to these residents.

Recommendation 3—Consider developing a small sum zero-interest loan program for landowners to inspect septic systems.

Explore the possibility of funding a small program with a capped amount of available loans per year for inspecting septic systems for landowners in the city. The City could allocate a portion of its stormwater fee to help fund the loans.

Gather data and information from the program about the general state of systems in the city and how they are affecting water quality

Provide small amounts of funding or incentives for repairing damaged or non-functioning septic systems.

Recommendation 4—Ensure that relevant city code is monitored for compliance.

Confirm that Oakridge City Code § 51.21 USE OF PUBLIC SEWERS REQUIRED, specifically subsections: (A) (1) and (2) are enforced.

Confirm that Oakridge City Code § 51.22 PRIVATE SEWAGE DISPOSAL, specifically subsections: (B), (C), (D) and (F) are enforced.

Funding: City funds will pay for staff time and resources to complete this action. Funding strategies for the zero-interest septic inspection loan program should be developed by City Council, one potential source is the stormwater fee; DEQ could potentially provide grants and funding for this type of program in Oakridge.

Monitoring: The City Administrator will report to the Oregon Department of Environmental Quality (DEQ) when the City Staff have initialized some of the policy recommendations found in this action item. City staff should monitor the progress of any programs developed under this action item.

Goal 3: Increase community engagement and awareness of water quality issues.	Strategy 3.2: Engage residents in activities that raise awareness about water quality issues.

Action 3.2.1: Establish a process in which volunteers and interns can assist the city in meeting surface water management objectives.

Rationale:

The City of Oakridge is in need of staff that can work on surface water management projects. In order to achieve this goal without spending excessive city funds, CPW suggests collaborating with local organizations and jurisdictions to create an internship program and to promote volunteerism throughout the local community.

At a glance:

Who:

- RARE
- Neighbor Cities

Timeline:

- April 2014
- Ongoing

Outcomes:

- Increase assistance with executing SWMP actions through a RARE participant
- Increase local volunteerism

Who: Resource Assistance for Rural Environments (RARE) is an AmeriCorps program administered through the University of Oregon's Community Service Center. The City would work with a participant from the RARE program to facilitate the actions within the SWMP. In 2012, the City of Turner teamed up with the City of Salem to fund a water quality intern that worked on projects in both cities. This is a strategy that Oakridge should consider. In 2013-14, the City of Gold Hill engaged a RARE participant to implement elements of its Surface Water Management Program. It is possible to team up with neighboring cities to create an internship position that focuses on water quality issues throughout the watershed.

The City will advertise and recruit local volunteers for events that allow the community to participate, like tree plantings and removing invasive species.

Timeline: If the City moves forward with recruiting a RARE participant, applications are due April 2014. A participant would start summer 2014 and provide assistance to the city for a total of 11 months. When the City has events where volunteers can help, it will advertise it no later than one month before the event.

Outcomes: The City will apply for a RARE student to support the city in meeting its water quality objectives. If a RARE student cannot be acquired, the city should pursue hiring an intern who works on surface water management projects, as well as increased local volunteerism.

Funding:

- Staff time
- $20,000

Monitoring:

- Send reports to City Administrator

***Funding**:* City funds will pay for staff time and resources to complete this action. Each participating community provides $20,000 to place, train, and support a full-time RARE member. The City will use staff time to recruit local volunteers for community events.

***Monitoring**:* The RARE intern would report to the City Administrator. The same would be true if Oakridge teamed up with neighboring cities to create a surface water internship. If the City uses volunteers to help execute actions, it will document how many volunteers were used for each activity.

Goal 3: Increase community engagement and awareness of water quality issues.	Strategy 3.2: Engage residents in activities that raise awareness about water quality issues.

Action 3.2.2: Develop and distribute educational materials at public and private facilities.

Rationale:

The City of Oakridge will promote current and future water quality protection projects. This will allow residents to have a more accurate perception of the water quality projects that have already taken place in Oakridge and which projects are being planned for the future.

At a glance:

Who:

- Local Residents
- City Hall
- Newspapers

Timeline:

- Month 1

Outcomes:

- Increase understanding & appreciation for Oakridge's current and future water quality projects.

Funding:

- Staff time

Monitoring:

- Report by City Administrator

Who: Local residents should be better informed of the water quality projects that are taking place and being proposed in their community. This will help mitigate the negative perception about these projects that many residents seem to possess. If more residents had a clear understanding of the history and evolution of water quality protection in Oakridge, they would have more of an appreciation for the projects taking place currently.

Timeline: CPW has created a template for an educational brochure that can be customized for Oakridge. This brochure can be distributed by Month 1.

Outcomes: Increased understanding and appreciation for the water quality projects currently taking place in Oakridge through the dissemination of information. A number of potential strategies for distributing educational materials at public and private facilities exist. First, the city can include brochures in residents' utility bills to get information to the community. These brochures will be available at the planning counter at City Hall and other public and private buildings that are appropriate. Oakridge should also utilize local newspapers as a tool for distributing educational material. All of these strategies are things already listed in the existing TMDL IP.

Funding: City funds will pay for staff time and resources to complete this action.

Monitoring: The City Administrator will report all educational and outreach strategies that Oakridge utilizes in order to document a consistent attempt to engage with the community.

Goal 3: Increase community engagement and awareness of water quality issues.	Strategy 3.2: Engage residents in activities that raise awareness about water quality issues.

Action 3.2.3: Educate residents about the importance of removing yard debris and animal waste from waterways and riparian areas.

Rationale:

Several types of debris and waste can impact the quality of the river and landowners' experiences. High rain events can lead to new debris ending up on homeowners' properties which can be a nuisance for homeowners to remove. General lawn maintenance can also result in yard debris, like grass clippings which, when left alone, can lead to more nutrients entering the river. Animal waste that is not picked up also contributes to more bacteria entering the river. Debris, like plastic bags and bottles, can degrade the habitat and threaten wildlife. Residents expressed concerns and frustration with these issues during a landowner workshop held on July 30, 2013. Engaging residents and increasing awareness will remind people to take preventative measures and alert them of strategies to help manage debris.

At a glance:

Who:

- Public Works

Timeline:

- Month 8

Outcomes:

- Promote debris management options

Funding:

- Staff time

Who: The City Administrator will designate staff from the Public Works Department to develop educational materials and engage residents about best practices for dealing with debris and animal waste. The City will take extra steps to engage residents along the river.

Timeline: Designated staff will alert residents about preventative measures and educate them about management strategies by Month 8. The city will develop a water quality fact sheet related to this topic and make it available at the planning counter and commit to publishing one article about managing yard debris and animal waste along waterways.

Outcomes: City staff will provide information to residents on best practices for handling yard debris, trash debris, and animal waste. Best practices should include:

- Alternatives to leaving yard debris by the river such as composting leaves.
- Proper invasive species vegetation removal. Some invasive species have seeds that may spread when left along the river after being cut down or removed. Proper removal will help reduce the chance of spreading.

Monitoring:

- Deliver copy to DEQ

- Use of dog waste stations and proper signage to notify residents of its purpose.
- River friendly ways to deal with waste from cattle and other livestock.
- Proper disposal of waste such as sweeping up debris from driveways, around storm drains, and parking lots.
- Proper maintenance of woody debris. The City should inform residents that not all types of debris are detrimental to the health of the river. Woody debris helps provide habitat and slow runoff.

In addition to providing residents with information on best practices, the City will ensure that residents are aware of how pet waste and yard debris can negatively affect water quality. Taking these actions will satisfy strategies and proposed actions in the Oakridge TMDL Implementation Plan.

***Funding**:* City funds will pay for staff time and resources to complete this action. This includes preparing the necessary documents to distribute to residents and creating an article to publish in the newspaper.

***Monitoring**:* The designated staff member will report to the City Administrator when the fact sheet and newspaper article are drafted. Once the fact sheet and the article are available to the public the City Administrator will notify DEQ, providing them with a copy

Goal 4: Preserve, restore and enhance riparian areas to ensure a health community.

Planting riparian vegetation is an important strategy to improve water quality and reduce potential flood damage and bank erosion. Increasing the amount of riparian vegetation will also help to ensure that wildlife has adequate habitat. Developing riparian restoration projects can be difficult, but establishing partnerships and funding sources can sustain them. In order for this goal to be successful, streamside property owners must be engaged and voluntarily protect the riparian area on their property. The voluntary protection program will provide the City with opportunity to demonstrate public leadership in enhancing riparian areas and also recruit streamside property owners to do the same.

Goal 4: Preserve, restore, and enhance riparian areas to ensure a healthy community.	Strategy 4.1 Preserve and enhance native vegetation on public property.

Action 4.1.1: Incorporate riparian protection language into existing city plans.

Rationale:

Significant scientific evidence suggests that riparian land plays a substantial role for water quality in watersheds in Oregon. Adopting additional riparian protection language to the zoning code on public land allows the city to lead by example in its efforts to promote water quality. The proposed use of this language only applies to public lands and will not threaten private property rights in the city.

