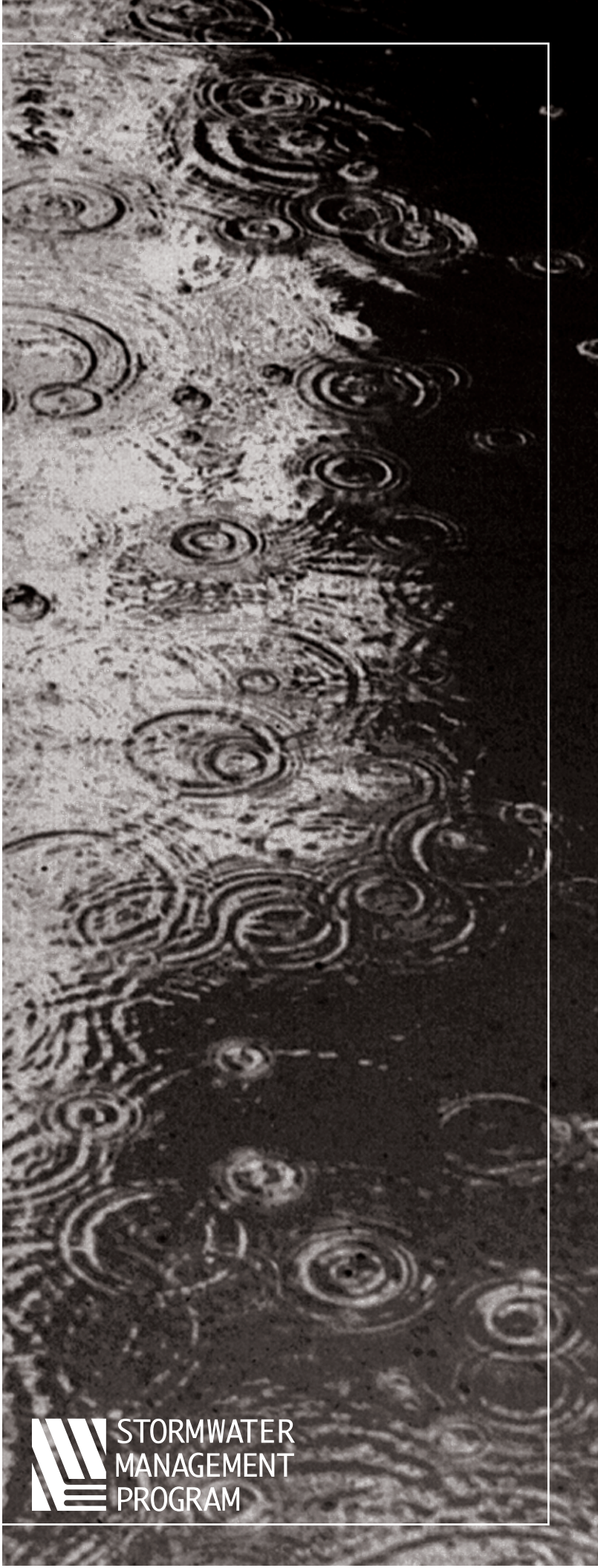
COMPREHENSIVE STORMWATER MANAGEMENT PLAN



STORMWATER MANAGEMENT PROGRAM

CITY OF EUGENE

NOVEMBER 1993

ACKNOWLEDGMENTS

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PREFACE

Managing the amount (quantity) of stormwater runoff is a common and historic issue for communities across the country. Elaborate engineering systems have been designed and constructed to control floods and, for the most part, they work. Stormwater quality, however, has only recently become a nation wide issue. Through the reauthorization of the federal Clean Water Act in 1987, Congress has mandated that communities larger than 100,000 population begin reducing the discharge of stormwater pollutants into the receiving waters of the United States "...to the maximum extent practicable." The Comprehensive Stormwater Management Plan (Stormwater Plan) forms the local policy framework for responding to these mandates, as well as other community values associated with stormwater issues such as the protection of wetlands and other natural resources that provide important stormwater functions.

Stormwater runoff occurs when rainfall is unable to be absorbed into the ground. The amount of runoff is primarily dependent upon the degree to which the natural landscape is covered with "hard" surfaces, such as roof tops and streets. When stormwater comes in contact with these hard surfaces, pollutants are picked up in the public drainage system and discharged into receiving waters. These pollutants affect the health of aquatic plants and animals, other wildlife, and ultimately humans through irrigation practices and recreational activities.

In Eugene, the waterways that carry stormwater runoff contribute a variety of values and functions to the community. Most serve as drainage and flood control facilities, such as the Willamette River and Amazon Creek. To a certain degree these waterways help to filter and treat stormwater pollutants. Many of the streams, ponds, wetlands and drainageways form part of the natural environment of the city that is important to community livability.

Eugene's waterways are part of a larger system of interconnected resources that contribute other community values. Streams, even those which are polluted, provide habitat for aquatic plants and animals within open channels and adjacent vegetated fringe areas - known as riparian habitat areas. As a system, these waterways, riparian areas, and adjacent wetlands provide habitat for a wide variety of fish and wildlife. These streams and adjacent natural areas also form an important component of our urban open space system. Many of our recreational corridors follow these waterways (for example, the Willamette River Greenway and the Amazon bicycle path). Additionally, these streams provide outdoor educational opportunities for local schools and higher education institutions.

Not all of the city's waterway corridors are of high quality and provide multiple functions. In some areas, natural waterways have been replaced with concrete lined channels, leaving few options for restoration. In other areas, treeless ditches exist exclusively to serve flood protection and drainage functions. The quality of a

waterway may be diminished due to the lack of continuity of the corridor's characteristics. For example, a reach of a natural creek may discharge into a storm pipe which then connects to an open, treeless ditch, and then back to a natural creek again. Examination of these areas is needed to determine where restoration opportunities may or may not exist.

Recent local natural resource studies, the **West Eugene Wetlands Plan** and the **Eugene-Springfield Natural Resources Functional Plan**, have increased our understanding about the multiple values of our waterways. Given the existing local policy commitment to clean water, protection of natural resources, and flood control through the Metropolitan Plan, the Stormwater Plan does not contain new local policy direction. Rather, it molds these multiple objectives through refinement policies into a comprehensive and integrated approach to manage our urban waters in a way that provides flood protection and drainage services, yet also addresses water quality issues. The Stormwater Plan focuses on management practices and techniques to reduce pollution through education, on-site pretreatment, operational practices, land use regulations, and other means to eliminate and reduce pollution levels. It offers a multiple-objectives approach to stormwater management that maximizes benefits and minimizes economic and environmental impacts on the community.

In November, 1993, the Eugene City Council adopted the Draft Stormwater Plan, with amendments, as a refinement to the Eugene-Springfield Metropolitan Area General Plan. Because the Plan only affects land within the Eugene city limits, the City of Springfield and Lane County opted not to participate in this process. The Eugene Council also adopted changes to the stormwater user fee, including the basis for charges, a new rate structure for financing the new program areas, and related changes to the industrial pretreatment program. The following is a listing of the specific ordinance numbers and their dates of adoption:

- Ordinance No. 19938, adoption of Comprehensive Stormwater Management Plan, *November 17, 1993.*
- Ordinance No. 19939, adoption of changes to existing wastewater and stormwater systems and renumbering the Eugene Code, *November 17, 1993.*
- Ordinance No. 19940, adoption of changes to the Industrial Pretreatment Program, *November 17, 1993.*
- Resolution No. 4395, adoption of changes to the stormwater user fee basis and rate, *November 22, 1993.*

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Chapter One
OBJECTIVES AND HIGHLIGHTS

PLAN OBJECTIVES

There were seven major objectives in preparing the Comprehensive Stormwater Management Plan (Stormwater Plan):

1. Meet the requirements of the Clean Water Act for nonpoint source pollution;
2. Protect the public from flood and drainage damages;
3. Implement the West Eugene Wetlands Plan and applicable recommendations from the Natural Resources Special Study;
4. Maintain the quality and effectiveness of the stormwater system through an on-going operations and maintenance program;
5. Provide a stable and equitable funding source;
6. Educate and inform the public about water related issues; and
7. Integrate the individual components of the program so they are internally consistent and complimentary.

PLAN HIGHLIGHTS

The Stormwater Plan marks a significant change in the way the City of Eugene understands, manages, and maintains stormwater runoff. By reviewing the following highlights, the basics of the Stormwater Plan can be understood.

INTEGRATED, MULTIPLE-OBJECTIVES APPROACH

The impetus for preparing the Stormwater Plan grew out of the need to meet federal water quality mandates. However, the City Council and community recognized at the outset that an opportunity existed to more effectively manage the system if a broader range of stormwater issues was addressed than just the mandates. Having concentrated primarily on flood and drainage management

controls in the past, the limiting effects of a fairly narrow management perspective were evident when the community was faced with the wetland dilemma in west Eugene. The resulting West Eugene Wetlands Plan recognized the complexity of the watershed landscape by linking the effects of stormwater management to the quantity and quality of stormwater runoff, wetlands, and other related natural resources. With this perspective, Eugene's response to federal water quality mandates was to integrate flood control and drainage services, water quality treatment, and the protection of natural resources that meld stormwater functions into a comprehensive management approach.

EXPANDED SERVICES

The stormwater program will be expanded to include the following services:

Maintain Flood Protection and Drainage Services

The City's stormwater program has achieved a high level of performance in protecting the public and property from flood and drainage damages. The Stormwater Plan will continue to provide the same level of flood protection and drainage services that the community has come to expect. The techniques and methods used to provide flood protection and drainage services will be expanded to incorporate water quality and natural resource protection concerns.

Protect and Improve Water Quality

The Eugene/Springfield Metropolitan Plan contains policies for protecting natural water bodies and for using natural systems, where applicable, to treat and store runoff. Together with the federal water quality mandates, the Stormwater Plan provides specific implementation actions for preventing and minimizing future pollution, and for cleaning and restoring areas of existing pollution.

Protect West Eugene Wetlands, Waterway Corridors, and Related Natural Resources

The Stormwater Plan incorporates into the stormwater program the City's commitment to manage and maintain the wetlands of west Eugene. Financial resources will be committed to insure policies are met, and the wetland system is protected, restored, and maintained according to the West Eugene Wetlands Plan. Other natural resources that provide important stormwater functions, such as storm conveyance, flood storage, water quality treatment, and water temperature controls, will be identified and managed for their stormwater functions and values. These resources include the primary waterway corridors of Eugene and adjoining riparian and wetland areas, and headwater streams and wetlands.

IMPLEMENTATION STRATEGIES

Implementation of the Stormwater Plan will be guided by a building block management approach where: emphasis is placed on improving existing practices and procedures as opposed to new practices; education efforts are given priority over regulatory requirements; and new methods are tested and demonstrated prior

to “across-the-board” application. Implementation will occur in phases. The initial year or two will be a transition phase. Management measures will concentrate on defining the scope of the water quality “problem;” educating the public about stormwater issues and ways to help prevent pollution; conducting planning studies for guiding future capital projects; and equipping the organization with the necessary structure and resources for implementing the program. The later years will focus on specific management measures designed to prevent and treat stormwater pollution. Some of the major management measures are:

- **Pilot Projects**. A series of pilot projects will be conducted to test the feasibility and application of specific management measures. Possible projects include “soft” engineering techniques for treating pollutants, alternate maintenance practices that minimize water quality pollution and wildlife habitat destruction.

- **Basin Plans**. Each of the major stormwater drainage basins of the city will be reassessed and evaluated for applying management measures according to the multiple objectives of the Stormwater Plan and the opportunities and constraints of the basin. These plans will provide the overall guidance for implementing the Stormwater Plan.

- **Waterway Corridors**. Based on the results of the Basin Plans, efforts will be made to acquire the major stormwater conveyance corridors of the city and their associated natural resource components, such as riparian zones and wetlands. Acquisition efforts will greatly assist with the implementation of the Stormwater Plan’s multiple objectives. Flood control, drainage services, and water quality treatment opportunities will be expanded to include entire reaches of the conveyance system. Conflicts between private and public ownership interests will be reduced. Maintenance efforts will become more effective as access issues are eliminated, and geographical areas of responsibilities are clarified. Public access will be assured for recreation and educational opportunities.

- **Development Standards**. Standards for controlling the discharge of pollutants associated with land use will be developed and applied.

- **Monitoring Program**. On-going monitoring efforts will help to define the type, scope, and source of pollutants. From these results, management measures will be tailored to address specific problem areas.

- **Maintenance and Operations**. To address water quality and natural resource protection concerns, alternate maintenance practices will be examined and applied where feasible.

- **Public Education**. A public education and involvement program will be employed to help inform the public about stormwater issues and ways they can help to prevent and minimize pollution. In addition to general residents, key interest groups, such as industrial and commercial employers, professionals in land use development, and educators will be targeted for outreach efforts.

MANAGING THE SYSTEM

The City's Public Works Department will continue to have primary responsibility for planning, designing, monitoring, and maintaining the stormwater conveyance system. A "water resources" team will be established for carrying out the new program areas. Opportunities will be provided to involve citizens as volunteers in helping to manage certain aspects of the program.

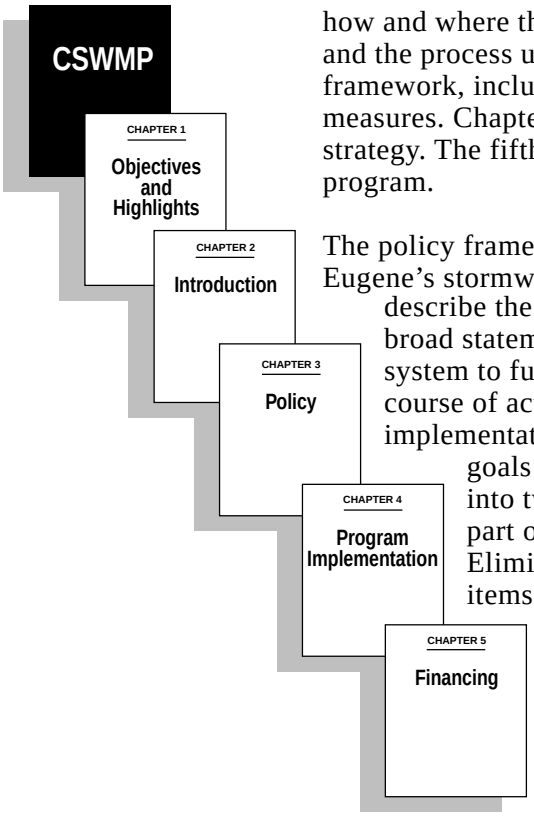
FUNDING THE PROGRAM

The new program areas are estimated to cost $2.6 million annually, an increase of 60% over the 1993 program. The Stormwater Plan will be financed primarily through the stormwater user fees. The fee applies to all building lots in the city containing impervious surfaces. Incentives are provided to eliminate or minimize runoff, and to protect on-site natural resources. Runoff associated with the public street system may, in the future, be financed through either a transportation utility fund, local gas tax, or vehicle generation fee. Voters will decide if gas tax weill offset fee for streets in May 1995. Other resources will continue to be explored, such as grants from federal and state agencies.

Chapter Two
INTRODUCTION

A. DOCUMENT ORGANIZATION

This document is the Comprehensive Stormwater Management Plan (Stormwater Plan) for the City of Eugene. It establishes comprehensive public policy for addressing stormwater conveyance and urban stormwater quality issues and is organized into five chapters. Chapter One, **Objectives and Highlights**, summarizes the key elements. Chapter Two, **Introduction**, describes the content, how and where the plan fits into the City's planning framework, the area covered, and the process used for adoption. Chapter Three, **Policy**, describes the policy framework, including issues addressed, goals, policies, and implementation measures. Chapter Four, **Program Implementation**, describes the implementation strategy. The fifth and final chapter, **Financing**, describes the adopted financing program.



The policy framework in Chapter Three contains the policy direction for taking Eugene's stormwater management program into the future. The goals and policies describe the future vision and direction for the Stormwater Plan. Goals are broad statements of philosophy and vision about how the City would like the system to function in the future. Policies provide the basis for a consistent course of action to move the community toward its goals. The implementation measures describe the planned approaches to implement the goals and policies will be implemented. These measures are divided into two categories: Best Management Practices (BMPs) submitted as part of the City's Stormwater National Pollutant Discharge Elimination System (NPDES) permit and other actions. The BMPs are items the City has committed to fulfill over the five-year period of the NPDES permit. The other actions are items the city hopes to implement through the Stormwater Plan, but are not part of the NPDES requirements.

B. RELATED PLAN DOCUMENTS

A number of documents and studies have been produced during the preparation of the Stormwater Plan. Listed below, they provide most of the background and technical data which form the basis for the Stormwater Plan's vision and policy direction.

1. This document, the *Comprehensive Stormwater Mangement Plan*, includes a brief narrative with goals, policies, implementation measures, and maps that will guide the community toward achieving local objectives and meeting federal laws and regulations.

2. The *Commprehensive Stormwater Management Plan Working Papers*, July 1994, includes detailed research and discussion of the federal water quality

mandates and how they affect the City's traditional stormwater program. Specific sections include description of the City's traditional stormwater system, existing public policy framework, flood control and drainage services, operations and maintenance, water quality, and finance. Each of these sections describe the existing systems and alternatives considered during preparation of the draft Stormwater Plan. Also included is a description of the public involvement and outreach effort.

3. National Pollutant Discharge Elimination System (NPDES) Permit Application

   a. Part I, May 1992, National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit Application, submitted by the City of Eugene to the Oregon Department of Environmental Quality (DEQ): this document describes the methodology and approach used in developing the Eugene program, the study area, the storm drainage system, existing land use, the existing stormwater management programs, and assessment of existing water quality and related data and studies.

   b. Part II, May 1993, "National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit Application," submitted by the City of Eugene and the Oregon Department of Transportation (ODOT) as co-applicants, to the DEQ: this document describes the permit area, the legal authorities of the City and ODOT, water quality data and pollutant sources, monitoring plan, capital projects, inspection and enforcement programs, operations and maintenance, planning and administration, public education, ODOT's Stormwater Management Plan, assessment of controls, fiscal analysis, assignment of responsibilities, technical calculations, and a description of Eugene's Stormwater Management Plan planning process. Existing programs are described and a schedule for implementing new tasks and programs over a five-year period are presented.

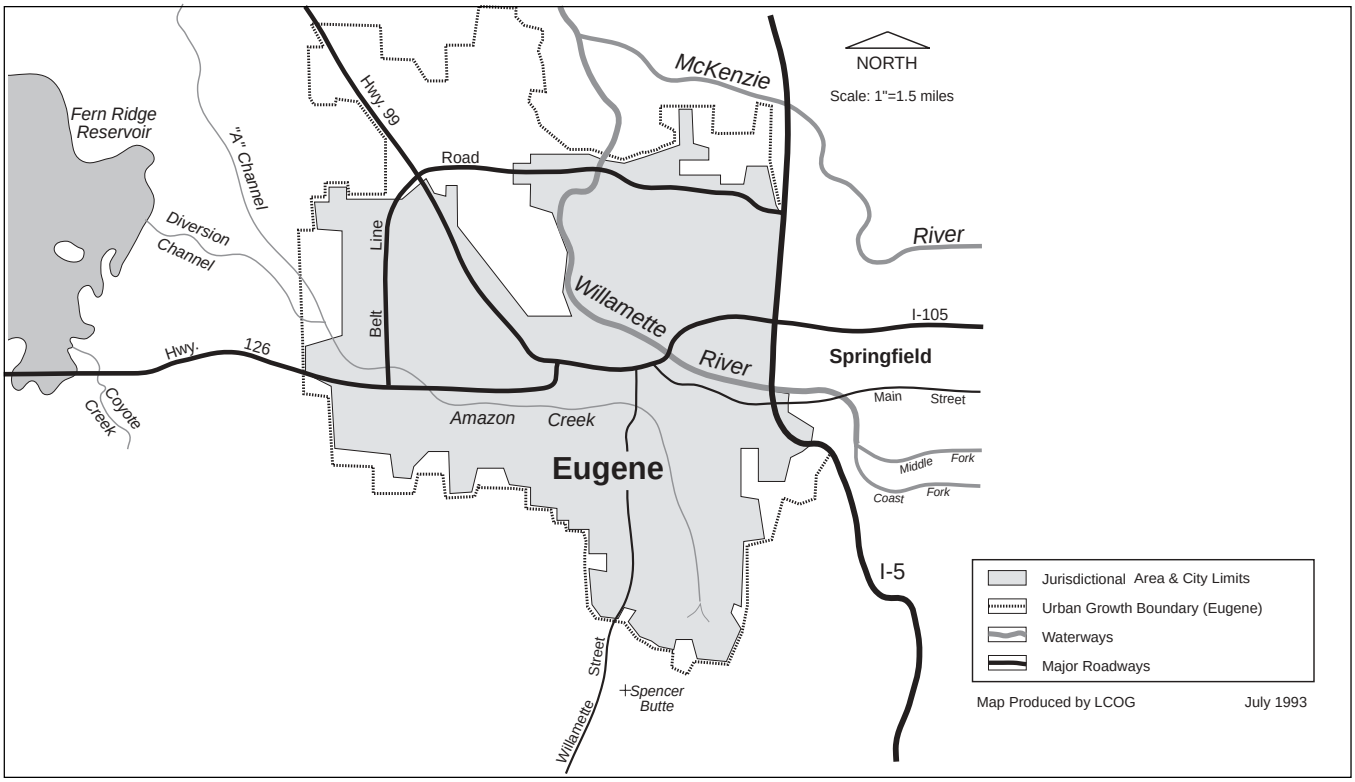
   c. NPDES Municipal Stormwater Permit issued to the City of Eugene November 10, 1994.