At a glance:

Who:

- DEQ
- City Council
- Planning Commission

Timeline:

- Year 1

Outcomes:

- Code that promotes water quality and vegetation of publicly held land

Funding:

- Staff time

Who: The CPW team developed a list of recommended code amendments to incorporate vegetation protection language on public land in the existing municipal code (see below). The City Council is responsible for adopting the amendments as recommended by the CPW team and planning commission.

Because the code amendments are legislative changes to the municipal code, the City is obligated to provide notification to the Department of Land Conservation and Development at least 35 days before the first evidentiary hearing. Moreover, the City is obligated to provide notification to affected property owners of the code amendments consistent with the municipal code and Measure 56. CPW recommends that the City consider a public workshop or open forum of the Planning Commission to inform property owners and residents prior to the hearing. The intent of that step is to minimize confusion among property owners about the nature and intent of the code amendments. Throughout this process, the City will make clear that these code amendments only apply to public lands. To avoid confusion with the LID amendments recommendations (Action2.1.1), which apply to both private and public property, the CPW team recommends pursuing these two sets of amendments separately.

Timeline: Staff will present the amendments to the Planning Commission and potentially City Council and the Council will conduct hearings on the amendments by month 6. The City should adopt the amendments no later than year 1.

Outcomes: Riparian vegetation protection language in city code allows the city to take the initial actions in protecting water quality. The City will show

Monitoring:

- Reports to DEQ

leadership in protecting riparian areas supporting both Goal 1 of this program and strategies listed in its TMDL Implementation Plan.

***Funding**:* City funds will pay for staff time and resources.

***Monitoring**:* The City Administrator will report to the Oregon Department of Environmental Quality (DEQ) when the City Council adopts the proposed amendments. The City will provide a list of what amendments were and were not adopted.

Recommendation 1—Suggest changes to Oakridge Zoning Code to include additional language about the positive benefits that vegetation can have on water quality on public lands.

ARTICLE 1—INTRODUCTORY AND GENERAL PROVISIONS SECTION

1.02 PURPOSE

The purpose of this ordinance is to encourage the most appropriate use of land; to promote orderly growth; to provide adequate open space for light and air; to conserve and stabilize the value of property; to protect and improve the aesthetic and visual qualities of the living environment; to protect and restore native vegetation which promotes water quality; to aid in securing safety from fire and other danger; to ease adequate provisions for maintaining sanitary conditions; to provide for adequate access to property; and to promote the public health, safety, and the general welfare, all according to and to carry out the Comprehensive Plan of the City of Oakridge.

ARTICLE 14 - PARK, RECREATION AND OPEN SPACE DISTRICT (PRO)

SECTION 14.04 YARDS

All structures permitted outright shall have yards of 20 feet from adjacent residential property lines. Public property along class 1 or 2 waterways in the city shall maintain a minimum of 50 feet from the top of bank; vegetation removal should be conducted only when the vegetation is not native and poses a threat to life or property. The placement of all structures for conditional uses shall be subject to approval of the Planning Commission.

SECTION 14.09 LANDSCAPING

Whenever possible landscaping should use native vegetation that is locally sourced. All developed lot area not covered by building, parking, or paved or enclosed storage is to be landscaped. In addition, a parcel of land shall be landscaped that is equal in size to at least 15 percent of the total area of land dedicated to off-street parking. This landscaping shall complement the parking area. See Article 25 - Site Plan Review of this ordinance for further information.

Goal 4: Preserve, restore, and enhance riparian areas to ensure a healthy community.	Strategy 4.1 Preserve and enhance native vegetation on public property.

Action 4.1.2: Plant native or non-invasive vegetation in problem areas.

Rationale:

In order for water quality protection within the city to be truly effective, a continuous healthy riparian corridor should be established. Currently, there are some areas that contain far less riparian vegetation when compared to other areas. To ensure that a continuous and healthy riparian corridor can be established, these vegetation deficient areas need to be enhanced with native vegetation.

At a glance:

Who:

- City Staff
- UWSWCD and MFWWC

Timeline:

- Month 2

Outcomes:

- New plantings on public lands

Funding:

- Staff time
- In-kind services from UWWSWCD

Monitoring:

- Reports to DEQ

Who: The City is responsible for ensuring that riparian vegetation is planted on public land. Regional organizations and agencies, including the UWSWCD and the MFWWC, can assist the City in identifying areas to be planted.

Timeline: The City will begin coordinating with the UWSWCD and the MFWWC to identify areas on public land that are most in need of riparian enhancement by month 2. Riparian planting efforts will take place on an annual basis.

Outcomes: The City, working with regional organizations and agencies (Action 1.1.1), will identify critical riparian areas on public lands and begin preparations for planting native vegetation in those areas. Critical areas are those areas that provide the least amount of shading to the Middle Fork Willamette River. Vegetation planted on targeted areas will help to create a continuous riparian corridor within the city. Specifically, the City will accomplish the following objectives: Identify vegetation deficient areas on public lands, Design and plan for the planting of native or non-invasive vegetation on identified areas, and acquire and plant native vegetation with the help of regional organizations and agencies.

Funding: City funds will pay for staff time to identify and plan for vegetation plantings in critical riparian areas. Regional organizations and agencies will provide in-kind services to aid the City in identifying critical riparian areas and coordinating planting efforts. MFWWC will provide services under contract.

Monitoring: The City Administrator will report the number of native shrubs and trees planted within the city to the Oregon Department of Environmental Quality (DEQ) on a bi-annual basis. The City will give DEQ status updates on newly planted riparian vegetation every two years.

Goal 4: Preserve, restore, and enhance riparian areas to ensure a healthy community.	Strategy 4.2 Preserve and enhance native vegetation on private property.

Action 4.2.1: Provide resources to residents to plant native vegetation on their properties.

Rationale:

The majority of streamside acreage within the city belongs to private land owners, meaning that riparian protection within those areas is especially important. Furthermore, streamside property owners often have a strong desire to maintain a healthy and appealing property, but may not have the time or money to invest in researching and implementing best practices. Property owners would benefit greatly from having access to riparian planting information and native riparian vegetation.

At a glance:

Who:

- City Staff
- UWSWCD and MFWWC

Timeline:

- Month 5

Outcomes:

- New plantings on private lands.

Funding:

- Staff time
- In-kind services from UWSWCD

Who: The City will be responsible for increasing private landowners' awareness of information regarding how to properly plant and care for native riparian vegetation. Regional organizations and agencies will provide interested landowners with property assessment opportunities and options for purchasing riparian vegetation.

Timeline: The City will make native riparian planting information available to interested landowners by month 1. The City will begin recruiting private property owners for riparian planting efforts by month 5. Riparian planting outreach efforts will be a continuous process and will take place on a bi-annual basis.

Outcomes: Streamside property owners will have access to documentation pertaining to planting and caring for riparian vegetation. Documentation will consist of the Stream and Wetland Enhancement Guide and Recommended Native Plants for Home Gardens in Western Oregon, both of which provide information on caring for and maintaining riparian vegetation in Oregon. Property owners will also have the opportunity to have their property accessed by the UWSWCD or MFWWC. The assessment process will include: the proper location for new plantings; the recommended types of vegetation to plant; and, the best methods for caring for newly planted riparian vegetation. Following an assessment, native vegetation will be supplied to property owners through a cost share program with regional entities such as UWWSWCD when available.

- Cost sharing

Monitoring:

- Reports to DEQ

Funding: City funds will pay for staff time to notify property owners of, and distribute riparian vegetation documentation to, streamside property owners. Regional organizations and agencies will provide assessment, monitoring, and cost share services for restoration projects when available. Specific opportunities for private landowners from regional groups include:

UWSWCD will provide restoration opportunities through OWEB small grants for private landowners and technical assistance for those landowners who have funds, but merely require support.

MFWWC will provide habitat restoration opportunities to private landowners under contract through the organization's Restoration Program, which provides both monitoring and assessment options.

Monitoring*:* The City Administrator will report the number of riparian restoration projects on private properties within the city to the Oregon DEQ on a bi-annual basis. The City will also notify the DEQ as to the status of newly planted riparian vegetation every two years.

Goal 4: Preserve, restore, and enhance riparian areas to ensure a healthy community.	Strategy 4.2 Preserve and enhance native vegetation on private property.

Action 4.2.2: Promote information and materials related to stream bank stabilization.

Rationale:

Lack or removal of vegetation and erosion is a major source of temperature impairment and concern for mercury, which are identified pollutants in the Middle-Fork Willamette TMDL. It also increases the rate of overland flow and chance of destabilized stream banks. Traditional stream bank stabilization techniques increase impervious surface area and create erosion problems for landowners downstream. To address these concerns, the City will provide information for maintaining stream bank vegetation and mitigating stream bank erosion using sustainable approaches.

At a glance:

Who:

- City Staff
- UWSWCD and MFWWC

Timeline:

- Month 5

Outcomes:

- Educate residents about bank stabilization

Who*:* The City will be responsible for providing landowners with information regarding environmentally friendly stream bank stabilization techniques. The MFWWC is available to provide professional services to the City in encouraging the use of bioengineering for stabilizing stream banks under contract. The City can create a workshop or hold an informational session during a city event to promote sustainable ways to stabilize stream banks.

Timeline*:* The City will provide information about environmentally friendly stream bank stabilization techniques to streamside landowners by month 5.

Outcomes*:* Streamside property owners will be more knowledgeable about environmentally friendly bank stabilization techniques. Streamside property owners will use these techniques instead of traditional bank stabilization strategies, which can be harmful to other property owners and to the environment. Specific bank stabilization techniques that the City will encourage landowners to use include: branch packing; brush layering; jute-mat logs; live posts; rooted stock; and, vegetated geogrids. Instructions for the base installation process for each technique can be found in the US Forest Service guide: *A Soil Bioengineering Guide for Streambank and Lakeshore Stabilization*[10]. The MFWWC services would help disseminate information and installing bank stabilization techniques.

[10] See http://www.fs.fed.us/publications/soil-bio-guide/

Funding:

- Staff time
- In-kind services from UWWSWCD

Monitoring:

- Reports to DEQ

***Funding**:* City funds will pay for staff time to inform property owners of alternative stream bank stabilization techniques. MFWWC is available to provide professional services to the City to assist landowners in determining the best stream bank stabilization method for their property under contract.

***Monitoring**:* The City Administrator will report the number of stream bank restoration projects within the city to the Oregon Department of Environmental Quality (DEQ) on an annual basis. MFWWC is available to provide professional services to the City under contract to monitor stream bank stabilization techniques to ensure that they are effectively mitigating stream bank erosion.

CHAPTER FIVE: PROGRAM ADMINISTRATION

Consistent with the TMDL Implementation Plan, the City of Oakridge is the lead agency on implementation of this plan. This means City staff will implement the strategies in the Surface Water Management Program (SWMP) over a five year period as described in Chapter Four. The assigned city staff will oversee specific actions and guarantee that the SWMP achieves demonstrable outcomes.

Regulatory approaches to surface water management require that landowners and developers comply with surface water standards, but in a voluntary-based program such as this one, the desired outcomes can be more difficult to measure. Therefore, it is important to develop an effective monitoring strategy to ensure standards are met. In Chapter Four each of the actions mentioned in the Oakridge Water Quality Action Plan has a monitoring component. In addition to individual monitoring of each action, the City should also undertake a general monitoring effort to ensure ongoing progress is being made on the SWMP as a whole and that that the objectives of the program are consistently meeting federal and state standards.

Administration

The Oakridge City Council is ultimately responsible for overseeing the implementation of the SWMP. The City Council will review and adopt code changes and will need to dedicate the necessary time and resources to make the execution of specific actions and implementation of the program possible. The Oakridge City Administrator will take the lead on implementing the actions in the SWMP and monitor progress to the satisfaction of the Department of Environmental Quality (DEQ). The City Administrator will act as program administrator and will report to and advise the Council on progress. The program administrator will be responsible for the SWMP as a whole and will ensure that the City accomplishes actions by delegating responsibilities to appropriate staff, such as the Public Works Department, or volunteers, like engaged residents. Once the City Administrator delegates responsibilities, these designated staff and volunteers will oversee specific tasks related to implementing individual actions.

Timeframe

The City will implement and execute this program on a five-year timeframe. In the first six months of program implementation, the City will identify and dedicate funding to support the actions of the SWMP (Action I.I.2) and facilitate partnerships with regional organizations and agencies (Action I.I.I) as indicated in the action plan. At the end of the five-year timeframe, the City will adjust and/or adopt a new SWMP based on its monitoring and evaluation.

Roles & Responsibilities

Within the first year of program implementation, the City will delegate roles and responsibilities to ensure progress is made on actions. City staff will assist

landowners where needed and will also oversee the ongoing implementation of the SWMP.

The primary responsible parties are the City Council and the City Administrator or designated staff. The major responsibilities of each party are described below. For a summary of the specific action items assigned to each, refer to the action matrix at the beginning of this report.

The **CITY COUNCIL** is the primary responsible body for ensuring continuous progress is made on the program and for reporting progress to the DEQ. The Council will adopt the SWMP as a resolution and the Council will also oversee the incorporation of low impact development (LID) language into the municipal code (Action 2.1.1). The Council will also be responsible for adopting additional actions as they are included in city planning documents. The components of the program cannot be executed without the necessary funding, therefore the Council will also commit to dedicating the necessary monetary resources from the City's budget to this program.

The **CITY ADMINISTRATOR** will be responsible for administering the program and for reporting progress to the City Council. This includes assigning specific duties to city staff and departments to implement action items.

Funding

The program will initially be funded through grants and City funds solely dedicated to this program. If the City is successful in acquiring grant funding, it can use the grant to initiate the program but the City cannot rely on grants as the sole source for maintaining it since grants are not a steady long-term source of revenue (see Appendix C for a list of relevant grant funding opportunities). In order to demonstrate that the program is durable and not susceptible to unstable grant funding, the City will allocate City funds to maintain the program.

The City will maintain funding for the program by dedicating staff time, allocating monies from its stormwater fee, and through small grants, as they become available.

Partnerships

Partnerships are pivotal to sustaining this program. Local and regional partners will be important for assisting the City by supplying resources and volunteering time to riparian restoration projects and outreach and engagement activities. The City will maintain local and regional partnerships (see Action 1.1.1) by connecting with partners on a quarterly basis through meetings and/or phone conversations and attend applicable TMDL meetings. State level partners will notify the City of yearly funding opportunities through small grants, which the City will apply for as they become available. Appendix B lists contact information and possible roles of potential partnerships.

Monitoring & Evaluation

This program, and the strategies and actions within it, must provide reasonable assurance to DEQ that water quality is being protected on a level comparable to

that of a regulatory approach (a riparian ordinance). Clear, consistent, and accurate monitoring and evaluation will be integral to DEQ determining level of compliance and provide reliability and accountability for program stakeholders. If an adequate level of protection is not maintained, the City will be required to adopt a riparian ordinance. Therefore, it is the City's responsibility to ensure that all of the program actions are taken in order to realize this program's objectives.

Monitoring Program Implementation

The City must monitor the effectiveness of implementing the program's actions. The City will keep records that demonstrate impact for all action items. This means keeping track of things like the number of trees planted on public lands, how many trees were given out to the public, how many landowners were contacted about on-site consultations, the number of people who sign up for consultations (LID, riparian restoration, etc.), and how many public projects incorporated LID. The City will share this information with program partners at quarterly meetings to encourage transparency and illustrate progress.

CPW recommends that the City contract with an independent partner, such as the Middle Fork Willamette Watershed Council, to conduct the monitoring. This will simplify the process, ensure that trained personnel do the monitoring, and provide credibility to the results.

Monitoring Program Effectiveness

Aside from monitoring progress on implementing the program, the City must determine if the program is effective in protecting riparian areas and thus the river. For example, an effective program will contribute to increased riparian vegetation. Temperature is one of the primary concerns in the section of the Middle Fork near Oakridge, monitoring what is happening with riparian vegetation under the program will serve as a measure of the program's usefulness to comply with temperature related TMDL requirements.

Monitoring also helps provide a list of lessons learned to use in upcoming riparian plantings and maintenance strategies. If vegetation is decreasing under the program, which decreases the shade on the river, then DEQ may require Oakridge to take regulatory measures. To help develop an effective monitoring program,

The monitoring program described below builds from a program developed by the Rogue Valley Council of Governments (RVCOG). DEQ staff also provided a list of suggestions which were incorporated into this chapter.

Monitoring program effectiveness is a three-step process:

Step 1: Plant Survival and Growth Rate Measurements

Step 2: Photo Point Analysis

Step 3: New Development Assessments

Step 1: Plant Survival and Growth Rate Measurements

When the City does plantings in or near the riparian area, the City will measure plant survival and growth rates for a subset of these plantings. Sampling areas should be 10 to 25 percent of the original planting area.[11] Using visual inspection or intensive measurements are methods to monitor plant survival.[12] To measure the growth rate, the City should focus on both the height of the plants along with diameters of the stems.

Step 2: Photo Point Analysis

The City will conduct an annual photo point analysis of riparian vegetation. Photo point monitoring is an inexpensive tool to document changes over time that helps to establish conclusions about program effectiveness.[13] The first step in developing an annual photo point analysis is site identification. The DEQ recommended 8-10 areas for photo points that allows for long term monitoring (see Figure 5-1). Photo points should include all sites that have riparian restoration projects. Point one starts on the far west side; photo points increase numerically moving west to east along the river. If the City chooses other points, DEQ recommends establishing them on public roads and parks on the east and south sides of the river. Multiple methods exist for identifying sites such as using field surveys, identifying willing landowners, determining areas already prone to overgrown invasive species or areas deficient in vegetation, and utilizing aerial photography and maps.[14] DEQ recommends using a site identification table (Table 5-2) to establish initial photo points and coordinates.