C. AREA COVERED

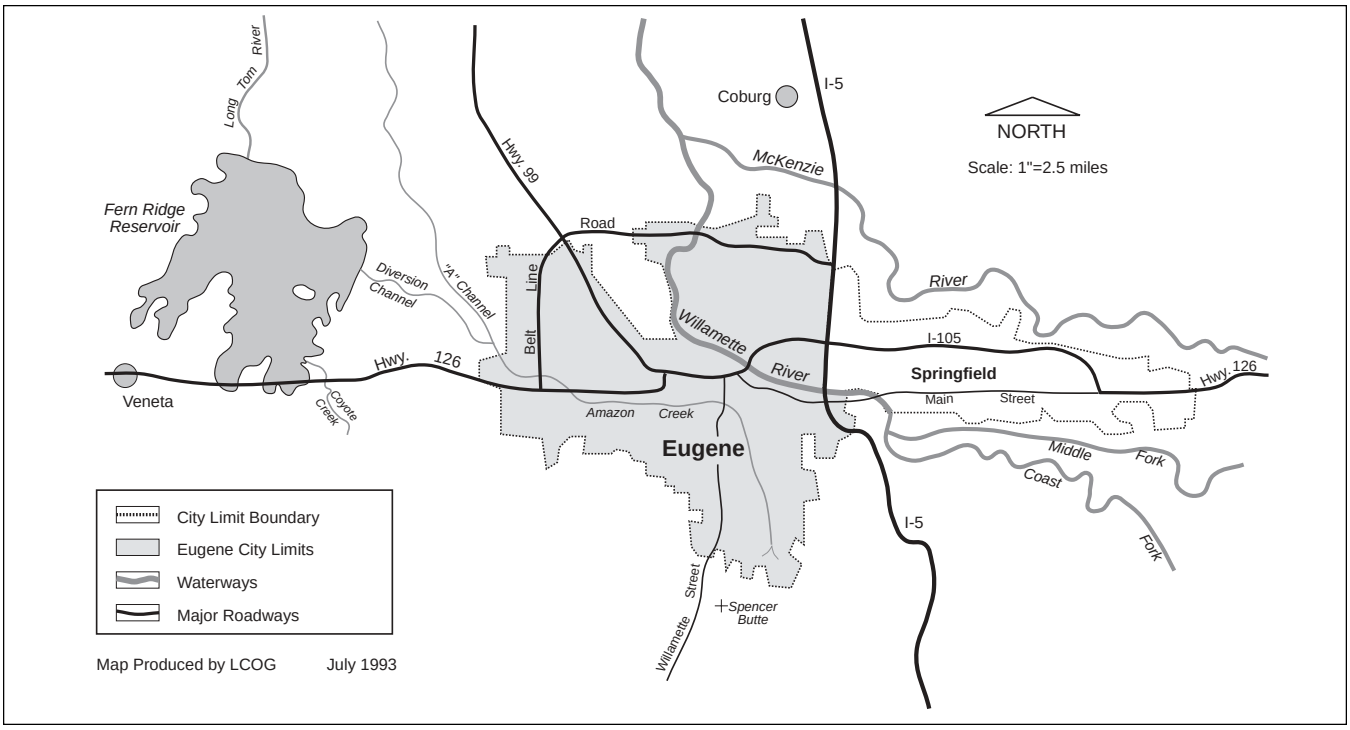
The plan includes the area within the Eugene city limits which is a portion of the overall Eugene/Springfield metropolitan region. The total area within the metropolitan area is about 76 square miles. Of this area, Eugene's Urban Growth Boundary (UGB) is approximately 56 square miles. The area of Eugene's city limits is about 38 square miles, leaving about 18 square miles outside of the city limits but within the UGB (Refer to Map 2-1, Jurisdictional Map). Major water features within and adjacent to the study area include: the Willamette River, Mckenzie River, Amazon Creek, and Fern Ridge Reservoir (Refer to Map 2-2, Regional Setting Map).

As shown on Map No. 2-1, the Stormwater Plan's goals and policies apply only within Eugene's incorporated city limits where the City Council has the mandate to meet provisions of the NPDES permit. As territory within the UGB is annexed

MAP 2-1: Comprehensive Stormwater Management Plan Jurisdictional Map



MAP 2-2: Comprehensive Stormwater Management Plan Regional Setting Map



to the city, CSWMP's goals, policies, and implementation measures will be applied.

At some future date, the city, with Lane County cooperation, may expand the Stormwater Plan's jurisdiction to the urbanizable area lying between the city limits and the UGB. Such an expansion could be triggered by future federal standards related to stormwater quality in unincorporated urban regions, or by the need to provide better coordinated storm drainage services in urbanizable regions. In either event, a new round of citizen involvement and county participation would be necessary before the Stormwater Plan's jurisdiction is expanded.

D. ADOPTION PROCESS

As a refinement to the Metropolitan Plan, the Stormwater Plan was referred to Lane County and the City of Springfield for comment. Because it is consistent with the Metropolitan Plan and the City's Community Goals and Policies, and because it applies only within the incorporated city limits of Eugene, the City of Springfield and Lane County opted not to participate in the Stormwater Plan adoption process as provided for in policies #2 and #13, Chapter IV [12/31/91], "Amendments to the Eugene-Springfield Metropolitan Area General Plan."

After an extensive community outreach program and a positive recommendation from the Eugene Planning Commission, the City Council adopted the Stormwater Plan on November 17, 1993 (Ordinance No. 19938). The adoption makes the goals and policies which relate to land use part of the City's comprehensive land use plan, and commits the City to specific activities (implementation actions) for meeting the goals and policies.

E. AMENDMENT PROCESS

The Stormwater Plan can be amended in the same manner as any other refinement plan as provided for in the amendment procedures of the Eugene Code. As with other refinement plan amendments, any amendment to the Stormwater Plan must be consistent with the Metropolitan Plan. If there are inconsistencies, an amendment to the Metropolitan Plan is required before any such Stormwater Plan amendment can be effective.

The amendment process includes referrals to affected state and federal agencies, including the Oregon Department of Land Conservation and Development, Oregon Department of Environmental Quality, and the U.S. Environmental Protection Agency.

F. FINANCE PROGRAM

The financial element of the Stormwater Plan contains the goals and policies necessary to establish the revenues to operate and maintain the stormwater system for flood control and drainage services, stormwater quality, and protection of natural resources for their stormwater benefits. Because the system is city-wide, and because the entire community contributes to the stormwater system in terms

of quantity of runoff and pollution, the financial element provides funding for operations and maintenance through a user fee. The user fee applies to all parcels of land containing impervious surfaces. Funding options are being considered for impervious surfaces associated with the public street system. Local gas tax and vehicle trip generation factor are some of the options being considered.

G. MANAGEMENT FRAMEWORK

The Stormwater Plan focuses on management practices and techniques to reduce pollution through education, on-site pretreatment, operational practices, land use regulations, and other means to eliminate and reduce the discharge of pollutants to the municipal storm system.

The City of Eugene Public Works Department is charged with managing the stormwater system, parks planning, and the protection of natural resource areas as they relate to the stormwater system. In conjunction with the above programs, the Public Works Department is a principal partner in the management of the West Eugene Wetlands Plan. The wetlands, along with the piped, curbed and guttered streets, and natural and managed waterways constitute part of the water resources of the city. Their interrelationships require an integrated management approach to protect public health, safety, and welfare, including environmental, recreational and educational values. The Stormwater Plan provides the management framework and financing mechanism for addressing the storm system as well as managing the west Eugene wetlands system.

Because the Stormwater Plan and the West Eugene Wetlands Plan affect or involve public and private interests, coordination with affected parties should remain a high priority for the City of Eugene. The Public Works Department is responsible for that coordinating role.

Chapter Three
POLICY

I. INTRODUCTION

This chapter describes the adopted policy framework and implementation strategies of the Comprehensive Stormwater Management Plan (Stormwater Plan). It is organized according to the Stormwater Plan's seven goals. A standardized format includes: a goal statement, a purpose statement, description and discussion of the issues to be addressed, current and relevant Metropolitan Plan policies, the policies that support the goals, and implementation measures.

The scope of the Stormwater Plan's water quality policies is limited to surface water runoff. Although it is not intended to specifically address groundwater quality protection, there are opportunities throughout the Stormwater Plan to ensure that surface water management controls do not adversely affect groundwater resources. The State of Oregon's groundwater regulations and policies, which are among the most stringent in the nation, will serve as the guideline for this effort.

II. EXPLANATIONS OF GOALS, POLICIES, AND IMPLEMENTATION MEASURES

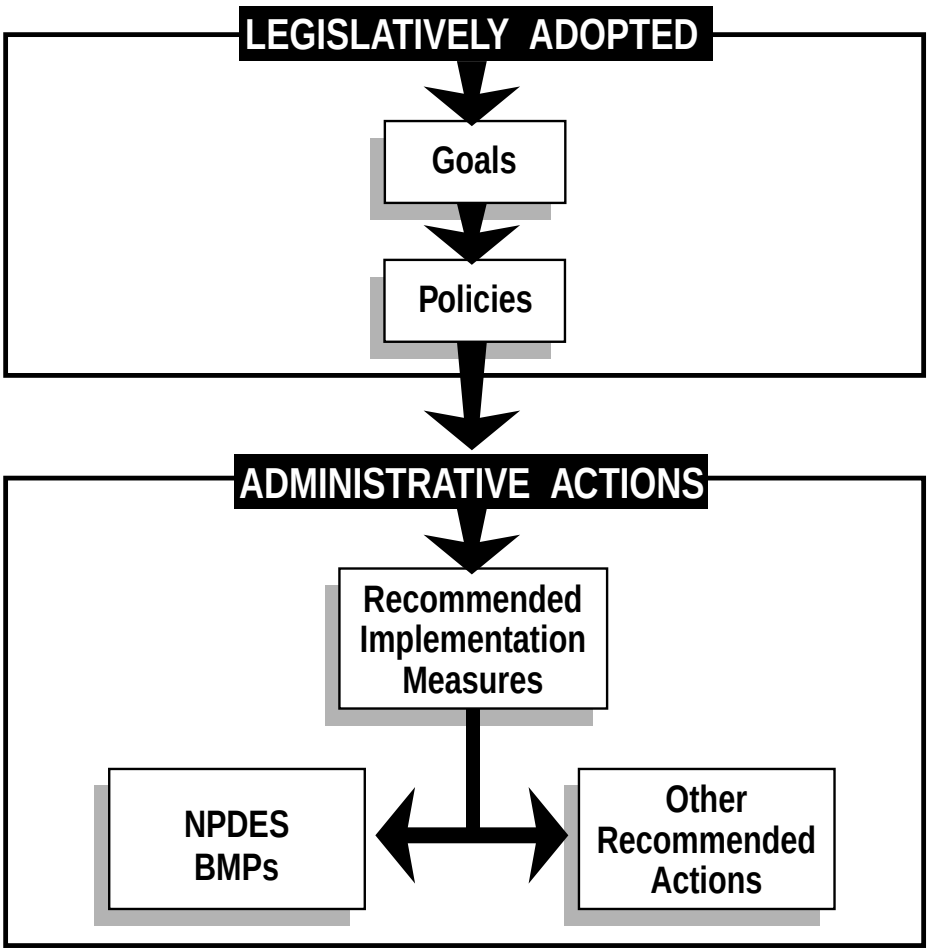
Seven goals and twenty-four policies were adopted as part of the Stormwater Plan. **Goals** are broad statements of philosophy and vision about how the City would like the stormwater system to function in the future. Each goal may never be achieved in its entirety, but provides a target toward which the City can strive. **Policies** provide the basis for a consistent course of action to move the community toward its goals. The adopted policies do not set new policy direction, rather they are refinements to existing policies. Some of the policies were refined because of federal mandates and some are the result of local initiative. References to existing local policy have been included below each of the goals. The complete text of these references is included in Appendix B.

The **implementation measures** under the goals and policies reflect the way in which the goals and policies will be implemented. These measures were adopted as part of the Stormwater Plan and are divided into two categories: 1) Best Management Practices (BMPs) submitted as part of the city's National Pollutant Discharge Elimination System Permit (NPDES) for stormwater and, 2) other actions. The BMPs that were submitted as part of the NPDES permit are items the City has committed to fulfill over the permit's five-year life period. For each applicable policy, the BMPs are restated. Refer to Appendix A for a complete

description of the BMPs. The items listed under other actions are activities the City plans to undertake that are in addition to the minimum requirements of the NPDES permit. The diagram below shows the adoption status of the Stormwater Plan's goals, policies, and implementation.

A series of icons appear by each goal to identify the general purpose of the goal in meeting flood control and drainage services, water quality, or natural resource protection objectives. Two additional icons are used to indicate whether adopted policies are federally mandated and/or refinements of existing local policy.

FIGURE 3-1: Stormwater Plan management framework.



III. EXPLANATION OF ICONS

These three icons are used with both goals and policies.

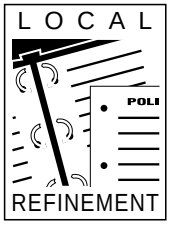
This goal or policy addresses water quality issues and NPDES requirements.

This goal or policy addresses the flood control and drainage service needs of the community.

This goal or policy addresses issues relating to the protection of natural resources that have stormwater related functions.

These two icons are used only with policies.

This policy is in response to federal laws or agreements.



This policy is a refinement of an existing local policy to strengthen and clarify water quality, flood control and drainage services, and natural resource protection commitments.

IV. GOALS, POLICIES, AND IMPLEMENTATION MEASURES

GOAL 1

THROUGH AN INTERCONNECTED SYSTEM OF CONSTRUCTED AND NATURAL FACILITIES, PROVIDE MULTIPLE STORMWATER BENEFITS TO THE COMMUNITY INCLUDING: FLOOD CONTROL AND DRAINAGE SERVICES, PROTECTION AND ENHANCEMENT OF WATER QUALITY AND NATURAL RESOURCES THAT PERFORM STORMWATER FUNCTIONS, RECREATIONAL FACILITIES, AND EDUCATIONAL OPPORTUNITIES.

Purpose: Provide multiple benefits to the community including flood control, water quality enhancement, protection of related natural resources, and recreation and education opportunities through an interconnected system of constructed and natural storm drainage facilities.

Issue: *Water quality treatment and the management of natural resources for their stormwater functions have been outside the scope of the City's traditional stormwater program.*

Discussion: Like most communities, Eugene's stormwater program has concentrated on flood protection and stormwater conveyance. While these efforts have proven very effective, other important stormwater functions have not been addressed. Polluted runoff has been allowed to discharge into the city's rivers, creeks, and wetlands, contributing to elevated concentrations of pollutants. Historically, certain natural resources, such as waterways, creeks, and wetlands, have not been recognized for their beneficial stormwater functions (runoff conveyance, flood control, and water quality treatment) and, as a consequence, they have been replaced with conventional drainage facilities, such as gutters, pipes, and channels. To meet federal stormwater quality requirements and to honor local policies and commitments to natural resource protection, such as the West Eugene Wetlands Plan, Eugene has opted to expand its traditional program from basically a single purpose function to one of multiple functions and objectives.

Goal 1 of the Stormwater Plan acknowledges the value, complexity, and inter–relationships of the watershed by providing policy direction for managing it within an integrated, multiple-objectives context. In this framework, flood control and drainage services, water quality, and the protection of natural resources that serve important stormwater functions are considered equal components — the provision of one doesn't occur at the expense of others. In situations where resources are limited, it may not be possible to provide the full range of stormwater services. In these circumstances, service priorities should be based on the physical opportunities and constraints of each site, and the health, safety, and welfare (i.e., flood protection, water quality) of the residents of Eugene.

Existing Local Policy Direction: Metro Plan: Goals 1,2,3 and 4 page III-C-6, Objective 3 page III-C-6, Goal 1 page III-D-3, and Policy 2 page III-E-3. Community Goals and Policies: Goal 6 page 3, Policies 6.0 page 13, 1.0 and 2.0 page 15, and 13.0 page 20.

POLICY 1.1

Incorporate the beneficial functions (flood control, stormwater conveyance, water quality treatment) of natural resources into the City's storm drainage system.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

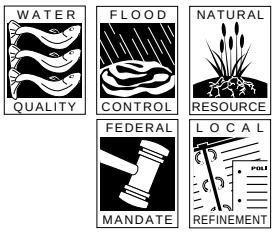
- Develop and implement a proactive acquisition program for existing drainage channels and waterways (BMP: CAP1).
- Plan, develop, and evaluate the effectiveness of a pilot program that incorporates a wide variety of Best Management Practices for a small, urbanized drainage basin (BMP: CAP2).
- Develop and keep current inventories and maps of the storm drainage system. Include mapping of storm drainage amenities such as grassy swales detention/ retention basins and constructed wetlands. Develop and integrate data systems which describe water quality conditions (BMP: OM8).
- Determine the feasibility of establishing and maintaining water quality facilities (e.g., detention/retention/infiltration basins, constructed/natural wetlands), and where appropriate, retrofit existing drainage and flood control facilities (e.g., storm drain inlets, drainage channels) to function as water quality facilities (BMP: CAP3).

OTHER ACTIONS:

- Review and update capital projects in the existing stormwater master plan for consistency with the Stormwater Plan's multiple objectives.
- Conduct and maintain an inventory of waterway corridors, including related headwater streams, riparian zones, and wetland areas.
- Develop and apply waterside protection ordinances.
- Develop comprehensive basin plans that incorporate the multiple objectives of the Stormwater Plan(BMP: P&A1).

- Develop a program to provide financial incentives to property owners who protect natural areas on their property considered to have natural resource characteristics or create water quality improvements that provide natural resource enhancement (BMP: P&A3).

- Develop a program to educate architects, engineers, construction site operators, and property owners of new structural techniques that reduce negative water quality impacts to streams and the storm systems (BMP: ED7).



POLICY 1.2

Maintain flood control, drainage, and water quality treatment capacities along the city's stormwater conveyance corridors while protecting and enhancing the health, diversity and continuity for wildlife habitat, native vegetation, and endangered species.

IMPLEMENTATION MEASURES:

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Determine the feasibility of establishing and maintaining water quality treatment facilities (e.g., detention/retention/infiltration basins, constructed/natural wetlands), and where appropriate, retrofit existing drainage and flood control facilities (e.g., storm drain inlets, drainage channels) to function as water quality treatment facilities (BMP: CAP3).

- Evaluate existing maintenance program for public rights-of-way and public drainage facilities and ensure that these programs limit the discharge of pollutants from pesticides and fertilizers in runoff (BMP: OM2).

- Create, implement, and enforce water quality based drainage standards (structural and nonstructural) for new development. Standards should include controls for post-construction water quality (BMP: P&A7).

- Develop Operations and Maintenance (O&M) plans (or review and revise O&M plans) for all public stormwater facilities, new and existing. Incorporate evaluation of effectiveness into the O&M plans. Provide means of recording the observations of field inspection and maintenance personnel, and transfer this information to the appropriate department/agency so that the information can be used to locate and eliminate the source(s) of pollutants (BMP: OM1).

- Clarify and strengthen enforcement (e.g., establish civil penalties, fines, and abatement procedures) of existing regulations which give the City the legal authority to prevent and eliminate the improper disposal of pollutants into storm drainage system and drainage channels, including illicit connections and illegal dumping (BMP: MON1).

OTHER ACTIONS:

- Develop appropriate criteria and design standards for creating and restoring waterways, where feasible, to more natural conditions (e.g., channel widening and meandering, grading slopes, replanting and other means).

POLICY 1.3

Develop and implement City programs and practices to carry out the goals and policies of the Stormwater Plan that conform with the West Eugene Wetlands Plan.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Develop a program to inventory public and private parcels (where parcels are identified as providing benefits with respect to stormwater quality) set aside for mitigation purposes, and ensure that mitigation sites are adequately maintained (BMP: P&A9).

OTHER ACTIONS:

- Seek federal and state approval of the West Eugene Wetlands Plan.
- Establish the West Eugene Wetlands Mitigation Bank.

POLICY 1.4

Amend existing regulations and administrative policies and practices to be consistent with the goals and policies of the Stormwater Plan.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Clarify and strengthen enforcement (e.g., establish civil penalties, fines, and abatement procedures) of existing regulations which give the City the legal authority to prevent and eliminate the improper disposal of pollutants into the storm conveyance system, including illicit connections and illegal dumping (BMP: MON1).

- Develop comprehensive basin plans that incorporate the multiple objectives of the Stormwater Plan (BMP: P&A1).
- Create, implement, and enforce water quality based drainage standards (structural and nonstructural) for new development (BMP: P&A7).

OTHER ACTIONS:

- Seek modification to federal regulations pertaining to design and maintenance of open water channels.
- Review and modify existing land use regulations for consistency with Stormwater Plan policies.
- Update the Public Facilities Plan.

POLICY 1.5

Develop new design standards and maintenance practices that meet the multiple objectives of the Stormwater Plan.

IMPLEMENTATION MEASURES:

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Review existing street design standards with respect to water quality (BMP: P&A2).
- Implement a comprehensive erosion control program which identifies and applies erosion control requirements citywide (BMP: P&A4).
- Create, implement, and enforce water quality based drainage standards (structural and nonstructural) for new development (BMP: P&A7).
- To improve water quality, review and modify existing design standards for flood control, drainage, and water quality facilities (BMP: P&A8).
- Develop O&M plans (or review and revise O&M plans) for all public stormwater facilities, new and existing. Incorporate evaluation of effectiveness into the O&M plans (BMP: OM1).
- Evaluate existing maintenance program for public rights-of-way and public drainage facilities and ensure that these programs limit the discharge of pollutants from pesticides, herbicides and fertilizers in runoff (BMP: OM2).

- Develop a program for cleanup after (and during, when appropriate) structural fires and vehicular accidents or similar incidents to prevent contaminants and debris from being washed into the storm drain system. Include coordination with the Department of Public Safety (BMP: OM5).

- Review existing street sweeping programs and, where appropriate, develop and implement alternative and/or intensified street sweeping programs in strategic locations (e.g., central business districts, shopping malls, major parking lots, industrial areas) and/or at strategic times (e.g., following extended periods of dry weather) (BMP: OM6).

- Continue to implement vehicle maintenance procedures to ensure that municipal trucks hauling materials do not leak, spill, or otherwise release contaminants into roadways or open spaces where they may be washed into storm drains or waterways (BMP: OM10).

OTHER ACTIONS:

- Develop and implement design standards for bridges and culverts that minimize water quality impacts, facilitate wildlife movement and that consider future monitoring needs.

POLICY 1.6

Balance the operational needs of managing natural resource and wildlife habitat areas against any associated nuisance conditions that may result.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Develop educational programs that provide information about stormwater pollution and effective solutions. Document community participation and level of public awareness. (BMP: ED1).

OTHER ACTIONS

- Develop a variety of options and select the most appropriat e solution to respond to the range of neighborhood issues associated with natural areas (e.g., access, safety, aesthetics, maintenance, costs, and others).

POLICY 1.7

Develop a stormwater facility plan that incorporates the goals and policies of the Stormwater Plan.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Develop comprehensive basin plans that incorporate the multiple objectives of the Stormwater Plan (BMP: P&A1).

OTHER ACTIONS:

- Consider downstream impacts, and the implementation of other related community goals and objectives, such as recreation, education, transportation, and open space factors, when developing the master stormwater plans.

POLICY 1.8

Evaluate the effectiveness and appropriateness of a variety of surface water management facilities for meeting the multiple objectives of this plan.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Plan, develop, and evaluate the effectiveness of a pilot program that incorporates a wide variety of Best Management Practices for a small, urbanized drainage basin (BMP: CAP2).

OTHER ACTIONS

- Research and evaluate best available technology designed to improve water quality, flood control and drainage services.
- Prior to selection and implementation of stormwater control measures, assess impacts to groundwater resources.

GOAL 2

PROTECT LIFE AND PROPERTY FROM FLOOD AND DRAINAGE HAZARDS THROUGH A COMBINATION OF CONSTRUCTED FLOOD CONTROL AND DRAINAGE FACILITIES AND NATURAL RESOURCE SYSTEMS.

Purpose: The purposes of this goal are: meet federal flood control programs; meet local flood control goals and policies; and provide a high level of drainage services to the community.

Issue: *The goal to protect natural resources and control stormwater pollution could jeopardize the City's ability to maintain current flood protection levels.*

Discussion: With federal mandates requiring the City to minimize stormwater pollution to the maximum extent practicable, and Eugene's local commitment to protect natural resources, there is concern that the City's ability to provide flood protection and drainage services at historic service levels could diminish. Flood control and stromwater conveyance have been, and will continue to be, high priority service areas for the City's stormwater program. This commitment is reflected in the organizational structure and budgeting process of the Stormwater Plan. As shown in Chapter Five, expenditures for flood protection and conveyance services remain constant between the City's historic program and the Stormwater Plan.