Once the City identifies photo point locations, the next step is to evaluate existing site conditions via photo point analysis on an annual basis. Photo points must remain fixed over time for both location and time of year at 8 riparian locations at least (this includes both public and private lands). Fixed time and locations allows for a more accurate assessment of how riparian vegetation is performing in the area. Three foot wooden stakes can be used to provide relative scale.[15] For each photo point, the City will take three images: upstream, across the river, and downstream (a panorama in lieu of the three photos is possible). For the very first

[11] RVCOG, Bear Creek and Rogue Basin Riparian Planting Plan, December 2010, http://rvcog.org/MN.asp?pg=NR_Riparian_Planting_Plan_TOC.

[12] Brad Withrow-Robinson, Max Bennett, and Glenn Ahrens, A guide to riparian tree and shrub planting in the Willamette Valley: Steps to Success, http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/24003/em9040.pdf?sequence=1.

[13] Courtney Shaff, Jean Reiher, Jessica Campbell, OWEB Guide to Photo Point Monitoring, http://www.oregon.gov/OWEB/docs/pubs/photopoint_monitoring_doc_july2007.pdf.

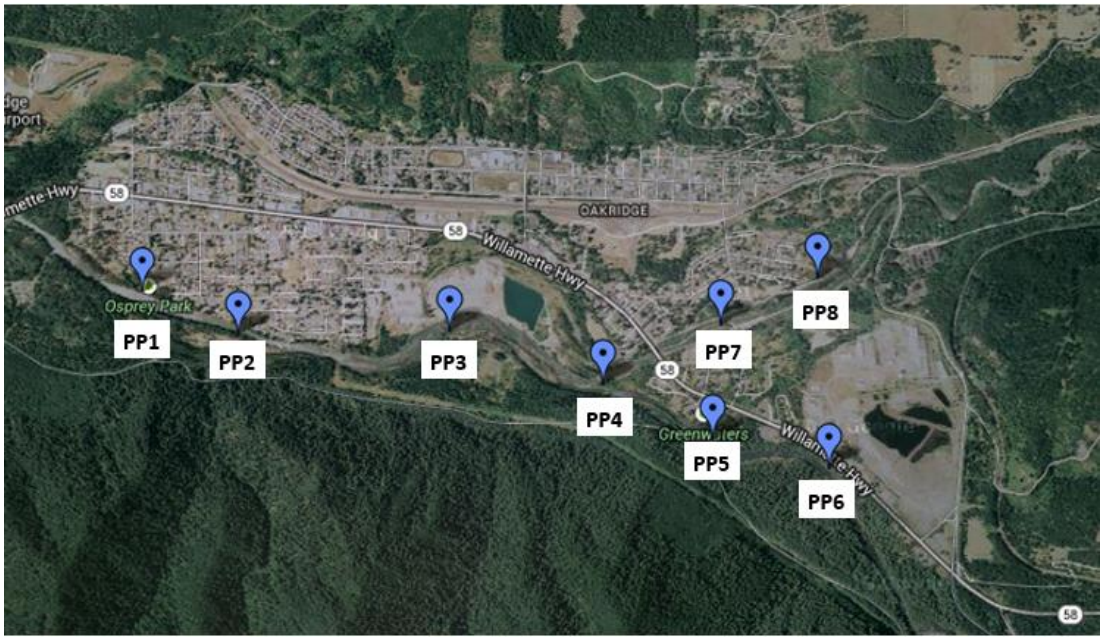
[14] RVCOG, Bear Creek and Rogue Basin Riparian Planting Plan, December 2010, http://rvcog.org/MN.asp?pg=NR_Riparian_Planting_Plan_TOC.

[15] Ibid.

photo point analysis at each point, flagging existing native plants may help with analysis in future years.[16]

In addition to taking three photos at each photo point, the City will also document the monitoring of riparian vegetation by using a table similar to the one presented below in Table 5-1. The health of the riparian area should be documented by noting the extent that invasive species have overgrown or diminished in that location. The City will report its findings to DEQ.

Figure 5-1. Recommended Photo Points for Monitoring Riparian Vegetation



Source: Google Maps, DEQ

Table 5-1. Riparian Vegetation Monitoring

Photo Point	Date	Photographer	Riparian Vegetation: Increase, Decrease, Static?	Comments

[16] Ibid.

Table 5-2. Site Identification for Photo Point Monitoring

Photo Point	Date Photo Point(s) Established	Waterbody	Landmark	Description	Coordinates	Photo Point Type	Effectiveness Timeframe
PP1		Middle Fork Willamette River	Osprey Park	Public Park		Panoramic	Annually-May
PP2		Middle Fork Willamette River					
PP3		Middle Fork Willamette River					
PP4		Middle Fork Willamette River					
PP5		Middle Fork Willamette River	Greenwaters Park	Public Park			
PP6		Middle Fork Willamette River					
PP7		Salmon Creek				Three images: upstream, across the river, and downstream	
PP8		Salmon Creek					

Step 3: New Development Assessments

The second step for monitoring program effectiveness is assessing new developments' impact on riparian vegetation. A regulatory approach would affect new development more than existing developments; therefore, the City will need to annually estimate loss, degradation, and improvements of riparian vegetation on new permitted properties. When a homeowner or developer applies for a building permit that is when he or she will first be notified about the riparian assessments that will need to take place on the property. All assessments will be completed by the City or partner staff, one assessment will take place prior to construction and a second assessment one year post construction. The City or partner staff will take photos using the same method as the photo point analysis.

In addition to the three photos, the City will document the monitoring of riparian vegetation by using a table similar to the one presented in Table 5-1. The City will report findings to DEQ. By monitoring the riparian vegetation over this period, the City can evaluate how development has impacted the conditions of riparian vegetation.

Monitoring Costs

Monitoring costs will depend on the extent of assessment and protocol. City staff or partner staff will be conducting the monitoring components for both the program implementation and program effectiveness; therefore the City will not have to allocate a lot of additional resources aside from staff time. Monitoring program effectiveness is a task in itself; the following items that are expected to have the largest monitoring costs are discussed below:

- **Transportation**: The City can use city vehicles or standard procedures for using other vehicles to travel to locations requiring assessments and analysis. The program area only applies to city limits so the amount of driving will be minimal. The distance among the photo points is also feasible for walking.
- **Materials**: The amount of materials required is minimal. Required materials include informational pamphlets that may be distributed to developers or homeowners requesting a new building permit and other educational materials that may be used to notify the public of the photo point analysis or new development assessments. This is a great opportunity to announce informational pamphlets and other educational materials about the program on the project website.
- **Training**: The training for conducting site assessments and photo points can be a quick informational session conducted by DEQ. Informational sessions should include tips and tricks for getting quality photos and documenting the proper information. With proper training and DEQ approval, photo point analysis and new

development assessments may be something a RARE participant or intern, when available, can execute.

- **Technician Compensation**: Since the monitoring components can be conducted by the City or partner staff, costs should be minimal in the form of staff time.
- **Equipment**: The City can use a camera and city vehicles to conduct the photo point analysis and new development assessments along with other necessary office supplies (e.g. pen and paper).

Reporting

The City of Oakridge will provide an annual report in written format to both the City Council and DEQ. This will be integrated into the required annual and 5-year assessment reporting to the DEQ on the TMDL Implementation Plan. The annual report will describe the City's efforts to accomplish the actions in this program and will detail the City's compliance with its TMDL Implementation Plan.

The annual report will include a report of the riparian vegetation monitoring which should include the number of parcels monitored and whether there has been an overall increase or decrease in vegetation, if any change has occurred in riparian vegetation along with plant survival and growth rates for a subset of the plantings.

The Oakridge Surface Water Management Plan Action Item Matrix on pages iii-iv will be utilized for both this annual report and serve as the TMDL report for these actions.

APPENDIX

Appendix A: Total Maximum Daily Load Implementation Plan

To meet the requirements of the Willamette Basin TMDL, Oakridge, with the help of MFWWC in partnership with LCOG, developed a TMDL implementation plan. The Oakridge TMDL Implementation Plan is a component of the City's February 2011 Stormwater Plan. The development code regulations for the Stormwater Plan were prepared in conjunction with and to complement the goals of the City's TMDL Implementation Plan. The TMDL Implementation Plan Action Matrix contains a list of pollutants, proposed treatment strategies (e.g. Protect and Enhance Existing Riparian Vegetation), an implementation timeline, and monitoring benchmarks. The Oakridge Surface Water Management Program (SWMP) used this 2008-2013 TMDL Implementation Matrix as a foundation to address previous strategies to create the action items in Chapter Four. The 2013-2018 TMDL is also included.

2008-2013 Matrix

City of Oakridge: TMDL Implementation Matrix (submitted)							
POLLUTANT	**SOURCE**	**STRATEGY** What we are doing and will do to reduce pollution form this source	**ACTIONS** Specific ways to implement strategies	**BENCHMARK** Intermediate indicators to know progress is being made	**TIMELINE**	**MEASURE** How we will track implementation and completion	
Temperature	1. Solar radiation input	a. Protect and enhance existing riparian vegetation	Develop riparian protection overlay and protection requirements in Oakridge Development Code	Appropriate funds are acquired Draft is completed	Depends on funding	Write and Adopt new code	
			Implement riparian protection overlay and protection requirements in Oakridge Development Code	Code is adopted by City Council	Implement immediately after adoption	Enforce code requirements, Track the number of violations	
			Once riparian overlay code is adopted, Identify and address specific riparian segments that violate the protection overlay requirements as described in the Oakridge Development Code	▪ Review watershed maps/aerial photographs and identify reaches where insufficient riparian buffers exist	Begin once overlay code is adopted and will be ongoing	▪ Identify & map potential riparian area violations ▪ Upgrade riparian overlay requirements as needed	
		b. Work with Middle Fork Watershed Council (MFWWC), ODFW, ODF, USFS, USACE and private property owners to initiate riparian restoration projects	Contact MFWWC and discuss options	▪ Establish a good working relationship as demonstrated by support provided ▪ At least one riparian tree planting completed every two years ▪ Secure trees and designate planting areas ▪ Track planted trees and monitor survival ▪ Agreement between ODF, City and planting plan established ▪ Tree planting scheduled	▪ Planting will take place as opportunities allow ▪ Contact and begin working with appropriate partners (ODF, ODFW, USFS, USACE and MFWWC)	▪ Seek to partners (ODF, MFWWC)to obtain seedlings and plant ▪ Compare aerial photographs at five-year intervals to determine the state of and changes to riparian areas ▪ Monitor and record new growth in riparian areas and review annually ▪ Report tree monitoring results if necessary	
			When requested, provide support for watershed council and other conservation organization project proposals	▪ Plants procured ▪ Be involved with and provide support for at least three projects annually ▪ Work with MFWWC and other partners to secure funding and support for riparian plantings	Available immediately	Track the number of project proposals submitted	
			Partner with MFWWC to address invasive removal at identified problem areas (city will work on removing invasive species along Salmon Creek)	▪ Plants procured ▪ Volunteer planting days held ▪ Project reports complete	In progress	Removal and planting complete with project close-out report submitted to OWEB	

City of Oakridge: TMDL Implementation Matrix (submitted)							
POLLUTANT	**SOURCE**	**STRATEGY** What we are doing and will do to reduce pollution form this source	**ACTIONS** Specific ways to implement strategies	**BENCHMARK** Intermediate indicators to know progress is being made	**TIMELINE**	**MEASURE** How we will track implementation and completion	
	2. Wastewater treatment plant discharge	c. Work with ODFW, USACE, USFS, USFWS and MFWWC to address temperature issue on Salmon Creek reach within city limits	Partner with necessary stakeholders Explore and discuss temperature remediation/restoration opportunities on Salmon Creek Secure appropriate funds and support Implement cooperative project(s) and strategies	▪ Establish a good working relationship as demonstrated by support provided and funds procured ▪ Project(s) are identified ▪ Funds are procured ▪ Project(s) are initiated and completed	Contact and begin working with partners as soon as possible	Track number and area of completed remediation/restoration projects along Salmon Creek	
		d. Educate residents about the importance of riparian restoration and the opportunities available for interested landowners	Secure funding were appropriate Hold educational forums/workshops Provide educational information for the public	▪ Discuss at City Council & WC Meetings ▪ Publish annual informational articles in newspaper	To be determined	Track public participation in riparian restoration efforts	
		a. Maintain effluent low temperatures (monitoring indicates compliance)	Maintain compliance with NPDES permit requirements	Reporting shows effluent temperature complies with permit requirements	In progress and on-going	Monitor effluent temperature as a condition of DEQ discharge permit	
		b. Divert some wastewater effluent from the wastewater treatment plant from being discharged directly into surface water	Explore the possibility/feasibility of allowing a portion of discharge to connect to groundwater to cool before entering river by applying it to riparian floor	Provide summary report on the amount of treated effluent diverted	Depending on feasibility, funding and approval by USFS	Monitor the amount of wastewater effluent diverted	**Researching Oregon Water Resources Department for more information.**
			Partner with necessary stakeholders (USFS, MFWWC, USACE & DEQ)	▪ Partners contacted ▪ Date set for event/meeting ▪ Event/meeting held	Initiate discussions with potential partners immediately	Wastewater Discharge Diversion System project is designed and set for completion	
			Secure funding & support	Contact DEQ to discuss options	Depending	Grant applications submitted	

City of Oakridge: TMDL Implementation Matrix (submitted)							
POLLUTANT	**SOURCE**	**STRATEGY** What we are doing and will do to reduce pollution form this source	**ACTIONS** Specific ways to implement strategies	**BENCHMARK** Intermediate indicators to know progress is being made	**TIMELINE**	**MEASURE** How we will track implementation and completion	
Bacteria	1. Pet/Animal waste & Yard debris	a. Reduce the amount of pet waste and yard debris that is not properly disposed of	Install pet waste stations including bags, educational signs, and other information	Determine locations and prepare news release to inform residents about new stations	In progress	At least four pet waste stations installed	
			Enforce existing pet waste pick-up ordinance	Review ordinance and complete pet waste station installation	Following installation of pet waste stations and news releases (detailed above) begin increased enforcement	Track the number of citations issued	
		b. Educate residents about the importance of removing yard debris and animal waste from waterways & riparian areas	Properly dispose of leaves from waterways, streets, etc.	Explore opportunities and take appropriate action to obtain a leaf sweeper	On-going	Track number of grant proposals submitted for leaf sweeper	
			Secure grant funding were appropriate Hold educational forums/workshops Provide educational information for the public	▪ Discuss at City Council & WC Meetings ▪ Publish an informational article twice a year in newspaper	To be determined	Track public participation in waste and debris removal	
	2. Erosion and Sedimentation	Decrease sedimentation and erosion from new construction and limit erosion to maintain clear, clean water	Require 1200-C permits for new large (over one acre) developments Ensure smaller (less than one acre) developments have an "erosion control plan"	▪ Include 1200-C fact sheets at planning counter ▪ Provide informational materials	Begin immediately and on-going	DEQ demonstrates that 100% of new developments over one acre in Oakridge obtain 1200-C permits	
			Include stormwater detention and treatment requirements (if needed) for new and re-development in Oakridge Development Code	Draft stormwater article and include in draft Development Code	To be coordinated with stormwater master plan	Code adopted by City Council and all new developments comply with stormwater detention and treatment requirements	
	3. Stormwater Discharge (This section is to be coordinated with stormwater master plan)	a. Increase the detention time and treatment facilities for stormwater to allow for infiltration and sediment deposition for new or re-development	Include stormwater detention and treatment requirements for new development in Oakridge Development Code	Draft stormwater article and include in draft Development Code	Code adoption to be coordinated with Stormwater Master Plan	Code adopted by City Council and all new developments comply with stormwater detention and treatment requirements	
			Work with business and industry owners to install stormwater treatment facilities Include environmentally friendly alternatives to stormwater management plan; bioswales, stormwater catchment systems, etc.	▪ Meet with business and industry owners to discuss options ▪ Plans drafted to install facilities ▪ Alternative opportunities are identified ▪ Plans drafted to install alternative systems	▪ Facilities installed before occupancy permit is issued ▪ Environmental opportunities are identified and discussed ▪ Alternative systems installed with development	Stormwater treatment facilities installed Environmentally friendly alternatives are incorporated in stormwater plan and systems are installed	

City of Oakridge: TMDL Implementation Matrix (submitted)							
POLLUTANT	**SOURCE**	**STRATEGY** What we are doing and will do to reduce pollution form this source	**ACTIONS** Specific ways to implement strategies	**BENCHMARK** Intermediate indicators to know progress is being made	**TIMELINE**	**MEASURE** How we will track implementation and completion	
		b. Raise awareness of actions that individuals can take to minimize stormwater impacts	Add materials on stormwater to the City website	Materials reviewed and selected	▪ Begin reviewing existing information ▪ Add materials by adoption of stormwater master plan	Information is provided on city website	
			Water quality fact sheets and informational materials are made available at the City's planning counter along with development applications	▪ Materials reviewed and selected ▪ Printing approved	▪ Begin reviewing existing information immediately ▪ Add materials by adoption of stormwater master plan	Fact sheets and informational materials available at planning counter	
			Assist the Middle Fork Watershed Council to expand community education programs (i.e. high school community service) especially stenciling storm drains	▪ Projects identified and implemented	▪ Identify key educational messages ▪ Implement initiatives	Track the number of educational events and initiatives undertaken by the Middle Fork WC that affect Oakridge citizens	
		c. Complete stormwater master plan and include water quality protection considerations and priorities	Complete stormwater master plan	▪ Research water quality considerations and ways to incorporate into plan ▪ Draft plan is complete	▪ Preliminary work has begun	City Council adopts stormwater master plan that includes water quality protection mechanisms	
			Create stormwater system map and identify areas where water quality protection actions would have the greatest benefit	▪ Mapping complete by adoption of stormwater master plan ▪ High priority areas identified ▪ Plan and map adopted	▪ Stormwater planning is currently underway	Map produced and incorporated into future planning efforts	
	4. Wastewater treatment plant	Maintain effluent low bacteria levels (monitoring indicates compliance)	Maintain compliance with NPDES permit requirements	▪ Undertake annual reporting process to DEQ ▪ Reporting shows effluent bacteria levels complies with permit requirements	▪ In progress and on-going	Monitor effluent bacteria levels as a condition of DEQ discharge permit	
All Pollutants		Reduce the amount of hazardous waste that is not properly disposed of	Continue partnering with Lane County Solid Waste Management to hold an annual hazardous waste event in the area and incorporate hazardous waste disposal education into this event and other activities	▪ LC Solid Waste Management contacted and local waste disposal provider contacted ▪ Date set for event ▪ Event held	▪ Continue discussions with Lane County Solid Waste Management ▪ Hold events	One waste collection event held with significant community participation	