Goal 2 affirms the City's commitment to protect the community from flood and drainage hazards while employing stormwater management measures that are suitable and appropriate for a given set of physical, environmental, and cultural conditions.

Existing Local Policy Direction: Metro Plan: Goal 3 page III-C-6, Objective 4 page III-C-6, Objective 6 page III-C-7, Policies 1,2,&3 page III-C-7, and Policy 20 page III-C-9.

POLICY 2.1

Meet or exceed federal flood hazard requirements.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Develop comprehensive basin plans that incorporate the multiple objectives of the Stormwater Plan (BMP: P&A1).

OTHER ACTIONS:

- Employ measures that maximize benefits of the FEMA Community Rating System to city residents.
- Continue to maintain open channels in accordance with applicable federal guidelines, regulations and maintenance agreements.

POLICY 2.2

Protect adjoining land uses from flood and drainage hazards.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

OTHER ACTIONS:

- Use FEMA 100 year floodway boundaries and waterway setbacks as recommended through adopted plans and ordinances.

POLICY 2.3

Maximize the capacity of existing stormwater facilities especially where deficiencies exist by encouraging the use of techniques that lower and slow the rate of stormwater runoff.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Create, implement, and enforce water quality based drainage standards (structural and nonstructural) for new development (BMP: P&A 7).

OTHER ACTIONS:

- Explore the use and application of on-site stormwater facilities such as detention ponds and grassy swales.
- Provide incentives to minimize the amount and extent of impervious surfaces.

GOAL 3

PROVIDE A SAFE AND HEALTHY ENVIRONMENT FOR HUMANS, PLANTS, AQUATIC, AND OTHER WILDLIFE BY MAINTAINING AND IMPROVING WATER QUALITY IN THE CITY'S RIVERS, CREEKS, CHANNELS, PONDS, AND WETLANDS.

Purpose: To respond to federal water quality mandates and existing local water quality goals and policies.

Issues: *1) The existing stormwater program is not structured to meet recently implemented federal water quality requirements.*

2) Natural water quality treatment systems, such as riparian zones, waterway corridors, and wetlands are being replaced with conventional conveyance facilities, such as gutters, pipes, and ditches, having little or no water quality treatment capability.

3) There are no City regulatory provisions to prevent water pollution due to erosion and irrigation runoff, nor adequate enforcement deterrents to prevent illegal dumping of pollutants.

4) The current stormwater program does not have the necessary management tools to require on-site controls, or funding available for structural alternatives in the public system.

Discussion: Because the City's traditional stormwater program has focused on providing flood control and stormwater conveyance facilities, water quality issues have not been addressed. As a result, the current program is not equipped to meet federal National Pollutant Discharge Elimination System (NPDES) mandates. For nonpoint source pollution, the "source" of pollutants varies, making it necessary to develop multiple strategies. With the cost for constructing a new treatment plant and related conveyance facilities beyond the practical resources of local jurisdictions, and with little or no federal funding assistance for these facilities, other solutions are necessary. Because there are no simple solutions to the complex stormwater quality problem, a strategy that employs a variety of management measures, each designed to address elements of the water quality problem, is the most practical approach for local jurisdictions. For the Stormwater Plan, the strategic approach includes the following management areas: public education, source controls, elimination of illicit connections, ongoing monitoring, acquisition, revision of maintenance practices, and enforcement programs.

Goal 3 provides the policy framework for addressing both NPDES requirements as well as other water quality issues that may not be covered by the federal mandates but are local goals and objectives, such as wetlands, riparian areas, and associated wildlife. To meet water quality requirements, implementation measures under this goal will likely result in fundamental changes to the design, construction, and maintenance of both private and public stormwater systems.

Existing Local Policy Direction: Metro Plan: Goal 4 page III-C-6, Objective 3 page III-C-6, Policy 20 page III-C-9, Policy 22 page III-C-10, and Policy 37 page III-C-12.

POLICY 3.1

Meet or exceed federal and state stormwater quality requirements especially where they conform with existing local policy.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Clarify and strengthen enforcement (e.g., establish civil penalties, fines, and abatement procedures) of existing regulations which give the City the legal authority to prevent and eliminate the improper disposal of pollutants into the storm conveyance system and drainage channels, including illicit connections and illegal dumping (BMP: MON1).
- Develop and implement a field program to detect and prevent dumping of pollutants into the storm drainage system and drainage channels (BMP: MON2).
- Implement a program to monitor stormwater from select industrial facilities (including closed municipal landfills and treatment, storage and disposal facilities for municipal waste) as outlined in the NPDES regulations (BMP: MON3).
- Implement a comprehensive erosion control program which identifies and applies erosion control requirements citywide (BMP: P&A4).
- Develop methods to encourage interagency collaboration on illegal dumping problems. Clarify responsibilities in urban transition areas (BMP: P&A5).
- Create, implement, and enforce water quality based drainage standards (structural and nonstructural) for new development (BMP: P&A7).
- Facilitate efforts to report illegal dumping, illicit connections, and other incidents. Work with citizen action groups; consider operation of a telephone “hot line” for citizens to report incidents; and post signs in areas where illegal dumping may occur to encourage citizens to report incidents (BMP: ED6).

OTHER ACTIONS:

- Implement the Water Quality Management Plan contained in the City’s NPDES stormwater permit.
- Establish mechanisms to ensure the Stormwater Plan’s programs are not in conflict with state groundwater regulations and policies.

POLICY 3.2

Determine the extent, magnitude, and cause of water pollution within the city's stormwater system.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Develop and implement a field program to detect and prevent dumping of pollutants into the storm drainage system and drainage channels (BMP: MON2).
- Keep up to date inventories and maps of the storm drainage system. Include mapping of storm drainage amenities such as grassy swales and detention/ retention basins and constructed wetlands. Develop and integrate data systems which describe water quality conditions (BMP: OM8).

OTHER ACTIONS:

- Establish and conduct ongoing water quality monitoring programs of the city's drainage system and receiving waters.
- Establish a computerized data base to manage information about water quality and other characteristics of the City's drainage system.

POLICY 3.3

Reduce stormwater pollution associated with new construction and development, soil erosion, improper use of stormwater facilities, and City operations and maintenance practices.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Clarify and strengthen enforcement (e.g., establish civil penalties, fines, and abatement procedures) of existing regulations which give the City the legal authority to prevent and eliminate the improper disposal of pollutants into storm conveyance system including illicit connections and illegal dumping (BMP: MON1).
- Develop and implement a field program to detect and prevent dumping or routinely discharging pollutants into storm drainage and drainage channels. Also control illicit connections (BMP: MON2).

- Develop O&M plans (or review and revise O&M plans) for all public stormwater facilities, new and existing. Incorporate evaluation of effectiveness into the O&M plans (BMP: OM1).

- Establish regulation(s) prohibiting the use of salt for de-icing activities for public rights-of-way. Review, and possibly establish, legal authority regarding the private use of salt for de-icing (BMP: OM3).

- Implement a comprehensive erosion control program which identifies and applies erosion control requirements citywide (BMP: P&A4).

- Develop methods to encourage interagency collaboration on illegal dumping problems. Clarify responsibilities in urban transition areas (BMP: P&A5).

- Create, implement, and enforce water quality based drainage standards (structural and nonstructural) for new development (BMP: P&A7).

- Develop educational programs that provide information about stormwater pollution and effective solutions. Document community participation and level of public awareness (BMP: ED1).

OTHER ACTIONS: None

WATER QUALITY

FEDERAL MANDATE

POLICY 3.4

Evaluate the effectiveness of stormwater quality management measures.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Evaluate ways that transportation authorities (e.g., ODOT, City of Eugene) can reduce pollutant discharge associated with their road maintenance and rehabilitation operations (BMP: OM4).

- Review existing street sweeping programs and, where appropriate, develop and implement alternative and/or intensified street sweeping programs in strategic locations (e.g., central business districts, shopping malls, major parking lots, industrial areas) and/or at strategic times (e.g., following extended periods of dry weather) (BMP: OM6).

- Determine the effectiveness of increasing the frequency of cleaning inlets, catch basins, storm drains, piping, pump stations, and channels in areas where sediment and/or debris tend to collect (BMP: OM7).

- Develop educational programs that provide information about stormwater pollution and effective solutions. Document community participation and level of public awareness (BMP: ED1).

- Coordinate with Lane County to expand programs which provide a convenient means for people to properly dispose of oil, antifreeze, pesticides, herbicides, paints, solvents, other potentially harmful chemicals, and other waste materials. Encourage recycling (BMP: ED8).

OTHER ACTIONS:

- Produce an annual report documenting the stormwater management program including monitoring results.

- Evaluate the effect of on-site retention and infiltration systems to groundwater quality.

GOAL 4

MANAGE THE ONGOING MAINTENANCE OF THE PUBLIC WATERWAY SYSTEM SO THAT LONG-TERM, MULTIPLE BENEFITS ARE ACHIEVED.

Purpose: To ensure that investments made in designing and building the stormwater facilities of the Stormwater Plan are maintained to maximize their effectiveness and benefits to the public.

Issues: *1) In many cases, typical open channel maintenance practices conflict with water quality requirements and wildlife habitat goals. For some channels, the City is bound by federal requirements to maintain design capacity which may conflict with federal water quality requirements.*

2) Unmaintained natural systems may create nuisance conditions to adjoining property owners, such as vector breeding grounds, invasive vegetation, and increased fire risk.

3) Conflicts may arise between maintenance access needs and protection of natural resource areas.

4) The City's traditional stormwater maintenance program is not oriented toward the protection of water quality and natural resource areas.

Discussion: To a large degree, maintenance issues are a function of the design of the stormwater system. With the City's stormwater system principally designed and constructed to provide flood control and stormwater conveyance services, water quality and natural resource protection issues associated with current maintenance practices are similar to those of the stormwater program as a whole. Open channel maintenance practices present a number of conflicts with the goals and objectives of the Stormwater Plan. Because open channels are designed to convey a given volume of runoff, obstructions such as vegetation and sediment build-up must be removed on a periodic basis in order to maintain the design

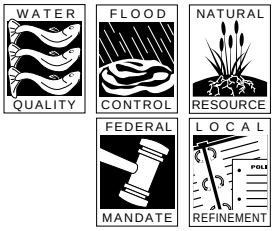
capacity of the channels. These channel "cleaning" practices can cause erosion, disturbance of potential contaminated sediments, and the removal of streamside vegetation that may help to treat stormwater pollution and provide wildlife habitat. Some of the channels in the city were constructed using federal moneys. In exchange for the construction of these channels, the City committed to a channel maintenance schedule that includes vegetation and sediment removal on a six-year rotation basis, maintaining these channels according to federal requirements. Until the federal requirements are changed to address water quality and natural resource issues, the City is obligated to fulfill these agreements.

Protection of riparian areas could conflict with the City's need to have access for maintaining the adjoining open channels. Access needs and options to traditional methods of providing access should be reassessed along channels containing riparian zones. Riparian protection ordinances should balance natural resource interests with access needs.

With the scope of the City's stormwater program expanding to include water quality treatment and natural resource areas, maintenance practices, employee skills, and personnel and equipment resources will need to change accordingly.

Goal 4 provides policy direction to adjust maintenance practices to match the purpose and design of a variety of stormwater facilities, while not presenting obstacles for maintaining the facilities, and to work with federal agencies to modify existing open channel maintenance practices.

Existing Local Policy Direction: Metro Plan: Goal 4 page III-C-6, Objective 5 page III-C-6, and Goal 1 page III-G-4. Community Goals and Policies: Goal 7 page 3, Policy 1.0 pages 12 and 15, Policy 3.0 page 17, and Policy 13.0 page 20.



POLICY 4.1

Maintain the stormwater system through techniques and practices that balance flood control, drainage services, water quality, and natural resource protection needs.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Determine the feasibility of establishing and maintaining water quality facilities (e.g., detention/retention/infiltration basins, constructed/natural wetlands), and where appropriate, retrofit existing drainage and flood control facilities (e.g., storm drain inlets and drainage channels) to function as water quality treatment facilities (BMP: CAP3).

- Develop O&M plans (or review and revise O&M plans) for all public stormwater facilities, new and existing. Incorporate evaluation of effectiveness into the plans (BMP: OM1).

- Evaluate existing maintenance program for public rights-of-way and public irrigation facilities and ensure that these programs limit the discharge of pollutants from pesticides and fertilizers in runoff (BMP: OM2).

- Establish regulation(s) prohibiting the use of salt for de-icing activities for public rights-of-way. Review and evaluate the possible establishment of legal authority regarding the private use of salt for de-icing (BMP: OM3).

- Evaluate ways that transportation authorities (e.g., ODOT, City of Eugene) can reduce pollutant discharge associated with their road maintenance and rehabilitation operations (BMP: OM4).

- Develop a program for cleanup after (and during, when appropriate) structural fires and vehicular accidents or similar incidents to prevent contaminants and debris from being washed into the storm drain system. Include coordination with the Department of Public Safety (BMP: OM5).

- Review existing street sweeping programs and, when appropriate, develop and implement alternative and/or intensified street sweeping programs in strategic locations (e.g., central business districts, shopping malls, major parking lots, industrial areas) and/or at strategic times (e.g., following extended periods of dry weather) (BMP: OM6).

- Determine the effectiveness of increasing the frequency of cleaning inlets, catch basins, storm drains, pump stations, and channels in areas where sediment and/ or debris tend to collect (BMP: OM7).

- Continue to provide, collect, and maintain litter receptacles in strategic City-owned public areas and during major public events (BMP: OM9).

- Continue to implement vehicle maintenance procedures to ensure that municipal trucks hauling materials do not leak, spill, or otherwise release contaminants into roadways or open spaces where they may be washed into storm drains or waterways (BMP: OM10).

OTHER ACTIONS:

- Conduct research on alternative maintenance practices to meet the multiple objectives of the Stormwater Plan.

- Prioritize maintenance activities based on public safety, available resources, stormwater quality, service life of the system, and wetland and natural resources protection.

- Develop a landscape management program for the city that will experiment with and study the use of native vegetation in public spaces.

- Develop and implement management procedures for natural resource areas including habitat areas for threatened and endangered species.

GOAL 5

EDUCATE, INFORM, AND ORGANIZE THE CITIZENS OF EUGENE ABOUT STORMWATER ISSUES SO THEY CAN BECOME ACTIVE PARTICIPANTS IN IMPROVING STORMWATER QUALITY, PROTECTING NATURAL RESOURCES, AND MINIMIZING DRAINAGE AND FLOOD RELATED HAZARDS.

Purpose: To establish a public education and community involvement program to meet the goals and policies of the Stormwater Plan.

Issue: *Lack of public awareness about stormwater issues may contribute to stormwater pollution.*

Discussion: Certain human activities are known to contribute to stormwater pollution, such as the improper storage and disposal of chemicals in lawn maintenance and garden care. Informing the public about behaviors that can cause stormwater pollution, and identifying options to these behaviors, could play a significant role in addressing stormwater issues. Eugene's traditional stormwater program has not included a formal public education component. By targeting educational efforts to key interest groups, such as residents, professionals involved in land use and development, and the business community, programs can be tailored to match pollutants of concern. These efforts should be monitored to determine effectiveness. Education can lead to an informed and involved public, a strong volunteer program, and an increase in the City's resources for maintaining the system.

Goal 5 provides policy direction to develop a comprehensive public education and involvement program around stormwater issues.

Local Policy Direction: Metro Plan: Policy 20 page III-C-9. Community Goals and Policies: Goal 1 page 3, Policy 1.0 page 4.

POLICY 5.1

Develop and implement a broad-based education program that informs citizens about the issues of stormwater management and explains the role they and the business community can play in solving these issues.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Implement a comprehensive erosion control program which identifies and applies erosion control requirements citywide (BMP: P&A4).

- Develop educational programs that provide information about stormwater pollution and effective solutions. Document community participation and level of public awareness (BMP: ED1).

- Promote public involvement in "keeping the watershed clean" campaigns and "stream team" programs for specific waterways (e.g., Amazon Creek) (BMP: ED4).

- Develop a program to educate architects, engineers, construction site operators, and property owners of new structural techniques that reduce negative water quality impacts to streams and the storm systems (BMP: ED7).

- Coordinate with Lane County to expand household hazardous waste programs which provide a convenient means for citizens to properly dispose of oil, antifreeze, pesticides, herbicides, paints, solvents, other potentially harmful chemicals, and other waste materials. Encourage recycling (BMP: ED8).

OTHER ACTIONS:

- Provide information about the costs and benefits of the Stormwater Plan.

POLICY 5.2

Develop programs to encourage and coordinate volunteer efforts to protect water quality, preserve and enhance natural resource areas, and reduce public cost.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Create, implement, and enforce water quality based drainage standards (structural and nonstructural) for new development (BMP: P&A7).

- Coordinate efforts to label storm drain inlets and provide signs along the banks of drainage channels and creeks explaining the environmental impacts of dumping wastes (BMP: ED2).

- Support government and community tree planting programs (BMP: ED3).

- Promote public involvement in "keeping watershed clean" campaigns and "stream team" programs for specific waterways (e.g., Amazon Creek) (BMP: ED4).

- Facilitate efforts to report illegal dumping, illicit connections, and other incidents. Work with citizen action groups; consider operation of a telephone "hot line" for citizens to report incidents; and post signs in areas where illegal dumping may occur to encourage citizens to report incidents (BMP: ED6).

OTHER ACTIONS: None.

POLICY 5.3

Develop community awareness programs that encourage practices that meet the goals of the Stormwater Plan.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Develop educational programs that provide information about stormwater pollution and effective solutions. Document community participation and level of public awareness (BMP: ED1).
- Educate the commercial/industrial sector regarding the effective use of proper "housekeeping" practices, and oil/grease traps (BMP: ED5).
- Coordinate with Lane County to expand household hazardous waste programs which provide a convenient means for people to properly dispose of oil, antifreeze, pesticides, herbicides, paints, solvents, other potentially harmful chemicals, and other waste materials. Encourage recycling (BMP: ED8).

OTHER ACTIONS: None

POLICY 5.4

Evaluate the effectiveness of community and staff education as well as the general public information programs.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Develop educational programs that provide information about stormwater pollution and effective solutions. Document community participation and level of public awareness (BMP: ED1).

OTHER ACTIONS:

- Develop methods to evaluate the long-term impacts on public awareness and individual behaviors of each of the policies contained in the public involvement program.

GOAL 6

MAXIMIZE COMMUNICATION, COORDINATION, AND COOPERATION BOTH WITHIN THE CITY AND AMONG OTHER AGENCIES AND JURISDICTIONS.

Purpose: To increase the efficiency of resources and activities in working to implement the goals and policies of the Stormwater Plan.

Issue: *1) Transitions into new federal programs by local jurisdictions often result in duplication of effort, time delays, and inefficient use of resources.*

2) Lack of coordination and communication within and among federal and state regulatory agencies, and the City's organization, often results in conflicts, uncertainties, and inefficiencies in meeting mandates and implementing local plans.

Discussion: The new federal stormwater requirements will have a significant effect on the way the City plans, manages, and maintains its stormwater delivery system. The most immediate effect will be on the City's already limited financial and personnel resources. Without federal or state assistance, the new requirements will compete with other existing local programs for needed financial resources. In the absence of financial assistance, local jurisdictions must look for other ways to meet the new federal requirements.

The sharing of information and pooling of resources are a few ways local jurisdictions can stretch their available resources. Through cooperative efforts, research information and effective management strategies can be shared among affected local jurisdictions. This will not only save revenues and minimize duplicative efforts, it could also provide other benefits such as educational opportunities to staff, developing important contacts with key federal and state agencies, and improving federal lobbying efforts.

Goal 6 provides both policy direction and resources to coordinate outreach and communication efforts to the Oregon Department of Environmental Quality and other affected local jurisdictions. These efforts are intended to help influence how the state's program is implemented locally, and to share technical stormwater information with other local jurisdictions.

Existing Local Policy Direction: Metro Plan: Objective 4 page III-D-4. Community Goals and Policies: Goals 1 and 10 page 3, Policy 6.0 page 4, Policy 7.0 and 8.0 page 5 and Policy 1.0 page 32.

POLICY 6.1

Encourage and support communication, coordination and cooperative efforts that maximize available resources, reduce duplication of services, and prevent management conflicts.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Evaluate ways that transportation authorities (e.g., ODOT, City of Eugene) can reduce pollutant discharge associated with their maintenance and road rehabilitation operations (BMP: OM4).
- Develop a program for cleanup after (and during, when safe) structural fires and vehicular accidents to prevent contaminants and debris from being washed into the storm drain system. Include coordination with the Department of Public Safety (BMP: OM5).
- Develop methods to encourage interagency collaboration on illegal dumping problems. Clarify responsibilities in urban transition areas (BMP: P&A5).
- Coordinate with Lane County to revise existing solid waste management programs (which reduce, recycle and control trash and yard debris) to take stormwater quality into account (BMP: P&A6).
- Work with ODOT to clarify maintenance responsibilities for water quality facilities constructed in conjunction with state roads (BMP: P&A10).
- Support government and community tree planting programs (BMP: ED3).
- Coordinate with Lane County to expand programs which provide a convenient means for people to properly dispose of oil, antifreeze, pesticides, herbicides, paints, solvents, other potentially harmful chemicals, and other waste materials. Encourage recycling (BMP: ED8).

OTHER ACTIONS:

- Coordinate with DEQ when individual NPDES stormwater discharge permits for private activities are issued or renewed to ensure water quality protection and compatibility with the City's stormwater management plan.
- Work to establish and support interagency partnerships that further the goals of the Stormwater Plan.

GOAL 7

ESTABLISH A COMPREHENSIVE, FAIR, AND STABLE FUNDING PROGRAM THAT PROVIDES THE RESOURCES NECESSARY TO MEET THE GOALS AND POLICIES OF THE COMPREHENSIVE STORMWATER MANAGEMENT PLAN.

Purpose: To ensure an adequate financing program is in place to carry out the goals and policies of the Stormwater Plan.

Issues: *1) At the time that the Stormwater Plan was adopted, stormwater revenues were not adequate to cover costs associated with federal stormwater quality mandates and the related natural resources program.*

2) In addition, the basis for the stormwater user fee did not reflect user impacts to the system.

Discussion: The budget for the historic stormwater program was approximately $4.1 million. To cover costs associated with the new program, revenues needed to be raised by approximately $2.4 million. The primary revenue source for Eugene's stormwater program is the stormwater user fee, which had been based on water meter size. Since most communities have found impervious surface based rates to be an equitable method of distributing program costs, the City choose to move to a similiar approach. An impervious surface based fee was adopted by the Council in October 1993, and implemented in January 1994.

The public highway system makes up 21 percent of the total impervious surface within the community. A Citizen Advisory Committee recommended that the City recognize the contribution of the road system and establish a refined formula basis that accounted for that element. A Council subcommittee spent several months evaluating alternative formulas.

As the Stormwater Plan is implemented, it will be possible to more directly link program costs to specific classes of land uses and activities. The City will need to continually review how the quality, quantity, and trip-related components of the stormwater rate model can be adjusted to meet the equity goals of this policy. Provisions for credits will also need to be re-examined as the City learns more about what activities may have a positive impact on stormwater quality. Other forms of revenue, such as permitting programs for specific types of activities, may be used to augment the user fee to more closely relate program costs to specific customers or customer classes.

Existing Policy Direction: City of Eugene Public Facilities Plan: page 26. City of Eugene Financial Management Goals & Policies: Goal 3 page ii and Policy 5 page 12. Metro Plan: Policy 3 page III-G-5. Community Goals and Policies: Goal 1, 6 and 7 page 3, Policy 1.0 page 4, Policy 7.0 page 11, Policy 2.0 and 3.0 page 12.

POLICY 7.1

Develop a financing strategy that accurately reflects the priorities and resources necessary to meet the program needs of the Comprehensive Stormwater Management Plan.

IMPLEMENTATION MEASURES

NPDES BMPs. None. For a detailed description of each BMP, refer to Appendix A.

OTHER ACTIONS:

- Develop a financing program that includes a variety of funding options and/or sources.
- Provide funding for the acquisition and restoration of waterway corridors related to stormwater conveyance.
- Provide funding for the implementation of pilot projects.
- Identify and budget for the necessary staff, materials, and equipment to accomplish the goals and objectives of the Stormwater Plan.

POLICY 7.2

Establish a financing system that is based on a stormwater user fee and that equitably distributes the cost of implementing the Stormwater Plan.

IMPLEMENTATION MEASURES

NPDES BMPs. None. For a detailed description of each BMP, refer to Appendix A.

OTHER ACTIONS:

- Change the basis for the user fee from water meter size to impervious surface area.
- Develop a user fee rate structure that reflects both user costs and stormwater quantity and quality impacts to the City's stormwater system, as well as the administration of the user fee program.

- Examine potential assessment deferral programs for low-incom e households.
- Establish direct fee-based programs where applicable.
- Develop a stormwater user fee accounting system that provide s the necessary flexibility to adapt to unique and exceptional user circumstances.
- Consider the recommendations of the Citizen Advisory Committ ee for the basis and rate structure of the stormwater user fee.
- Review assessment practices related to stormwater costs.

POLICY 7.3

Establish incentives that encourage individuals to minimize their impact to the municipal stormwater drainage system.

IMPLEMENTATION MEASURES

NPDES BMPs. For a detailed description of each BMP, refer to Appendix A.

- Develop a program to provide financial incentives to property owners who protect natural areas on their property considered to have natural resource characteristics (BMP: P&A3).

OTHER ACTIONS:

- Provide credit for use of drainage systems that control pollutants on-site and minimize flow impact to municipal system.
- Identify and budget for the necessary staff, materials, and equipment to accomplish the goals and objectives of the Stormwater Plan.
- Develop and expand the automated Infrastructure Management System to include stormwater management activities.

Chapter Four PROGRAM IMPLEMENTATION

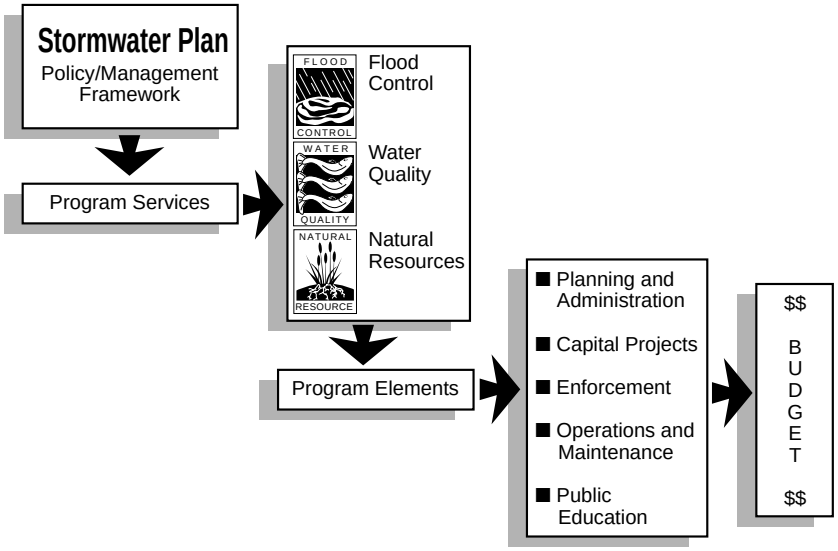
I. INTRODUCTION

This chapter describes the general management strategy and implementation framework of the Comprehensive Stormwater Management Plan (Stormwater Plan). The first part of the chapter describes the primary services to be provided; the second part describes the management elements of the program; and the last part describes the general time frame for completing major program activities and key implementation actions.

A. MANAGEMENT STRATEGY

As shown in the figure below, the overall management approach of the Stormwater Plan is to integrate two new services — water quality and related natural resource protection — into the existing flood control and drainage services program. Additionally, the Stormwater Plan implements these services through five program elements. In this manner, the three service areas can be managed

FIGURE 4-1: Stormwater Plan Management Approach



together so that benefits are increased and costs are reduced. The benefits to the public will include cleaner water, protection from flood and drainage hazards, increase in urban wildlife populations, possible extension of walking and biking trails along waterway corridors, and natural resource educational opportunities.

The Eugene Public Works Department has overall responsibility for implementing the Stormwater Plan. It will be managed through five program elements: Planning and Administration, Capital Projects, Operations and Maintenance, Enforcement-Inspection-Monitoring, and Public Communications.

While the added services commit the City to new stormwater program areas, the Stormwater Plan's implementation approach is evolutionary rather than revolutionary. The implementation strategy is to build on the foundation of the current program where emphasis is on revising and improving current practices as opposed to creating new practices; relying on public education as opposed to regulation, and testing new methods prior to across-the-board application. Eugene can build on its existing program while gaining additional knowledge about local water quality problems. When problem areas are more clearly understood, management measures can then be applied that are tailored to the known problem.

The financing of the program will primarily rely on the City's existing stormwater user fee. The basis of the charge was changed from water meter size to the amount of impervious surface on each lot. This change reflects the local policy to use user fees to recover costs associated with specific utility uses, such as stormwater management. For more information on the financing of the program, refer to Chapter Five.

B. PROGRAM SERVICES

The goals and policies of the Stormwater Plan commit the City to an expanded stormwater program that includes flood control, drainage services, water quality treatment, and related natural resource protection.

1. Flood Control and Drainage Services

Flood control and drainage services will continue to be an important part of the City's stormwater management program. Existing and new facilities will be maintained to the City's current standards. Changes in this service are likely to be with the design, construction, and maintenance of new stormwater facilities where multiple benefits are desired. Alternate methods of providing needed flood capacity, such as detention basins and grassy swales, will be explored for feasibility and application. New maintenance techniques for cleaning open water channels that minimize pollution and increase multiple benefits will be researched and evaluated for possible local application. Participation in the National Flood Insurance Protection will continue, with emphasis on improving the City's Community Rating Service. Annual costs to perform this service under the Stormwater Plan will remain at about the same level as the current program.

2. Water Quality Services

This is a new stormwater service. It is needed to meet federal stormwater quality mandates. This service will emphasize controlling pollution at its source and the use of "Best Management Practices" (BMPs) to reduce nonpoint source problems. The following are areas of program emphasis:

- Identification of pollutants through monitoring efforts;
- Identification and correction of known problem areas;
- Use of appropriate and safe disposal practices for known pollutants;
- Creation of water quality based standards for new development; and
- Extensive public education for residents, businesses, and industry;

Public education and ongoing monitoring efforts will be emphasized in the early years of the permit program. This approach allows time to collect information and to characterize the extent of the "problem," so that appropriate correction measures can then be applied. In addition, pilot projects will be developed to assess the effectiveness and feasibility of an application as compared to a variety of other management measures.

3. Related Natural Resource Protection Services

This is a new stormwater service. This service acknowledges the beneficial effects of certain natural resources in controlling floods, conveying runoff, and removing pollutants from stormwater. Because wetland and riparian areas are usually located within floodplain boundaries or adjoining major waterway corridors, there is a high probability they are hydrologically connected to the City's flood control and stormwater conveyance system. As a result, they often play an important role in providing flood control and water quality benefits to the community. The protection and maintenance of these resources, therefore, is important for stormwater management purposes, and because federal and state mandates require their protection.

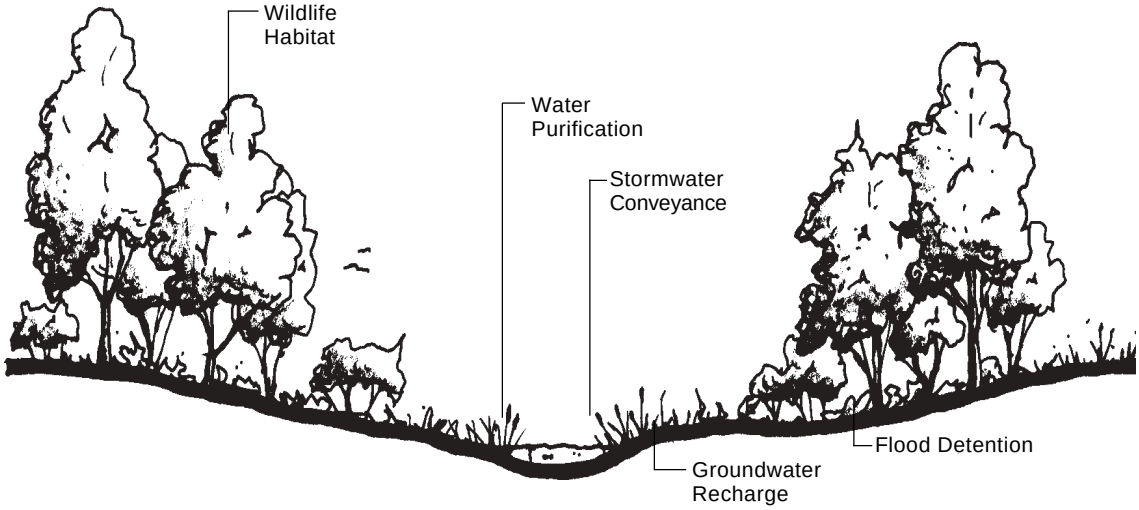
With the adoption of the West Eugene Wetlands Plan, the City is committed to managing wetlands and waterway corridors in west Eugene in a manner that improves water quality, provides flood protection and drainage services, increases wildlife habitat, and provides recreation and educational opportunities. In addition, the West Eugene Wetlands Mitigation Bank (The Bank) will be administered and partially funded through the Stormwater Plan. The Bank will provide the management framework for the restoration of the west Eugene wetlands for their flood control, runoff conveyance, water quality, and wildlife habitat values. In exchange, property owners who need to meet mitigation requirements will be able to purchase mitigation "credits" from The Bank. The revenues generated from the purchase of credits will be used as a revolving fund to ensure long-term benefits and lower costs to the community. Through The Bank concept, mitigation efforts should result in greater benefits to the community (flood control, runoff conveyance, water quality) and the landscape (wildlife habitat) as a result of a coordinated planning, construction, and maintenance operation.

The natural resource protection service will also examine other areas of the City's public stormwater system to determine where other natural resources play a similar role in stormwater management as those in west Eugene.

4. Multiple Benefits

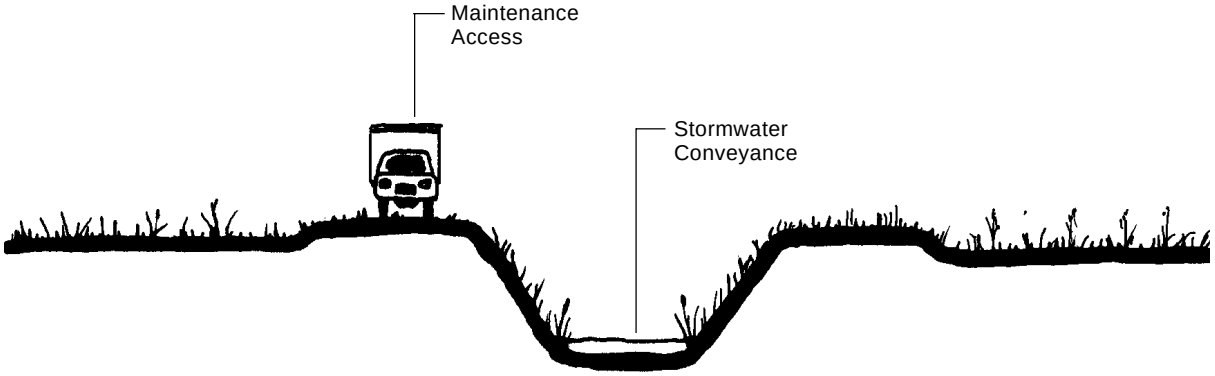
Together, the three service areas of the Stormwater Plan will work to provide multiple benefits to the community. The following illustrates an example of a natural waterway feature that was commonly found in the general Eugene vicinity.

FIGURE 4-2: Natural system



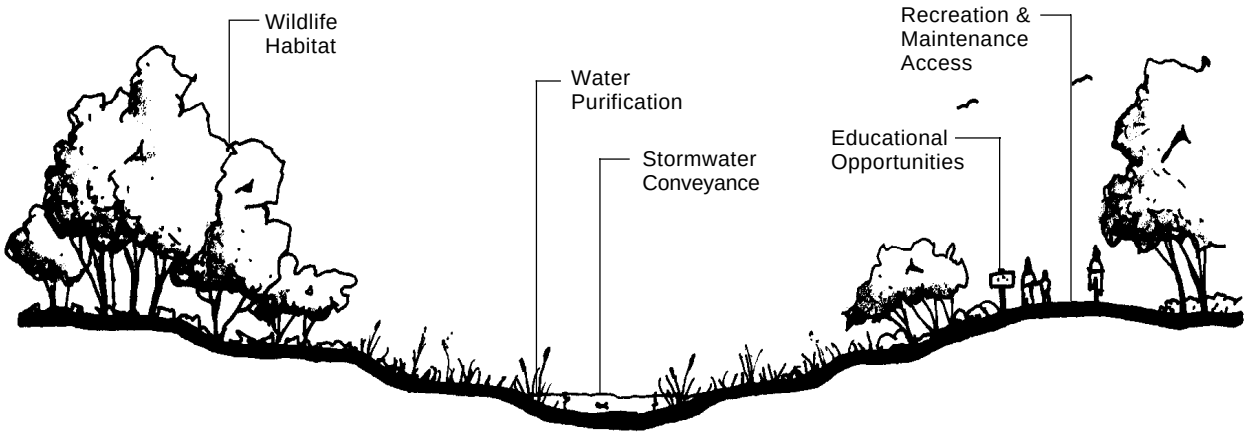
Most of the natural systems have been replaced with conventional stormwater facilities which are effective at conveying runoff and controlling floods. However, they provide few water quality or natural resource benefits. The following illustrates an example of a conventional storm conveyance channel:

FIGURE 4-3: Single objective system (existing condition)



One of the goals of the Stormwater Plan is to protect and incorporate viable natural waterway systems into the storm drainage network. And, where new stormwater facilities are to be constructed or where existing facilities are to be reconstructed, the goal of the Stormwater Plan will be to provide multiple community benefits of flood control, drainage services, water quality protection and treatment, natural resources protection, recreation and educational opportunities. The following illustrates how a conventional storm conveyance channel might look after restoration efforts:

FIGURE 4-4: Multiple-objective system (Stormwater Plan)



II. HIGHLIGHTS OF PROGRAM ELEMENTS

A. INTRODUCTION

This section provides highlights of the program elements as they will be managed through the Stormwater Plan. Program implementation will occur within the framework of Planning and Administration; Capital Projects; Operations and Maintenance; Enforcement, Inspection, and Monitoring; and Public Communication/Education. These elements provide the means to realize a fully integrated stormwater management approach that balances the services of flood protection, runoff conveyance, water quality enhancement, and natural resource protection.

Plan implementation will be accomplished in various stages. Initially, existing programs will be restructured. As guidelines and priorities for individual drainage basins are established, alternate technologies will be evaluated to assure appropriate application. Educational outreach will be introduced throughout the community with a special emphasis on those groups who have the greatest impact on the storm drainage system. The Stormwater Plan proposes that an ad hoc citizen task team be formed to provide guidance on the formulation of new

development standards and erosion control provisions. Finally, water quality monitoring will continue to provide information about the source and concentration of pollutants in our local storm drainage system.

The Stormwater Plan constitutes a new application of an existing set of policies (see Appendix C). The adoption of the West Eugene Wetlands Plan and the need to comply with Federal Clean Water Act regulations provided the impetus to re-examine the way urban runoff is managed in the City of Eugene. The Stormwater Plan focuses on interrelationships among the components of the piped drainage system, natural resource areas, and developed areas. The balance and configuration of these components are essential for the health and vitality of the city's economic and environmental future. The following provides additional detail regarding the program elements.

B. PLANNING AND ADMINISTRATION

Comprehensive basin planning is a pivotal component of plan implementation. The existing Eugene Area Drainage Master Plan (DMP) will be refined and supplemented to include water quality and relevant natural resource protection recommendations. This will provide guidance to staff and the development community to determine appropriate system design and to devise solutions to fit site specific drainage issues. Basin planning may encompass a range of options, including land use controls, design specifications, operational changes, and capital improvements. The resulting plans will match the needs of the basin with respect to its unique physical, chemical, biological, and cultural characteristics.

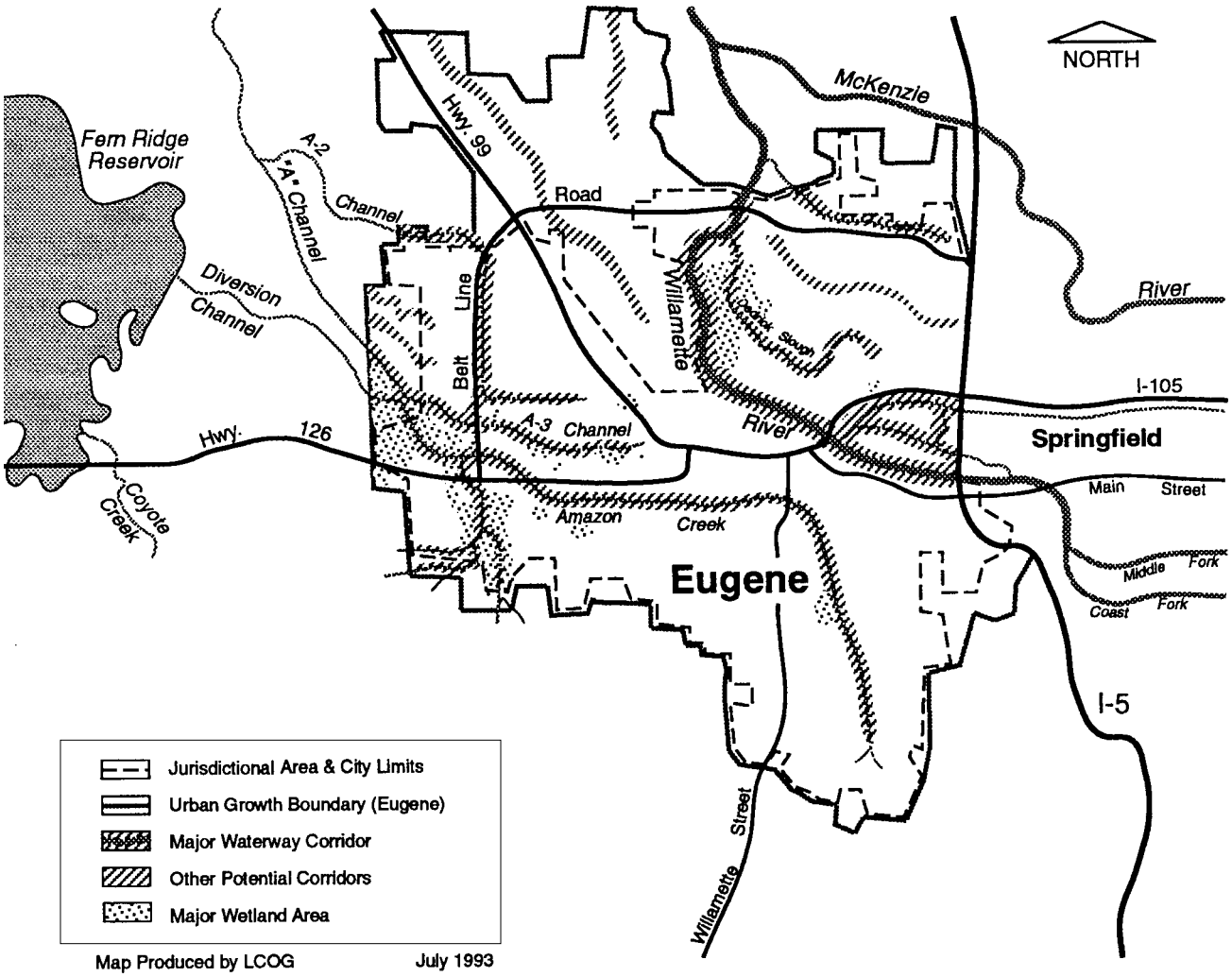
Implementing ordinances will be developed to meet federal and state mandates that require local measures to control the discharge of pollutants into municipal stormwater systems. The City's legal authority to control stormwater discharges will be strengthened and clarified with respect to new development standards, erosion control, illicit connections, illegal dumping, and industrial activity. An ad hoc citizen task team will be formed to assist with this task.

C. CAPITAL PROJECTS

Capital Projects are the physical improvements to be constructed and maintained to carry out the long-range plans and policies of the City. Stormwater projects may be funded through user fees, system developments charges (SDCs), gas tax, assessments, and grants. The Stormwater Plan proposes a pilot project approach that determines the best applicable technology for meeting regulatory requirements and local policy intent. Structural controls will be researched and evaluated as to the most appropriate for a given circumstance. Another type of pilot project is waterway restoration work to re-introduce services lost due to flood control and runoff conveyance design (e.g., pollutant removal, flood storage). This might be accomplished using a variety of funding sources including the help of community volunteers.

Corridor acquisition serves to enhance flood control, runoff conveyance, water quality and natural resource values by protecting the remnant natural drainage system. The remaining waterway "corridors" in the urbanized area of Eugene are valuable components of the watershed, many of which are shown on Map 4-1,

MAP 4-1: Comprehensive Stormwater Management Plan major waterway corridors and wetlands



Major Waterway Corridors and Wetlands. However, the use of "natural" or open systems for stormwater management may result in modifications to use and development patterns adjacent to significant waterways. These open space passageways not only provide important linkages for the human and wildlife populations, but also further stormwater management objectives. Ultimately, natural resource areas should be considered an amenity to development and the community, as opposed to a detraction that is filled, piped or built over.

D. OPERATIONS AND MAINTENANCE

Operations and maintenance (O&M) on the storm drainage system are performed on a regular basis to ensure the system functions as designed and to protect the public investment of the constructed system. The costs associated with operations and maintenance include channel cleaning, vegetation management, pipe system

cleaning, street sweeping, leaf pickup, storm system rehabilitation, and equipment purchases. The Stormwater Plan requires internal operations be reviewed to establish guidelines for routine maintenance of pipes, channels, catch basins, inlets and roadside ditches that minimize impact to water quality and natural resources. O&M plans for all public stormwater facilities to be evaluated and updated to balance flood protection, runoff conveyance, water quality enhancement, and natural resource area management.