City of Oakridge: TMDL Implementation Matrix (submitted)							
POLLUTANT	**SOURCE**	**STRATEGY** What we are doing and will do to reduce pollution form this source	**ACTIONS** Specific ways to implement strategies	**BENCHMARK** Intermediate indicators to know progress is being made	**TIMELINE**	**MEASURE** How we will track implementation and completion	
		Work with the MFWWC to pursue opportunities to partner with other local governments and organizations to implement mutual strategies	As implementation of the strategies listed begins, contact other entities about coordinating efforts Continue to be involved in regional water resource planning efforts	▪ Plants procured ▪ Attend meetings as needed ▪ Implement cooperative projects a opportunities arise to meet goals of TMDL implementation plan	▪ On-going	Attend region-wide water resource planning meetings Support proposals that work on region-wide coordination	

2013-2018 Matrix

#	Parameter	Source	Strategy	Actions	Measure	Timeline	Status
1	Temperature	Solar Radiation Input	**Programmatic:** Protect and enhance existing riparian vegetation	Adopt U of O's Surface Water Management Program(SWMP) by Dec. 2013; Continue implementation Oakridge Feb. 2011 Stormwater Plan(SP)	Refer to SWMP Action Matrix an SP development Codes; City Council Adoption of **SWMP** by Dec. 2013	May 2013 - 2018	
2	Temperature Bacteria Mercury	Lack of riparian vegetation and stormwater management	**Programmatic:** Protect and enhance existing riparian vegetation; Utilize Low Impact Development	Adopt U of O's SWMP by Dec. 2013; Continue implementation Oakridge Feb. 2011 SP	City Council Adoption of **SWMP** by Dec. 2013; Refer to measures in SWMP and SP.	Dec. 2013 and then ongoing	
3	Temperature Bacteria Mercury	NA	**Programmatic:** City support for TMDL Implementation	Meet and maintain compliance reporting requirements for TMDL Implementation	Submit annual status reports (4) in January between 2014-2017 and 5th year review report in 2018. This includes TMDL matrix and **SWMP** matrix and monitoring(**Chapter 5** Program Administration)	January/ Annually and March 2018 For 5 yr review	
4	Temperature Bacteria Mercury	NA	**Programmatic:** City support for TMDL Implementation	Public Involvement – Public invited to City Council Meetings and City Council informed of reporting compliance	Formally present 5 year review report and adopt the TMDL Plan and matrix at City Council meeting	Dec. 2013 and all subsequent 5 year cycles	

#	Parameter	Source	Strategy	Actions	Measure	Timeline	Status
5	Bacteria	Septic/ Onsite Systems	Systems are outside of city limits, and city is working to annex properties and provide sewer service	Annexation of properties into the City, and construction of sewer mains to service areas	Pre-annexation agreements and annexations **SWMP Action 3.1.1**	Ongoing. Completion date will be dependent on property owners in areas serviced by septic tanks	
6	Bacteria	Pet and Animal Waste	8 pet waste stations installed and operating in city parks. 2/park.	Maintain pet waste stations	8 pet waste stations installed and maintained **SWMP Action 3.2.3**	Ongoing	
7	Mercury (Also see all pollutants)	Slope Erosion	Limit erosion to maintain clear clean water	Require geotechnical evaluation on new development on erosive areas; Enforce during development	Planning Commission requests geotechnical reports; Slope ordinance established in 2011 met. **SWMP 2.2.1**	Ongoing	
8	Mercury	Stormwater Discharge with sediment form construction activity	Erosion control plans for construction development disturbing <=1acre	Developers obtain DEQ 1200 C permit if disturbing >=1 acres	Track permits through DEQ	Ongoing	

#	Parameter	Source	Strategy	Actions	Measure	Timeline	Status
9	Mercury Bacteria	Stormwater Discharge from impervious surfaces	Increase the detention time and treatment facilities for stormwater	Include stormwater detention and treatment requirements for new and re-development	City of Oakridge Stormwater Plan including development codes proposed Feb. 2011; U of O SWMP adopted; Bioswale installed and maintained 2008-2013 Douglas St. **SWMP 2.2.1 & SP Feb. 2011**	Dec. 2013 and then ongoing	
10	Bacteria Mercury	Stormwater runoff	Maintain stormwater system map and identify areas where water quality protection actions would have the greatest benefit	Map created in Feb. 2011; High priority areas identified in SP	Map updated as needed; High priority areas addressed and/or considered for flooding, development and redevelopment	Ongoing	
11	All Pollutants	Pollutants for debris in stormwater	Reduce the amount of solid and hazardous waste that is not properly disposed	Continue partnering with Land County Solid Waste Management to hold an annual hazardous waste event	Date Event Held Goal is to hold one event /year **SWMP Action 3.2.3**	Annually	
12	Mercury	Air deposition	Assess funding & feasibility for electric car charger	Install electric car charger if funding source obtained	Feasibility assessed; Electric car charger in-place	2013-2108	

#	Parameter	Source	Strategy	Actions	Measure	Timeline	Status
13	Mercury Bacteria	Air deposition	Assess utilization of LID on public projects (ex., electric car charger)	Promote Lid for public project bids	Public project in-place with LID strategy **SWMP Action 2.1.2**	2013-2108	
14	Bacteria Mercury	Stormwater runoff interfacing with upland pollutants	Involve community in protecting water quality & mark stormdrains in mobile home park	Promote local educational opportunity; Materials purchased and painters identified;	Stenciled stormwater drains in the mobile home park **SWMP Action 3.2.1**	Complete 2014	
15	Temperature Bacteria Mercury	Invasive plants competing with native riparian vegetation important for parameter reduction	Work towards eliminating Butterfly Bush invasive species planting and other invasive species	Educate residents about invasive species program	Incorporate invasive education into SWMP restoration action items **SWMP Action 4.1.2**	Spring 2014	
16	Temperature Bacteria Mercury	Lack of floodplain connectivity	Floodway and floodplain overlay district ordinance that protects the floodway and floodplain from development	Educate developers about ordinance; Enforce ordinance	Compliance with ordinance	Ongoing	

#	Parameter	Source	Strategy	Actions	Measure	Timeline	Status
17	Temperature Bacteria Mercury	NA	Gap analysis of DMA's programs (ID what's lacking for riparian restoration and preservation and six minimum stormwater control measures)	U of O technical assistance; 5th year review Appendix A assessment	Adoption of SWMP and SP recommendations	November 2012-December 2013	
18	Bacteria Mercury	Stormwater Runoff	Maintenance program for stormwater collection and treatment systems	Examples include: Conduct Regular Street Sweeping of streets, parking lots, and other impervious surfaces Maintain bioswales	Examples of measures that will be documented: Sweeping conducted; Bioswales functioning	Ongoing	
19	Mercury and other parameters	Over application of park maintenance products	Adopt and implement policy to prevent over-application of products (ex., fertilizers , herbicides, pesticides)	Develop policy; Educate and train city staff	Policy developed; Staff training conducted on policy	March 2015	
20	Bacteria Mercury	Lack of funding for LID	Establish funding source for storm water management	Establish process system development charges for stormwater	2011 SP recommends adoption of development code; Code established for development and redevelopment	January 2014-2018	

#	Parameter	Source	Strategy	Actions	Measure	Timeline	Status
21	Bacteria and other parameters	Bacteria can impact health	Drinking water management plan to protect drinking water obtained from groundwater	Continue to provide safe drinking water and protect surface water	Continue operation of drinking water plant	Ongoing	
22	Bacteria	Domestic waste	City events and event holders provide facilities	Porta potties at parks in summer with no facilities and public events (fairs, markets, holidays, etc.)	Events held have porta potties	Ongoing	
23	Bacteria and other parameters	Domestic waste from cross connections, illicit discharges, Solar Radiation (lack of shade; tree and vegetation removal); Erosion of Sediment	Documenting illicit discharge complaints, inspections, response actions	Develop procedure to detect and eliminate non-storm discharges; Enforce nuisance control ordinance; Review stormwater ordinances and identify links to water quality that can be enforced	Cross connections identified; Cross connections fixed and or other discharges eliminated; Number of complaints requiring a response **SWMP 2.2.1, 3.1.1, 3.2.2**	January 2014 then ongoing	