E. ENFORCEMENT, INSPECTION, MONITORING

Enforcement, inspection, and monitoring are performed to detect illegal discharges and illicit connections to the storm system, and to ensure compliance with local and state regulations. Water quality monitoring will continue in order to characterize the pollutants in stormwater runoff in Eugene and the nature of their impact on local waterways. The resulting data will also be analyzed to determine the effectiveness of new facilities and management practices in controlling the quantity and quality of urban runoff. The Stormwater Plan requires that, wherever possible, pollution problems be addressed on-site and that violations be subject to penalties. An annual report will be submitted to the Department of Environmental Quality that documents implementation measures, evaluates the effectiveness of the program, and includes all monitoring data.

F. PUBLIC COMMUNICATION AND EDUCATION

Public communication and education is important to the overall strategy of the Stormwater Plan's implementation. Educational outreach will be community wide, and special programs will target specific user classes who likely have the most impact on the system (i.e., residential, commercial, industrial). Every individual in the community has the power to impact local water resources in both positive and negative ways. The Stormwater Plan encourages citizens to be given the tools needed to cultivate behaviors that support community water quality goals. In addition, opportunities for volunteer activities such as "adopt-a-stream" and storm drain stenciling will be provided.

III. TIMELINE AND PROCESS

The purpose of this section is to describe the primary implementation activities of the Stormwater Plan and the timelines for their completion.

A. IMPLEMENTATION PHASES

Phase I - Implementation of the Stormwater Plan is expected to occur in phases. The first phase represents the "start-up" period for the West Eugene Wetlands Plan and the NPDES permit program. The length of this phase matches the five-year NPDES permit period. Except for the ongoing flood control-drainage projects and maintenance activities of the current stormwater program, most of the new activities in this phase are planning and program development related, hence the term "start-up." The following activities characterize the start-up phase:

a. Implementation Activities by Program Elements

- ***Planning and Administration.*** This program element will play a primary role in the start-up phase. In addition to assisting with the overall development of programs within the Stormwater Plan, major implementation activities include:

  – **Preparation of Basin Plans.** Basin plans will be prepared for each of the city's major drainage basins. These plans will assess the opportunities and feasibility for meeting the multiple objectives of the Stormwater Plan. Individual Basin Plans will be coordinated with each other so that maximum benefits accrue at the neighborhood level as well as on a community-wide basis. All of the basin plans are projected to be completed by 1995.

  – **Erosion Control Provisions.** Erosion control provisions are needed to minimize the stormwater pollution effects associated with new construction activities. These provisions will help to ensure erosion is controlled and sediments are retained at their source. The erosion control provisions are expected to be completed in 1996.

  – **New Development Standards.** To minimize pollutan t discharges associated with land uses, water quality based standards will be developed and applied to new development. These standards are projected to be completed in 1996.

  – Changes to the City's stormwater operations and maintenance practices will be developed and applied so that impacts to water quality and natural resources are minimized. An integrated operations and maintenance manual is projected to be completed by 1995.

- ***Capital Projects***. This program element is not expect ed to play a major role in the initial start-up phase. Needed capital projects that support new development will be constructed during this phase. Pilot projects will be constructed to assist in evaluating effective and appropriate water quality management measures. Restoration efforts associated with the west Eugene mitigation bank are expected to begin in the start-up phase. Capital projects associated with basin plans will begin toward the end of the start-up phase and carry through Phase II.

- ***Operations and Maintenance***. This program element will continue to maintain the City's current stormwater system, while beginning to evaluate and apply alternate maintenance practices along open channels to minimize water quality and natural resource impacts. This element will also begin addressing the maintenance activities associated with the West Eugene Wetlands Plan.

- ***Enforcement, Inspection, Monitoring.*** This activity is related to the collection and analysis of water quality data at selected points within

the city's storm drainage system and the detection and correction of primary sources of stormwater pollution. The monitoring activities will assist in determining the current quality of the stormwater and the effectiveness of the management measures to reduce pollutants over the life of the NPDES permit. Monitoring includes two primary tasks: data collection, and data analysis. Detection includes illegal connections to the stormwater system (for example, sanitary waste connections), dumping of debris and garbage, and the discharge of pollutants into the stormwater system. Monitoring will play a major role in the start-up phase and should diminish in subsequent phases. Inspection and enforcement is expected to be an ongoing program activity.

- ***Public Communication/Education.*** This is a strategic management measure aimed at reducing pollutants and meeting federal mandates through a relatively low cost method. This activity has three primary tasks: program development, implementation, and evaluation, and is expected to be an ongoing program activity.

- ***User Fee Changes*** **-** To fund the additional stormwater programs, the stormwater user fee basis and rate structure were modified and became effective on January 1, 1994.

2. **Phase II -** This phase represents the period beyond the initial five-year NPDES permit. During this phase of the program, planning activities are expected to diminish with capital projects, operations and maintenance activities, and enforcement programs becoming higher priorities.

Chapter Five
FINANCING

I. INTRODUCTION

This chapter describes the major financing issues and changes needed to implement the Comprehensive Stormwater Management Plan (Stormwater Plan). The primary changes are the creation of two new service areas — water quality treatment and related natural resource protection — which are being added to and merged with the City's traditional flood control and drainage services program. The new program areas are related to new federal stormwater quality mandates, and federal and state requirements to protect wetland resources. Because of the inter-relationship of these program areas with stormwater discharge, they are included as part of the city's existing stormwater program and financing structure. The Stormwater Plan will maintain current flood control and drainage services, while adding these new program areas. With the new program areas, the total stormwater program costs are estimated to increase by 60 percent, from $4,129,174 to $6,934,000 per year (1995 dollars). Eighty-seven percent of the new program costs are attributed to the NPDES program for meeting federal water quality mandates. Water quality services to be provided include:

- Ongoing water quality sampling and monitoring progra m;
- Pollutant detection and enforcement program;
- Public education and involvement program;
- Waterways acquisition program;
- Pilot projects program;
- Basin planning program; and
- Water quality based standards for new development.

The remaining new costs (13 percent) relate to the implementation of the West Eugene Wetlands Plan (WEWP). WEWP calls for the protection, restoration, and enhancement of wetlands in the west Eugene area. Because these wetlands provide direct flood control, drainage, and water quality treatment services, their inclusion in the City's stormwater system will benefit the community as a whole. Services to be provided include:

- Wetland acquisition program;
- Wetland restoration and enhancement;
- Wetland management and maintenance; and
- Wetland mitigation bank.

To meet existing and estimated new costs of the stormwater program, the Stormwater Plan's Working Papers explored a variety of funding sources and concluded that the revenue sources of the existing flood control and drainage services program are applicable and appropriate for the new costs. While a variety

of revenue sources may be used, such as stormwater user fees, permits, system development charges, gas taxes, assessments, and grants, the stormwater user fee is expected to cover most (92 percent) of the new program area costs. With the adoption of the Stormwater Plan, the basis of the historic user fee (water meter size) was changed to impervious surface to more accurately reflect the impacts of users on the system.

II. GOALS AND POLICIES

The Stormwater Plan's Working Papers reviewed and analyzed existing local policy in light of the new federal water quality mandates and the implementation of the West Eugene Wetlands Plan. The conclusion was that most of the existing local policy framework was in-place to carry out these new program areas. While new policy direction wasnt needed, minor refinements to existing policies were necessary to formalize the multiple objectives approach of the program.

As refinements to existing policy, the Stormwater Plan includes a financial goal and three associated policies. Refer to Chapter Three, Section II for a complete description of the financing goal and policies. The effects of these policy refinements to the adopted funding program are:

- they obligate all users of the stormwater system to assist with the financing of the program; and
- they encourage stormwater users to incorporate practices beyond the minimum program requirements through a financial incentives program.

III. EXPENDITURES: CURRENT FLOOD CONTROL AND DRAINAGE SERVICES PROGRAM VERSUS THE ADOPTED COMPREHENSIVE STORMWATER MANAGEMENT PLAN PROGRAM

This section compares the 1993 stormwater program expenditures (pre-Stormwater Plan) with the adopted program expenditures. Implementation of the Stormwater Plan will occur through a management program that has three service areas and five organizational elements. For a complete description of these service areas and organizational elements, refer to Chapter Four. The primary service areas are: flood control, drainage services, water quality treatment, and related natural resource protection. The organizational elements form the Stormwater Plan's implementing structure. This section describes the estimated costs for each service area by organizational element.

A. 1993 Stormwater Program Expenditures (pre-Stormwater Plan)

The following table describes the 1993 program expenditures by the organizational elements:

As shown in Table 5-1, Flood control and drainage services are the only services provided with most of the program expenditures occurring in Operations and Maintenance and Capital Projects. It is noted that some of the 1993 program activities, such as street sweeping and leaf pick up, provide beneficial water quality effects. Under the Stormwater Plan, these activities will be mainly recognized for their water quality benefits to the system.

TABLE 5-1: Pre-Stormwater Plan Expenditures FY1992-93 Budget (1993 Dollars)

	Flood Control Service (Existing Program)	Water Quality Service	Natural Resources Service	TOTAL
Planning and Administration	$533,284	$0	$0	$533,284
Capital Projects	$1,615,119	$0	$0	$1,615,119
Operations and Maintenance	$1,942,680	$0	$0	$1,942,680
Public Education	$19,045	$0	$0	$19,045
Inspection/Enforcement/Monitoring	$19,046	$0	$0	$19,046
TOTAL	**$4,129,174**	**$0**	**$0**	**$4,129,174**

B. STORMWATER PLAN EXPENDITURES

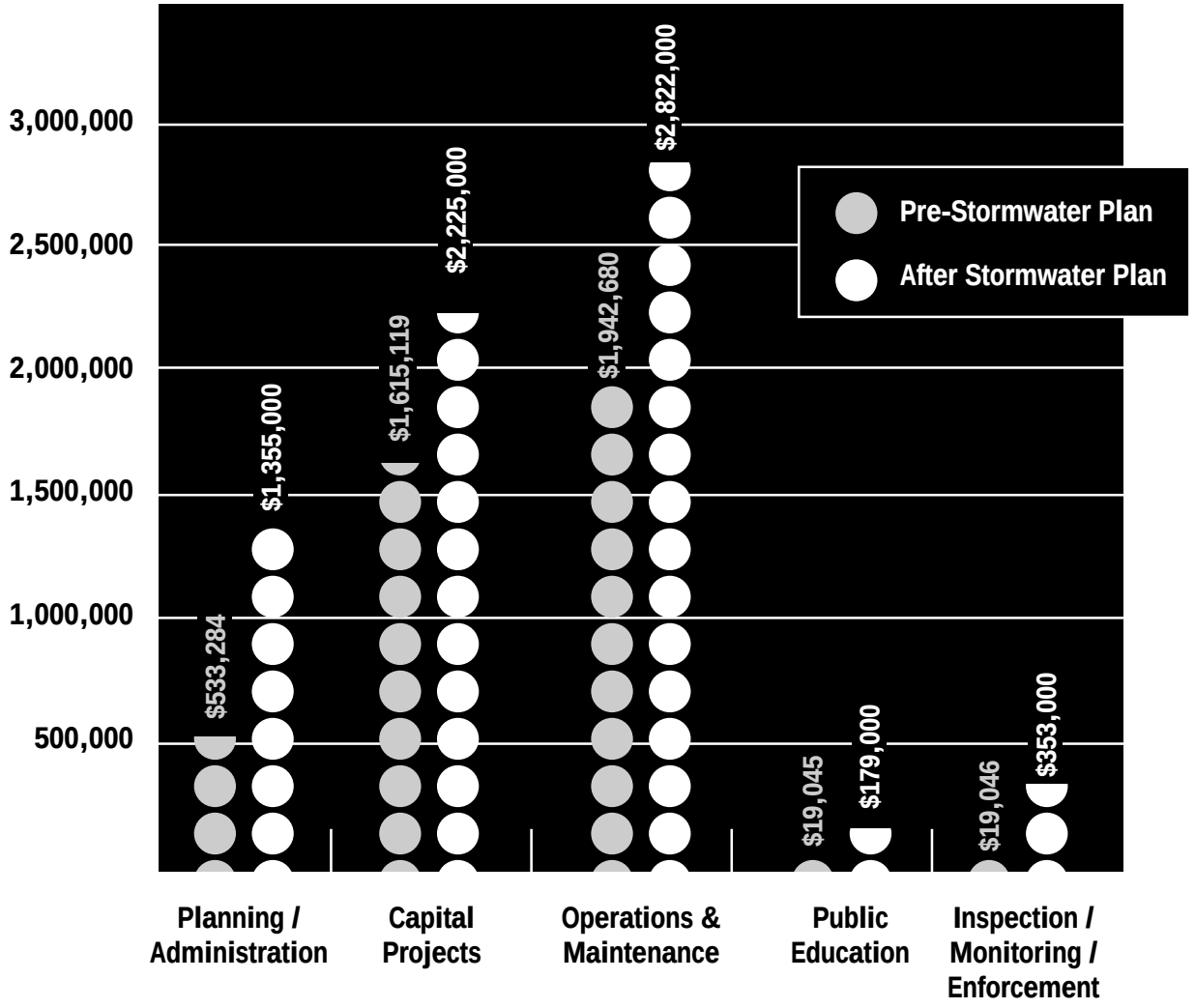
Table 5-2 describes the Stormwater Plan's expenditures. As shown, there will be expenditures in each of the three service areas with Flood-Drainage Services at 64 percent, Water Quality Treatment at 32 percent, and Related Natural Resources Protection at 4 percent. While flood control and drainage services are no longer the only services provided, the spending levels between the Stormwater Plan and pre-Stormwater Plan are approximately the same. The minor decrease in the flood-drainage service expenditures reflects the shift of some existing flood-drainage activities (i.e., leaf pick up) to the water quality service area.

TABLE 5-2: Stormwater Plan Expenditures 2 Year Program Average (1995 Dollars)

	Flood Control Service (1993 Program)	Water Quality Service	Natural Resources Service	TOTAL
Planning/Administration	$989,150	$298,100	$67,750	$1,355,000
Capital Projects	$1,624,250	$489,500	$111,250	$2,225,000
Operations and Maintenance	$2,172,940	$620,840	$28,220	$2,822,000
Public Education	$8,950	$170,050	$0	$179,000
Inspection/Monitoring/Enforcement	$17,650	$324,760	$10,590	$353,000
TOTAL	**$4,812,940**	**$11,903,250**	**$217,810**	**$6,934,000**

Figure 5-1 compares the cost of the 1993 flood-drainage program with the adopted Stormwater Plan by organization elements. Each of the elements show increases in expenditures. The largest relative increase occurs in Inspection/ Enforcement/Monitoring, Public Communication/ Education, and Planning/ Administration elements. Capital Projects and Operations/Maintenance have the lowest relative cost increases.

FIGURE 5-1: Pre-Stormwater Plan and Current Stormwater Plan Expenditures



The relative large cost increases reflect the realities of a "start-up" water quality program where initial efforts concentrate on collecting water quality data, detecting major sources of pollutants, educating the public, testing pilot projects, and completing planning activities for new regulatory ordinances. As the Stormwater Plan program transitions from data collection to management actions, areas of emphasis will change to meet Capital Projects and Operations and Maintenance needs.

Most of the expenditures are based on the implementation of the "Best Management Practices" (BMPs) that are contained in Appendix A, and will become conditions of the City's NPDES stormwater discharge permit.

IV. REVENUES: 1993 FLOOD-DRAINAGE PROGRAM VERSUS ADOPTED STORMWATER PLAN PROGRAM

This section describes the type and distribution of revenue sources needed to support the adopted Stormwater Plan program.

A. CURRENT REVENUES

Table 5-3 shows that user fees (92 percent) and systems development charges (8 percent) are the two primary revenue sources for the 1993 flood-drainage program. The "Assessment" revenue source shows "unknown" in the amount column which indicates revenues will likely be received but are not calculable.

TABLE 5-3: Current Stormwater Revenues FY1992-93 Budget (1993 Dollars)

Revenue Source	Flood Control (Existing Program)	Water Quality Service	Natural Resources Service	TOTAL
User Fee	$3,809,174	$0	$0	$3,809,174
Permits	$0	$0	$0	$0
System Development Charge	$320,000	$0	$0	$320,000
Assessments	unknown	$0	$0	$0
Property Tax	$0	$0	$0	$0
Grants and Loans	$0	$0	$0	$0
TOTAL	**$4,129,174**	**$0**	**$0**	**$4,129,174**

B. ADOPTED STORMWATER PLAN REVENUES

Table 5-4 shows revenue sources for the adopted Stormwater Plan program. As shown, "user fee" and "permits" are the primary revenue sources for stormwater costs associated with runoff from parcels (building lots). For stormwater costs associated with impervious surface areas of the public street system, the City Council is exploring financing options that relate actual costs for these facilities to the users of the system, such as a local gas tax or a vehicle trip generation factor. Revenues generated through the stormwater utility (user fee, gas tax, permits) are projected at $6,614,000. An additional $320,000 in revenue is expected from System Development Charges for capital construction. Total estimated revenues are $6,934,000.

TABLE 5-4: Stormwater Plan Revenues 2 Year Program Average (1995 Dollars)

Revenue Source	Flood-Drainage Service (Existing Program)	Water Quality Service	Natural Resources Service	TOTAL
User Fee	$2,994,185	$1,668,890	$245,425	$4,908,500
Transportation Options*	$900,000	$600,000	$0	$1,500,000
Permits	$0	$152,070	$53,340	$205,500
System Development Charge	$320,000	$0	$0	$320,000
Assessments	unknown	$0	$0	$0
Property Tax	$0	$0	$0	$0
Grants and Loans	$0	$0	$0	$0
TOTAL	**$4,214,185**	**$2,420,960**	**$298,855**	**$6,934,000**

* *About 21% of the Stormwater Plan's costs are associated with impervious surface areas of the public highway system. The council adopted policies to explore options for ultimately placing the responsibility for financing these costs with the users of the highways. The financing mechanisms being considered are a local gas tax, transportation utility fund, and a vehicle trip generation factor.*

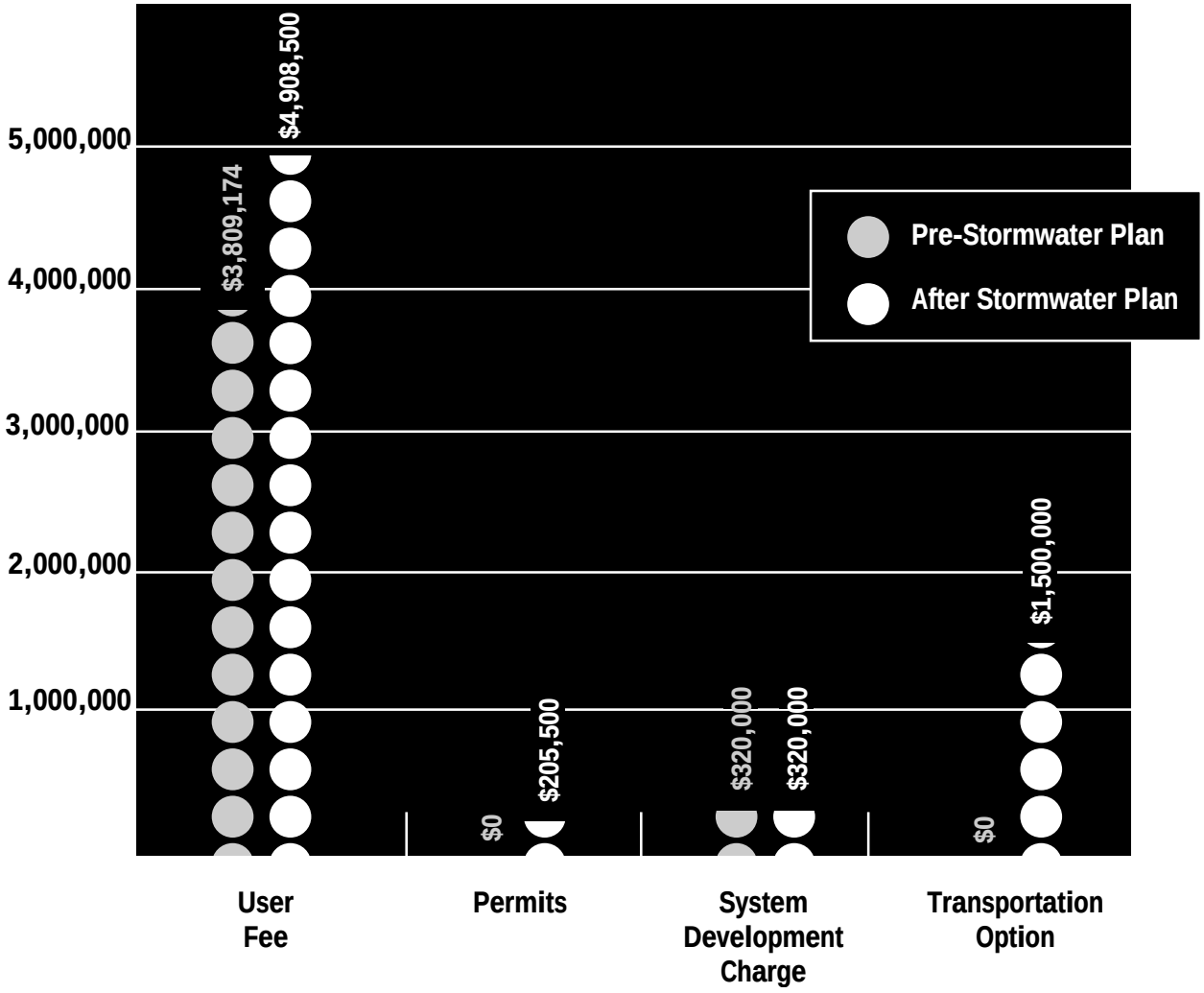
** *These are highway related stormwater revenues associated with the pre-Stormwater Plan program costs. They have been historically funded through the stormwater user fee, and will continue to be until the council has decided on a finance option for the street system.*

*** *These are revenues for the "new" stormwater quality costs associated with the public street system. These new program areas and revenues have been delayed pending the outcome of the financing options process discussed above.*

The revenue sources identified in Table 5-4 will need to be adjusted to meet the estimated program expenditures. "Permits" constitute a new revenue source for the stormwater program generated as part of the water quality and wetland regulatory programs. The "user fee" rate was increased from current levels to meet required revenues. Refer to the following section for more information on the user fee.

Figure 5-2 compares the revenues of the existing flood-drainage program to the adopted program revenues.

FIGURE 5-2: Pre-Stormwater Plan and Current Stormwater Plan Revenues



V. STORMWATER USER FEE

Because the stormwater user fee was the major revenue source for the 1993 program and is the principal revenue source for the new program, discussion of its application is provided below.

A. EXISTING USER FEE

The historic user fee is based on land use and water meter size. Residential users pay in terms of “equivalent residential units” (ERU). The 1993 ERU was $4.69

per month. Nonresidential users paid according to the size of their water meters. They paid one ERU for each one-eighth inch of water meter size. Lots without water meters, such as parking lots, did not pay a stormwater user fee. The fee was collected for all city customers by the Eugene Water and Electric Board (EWEB).

B. ADOPTED CHANGE IN USER FEE BASIS

With the adoption of the Stormwater Plan, the basis for determining stormwater user fees charges was changed from water meter size to impervious surface area. This change was made to more accurately place the cost for the stormwater system to those who use the system. Impervious surface includes roofs, streets, and parking lots. Rain that hits these hard surfaces is unable to be absorbed into the ground and, as a result, runoff occurs. The runoff is collected into the City's stormwater facilities such as curbs, gutters, pipes, and channels, and eventually discharged into the waters of the United States. The City designs, builds, and maintains its stormwater system to accommodate this runoff. Thus, there is a linkage between the users of the stormwater system and the basis of the user fee.

The City Council's action to change the basis of the user fee was based on a positive recommendation from the Eugene Stormwater Citizen's Advisory Committee (CAC). The new basis is consistent with those used by a majority of cities in the state and across the country where stormwater utilities have been established.

To encourage on-site stormwater management practices that mitigate quantity and quality impacts to the system, customers are eligible for reductions or exemptions to those components of the user fee. Depending on the amount of on-site effort, the user fee may be adjusted to minimize or eliminate the fee if there is no runoff leaving the site.

C. CHANGE OF USER FEE RATE STRUCTURE

In addition to changing the basis of the user fee, the stormwater CAC recommended a change in the user fee rate structure to reflect the new stormwater program services which was adopted by the Eugene Council. The new rate structure distributes the costs for flood-drainage services, water quality, and administrative costs on the amount of a customer's impervious surface area. Related program costs are recovered through the charge based on impervious area for commercial customers and a flat fee for residential customers. A three-tiered rate structure was adopted and distinguishes between "small" and "medium" residential customers, and all other customers. The three tiers are:

- **Tier 1 -** Small residential customers: This tier includes all residential customers whose building footprint* is equal to or less than 1,000 square feet;

- **Tier 2 -** Medium residential customers: This tier includes all residential customers whose building footprint* is greater than 1,000 square feet and less than 3,000 square feet; and

- **Tier 3 -** General customers: This tier includes all other customers who are not in Tier 1 or Tier 2, including commercial and industrial users,

and residential users whose building footprint* is 3,000 square feet or greater.

* Building footprint includes the first floor building, plus garage.

An average impervious surface area will be determined for all properties in each of Tiers 1 and 2. The average surface area will then be applied to the monthly user fee rate to determine the customer's fee. The average impervious surface area will be calculated based on **total** impervious surface area. This includes the building footprint and all other hard surfaces, such as driveways and walkways. The average impervious surface will be determined for each tier through a statistical sampling method.

For general customers, the **actual** impervious surface area will be determined for each customer, using current aerial photography and any changes through the building permit procedure.

D. RATE CHANGE FOR BUILDING LOTS WITH IMPERVIOUS SURFACES

Based on a two-year average using 1995 dollars, a stormwater budget was developed. The total estimated annual budget amount is $6,934,000 of which $6,614,000 was fee supported.

Based on the new user fee rate structure and the adopted the Stormwater Plan budget, a medium-sized single-family residential user would see an increase in the monthly user fee charge from $4.69 to $7.08. The cost per 1,000 square feet for commercial customers is estimated to be approximately $2.70 per month. This rate was based on the average impervious surface area for each residential tier as determined by aerial photo interpretation. The impervious surface area of all general customers was also measured by aerial photography and confirmed with each general customer.

E. FINANCING PROGRAM FOR PUBLIC STREET SYSTEM

In its review of the Stormwater Plan, the City Council adopted the policy that approximately $1.5 million in street related components of the stormwater program would be funded through a mechanism other than a charge on impervious surface areas associated with building lots. At their meeting of November 22, 1993, the Council reduced the total scope of the program by $600,000, an amount representing the street related percentage of the new program costs, and adopted a user fee rate of $2.40 per 1,000 square feet of impervious area.

The Council also directed that proposals on an alternate funding source for the entire $1.5 million in street related program costs be developed and brought back to them for review and action. The resolution adopted by Council stated the intent to adopt a city gas tax if another funding mechanism could not be developed.

In October 1994, the City Council adopted a street-related component of the user fee to fully fund the Stormwater Plan. New stormwater customer charges, as shown in Table 5-5, were effective beginning in November 1994.

TABLE 5-5: Stormwater Fee Structure

	Monthly Charge* Jan.-Oct. 1994	Monthly Charge* Adopted Nov. 1994
Small-Residential Customer		
Impervious Surface Share (per dwelling unit)	$4.32	$3.60
Street-Related Component	**	$0.99
Administrative Cost (per account)	$0.91	$0.29
Total Monthly Fee	**$5.23**	**$4.88**
Medium-Residential Customer		
Impervious Surface Share (per dwelling unit)	$6.96	$5.80
Street-Related Component	**	$0.99
Administrative Cost (per account)	$0.91	$0.29
Total Monthly Fee	**$7.87**	**$7.08**
General Customer: Large-Residential		
Rate/1,000 sq.ft Impervious Surface	$2.40/1,000 sq.ft.	$2.00/1,000sq.ft.
Street-Related Component	**	$0.99/dwelling unit
Administrative Cost (per account)	$0.91	$0.92
General Customer: Commercial/Industrial		
Rate/1,000 sq.ft Impervious Surface	$2.40/1,000sq.ft	$2.00/1,000sq.ft
Street-Related Component	**	$0.70/1,000sq.ft
Administrative Cost (per account)	$0.91	$0.92

** Duplexes are charged two times the small- or medium-residential rate, depending on the building footprint (A building footprint is the combined area of the garage and the first floor.)*
*** Street-related component included in flat Impervious Surface Fee established in January 1994.*

Appendix A
BEST MANAGEMENT PRACTICES

This section of the Comprehensive Stormwater Management Plan includes the complete listing of Best Management Practices (BMPs) submitted both as part of the National Pollutant Discharge Elimination System (NPDES) permit and the Stormwater Plan. It is grouped into the five program elements of: Planning and Administration (P&A); Capital Projects (CAP); Operations and Maintenance (O&M); Inspection, Enforcement, and Monitoring (MON); and Public Education (ED).

PLANNING AND ADMINISTRATION

P&A1 BMP FACT SHEET
Develop Comprehensive Basin Plans

Responsible Department: Public Works, Engineering

Responsible Person: City Engineer

ODOT's Level of Involvement: Leading a planning effort like this is outside of ODOT's jurisdiction, however, ODOT may participate in some component of this BMP if relevant and appropriate tasks are identified.

BMP Description: Develop comprehensive (flood control, water quality, natural resources) basin plans for the City.

The existing Eugene Areawide Drainage Master Plan (DMP) will be refined and supplemented to include water quality and relevant natural resource recommendations. The resulting plans will be consistent with the adopted policies of the Comprehensive Stormwater Management Plan (Stormwater Plan), the West Eugene Wetlands Plan (WEWP), and the Natural Resource Functional Plan (NRFP).

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(A)(1), (A)(2), and (A)(4)

Pollutants Addressed: All

Existing Conditions: In October, 1986, the City contracted with OTAK, Inc. to conduct hydraulic drainage master planning for the Amazon Creek and the Eugene metropolitan area. The Eugene Areawide Drainage Master Plan (DMP) was completed in 1990. It provides specific recommendations for major storm system improvements to address both anticipated system deficiencies and expansion needs as a result of growth.

The objectives of this plan were to:

- Identify major drainage basins and provide a delineation of basin boundaries and major drainage systems.

- Identify the hydraulic capacities and the associated level of protection afforded by existing major drainage systems.
- Identify capital improvement projects that will solve existing drainage problems and provide adequate drainage for the study area under ultimate planned development conditions.
- Identify the drainage design criteria and standards needed to plan, design, construct, and maintain drainage collection and detention facilities.

The OTAK DMP is not an adopted policy plan, nor is it considered a refinement to the Public Facilities Plan. The Public Works Department has adopted the DMP plan as a guide in evaluating storm system improvements. In its review and design of proposed improvements, the City uses data from the DMP such as hydraulic flow, land use, and impervious surface information to develop system designs.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:
- Through the Stormwater Plan process, identify funding for the development of comprehensive basin plans.
- Complete development of the Stormwater Plan and process for local adoption.

Task 2:
- Develop a prospectus for the project.
- Develop a schedule for completing basin plans.

Task 3:
- Identify staff resources and secure project funding.

Task 4:
- Initiate project.
- Develop comprehensive basin plans. Look at the activities that will be conducted throughout the basins as a result of other BMPs. Determine where there may be gaps specific to each basin. Components of the plans could include: source controls, limited structural controls, education, enforcement of applicable regulations or requirements, O&M practices, and detailed monitoring and data assessment efforts.
- Work with public education personnel regarding methods for informing the communities located within the specific basins and develop ways to involve them in significant ways in developing and implementing basin plans.

Task 5:
- Begin implementation of the program and develop appropriate assessment methods. Initiate additional basin studies if appropriate. (Note: the basin plans will be developed to provide guidance for all activities conducted within the basins. Therefore, implementation of the program means that the plans will begin to be used in a formal way as guidance for other activities that are conducted within the basins).

This BMP can be used to prioritize and review the implementation of other BMPs.

Assessment Methods:
- In Permit Year 1, document that project efforts are underway.
- Provide comprehensive basin plans to DEQ.
- Document implementation efforts.

P&A2 BMP FACT SHEET
Street Design Standards

Responsible Department: Public Works, Engineering

Responsible Person: City Engineer

ODOT's Level of Involvement: ODOT will continue to evaluate ODOT standard design procedures with relation to water quality.

BMP Description: Review existing street design standards with respect to water quality (e.g., sloped medians may increase infiltration and enhance water quality). Keep groundwater impacts in mind.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(A)(2), (A)(4), and (D)(1)

Pollutants Addressed: Sediments, oil and grease, heavy metals (Road surface runoff is one of the highest contributors to nonpoint source pollution).

Existing Conditions: Existing street standards are currently undergoing revision.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:
- Assemble documents which contain language regarding design criteria.
- Identify potential changes to existing design code (City of Eugene).
- Discuss potential changes with relevant departments/jurisdictions. It may be that local codes are more flexible than federally funded highway requirements.

Task 2:
- Develop means for providing information about changes in criteria to the private sector (may be incorporated into one of the educational BMPs).
- Ensure the application of new criteria to public works projects.
- Establish a means for assessing the effectiveness of implementing the new criteria.

Task 3:
- Coordinate new criteria with related educational BMPs.
- Hold internal training for all relevant City/County/ODOT personnel regarding the new criteria.

Task 4:
- Implement new design standards as appropriate.
- Conduct periodic review (to coincide with permit renewal) of design handbooks (with respect to water quality).

Assessment Methods:
- Document design criteria modifications to enhance water quality.
- Document the projects that include the incorporation of new design criteria. Include an qualitative assessment of effectiveness.
- Document internal training sessions.

P&A3 BMP FACT SHEET
Incentives to Preserve Private Property

Responsible Department: Public Works, Engineering

Responsible Person: City Engineer

ODOT's Level of Involvement: None.

BMP Description: Develop a program to provide financial incentives to property owners who protect natural areas on their property considered to have valuable water quality and natural resources characteristics.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(A)(2)

Pollutants Addressed: Natural areas can provide infiltration, overland flow, and detention, which can address all pollutants of concern.

Existing Conditions: Currently, under Goal 5 (of the Statewide land use planning goals), the City has identified natural areas in selected areas of the city. This BMP would most likely be implemented

in these designated areas, although there may be additional areas outside of these where this BMP would be appropriate.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:

- Obtain and review written documentation regarding the City's existing program for designated natural areas under Goal 5.
- Obtain and review written documentation regarding the City's existing Finance Credits program.
- Research existing incentive programs and determine whether Eugene's program could be modeled after these programs.
- Determine the feasibility of implementing this BMP in the City of Eugene.

Task 2:

- If this BMP is determined feasible, develop an incentive program. Criteria will be developed for determining whether or not a particular "natural area" qualifies under the incentive program. The City will determine how incentives would be calculated.
- Obtain necessary approvals for the program and implement. Implementation should include educating the public about the program along with agency personnel who will administer it. Coordinate with ED4.

Assessment Methods:

- Document determination regarding feasibility of the program.
- Document plan and implementation activities as they occur.
- Report annually on the number of natural area properties that are participating in the program (e.g. acreages).

P&A4 BMP FACT SHEET
Erosion Control Program

Responsible Department: Public Works, Engineering

Responsible Person: City Engineer

ODOT's Level of Involvement: ODOT is implementing programs to increase erosion control awareness. ODOT is also developing a state-wide erosion control manual for highway construction.

BMP Description: Implement a comprehensive erosion control program which identifies and applies erosion control requirements city-wide. The program may include structural controls, new techniques/practices, increasing inspection and enforcement activities, and educating affected groups (architects, engineers, contractors, public agency personnel).

- Emphasize erosion control BMPs adjacent to waterway corridors and hilly areas (i.e., control measures should consider the nature of the activity, topography, and soil characteristics of the site).
- Include interaction and coordination with DEQ's permitting process (for construction sites).
- Include education for principal players (e.g., construction site operators).
- Coordinate with BMP ED6 and ED7 (education regarding structural techniques and education for designers).
- Analyze basins for basin-specific erosion control requirements.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv) (A)(2), (D)(1), (D)(2), (D)(3), and (D)(4)

Pollutants Addressed: Sediments, organics, nutrients, metals in sediment fines, and oil and grease.

Existing Conditions: None.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:
- Gather documentation from the City, County and State (DEQ is requiring NPDES stormwater permits for construction sites) regarding guidelines/requirements in place for erosion control practices.
- Research and review successful erosion control programs developed in other cities.
- Work with a coordinating committee which includes pertinent City staff, as well as representatives from the community. Conduct committee meetings to determine the type and extent of a local erosion control program to be developed.

Task 2:
- Develop a document which outlines the elements of the newly developed comprehensive erosion control program.

Task 3:
- Solicit input from selected groups. Revise the document where necessary.
- Work with public education personnel to develop an education program for affected groups.

Task 4:
- Work with DEQ to develop a coordinated program for inspecting areas which require erosion control measures and enforce those requirements. Coordinate inspection and enforcement activities with the new inspection and enforcement practices created under BMPs MON1 and MON2.
- Develop a monitoring/feedback system to evaluate program effectiveness.

Task 5:
- Implement the erosion control program.

Assessment Methods:
- Document elements of the erosion control program that is developed.
- Document public involvement activities.
- Document implementation activities.
- Document implementation of an associated enforcement program.
- Document associated enforcement and inspection activities.

P&A5 BMP FACT SHEET
Illegal Dumping Program

Responsible Department: Public Works, Maintenance and the Department of Public Safety

Responsible Person: Maintenance Division Director, and Executive Director of Public Safety

ODOT's Level of Involvement: ODOT will participate in interagency collaboration and will identify, review, and if feasible, modify existing spill response programs.

BMP Description: Develop methods to encourage interagency collaboration on illegal dumping problems. Clarify responsibilities in urban transition areas.

Revise the existing spill response program and include procedures to reduce the introduction of contaminants into the storm system.

NPDES Reg. Number: 40 CFR 122.26(d)(2)(iv)(B)(1) and (B)(4)

Pollutants Addressed: All

Existing Conditions: Illegal dumping can be divided into these areas:

- Illicit or illegal connections to the storm system.
- Unpermitted discharges into the storm system.

- Disposal and dumping of debris to storm channels and waterways.
- Spills and illegal discharges of potentially hazardous materials to storm channels and waterways.

Illicit or Illegal Connections
Within Lane County, the responsibility for locating and correcting illicit connections is presumed to reside with the agency responsible for maintaining the storm system into which the discharge flows. Other than the field screening conducted by the City of Eugene as required by Part One of the permit application, no formal procedures are in place for detecting illicit connections.

In both Eugene and Springfield, programs have been initiated to identify sources of inflow and infiltration into the sanitary sewer system. The programs can also provide information about the integrity of the storm system.

Unpermitted Discharges
The Hazardous Materials Program manager conducts regular fire code compliance inspections at industrial and commercial facilities. During these inspections, the program manager keeps their eye out for any evidence of unpermitted discharges to either the storm system or to the ground. If violations are noted, the property owner is notified of the violation and required to implement corrective procedures.

Currently, DEQ oversees the permitting of discharges to surface water. Further discussion with DEQ is needed to delineate local government versus state responsibility in this area.

Disposal and Dumping of Debris
Within Lane County, the responsibility for removal of debris and rubbish is presumed to reside with the agency responsible for maintaining the storm system into which the discharge flows.

Spills and Illegal Discharges of Potentially Hazardous or Unknown Materials
A number of City agencies are currently involved in the issue of spills of potentially hazardous or unknown materials to the stormwater system. The Department of Public Safety (DPS) houses the Regional Hazardous Materials Response Team, Haz-Mat 2. The Team responds to spills in Lane County and beyond. The purpose of the Team is to provide technical assistance to local agencies in the mitigation of larger spills. This presumes a local component. Presently, the local component in the City of Eugene is provided by the Department of Public Works (DPW). The need for coordination between DPS and DPW, as well as enhanced coordination within these Departments, has been recognized. Currently, when a spill is reported, cleanup responsibility goes to the responsible party first, the property owner second, and the City or DEQ third if there is imminent threat to public health, safety or the environment. The program has never been reviewed with regard to the protection of water quality. In an attempt to resolve existing communication and coordination issues, DPS formed the Haz Mat Communications Task Force, which is in the process of developing revised procedures for handling spills and illegal discharges.

As mentioned, the DPS is presently involved in the spill response programs and have personnel trained to the technician level. However, the rule of thumb has been that they do not respond to the smaller incidents and will not perform clean up. This issue will also be included among those that the Communications Task Force is attempting to address.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

NOTE: Activities conducted under this BMP should be coordinated with activities conducted under BMPs MON1, and MON2 regarding the inspection and enforcement related to illicit discharges. For example if geographic areas are prioritized for inspection, this should be coordinated with inspections conducted under MON2.

Task 1:

- Gather documentation regarding existing spill response procedures and illegal dumping programs.
- Continue activities associated with Haz Mat Communications Task Force to clearly delineate local versus regional responsibilities. Develop description of existing response procedures and identify deficiencies. Identify revisions that could be made to existing programs to reduce the negative impact of spills on water quality.
- Revise documentation regarding spill response and illegal dumping programs to specifically spell out jurisdictional responsibilities and to include procedures which would reduce negative impacts to water quality.
- Include documentation of spill response and illegal dumping programs in the comprehensive operations and maintenance manual developed under BMP OM1.

Task 2:

- Meet with local agencies and DEQ to discuss the revised program and to establish necessary task forces to address each area of potential impact.
- Develop cooperative intergovernmental agreements with relevant agencies specifying the responsibility of each agency in the implementation of this BMP.

Task 3:

- Implement the revised spill response and illegal dumping programs. Include routine coordination with those responsible for implementation of BMPs MON1, and MON2 regarding inspection and enforcement related to illicit discharges.

Task 4:

- Coordinate with public education BMPs (ED2, ED6, ED7) and develop public outreach component. Implement public outreach programs.

Assessment Methods:

- Document the success of interagency collaboration regarding illegal dumping problems and spill response procedures.
- Document revisions to spill response and illegal dumping programs.
- Document the responses made to illegal dumping incidents.
- Document internal training sessions.

P&A6 BMP FACT SHEET
Solid Waste Management

Responsible Department: Department of Planning and Development

Responsible Person: Director of the Department of Planning and Development

ODOT's Level of Involvement: ODOT will look for ways to modify existing activities in order to reduce and recycle waste.

BMP Description: Coordinate with Lane County to revise existing solid waste management programs (which reduce, recycle and control trash and yard debris) to take stormwater quality into account.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(A)(6) and (B)(6)

Pollutants Addressed: Nutrients and oxygen demanding substances, oil and grease, organics.

Existing Conditions: The City of Eugene regulates solid waste collection and residential recycling inside the City limits. Each collector must have a business license. As of January 1993, there were nine licensed collectors. The City sets collection rates and standards. Licensed collectors otherwise are free to offer residential and commercial service anywhere in the community.

Lane County owns and operates the local landfill and transfer sites for solid waste disposal. Its $27 per ton tipping fee for disposal is expected to increase to $40 in July 1993 and rise annually until reaching $55-$60 per ton. A tipping fee increase of this magnitude could have several effects: increased recycling efforts in both the residential and commercial sectors to lower solid waste collection fees; more garbage accumulation and illegal dumping to avoid disposal costs; and greater financial incentives and political pressure to develop effective waste reduction programs.

Local residents may contract with a hauler for waste collection service or transport their own solid waste to a County transfer station. Based on account information from licensed haulers (July 1991 data), approximately 75 percent of Eugene residents subscribe to a collection service, while the balance "self-haul." A somewhat larger proportion of businesses subscribe to a service.

Collection standards set by the City of Eugene reflect local goals and state of Oregon mandates, notably the 1991 Oregon Recycling Act. All solid waste collectors must transport waste and recyclables in a way that minimizes odor and keeps materials from dropping, spilling, or blowing from the vehicle. Curbside residential recycling must be provided weekly, with a rigid container for recyclables, and haulers also must provide recycling information to both residential and commercial customers.

The City's annual costs for the solid waste and recycling program will total approximately $120,000 in fiscal year 1994. The City Council has directed that the program become self-supporting through license fees, beginning July 1993. There is a commitment to expanding the City's efforts in waste reduction with any additional revenues earned through license fees, grants or other resources.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:

- Work with Lane County and the City of Springfield in planning for a yard debris recovery program, with centralized processing and neighborhood collection depots, to be established in 1994. Consider possible use of compost as a filter for stormwater.
- Amend City Code to permit siting of neighborhood depots for collection of yard debris and household recyclables.

Task 2:

- Develop and implement a commercial and multifamily residence recycling program that includes collection, equipment, and transportation standards recognizing potential impacts on stormwater quality.

Task 3:

- Review legal authority related to disposal of garbage and debris. Identify means and authority for regulating disposition of garbage and debris, as well as standards and placement of garbage cans and containers.
- Press for State legislation that would reduce waste and toxicity of waste by (1) levying special fees for waste that is difficult to recycle, (2) banning selected disposable and environmentally harmful packaging, and (3) promoting reuse and recycling.

Task 4:

- Review survey results obtained from communities in California, Minnesota, Oregon, New Jersey, Pennsylvania, and Illinois for features and requirements in other collection systems that consider stormwater quality as part of the overall solid waste management program.

- Identify ways to protect against harmful environmental impacts resulting from collection and processing of yard debris and household recyclables.

Task 5:

- Develop and implement an education program for safe and effective backyard (on-site) composting of yard trimmings and kitchen matter.
- Develop and implement a recycling and waste prevention education program that includes an element emphasizing stormwater quality.

Assessment Methods:

- Document planning and coordination activities.
- Report on implementation of commercial and residential recycling programs.
- Report on legal authority reviews and lobbying efforts.
- Report survey results and evaluate impacts of the recycling program.
- Document associated educational efforts.