Appendix B: Surface Water Management Program Partners

Name	Mission	Potential Role	Contact
Department of Environmental Quality (DEQ)	DEQ's mission is to be a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.	DEQ is currently working with Oakridge on developing and implementing the Surface Water Management Program. DEQ has played a vital role in ensuring that the City and its residents are well informed regarding water quality issues and the need to manage them. Oakridge will continue to coordinate with the DEQ on managing water quality issues for the foreseeable future.	Name: Nancy Gramlich Email: Gramlich.Nancy@deq.state.or.us Name: Pamela Wright Email: WRIGHT.Pamela@deq.state.or.us
Upper Willamette Soil and Water Conservation District (UWSWCD)	The Upper Willamette Soil and Water Conservation District provides a regional forum for interested people, groups and agencies to bring forward conservation needs currently not being met. To address those needs by linking people power, technical assistance and/or financial resources through prioritization by the group.	UWSWCD will help the City assess areas where riparian plantings can occur or in need and provide some on-site consultations with homeowners. The City will collaborate closely with the UWSWCD in the coming years to provide streamside property owners with materials and knowledge to facilitate riparian enhancement efforts. UWSWCD can also provide educational materials at community meetings.	Name: Dave Downing Email: Dave.downing@or.nacdnet.net Phone: (541) 465-6443 x5
Middle Fork Willamette Watershed Council (MFWWC)	The MFWWC Council mission is to work together as a community to restore and sustain the ecological integrity and economic viability of the watershed, and to promote local control of our future by providing effective voluntary solutions to watershed issues.	The council can work with the City under contract to provide riparian resources and outreach materials to streamside property owners. The Watershed Council can help secure grant funding for riparian planting projects and can assist in recruiting volunteers for work days.	Name: Eve Montanaro Email: director@mfwwc.org Phone: 541-937-9800

Name	Mission	Potential Role	Contact
Lane Council of Governments (LCOG)	LCOG's mission is to coordinate and provide high quality public services in Lane County. LCOG is dedicated to serving the public interest and enhancing the quality of life for the citizens of Lane County. It provides and facilitates efficient and effective government services through cooperative planning, program development, analysis, and service delivery.	LCOG offers resources on riparian protection. The City can partner with LCOG to facilitate information dissemination so local residents are aware of how to preserve, enhance, and protect the proper vegetation. The City can also use its contract planner to help with the amendment process.	TBD
Oregon Department of Fish and Wildlife (ODFW)	ODFW's mission is to protect and enhance Oregon's fish and wildlife and their habitats for use and enjoyment by present and future generations.	ODFW offers the Western Oregon Stream Restoration Program which provides direct technical support to Watershed Councils and private landowners in western Oregon to implement Oregon Plan measures directing the restoration and enhancement of Oregon's salmonid habitats in the region. This includes projects to increase in-stream habitat complexity by adding large wood or boulders, enhancing riparian areas by protection or planting, and correcting fish passage problems.	Name: Jeff Ziller Email: jeffrey.s.ziller@state.or.us Phone: 541-726-3515 ext. 26 Name: Kelly Reis Email: kelly.e.reis@state.or.us Phone: 541-726-3515, ext. 29

Appendix C: Potential Funding Sources

Funding Resources

Purpose

The purpose of this handout is to provide funding opportunities that will help sustain Gold Hill's voluntary local surface water management program. Funding can support voluntary restoration and outreach efforts. This is a great way to receive loans and grants. This list provides funding opportunities from federal, state, and private organizations.

Funding Types

Loans

Grants

Funding Providers

Federal

State

Private

Funding Uses

Education/Outreach

Implementation

Restoration

Loans

State Revolving Fund

Clean Water State Revolving Fund (CWSRF)

Through: Department of Environmental Quality (DEQ). The EPA allocates money to each state and the state matches 20%.

Purpose: Help public agencies with water quality improvements.

How it works: The fund provides low-cost loans to cities for planning, design, and construction for water pollution control activities, such as stormwater control. The fund traditionally served municipality wastewater needs but it has now expanded to address non-point source water pollution.

When to apply: Continuously open to new applications. The evaluation committee assigns loans using specific ranking criteria.

For more information: http://www.deq.state.or.us/wq/loans/loans.htm

Grants

DEQ 319 Grants

Through: Section 319 of the Water Quality Act of 1987

Purpose: Help projects that target non-point source pollution in priority watersheds, water bodies, and groundwater.

How it works: DEQ identifies targets, solicits proposals, and assembles a final proposal for the EPA. After grants are awarded, DEQ oversees the implementation and evaluates accomplishments.

When to apply: Reviewed annually.

For more information: http://www.deq.state.or.us/wq/nonpoint/grants.htm

"The Oregon Watershed Enhancement Board is a state agency that provides grants to help Oregonians take care of local streams, rivers, wetlands, and natural areas."

-OWEB

Grants Continued

Governor's Fund for the Environment

Through: National Fish and Wildlife Foundation

Purpose: Benefit Oregon's rivers and streams by funding projects that support the implementation of the Governor's Willamette River Legacy Program.

How it works: Projects must develop and implement strategies to eliminate or reduce pollution; restore and conserve fish wildlife, and plant resources; identify continuing sources of pollution; and improve criminal enforcement of environmental and wildlife protection laws. A committed evaluates proposals based on predetermined criteria. Conservation of state's wild salmon strongholds was a priority for FY 2012.

When to apply: Annually. Typically $300,000 in grants are awarded each year.

For more information: http://www.nfwf.org/Pages/orgovernor/rfp.aspx#.UTFm-TCG0xE

Oregon Watershed Enhancement Board Grants

Through: OWEB

Purpose: Develop projects that focus on watershed restoration, natural resource monitoring, outreach/education, and technical assistance.

How it works: OWEB funds stormwater or LID projects if the applicant can provide demonstrable benefits to watershed health. Education projects (for stormwater) are eligible for OWEB's outreach/education grant program.

When to apply: Subject to change.

For more information: http://www.oregon.gov/oweb/grants/Pages/index.aspx

Oregon Outreach/ Education Grants

Through: OWEB

Purpose: To provide information to increase awareness and understanding of watershed restoration and protection. Additionally, activities must relate directly to efforts to protect or restore native fish or wildlife habitat or water quality.

How it works: Several activities can be included in the proposal as long as activities meet the required criteria. Note that proposals that aim to increase awareness for low-impact development activities and are not associated with efforts to protect, restore, or monitor native fish, wildlife, or water quality are not eligible. Stand-alone proposals, like websites are also not eligible.

When to apply: Subject to change.

For more information: http://www.oregon.gov/oweb/grants/Pages/index.aspx

Grants Continued

Bring Back the Natives Grant Program

Through: NWF. Other federal agencies cooperate such as BLM, FWS, USDAFS, and TU.

Purpose: Fund on-the-ground restoration efforts for native aquatic species to rehabilitate streamside and watershed habitats. Projects should cultivate partnerships among communities, agencies, private landowners, and organizations.

How it works: The NWF distributes funds several months after it awards the grant to the entity. Thirty percent of applicants receive funding and a 2:1 non-federal matched amount is required. For more information on typical amounts of awards see website.

When to apply: Pre-proposal due January, Full proposal due March.

For more information:

https://ofmpub.epa.gov/apex/watershedfunding/f?p=116:2:0::NO::P2_X_PROG_NUM,P2_X_YEAR:2,2013

Community-based Habitat Restoration Partnership Grants

Through: NOAA

Purpose: Foster natural resource stewardship in communities through small-scale and locally drive habitat restoration projects. Projects should incorporate collaboration between diverse partners for the implementation of the restoration projects. Examples include removing exotic vegetation and replanting native species and improving habitat quality of fish.

How it works: About 15-25% of applicants receive funding. For more information on typical award amounts see website.

When to apply: NOAA solicits proposals once every three years during the fall.

For more information:

https://ofmpub.epa.gov/apex/watershedfunding/f?p=116:2:0::NO::P2_X_PROG_NUM,P2_X_YEAR:17,2013

Wildlife Habitat Incentives Program (WHIP)

Through: USDA and Natural Resource Conservation Service (NRCS)

Purpose: Help people develop and improve fish and wildlife habitat on private lands through technical assistance and cost sharing. Using NRCS' habitat development plan, landowner's set goals to improve habitat, review and choose practices and scheduling to implement practices and maintain the habitat.

How it works: It is a continuous sign up process where 56% of applicants receive funding. It is a cost-share assistance program. Individuals already enrolled in other programs with a wildlife focus are not eligible. Additionally, public land is not eligible and applicants must own or have control of the land.

When to apply: Continuous.

For more information:

https://ofmpub.epa.gov/apex/watershedfunding/f?p=116:2:0::NO::P2_X_PROG_NUM,P2_X_YEAR:68,2013

Grants Continued

Land and Water Conservation Fund

Through: National Parks Service (NPS)

Purpose: Aide states and political subdivisions for preparing Statewide Comprehensive Outdoor Recreation Plans (SCORP). This includes acquiring and developing outdoor recreation opportunities for the public.