P&A7 BMP FACT SHEET
Water Quality Drainage and Design Standards for New Development

Responsible Department: Public Works, Engineering

Responsible Person: City Engineer

ODOT's Level of Involvement: ODOT will educate personnel about pollutants associated with construction sites and the impact to water quality. ODOT will consider establishing incentives for contractors and developers to ensure that damages from erosion and/or sediment deposition are addressed. ODOT will also work to implement modified design standards for flood and water quality facilities where they improve the quality of stormwater discharges.

BMP Description: Create (or improve), implement, and enforce water quality based drainage and design standards for new development. Standards should include controls for post-construction water quality. Research methods used in other areas and develop applicable regional criteria. (Creation of standards for erosion control during construction related to new development will be covered under P&A4).

NPDES Reg. Number: 40 CFR 122.26(d)(2)(iv)(A)(2) and (A)(4)

Pollutants Addressed: All

Existing Conditions: The City employs the use of open channels as part of their stormwater drainage system. In some locations these open channels may include vegetation which provides benefits to water quality. In other locations, the channels are located in areas with well drained soils and infiltration occurs.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:

- Obtain and review list of current City requirements related to new development and gather existing design standards (city, County, Corps) related to the development of flood control and water quality facilities for new development.
- Research and review other jurisdictions' approaches for new development standards and their design standards for flood control and water quality facitilies.
- Select a team to review these drainage and design standards.
- Consider the inclusion of standards for retrofits and requirements for operation and maintenance plans.
- Select the best approach for the City regarding drainage standards for new development. This may include the establishment of a community task force.

- Determine personnel to oversee the implementation and enforcement of drainage standards for new development.

Task 2:

- Conduct workshops to review and modify existing design standards for flood control and water quality facilities.
- Finalize modifications to design standards to improve water quality and meet drainage standards as developed under Task 1.
- Develop an ongoing method for identifying proposed projects where drainage and design standards should be implemented, and develop a method for implementing these standards.
- Develop a method for tracking construction schedules to identify time for inspections. Notify and coordinate with personnel responsible for inspections under BMP MON1 and MON2.
- Establish reporting and record keeping procedures regarding implementation of new drainage and design standards, adherence to requirements, and performance of standards.
- Establish an inspection program to ensure compliance with implementation, operations, and maintenance requirements of structural BMPs (where these requirements exist).
- Develop a method for assessing the effectiveness of new standards.

Task 3:

- Conduct workshops to educate those affected by new development standards.

Task 4:

- Process for adoption with elected officials.

Task 5:

- Implement new development standards and new design standards for flood control and water quality facilities (including inspections and enforcement). Begin applying requirements to all new developments.

Assessment Methods:

- Provide revised drainage and design standards for new development to DEQ in annual compliance report.
- Document reporting; record keeping; inspection programs; plans and implementation.
- Document associated public education activities.
- Document implementation activities.

P&A8 BMP FACT SHEET
Mitigation Site Management

Responsible Department: Public Works, Engineering

Responsible Person: City Engineer

ODOT's Level of Involvement: None.

BMP Description: The City will develop a program to inventory public and private parcels (where parcels are identified as providing benefits with respect to stormwater quality) set aside for mitigation purposes, and ensure that mitigation sites are adequately maintained.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(A)(1)

Pollutants Addressed: All

Existing Conditions: None.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

NOTE: Coordinate the following tasks with those conducted under BMP CAP1.

Task 1:
- Develop an inventory of parcels (public and private) in Eugene that are set aside or created for the purpose of mitigating wetland impacts.

Task 2:
- Conduct site visits to evaluate the condition of each of the sites. Some of the sites may be maintained by the developer, others may be in need of maintenance. Prioritize sites with respect to maintenance needs.
- Develop a program to ensure that private sites are adequately maintained.

Task 3:
- Develop maintenance plans for the public sites selected.

Task 4:
- Implement maintenance plans.

Assessment Methods:
- Report inventory to DEQ, Division of State Lands, and Army Corps of Engineers.
- Document site visits.
- Document development and implementation of maintenance plans.

P&A9 BMP FACT SHEET
Resolution of City/ODOT Responsibility Issues for Maintaining Water Quality Facilities

Responsible Department: Public Works, Engineering

Responsible Person: City Engineer

ODOT's Level of Involvement: ODOT will work with the City to resolve responsibility issues and to develop an intergovernmental agreement.

BMP Description: In many cases, it is not clear who has maintenance responsibility for water quality facilities constructed in conjunction with state roads. The purpose of this BMP is to work with ODOT to clarify those responsibility issues.

NPDES Reg. Number: 40 CFR 122.26 (d)(iv)(A)(3)

Pollutants Addressed: All.

Existing Conditions: None.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1: In conjunction with other ODOT related tasks, negotiate an agreement with ODOT to ensure proper maintenance and function of water quality facilities.

Assessment Methods: Provide agreement to DEQ in annual compliance report.

CAPITAL PROJECTS

CAP1 BMP FACT SHEET
Waterway Acquisition Program

Responsible Department: Public Works, Engineering

Responsible Person(s): City Engineer

ODOT's Level of Involvement: None.

BMP Description: Develop and implement a proactive drainage channel and waterway acquisition program.

- Include the acquisition and management of easements in existing developed corridors.
- Include the acquisition of "natural" waterways/wetlands that function to enhance flood control, water quality, and natural resources values.
- Include the possibility of acquiring or maintaining private lands originally set aside or managed for mitigation purposes.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(A)(4)

Pollutants Addressed: All. This BMP would reduce pollutants by maintaining and protecting areas which could be utilized for filtering stormwater. It would also allow the City to manage the systems to maximize water quality.

Existing Conditions: A general environmental analysis (Level 1) would be obtained on any parcel proposed for acquisition that exhibits any basis (use, history, observation) for concern.

The City of Eugene owns portions of the major drainage channels within the City and has easements on many other portions. The ownership situation on natural waterways and wetlands within the city is similar with some being publicly owned, some covered by easement, and some privately owned. An existing acquisition program is currently in place.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:

- Map basins and waterways and identify properties that are currently owned by the City or are covered by City easements.
- Develop an acquisition process for development-related acquisitions/easements (e.g., identify standard widths, establish type of easement/fee, determine future maintenance responsibilities, etc.).
- Develop an acquisition process for acquisitions in previously developed areas.
- Look into the use of matching grants to provide additional funding.

Task 2:

- Identify and prioritize drainage basins and waterways of critical concern for acquisition activities. Coordinate this process with BMP P&A1.
- Specifically identify degraded water courses, sources of scouring, sediment load, etc., and resultant acquisition needs (within the context of BMP P&A1). Identify sites designated for detention basins, natural water treatment facilities, natural resource protection and mitigation purposes and program those sites for acquisition.
- Determine and prioritize the number of sites that can be acquired with available funding.

Task 3:
- Begin the acquisition/easement process. Develop acquisition implementation plans for selected sites.
- Appraise properties and negotiate acquisitions of needed property interests in accordance with applicable plans, priorities, and funding.

Task 4:
- Acquire properties. Develop maintenance plans for properties (possibly to be incorporated in overall operations and maintenance plans developed as part of BMP O&M1).

Assessment Methods:
- Document progress regarding the development of an acquisition process.
- Document prioritization of sites for acquisition.
- Record all acquisition documents and plot and inventory all property interests acquired.

CAP2 BMP FACT SHEET
Pilot Projects

Responsible Department: Public Works, Engineering

Responsible Person: City Engineer

ODOT's Level of Involvement: ODOT may participate, as appropriate, in some component of this BMP.

BMP Description: Plan, develop, and evaluate the effectiveness of a pilot program for a small, urbanized drainage basin that incorporates a wide variety of the Stormwater Plan's Best Management Practices. The pilot program should include a multiple objectives approach to stormwater management with an emphasis on water quality, habitat, education and recreation.

The objectives of this BMP are:

- To assess the value, and its potential applicability City-wide, of a multiple-objectives planning approach for a small, urbanized subdrainage basin
- To evaluate the effectiveness of a variety of surface water management measures that are designed to reduce water quality pollution, enhance other environmental values such as wildlife habitat, and meet flood protection needs while minimizing on-going costs associated with operations and maintenance
- To assess the practical application of a volunteer program within the context of a small subbasin, and
- To evaluate the performance of the various management measures through an on-going monitoring program.

NPDES Reg. Number: Addresses several elements of the regulatory requirements.

Pollutants Addressed: All. Pollutants in the basin selected could be addressed through a multiple objectives planning process. BMPs to reduce specific pollutants would also be addressed.

Existing Conditions: The City's current stormwater program is specifically structured to meet drainage and flood control needs. These needs are implemented through conveyance facilities such as pipes, ditches, and open channels. Other values, such as water quality, natural resources, wildlife habitat, and recreation, are not formal elements of the program. The planning and implementation process for the program occurs within the City's Public Works Department. The Eugene Areawide Drainage Master Plan (OTAK, 1990) (DMP) is the principal planning document for the identification and prioritization of future capital projects. The DMP is structured according to hydrologic drainage basins, and reflects the flood control, conveyance-based approach. Implementation of the DMP occurs through

the Capital Improvement Planning process, the on-going replacement and reconstruction program, and in locations where new development occurs. This BMP is designed to address and evaluate a comprehensive approach to meeting a multiple-objectives stormwater management program for a small, urbanized subbasin.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

NOTE: Activities conducted under this BMP should be coordinated with activities conducted under BMPs CAP3 and P&A1.

Task 1:
- Establish a pilot project team.
- Develop criteria for evaluating project type and location.
- Define funding needs.
- Develop the timeline for implementation.

Task 2:
- Review subbasin information. Develop a list of additional information required. Develop a list of optional restoration measures.

Task 3:
- Review and analyze selected elements of the project.
- Coordinate a public involvement program for the project.
- Finalize implementation schedule and funding for the project.
- Prepare construction plans.

Task 4:
- Conduct phased implementation of the project.
- Determine budget and funding needs on an annual basis.
- Maintain improvements and monitor performance as necessary.
- Make necessary adjustments to the project on an annual basis.

Assessment Methods:
- Document efforts to develop proposed pilot projects annually.
- Document implementation efforts including volunteer efforts, as well as construction and implementation of source control programs.
- Design and implement a water quality monitoring assessment program.

CAP3 BMP FACT SHEET
Determine Feasibility of Building or Retrofitting Facilities

Responsible Department: Public Works, Engineering

Responsible Person: City Engineer

ODOT's Level of Involvement: The City of Eugene will take the lead on this BMP. ODOT will implement this BMP only when a new road is scheduled to be built or an existing road is scheduled for improvements.

BMP Description: Determine the feasibility of building, establishing, and maintaining water quality facilities (e.g., detention/ retention/infiltration basins, manmade/natural wetlands, etc.), and retrofitting existing drainage and flood control facilities (e.g., storm drain inlets, retention basins, drainage channels) to function as water quality facilities.

Retrofits may include installation of in-line sediment trap devices, detention/infiltration facilities or wetlands/riparian vegetation, or modification of flood control facilities to include water quality controls.

Include evaluation methods to assess the performance of the facilities.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(A)(4)

Pollutants Addressed: Depends on facility. Sediments, organics, nutrients, oil and grease, heavy metals. The regulations and guidance ask that cities consider retrofitting existing flood control measures such as retention or detection facilities if feasible.

Existing Conditions: The NPDES regulations require the integration of flood control and water quality issues when designing new facilities and improving existing facilities. Historically, most facilities were constructed and operated with only water quantity in mind (i.e., move the water quickly through the system to the receiving water, to avoid potential flooding problems). Today it is recognized that slowing the flow of stormwater (detention), permanently retaining the flow where feasible, and routing flows through grass channels/ vegetated areas enables sediments and pollutants to settle out of the stormwater, thus improving water quality in receiving waters.

The NPDES regulations require that the City's existing drainage and flood control facilities be assessed in order to determine if retrofitting the facilities (e.g., to detain or retain flows) would improve stormwater quality. This BMP (CAP3) directly addresses this requirement.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

NOTE: The activities conducted as a part of this BMP should be conducted in coordination with BMP CAP2 and P&A1.

Task 1:

- Identify areas that have the potential to construct water quality facilities. Document current efforts.
- Review the adequacy of existing flood control facilities.
- Prepare a master list of various types of existing facilities with possible retrofit considerations for each type.
- Conduct an inventory (may require site visits) of flood control facilities that will provide information necessary to determine whether retrofits are feasible or not.
- Review the inventory results and select sites and facilities where retrofits would be most appropriate and feasible.
- For each suitable site, the City will develop a preliminary plan for retrofitting (in the case of existing flood control facilities) or constructing (in the case of building new water quality facilities) with a schedule and estimated costs (the City will coordinate this process with the FEMA, Corp of Engineers, and SCS as appropriate to resolve any flood control issues). Based on schedule and cost information, the City will prioritize the sites for retrofit and construction according to projected available resources and according to priorities identified in comprehensive basin plans and in pilot project plans. Some sites may be screened from further consideration.
- Develop funding plans for retrofits.

Task 2:

- For each selected site, prepare a detailed plan for construction/retrofit and describe a method for evaluating the effectiveness of the facility (e.g., collecting water quality samples to assess the performance of the improved facility, measuring sediment accumulation and removal).
- Implement retrofit plans according to priorities. Implement methods for evaluating effectiveness.

Assessment Methods:

- Document results of efforts to identify and plan retrofits (or new construction).
- Document implementation and water quality monitoring results of retrofits (and/or new construction) as appropriate.

OPERATIONS AND MAINTENANCE

OM1 BMP FACT SHEET
Revise Comprehensive O&M Plans

Responsible Department: Public Works, Maintenance Division

Responsible Person: Maintenance Division Director

ODOT's Level of Involvement: ODOT will inventory their system and revise their O&M plans to reduce pollutant discharges to the system.

BMP Description: Develop O&M plans (or review and revise O&M plans) for all public stormwater facilities, new and existing. Incorporate evaluation of effectiveness into the O&M plans. Provide means of recording the observations of field inspection and maintenance personnel, and transfer this information to the appropriate department/agency so that the information can be used to locate and eliminate the source(s) of pollutants.

- Include the research, development, and implementation of channel maintenance plans which maximize water quality and habitat while maintaining flood capacity.
- Include the review and revision of channel construction and maintenance activities so that erosion control is emphasized.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(A)(1), and (A)(4)

Pollutants Addressed: Sediments, suspended solids, floatables, nutrients, oil and grease, organics, heavy metals (storm system and road surface maintenance activities can be either beneficial or detrimental to water quality.)

Existing Conditions: The City has documented an internal stormwater system maintenance policy that establishes criteria to determine how, when, and where maintenance crews will clean drainage channels, roadside ditches, and driveway culverts. However, this policy was not developed with water quality in mind and does not address either the exact methods to be used nor frequency of cleaning.

The Maintenance Division uses a hydraulic excavator to clean major channels within Eugene on a 5 to 7 year rotation. Care is exercised to leave as much vegetation along the slopes as possible without compromising the flood control integrity of the channel. Where possible, a flail head is attached to the hydraulic excavator in lieu of a bucket. This flail pulverizes the obstructing vegetation so that it is not necessary to scrape the slopes to remove it. By not having to scrape the slopes, sediments are not released into the channel flow and the retained root systems help prevent erosion and reduce the need for extensive reseeding.

Portable grates are placed in the bottom of channels downstream from cleaning and excavation operations to collect loosened vegetation and eroded sediments. Private contractors are hired through the Engineering Division to dredge sediments and restrictive vegetation along portions of channels beyond reach of the City's equipment. Upon completion of slope cleaning operations, scraped and exposed soil areas are reseeded with perennial grasses as soon as seed will germinate to provide initial erosion control.

Scheduled weekly cleaning of the debris boom near the Mill Race outlet removes trash, garbage, and other floating debris. The Maintenance Division also coordinates and provides necessary equipment and disposal service for a periodic clean up of the Mill Race by local college fraternities. Crews perform periodic cleanup of the Amazon Channel and respond to complaints regarding trash and debris in other drainage channels. Removal of shopping carts, tires, household garbage, and discarded drug paraphernalia from these channels reduces risk of further pollution and promotes public perception of these channels as public assets rather than common dumping grounds.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

NOTE: This BMP should be used to coordinate all other O&M BMPs (e.g., OM2, OM3, OM4, OM5, OM6, OM7, ...). A comprehensive review and oversight for these additional O&M BMPs will be provided here.

Task 1:

- Develop an operations and maintenance review team to meet as necessary. The team will review internal storm system maintenance policies, erosion control practices/ procedures related to channel maintenance, and channel construction practices. The team will review and develop procedures for expanding the use of the City's recently implemented Infrastructure Management System (IMS is a data management system for operations and maintenance information) to include field reporting of storm system facility problems and routine maintenance activities. The team will also review the results of ongoing research conducted as part of Task 5.
- The team will review available information (including information obtained as a result of BMP OM7 - evaluation of effectiveness of storm system cleaning) to see if modifications to current maintenance practices might reduce impacts to water quality. The team will work with the Corp of Engineers and SCS to ensure their acceptance of revised practices.
- Work will be conducted under BMP OM7 to develop continued procedures for evaluating the effectiveness of any revised O&M practices.

Task 2:

- Based on any revised policies and practices established as a result of Task 1, develop or revise the comprehensive operations and maintenance manual for all open drainageways, catchbasins, flood control channels, and other storm system facilities located within Eugene. The basic framework of the manual will be developed in Permit Year 1. Revisions will be made on an ongoing basis as necessary.
- Distribute O&M manual to all O&M staff. Chapters regarding landscape management practices (BMP OM2), de-icing procedures (BMP OM3), clean up after structural fires and accidents (BMP OM5), and street sweeping and flushing (BMP OM6) will also be added.

Task 3:

- Conduct periodic internal training to discuss proposed O&M changes with O&M staff. Respond to comments. Include education regarding the use of IMS for reporting maintenance activities and problems.

Task 4:

- Develop an implementation plan for any revised practices, and implement revised O&M practices. Conduct activities to evaluate the effectiveness of revised practices.

Task 5:

- Conduct ongoing research regarding possible improvements to maintenance activities that may reduce negative impacts to water quality. Include research regarding (1) methods for evaluating the effectiveness of revised O&M activities, (2) effective cleaning procedures for new and proposed stormwater quality facilities, and (3) alternative channel maintenance practices that might provide for increased water quality through both effective erosion control and more selective vegetation removal.

Assessment Methods:

- Document internal training efforts.
- Document ongoing changes to O&M manual.
- Document O&M activities on an ongoing basis such as the research of effectiveness of maintenance practices, the frequency of system cleaning, the quantity of material collected, the channel cleaning methods employed, and erosion control procedures used.
- Document evaluations of effectiveness (of reducing impacts to water quality) of revised O&M procedures. These evaluations will be qualitative.

OM2 BMP FACT SHEET
Vegetation Management Program

Responsible Department: Public Works, Maintenance Division

Responsible Person: Maintenance Division Director

ODOT's Level of Involvement: The City of Eugene will take the lead on this BMP. ODOT will continue to review and refine their Integrated Pest Management Practices over the course of the permit period.

BMP Description: Evaluate existing O&M (and/or landscape management) programs for public rights-of-way and public drainage channels and ensure that these programs limit the discharge of pollutants from pesticides/herbicides/fertilizers in runoff.

Modify the City's existing vegetation management program to benefit water quality.

- Include the use of native vegetation in public spaces to reduce need for herbicides/ pesticides/fertilizers.
- Include the development of guidelines for revegetating areas using native vegetation.
- Include the implementation of existing planting/ landscape policies for various districts and for land uses which encourage use of vegetation, either indigenous or imported, that are self-sustainable without the need for human application of fertilizers, pesticides, or herbicides.
- Include the development of internal policy and protocol for managing "natural areas."

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(A)(3), and (A)(6)

Pollutants Addressed: Pesticides, herbicides, nutrients, organics.

Existing Conditions: City rights-of-way and drainage channel maintenance crews follow a long-standing policy of not using any herbicides in controlling vegetation along drainageways and rights-of-way. All necessary vegetation control is accomplished solely by mechanical means. This policy also applies to all City-ordered work to be performed by the mowing and brush removal contractors retained by the City's Vegetation Management Program.

Arborculture crews refrain from using both pesticides and fungicides in the maintenance of City trees. Such restraint is compatible with the policy of not using herbicides for rights-of-way vegetation control.

Currently, horticultural and turf maintenance crews make limited use of pre- and post-emergent herbicides such as Roundup and Casoron in landscaped median strips, and in parks and other landscaped shrub beds at various City facilities. Fungicide is only employed at one location, that being a lime sulphur liquid sprayed on roses at the City's rose garden. Turfgrass areas at parks and sports fields are periodically given an application of dry, granulated slow-release turf grass fertilizer.

All use of herbicide material is made within the guidelines of the City's internationally recognized Integrated Pest Management Program. One goal of this program is to minimize impacts to the nontarget environment. Eugene is widely known for its success in reducing both the volume and the negative environmental impacts of weed and pest control in urban parkland areas.

All City (or contracted) herbicide/pesticide applicators must be state licensed applicators. Licensing includes regular training and testing to keep certification current. Seminars and workshops are also offered (one or two times per year) for turf management crews. The seminars and workshops have in the past dealt with topics related to fertilizer application.

The City currently operates a nuisance-abatement-oriented vegetation management program. Although focused on code compliance for private property, this program is also responsible for vegetation management on all vacant City property except for parks. Since one goal of this program is to educate property owners about vegetation nuisances and proper maintenance, a number of brochures and letters have already been developed for this purpose. These can be easily modified and redistributed to include material educating property owners about the benefits of using native vegetation for private landscaping.

All public storm drainage channels are allowed to develop native or "volunteer" vegetation rather than being planted with horticultural species. Although this vegetation is maintained to provide adequate channel capacity for flood control purposes, it does not require use of pesticides, herbicides, or fertilizers.

The City Urban Forester is responsible for reviewing all tree removal permits to ensure adequate vegetation is maintained along all riparian areas of the property in question. A permit is not required for all tree removals. For example if a property owner wishes to remove a tree from a developed lot that is less than 20,000 square feet, a permit is not required.

A number of "natural" or "special maintenance" areas that allow for the development and growth of native or "volunteer" species have been set aside within municipal parks or on other City owned property.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:

- Identify horticultural beds and turf areas that are scheduled for regular pesticide herbicide/fertilizer application to determine their proximity to drainageways or storm system inlets.
- Visually monitor runoff from these areas either during storm events or irrigation cycles to evaluate surface drainage patterns and the intensity of surface flow to the storm system.
- Review policies governing pesticide and herbicide application by all relevant City bureaus and determine if modifications may be made to reduce pesticide/herbicide runoff to the storm system.
- Review training procedures and determine if information regarding stormwater impacts could be included.

Task 2:

- Evaluate existing application patterns and practices in comparison to local surface drainage flow patterns. If necessary, modify application procedures to ensure the maximum reduction in runoff contamination while providing for at least the minimal application necessary to do the job.

- Determine the feasibility of restricting or eliminating application of pesticides/ herbicides/fertilizers in areas with potential for heavy surface runoff to the storm system.

Task 3:

- Develop training for personnel applying pesticide/herbicide/ fertilizer about the detrimental effects these products have on stormwater quality. Include alternative application procedures that can reduce the quantity of surface runoff contamination caused by the use of these products.