How it works: Applicants need a non-federal match to cover 50% of the project funding. Projects need to acquire or develop land for outdoor recreation purposes. Some examples of acquiring land are new parks, wildlife areas, and beaches. Projects need to comply with the outdoor recreation goals and objectives in the SCORP. Compliance, partnerships, local needs, and public involvement are part of the criteria the committee uses to award applicants. This may be applicable for potential demonstration sites on public land or low impact development improvements on neighborhood parks.

When to apply: Varies.

For more information: http://www.oregon.gov/oprd/grants/Pages/lwcf.aspx

Community Action for a Renewed Environment (CARE)

Through: EPA

Purpose: Offer communities the opportunity to address the risk of multiple sources of pollution in innovative ways to implement local solutions. Partnerships range from non-profits, businesses, schools, and governments. This competitive grant helps educate and support communities through cooperative agreements every year starting in 2005.

How it works: Eight percent of applicants receive funding. An applicant's funding is spread over a two year timeframe. State governments or their agencies are not eligible to apply but local organizations, schools and governments can.

When to apply: Varies.

For more information:

https://ofmpub.epa.gov/apex/watershedfunding/f?p=116:2:0::NO::P2_X_PROG_NUM,P2_X_YEAR:113,2013

Environmental Education (EE) Grant

Through: EPA

Purpose: Support environmental education that promotes stewardship and develops knowledgeable and responsible students, teachers, and citizens.

How it works: Projects must include design, demonstrate, or disseminate environmental education practices, methods, or techniques.

When to apply: Varies.

For more information: http://www2.epa.gov/education/environmental-education-ee-grants

Grants Continued

Cooperative Watershed Management Program

Through: US Bureau of Reclamation (USBR)

Purpose: Enhance water conservation and alternative uses. Improve water quality and a river's ecological resiliency with the hopes to reduce conflicts over water through the development of watershed groups that develop local solutions to water issues.

How it works: There is not matched amount required for funding must the proposal must fall under the following categories: establishment of a watershed group, expansion of an existing watershed group, and implementation of watershed management projects.

When to apply: Varies.

For more information:

https://ofmpub.epa.gov/apex/watershedfunding/f?p=116:2:0::NO::P2_X_PROG_NUM,P2_X_YEAR:127,2013

Fred Meyer Fund

Through: Fred Meyer

Purpose: Promote environmental education and stewardship.

How it works: Associates help select grant recipients in their communities.

When to apply: Varies.

For more information:

http://www.fredmeyer.com/company_information/FM_Community/Pages/fred_meyer_fund.aspx

"Environmental education not only addresses awareness and knowledge but involves information dissemination and requests actions for a particular issue."

-EPA

Appendix D: Definitions

Buffer Strip (Vegetated Filter Strip): A sloping area covered by vegetation that receives runoff to slow stormwater, collect sediment and filter pollutions.

Clean Water Act (CWA): Federal law from 1972 that is the nation's principal legislation to set surface water quality standards. The goal of the CWA is to restore and maintain the biological integrity of that nation's waters. The EPA administers the CWA but everyday regulation is left to state departments. In Oregon, the CWA is administered by the Oregon Department of Environmental Quality (DEQ).

Compost: Decomposed organic material added to soil that increases its capacity to hold water and nourish plants.

Curb-Contained Bioretention: A depression between a right-of-way and sidewalk, covered by vegetation that receives runoff to slow stormwater, collect sediment and filter pollutions.

Designated Management Agency: A federal, state or local governmental agency that has legal authority of a sector or source contributing pollutants, and is identified as such by the Department of Environmental Quality in the TMDL (Oregon Administrative Rules [OAR] 340-042-0030(2)).

Floodplain: Land adjacent to a river that is formed primarily by river sediment and is often subject to flooding.

Floodway: The Federal Emergency Management Agency defines the floodway as the channel where water is likely to be deepest and fastest during a flood event. It is the often narrow area of the floodplain closest to the river that should be kept free of obstructions to allow floodwaters to move rapidly downstream.

Green Infrastructure: An adaptable term used to describe an array of products, technologies, and practices that use natural systems – or engineered systems that mimic natural processes – to enhance overall environmental quality and provide utility services. As a general principal, Green Infrastructure techniques use soils and vegetation to infiltrate, evapotranspirate, and/or recycle stormwater runoff.

Green Roof: Also known as rooftop gardens, green roofs are planted over existing roof structures, and consist of a waterproof, root-safe membrane that is covered by a drainage system, lightweight growing medium, and plants. Green roofs reduce rooftop and building temperatures, filter pollution, lessen pressure on sewer systems, and reduce the heat island effect.

Green Tags: See Renewable Energy Certificates.

Grey Water: Non-drinkable water that can be reused for irrigation, flushing toilets, and other purposes.

Impervious Surface: Any material which reduces and prevents absorption of stormwater into previously undeveloped land. In other words, hard surfaces such as roofs and pavement that prohibits water from soaking into the ground.

In-Curb Planter Vault: A raised, vegetated landscaping application that reduces stormwater runoff. Planters take many forms, including contained boxes and flow-through.

Infiltration (also called stormwater infiltration): The process through which stormwater runoff penetrates into soil from the ground surface.

Invasive Plants: Aggressive plants that crowd out native plants for water, sunlight and nutrients and harm the environment, economy and human health.

Level Spreader: A device that reduces water pollution by mitigating the impact of high-velocity stormwater. This is a level, graded area that slows and spreads concentrated runoff.

Low Impact Development (LID): LID is an approach to land development (or re-development) that works with nature to manage stormwater as close to its source as possible. LID uses methods that preserve natural resources and collect and clean stormwater runoff on site to protect and improve water quality.
Minimize Impervious Surfaces: To reduce the area covered by buildings, roofs, roads, parking lots and sidewalks.

Native Plants: Plants that need little or no fertilizer or care once established, provide wildlife habitat, and occur historically in an area.

Naturescaping: Landscaping with native plants to restore natural systems and attract native insects, birds and wildlife.

Permeable Pavement (also called porous pavement): Surface to walk, drive or park on that reduces stormwater runoff by allowing water to soak into the ground. Examples are permeable pavers, pervious concrete, porous asphalt and gravel.

Pollutant: Dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

Pollution: Human-made or human-induced alteration of the chemical, physical, biological, and radiological integrity of water.

Predevelopment Hydrology: The combination of runoff, infiltration, and evapotranspiration rates and volumes that typically existed on a site before human-induced land disturbance occurred (e.g., construction of infrastructure on undeveloped land such as meadows or forests).

Rain Chains: A water feature that is used as an alternative to a downspout. Rain chains guide runoff from a roof to the ground, a cistern, or rain barrel.

Rain Garden: Planted, bowl-shaped area designed to collect and absorb runoff and filter out pollutants.

Rain Garden: A rain garden is a depressed area of the ground planted with vegetation, allowing runoff from impervious surfaces such as parking lots and roofs the opportunity to be collected and infiltrated into the groundwater supply or returned to the atmosphere through evaporation and evapotranspiration.

Rainwater Harvesting (rain barrel): To collect and store rainwater for landscape watering, toilet flushing and other uses.

Riparian Area: The area adjacent to a river, lake, or stream, consisting of the area of transition from an aquatic ecosystem to a terrestrial ecosystem.

Riparian Buffer: A vegetated area near a stream that shades the water, preserves the bank, slows stormwater runoff, and filters pollutants.

Stormwater Runoff: Rainfall and snowmelt that “runs off” instead of seeping into the ground. Runoff carries pollutants to waterways and may degrade streams and cause unnatural flooding.

Swale (also called Bioswale): Long, planted, open channel that carries, slows and absorbs stormwater and filters out pollutants.

Top-of-Bank: The highest point at which the bank meets the grade of the surrounding topography, characterized by an abrupt or noticeable change from a steeper grade to a less steep grade, and, where natural conditions prevail, by a noticeable change from topography or vegetation primarily shaped by the presence and/or movement of the water to topography not primarily shaped by the presence of water. Where there is more than one such break in the grade, the uppermost shall be considered the top of the bank.

Total Maximum Daily Load (TMDL): A written quantitative plan and analysis for attaining and maintaining water quality standards and includes the elements described in OAR 340-042-0040. These elements include a calculation of the maximum amount of a pollutant that a water body can receive and still meet state water quality standards, allocations of portions of that amount to the pollutant sources or sectors, and a Water Quality Management Plan to achieve water quality standards.

Tree Preservation: To preserve and protect trees by fencing, limiting soil compaction, guarding from animal damage and other practices. Trees capture rain, filter pollutants, provide shade and cool air, improve air quality and provide habitat.

Watershed: An area or region drained by a river or river system. A watershed is typically defined by a ridge of land that separates waters flowing to different rivers, basins, or seas.

Xeriscaping (water-wise gardening): To minimize water use by choosing plants appropriate to the site that need little watering.