Task 4:

- Identify appropriate native species for local landscape use.
- Research suitable sources for acquiring native species.
- Conduct an inventory of all municipal parks and landscape areas currently employing the use of native species and evaluate the effectiveness and maintenance problems associated with their current use/landscape design.
- Develop criteria for which native species are appropriate for various landscape and parks planting area designs. (Possibly develop various vegetation zones that can be included on the GIS system).
- Develop management policies and procedures for the various "natural areas" and "special maintenance areas" located within City parks or other City property and develop criteria for allowing currently maintained park land to revert to a more natural state. As appropriate, revise documentation regarding procedures for landscape management. Include as a chapter (in three ring binder) in the comprehensive O&M plans developed under BMP OM1. Implement revised procedures and restrictions.

Assessment Methods:

- Document modifications to procedures.
- Document the quantities of pesticide/herbicide/fertilizer used each year and compare with quantities used prior to the implementation of any alternative practices and procedures.
- Document workshops/training sessions held.
- Document the number of native or "low maintenance" species planted by the City in lieu of previously employed horticultural species.

OM3 BMP FACT SHEET
Sanding of Ice-covered Roadways

Responsible Department: Public Works, Maintenance Division

Responsible Person: Maintenance Division Director

ODOT's Level of Involvement: ODOT will review their existing street sanding practices in terms of impacts to water quality. ODOT will not be involved in the establishment of regulations or legal authority concerning the private use of de-icing materials.

BMP Description: Establish regulation(s) prohibiting the use of salt for sanding activities for public rights-of-way. Review and possibly establish legal authority regarding the private use of salt for de-icing.

- Research improved strategies for applying sand materials which may limit material discharge to the storm system.
- Develop and implement programs for proper storage of sand materials to prevent materials from entering the storm system.
- Examine the sources of sand used (e.g., review purchasing specifications) and ascertain if the material components are acceptable for discharge to the storm system.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(A)(3)

Pollutants Addressed: Salt, chemical de-icers, nutrients (from de-icers and sanding materials).

Existing Conditions: Public Works Maintenance Division currently operates under a City Council directive prohibiting the use of salt in de-icing or sanding operations. Also, as an added measure to protect stormwater quality, maintenance crews do not employ the use of chemical de-icers during storm operations. Existing practice is to apply sand to snow and ice covered roads, sidewalks, and public parking facilities after excessive snow buildup is first removed by plowing.

A small amount of salt is used in the sand to keep the material from freezing together in sanding trucks. Sanding materials are promptly swept up after each storm when the threat of further snow and ice has abated. This material is returned to the maintenance yard and is later used as subgrade fill material on street and sewer repair projects.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:
- Monitor the quantity and application pattern of sanding material on public rights-of-way during post-storm-event cleanup operations. Determine those areas that show significant loss of material to the storm system.
- Document the quantities of sand that are applied and collected for each storm event and evaluate the effectiveness of existing cleanup practices.
- Develop possible improved strategies for applying (or collecting) sanding materials. Document sanding O&M procedures and include as a chapter in the comprehensive O&M manual developed under BMP OM1.

Task 2:
- Implement improved strategies for applying sand and evaluate their effectiveness.

Task 3:
- Research the feasibility and stormwater quality benefits of recycling sand for future operations.

Task 4:
- The Engineering Division will review the feasibility of regulating the use of salt on private property.

Task 5:
- Review the chemical specifications (e.g., phosphorus content) of purchased sanding material and evaluate the necessity for covering or housing stockpiled materials.

Task 6:
- Examine storage areas for sanding materials. Determine whether or not alternative locations or covering the storage areas would reduce impacts to stormwater.

Assessment Methods:
- Document the chemical characteristics of purchased sanding materials.
- Document both the quantities of material applied and collected during each storm event.
- Document the number of miles sanded and collected during each storm event.
- Document comments or conclusions regarding the effectiveness of improved application strategies.
- Document changes to sanding material storage areas.

OM4 BMP FACT SHEET
Department of Transportation Practices

Responsible Department: Public Works, Engineering

Responsible Person: City Engineer

ODOT's Level of Involvement: ODOT will be involved regarding their maintenance practices within Eugene. ODOT will participate in quarterly meetings with a transportation authorities advisory team.

BMP Description: Evaluate ways that transportation authorities (e.g., ODOT, City of Eugene) can reduce pollutant discharge associated with their maintenance and road rehabilitation operations.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(A)(3)

Pollutants Addressed: Sediments, oil and grease, heavy metals.

Existing Conditions: The transportation authorities involved in the NPDES Permit maintain and operate roads, highways and bridges which drain to the municipal separate storm system and receiving waters. These authorities also maintain and operate some stormwater drainage facilities associated with these rights-of-way. The existing maintenance and operation practices may not address stormwater quality impacts sufficiently.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:

- Gather documents containing existing City, County and ODOT policy regarding current maintenance and road rehabilitation operations applicable within the City limits.
- Review current maintenance and road rehabilitation operations and practices of the City, the County, and ODOT.
- Develop recommendations for improving the current practices to reduce pollutants in runoff and better control stormwater quality.

Task 2:

- The City will make revisions to existing policy/procedures as necessary and implement the improved practices and encourage the County and ODOT to revise their practices as applicable.

Task 3:

- An existing intergovernmental committee will discuss methods of coordinating information among transportation authorities and make recommendations regarding maintenance practices on public rights-of-way.

Assessment Methods: Summarize changes made to maintenance practices on an annual basis. Include a description regarding successes or failures of the program.

OM5 BMP FACT SHEET
Clean-up After Accidents and Fires

Responsible Department: Department of Public Safety/Department of Public Works

Responsible Person: Director of Public Safety and the Public Works Maintenance Division Director

ODOT's Level of Involvement: None.

BMP Description: Develop a program for cleanup after (and during, when safe) structural fires and vehicular accidents to prevent contaminants and debris from being washed into the storm drain system. Include coordination with the Department of Public Safety.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(B)(4)

Pollutants Addressed: Oil and grease, antifreeze, gasoline, PCBs, ash, plastics, metals.

Existing Conditions: Emergency fire units currently employ the use of kitty litter to absorb leaking and spilled vehicle fluids at the scene of traffic accidents. After absorbing the spilled fluids, this material is swept up into barrels for later disposal. Standard operating procedures (SOP) have been developed for the removal and clean up of small releases of vehicular fluids (i.e., 20 gallons or less of gasoline, diesel, engine/transmission oils and/or antifreeze)

If potentially explosive materials leak into the storm system, maintenance crews may be employed to vacuum the material from the system using a combined sewer jet/vacuum truck. Collected material is then transferred to barrels for later disposal.

Emergency fire units currently clean up after structural fires by sweeping and shoveling ash and debris from the public right-of-way and adjoining properties.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:

- Review and, if applicable, revise initial cleanup procedures by emergency fire units (after structural fires) to include procedures which reduce impacts to stormwater quality.
- Review fire unit's post incident equipment cleaning practices to ensure minimum contaminant runoff to gutters and/or fire station catchbasins. Revise cleaning practices as necessary.

Task 2:

- Research alternative post incident* runoff containment and cleanup procedures for structural fire sites and implement (and include in SOPs) as necessary. Consider establishing a joint DPS and Public Works staff team for post incident procedures.
  ** DPS does not feel it is safe to attempt to contain runoff from fire suppression activities during an incident unless this can occur far enough away from a fire so as not to interfere with suppression activities.*

Task 3:

- Develop education materials and/or training for Department of Public Safety staff about fire site contaminant clean up and its relation to stormwater quality. Include education regarding revised procedures for equipment cleaning practices.

Assessment Methods:

- Document changes made to cleanup procedures and SOPs.
- Document internal training sessions.
- Document the number of vehicular accidents and fires requiring runoff related clean up and the methods employed. Documentation should include comments regarding effectiveness of the program and recommendations regarding modifications to the program.

OM6 BMP FACT SHEET
Street Sweeping

Responsible Department: Public Works, Maintenance Division

Responsible Person: Maintenance Division Director

ODOT's Level of Involvement: ODOT will review their existing street sweeping programs and modify their activities to improve water quality.

BMP Description: Review existing street sweeping programs and if needed, develop and implement intensified street sweeping programs in strategic locations (e.g., central business districts, shopping malls, major parking lots, industrial areas) and/or at strategic times (e.g., following extended periods of dry weather).

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(A)(3)

Pollutants Addressed: Sediments, metals, grease, nutrients, floatables.

Existing Conditions: The City currently conducts a regular schedule of sweeping all curb and gutter streets and selected parking lots. In addition, flushing is conducted on the arterial streets. The goal of this program is to prevent grit, sediment, brake dust, and motor vehicle fluid drippings from entering the storm drainage system by flushing them from travel lanes to the gutters where they can be swept up more efficiently. The sweeping and flushing program is currently carried out by the full-time use of two large broom sweepers, one large regenerative air sweeper, one small regenerative air sweeper for alleys, bikepaths, and parking lots, and a 3,500 gallon flusher. Of these, one broom sweeper and the large regenerative air sweeper are high-dump models. High dump models include hydraulic arms and struts which enable the sweeper to dump debris into sealed water-tight dumpsters. This eliminates the need to dump debris onto the pavement for later pickup.)

The schedule calls for crews to sweep the central business district biweekly, the industrial/commercial/university districts and all arterial streets weekly, and residential streets monthly. A number of large bin dumpsters are strategically located throughout the City so that the high dump model sweepers may deposit collected material for later disposal without reintroducing it to paved street surfaces. Since only the smaller regenerative air sweeper is small enough to sweep bikepaths and alleys, these facilities are swept approximately every 3 months.

Although flushing streets just prior to sweeping provides the most benefit in terms of debris collection efficiency, its contribution to stormwater quality is not well understood. Certain flushing practices may prove highly beneficial for improving sweeping efficiency while others may prove equally detrimental. With a ratio of only 1 flusher to 3 full-time street sweepers, it is not currently possible for all streets to be regularly flushed prior to being swept. For this reason, residential streets have traditionally only been flushed bi-yearly and arterial streets every 2 months. However, in light of possible negative impacts that flushing may have on stormwater quality, this limited flushing schedule has recently been scaled back.

Existing practice is for the sanitation crew supervisor to keep daily logs and monthly productivity records for all sweeping and flushing operations.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:

- Review current street sweeping and flushing practices and evaluate street sweeping flushing studies previously conducted in the region. Determine whether substantial water quality benefits would accrue from revised street sweeping practices. (For example, material storage bins should be water tight.)

Task 2:

- Develop a program to educate sweeper operators about optimal vehicle speed, brush height, sweeping pattern, etc., so that sweeping will be conducted to maximize benefits to stormwater quality.
- Conduct periodic training for sweeper operators about the need for accurate and timely record keeping practices and the notation and transfer of information regarding unusual observations.

Task 3:

- Develop and implement methods for determining and improving the effectiveness of flushing and sweeping.
- Examine the feasibility of documenting and reporting street sweeping activities through the IMS (infrastructure management system).

Task 4:

- Make recommended revisions to existing procedures and implement improved practices (in Permit Year 4) and record keeping. Document revised street sweeping and flushing procedures and add as a chapter to the comprehensive operations and maintenance manual developed under BMP OM1.

Assessment Methods:

- Document results of research related to the effectiveness of various street sweeping practices.
- Document internal training sessions.
- Document an estimate of the number of miles swept and the quantities of material collected/mile by the different model sweepers.
- Document the development and implementation of revised practices.
- Document record keeping activities.

OM7 BMP FACT SHEET
Evaluate and Revise Storm System Cleaning Practices

Responsible Department: Public Works, Maintenance Division

Responsible Person: Maintenance Division Director

ODOT's Level of Involvement: ODOT will implement this BMP in coordination with activities conducted under BMP OM4.

BMP Description: Determine the effectiveness of increasing the frequency of cleaning out inlets, catchbasins, storm lines, pump stations, and channels, in areas where sediment and/or debris tend to collect.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(A)(1)

Pollutants Addressed: Sediments, metals, floatables, oil and grease, nutrients, organics.

Existing Conditions: The Eugene municipal separate storm system includes approximately 180 miles of pipe, approximately 33 miles of open drainage system, 7,200 catchbasins, and 2,000 inlet/outlet structures. In order for the system to function properly, the inlets, catchbasins, and small diameter connecting lines must be kept free of obstructing debris and built-up sediments. To accomplish this, the City operates a program of routine system maintenance. One of its goals is to clean all inlets, catchbasins, and connecting lines at least once each year.

The City currently combines a sewer jet/vacuum machine with a full-time crew of 2 to clean catchbasins, manholes, and connecting lines. The City also averages about 15% work time for another combination jet/vacuum machine and crew for the same task. The crews are able to annually cover all the catchbasins, bubblers, and manholes that require cleaning. Connecting lines are jetted open and material removed if catchbasins/bubblers are sufficiently filled with material to indicate an obvious line problem. Any piped system inlet/catchbasin/bubbler structures obstructed by material that cannot be vacuumed are cleaned by hand. Collected material is then taken to a sanitary landfill. The City does not currently clean the storm drainage system's main lines on a routine basis.

The City also conducts an annual curbside pickup of leaves. The City organizes the event to occur before the onset of heavy winter rains in order to prevent accumulated leaves from plugging catchbasins. The program also promotes citizen use of leaves for mulch and/or compost. Records are kept regarding (1) the volume of leaves removed from City streets, (2) costs associated with leaf pickup, (3) area of the City where leaves were collected, and (4) location of all final leaf delivery sites (e.g., private property).

Open drainage maintenance consists of both periodic sediment removal (where access is possible) from flood control channels, natural drainageways, and road side ditches as well as yearly and as-needed removal of garbage, trash, debris, shopping carts, and tires. The Maintenance Division uses a hydraulic excavator to remove built-up sediments from major flood control channels on a rotation schedule of 5 to 7 years. In addition, Division personnel enforce a number of nuisance and vegetation code violations relating to trash, debris, garbage, or overgrown shrubbery that may either obstruct flow or cause a health hazard along gutters, catchbasins, roadside ditches, and open drainageways. Division personnel are called to remove all dead animals from public rights-of-way and road side ditches within the City.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:

- Develop procedures for expanding the use of the City's recently implemented Infrastructure Management System (IMS) to include field reporting of storm system facility problems and tracking of regularly scheduled maintenance activities.
- Monitor segments of drainage channels that have not received cleaning maintenance within the last 5 years. Document any problems, evaluate their flood control efficiency in relation to similar segments that have received recent cleaning. Evaluate the necessity for, and extent of, cleaning for all channel segments scheduled for maintenance during the upcoming field season.
- Coordinate with the operations and maintenance team (BMP OM1, Task 1).

Task 2:

- Identify catchbasins and other inlets/outlets that have a known history of needing frequent cleaning maintenance.
- Develop methods to identify other catchbasins and inlets/outlets that fill or plug with material on a frequent basis.
- Develop improved cleaning schedules and practices for cleaning catchbasins and inlets/outlets. Include documentation of improved practices in the comprehensive operations and maintenance manual (BMP OM1).

Task 3:

- Develop methods (e.g., monitoring) for evaluating the effectiveness of cleaning procedures for existing storm system facilities, and research effective cleaning procedures for new and proposed stormwater quality facilities. Document procedures for evaluating effectiveness and include in the comprehensive operations and maintenance manual (BMP OM1).

Task 4:

- Implement revised practices.

Assessment Methods:

- Document the number of catchbasins and other inlet/outlet structures cleaned as well as the frequency of cleaning and amount of material removed (this could be accomplished through the use of the IMS).
- Document and report the quantity of sediment removed and the frequency of cleaning of flood control channels, open drainageways, and road side ditches.
- Document qualitative assessments regarding the effectiveness of revised practices.
- Document records kept regarding all maintenance activities.

OM8 BMP FACT SHEET
Storm System Mapping and Data Management

Responsible Department: Public Works, Engineering

Responsible Person: City Engineer

ODOT's Level of Involvement: ODOT will provide their outfall/system information to the City.

BMP Description: Keep up to date inventories and maps of the storm system. Include mapping of storm drainage amenities such as grassy swales and detention basins. Develop and integrate data systems which describe water quality conditions and options.

NPDES Reg. Number: Although it is difficult to pinpoint a specific management plan regulation that this BMP relates to, it will provide valuable information allowing the City to effectively, and over the long run cost efficiently, accomplish many elements of the NPDES permit requirements. Some related regulation numbers include: (2)(iii)(B),(C),(D), and (2)(iv)(A)(B)(C).

Pollutants Addressed: Not applicable.

Existing Conditions: Storm infrastructure layers are updated annually on the GIS system. Sources of information are as-constructs and new manholes and lines found in the field by the Maintenance Division crews. New map sets are then produced.

After this update is complete, new sets of Drainage Master Plan maps are produced. Sources of information are storm infrastructure layers and basin changes submitted by engineers. Using both updates described above, miscellaneous maps are produced for the water quality program as needed. Storm drainage amenities such as grassy swales and detention basins will be included in the September 1993 enhancement of the existing data, and will be added on an annual basis in the future.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1: Design and develop information systems which manage and integrate data regarding natural stormwater conveyance systems, basin characteristics, stormwater monitoring results, and other natural resource features which impact the conveyance system. This will require investment in added information technologies such as an improved GIS which will support and integrate area-based analysis drawing on external databases.

Assessment Methods: Report on map and database update activities annually.

OM9 BMP FACT SHEET
Litter Pickup

Responsible Department: Public Works, Maintenance Division

Responsible Person: Maintenance Division Director

ODOT's Level of Involvement: ODOT currently sponsors an "Adopt a Highway" program, and contributes to SOLV (Stop Oregon Litter and Vandalism). ODOT will continue these efforts.

BMP Description: Continue to provide, collect, and maintain litter receptacles in strategic City-owned public areas and during major public events. Expand and make recommendations regarding programs as appropriate. Include pickup of illegally dumped debris.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(A)(1)

Pollutants Addressed: Floatables, nutrients

Existing Conditions: The City currently picks up litter from selected commercial areas, parking lots and garages, and the pedestrian mall on a daily basis (5 days/week). Litter in parks is picked up 7 days a week. When reservations are made for park facilities, a clean-up deposit fee is collected in advance. In addition, litter receptacles and collection are provided for all City sponsored outdoor public events in parks, on public streets, or on other public property. Litter on the streets, sidewalks, and vacant lots is not collected on a regular basis. All collected litter and trash is disposed in a landfill.

Illegally dumped debris and garbage is periodically removed from streets, sidewalks, alleys, bikepaths, drainage channels, road side ditches, and parks whenever observed. The City attempts to identify the responsible party and removes the debris as soon as possible so as not to encourage additional dumping. Inspections are conducted approximately once a month, and followups are routinely made to the many complaints received from the public.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:

- Identify all existing litter/trash receptacles and develop methods to document the frequency of collection.
- Develop methods to identify high litter areas within City-owned public areas and evaluate necessity for additional receptacles. Provide strategically located receptacles and collection practices as necessary. Monitor their use to evaluate litter control effectiveness.

Task 2:

- Identify highly attended outdoor public events (both privately and publicly sponsored) that are scheduled each year and evaluate the likely impact and location of potential litter problems.
- Coordinate with public agencies or private promoters sponsoring scheduled outdoor public events to ensure sufficient numbers and strategic location of receptacles, and collection frequency.
- Coordinate public education efforts with BMP ED1.
- Monitor selected highly attended outdoor public events to evaluate the effectiveness of existing litter prevention and collection practices.

Task 3:

- Evaluate the need to collect litter from streets, sidewalks and vacant lots on a regular basis. Implement revised practices. Document revised practices and provide in the comprehensive operations and maintenance manual developed under BMP OM1.

Task 4:

- Identify areas frequently used for illegal dumping and implement a program to regularly monitor these sites. Document any revised practices and include in the comprehensive operations and maintenance manual developed under OM1.

Assessment Methods:

- Document placement of new receptacles.
- Document the number of outdoor public events where litter receptacles and collection are provided.
- Document the location and quantity of illegally dumped debris picked up and removed from public rights-of-way, parks, drainage channels, and road side ditches. Include quantities removed by volunteer efforts as well.

OM10 BMP FACT SHEET
Prevent Leaks and Spills from Municipal Trucks

Responsible Department: Public Works, Maintenance Division

Responsible Person: Maintenance Division Director

ODOT's Level of Involvement: ODOT will review their procedures for hauling materials to ensure that contaminants are not released onto roadways.

BMP Description: Continue to implement vehicle maintenance procedures to ensure that municipal trucks hauling materials do not leak, spill, or otherwise release contaminants onto roadways or open spaces where they may be washed into storm drains or waterways.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(B)(4)

Pollutants Addressed: Vehicle fluids, solid wastes, sediments, oil and grease, and possible metals and organics.

Existing Conditions: The City conducts a regular schedule of fleet maintenance inspections that are designed to prevent fuel, oil, cooling system, and hydraulic system leaks. Service staff use absorbent material when repairing the fluid system of vehicles to prevent spilled fluids from being tracked outside where they may be washed into the storm system. Absorption material is collected and disposed at a landfill.

Hauled materials (trash, leaves, sediments) are loaded in quantities that ensure they will not spill from trucks under normal operating procedures. Loads of loose material (e.g., collected trash and/or leaves) are covered with tarps prior to hauling them away. Care is taken when loading trucks with excavated sediments from channels and ditches to scoop up as little water as possible. This is accomplished through use of a screened bucket on the excavator that allows excess water to drain from sediments prior to loading. Additionally, very wet excavated material is piled and allowed to drain (on unpaved areas) before loading when trucks must exit the job site directly to paved surfaces.

All asphalt tack application equipment (which is transported by truck) is carefully flushed with water in the field immediately after use. Flushed material is safely collected in buckets prior to the vehicles leaving the job site. The material is then carefully transferred to larger sealed drums at the maintenance yard to be periodically disposed by an independent waste disposal contractor.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:

- Develop a standard operating procedures guideline which documents existing and revised procedures for fleet maintenance and hauling practices to reduce impacts to water quality and to comply with regional requirements. Include standard operating procedures guidelines in the comprehensive operations and maintenance manual developed under OM1.

Task 2:

- Develop materials and/or training (or incorporate into safety meetings) to educate municipal truck drivers on the effects of leaks and spills on stormwater quality. Review the new standard operating and procedures manual developed under OM1.

Task 3:

- On an ongoing basis, identify the need to modify existing municipal trucks to prevent or reduce leaks or spills of hauled material. When or if new vehicles are purchased, research the availability of truck designs that incorporate the prevention of leaks and spills of hauled material into their design.

Task 4:

- Where appropriate, develop procedures for monitoring the implementation of revised practices. Include record keeping.
- Determine methods for evaluating the effectiveness of improvements.

Task 5:

- Research legal authority and existing regional requirements for controlling discharges from privately owned trucks.

Assessment Methods:

- Document progress towards completion of an SOP.
- Document the development of, and report on participation in, in-house spill prevention workshops (or routine safety meetings).
- Document spill or leak prevention modifications made to existing City-owned trucks.
- Document revisions to the City's existing maintenance practices that further reduce the possibility of fluid leaks from municipal owned vehicles.

INSPECTION, ENFORCEMENT, AND MONITORING

MON1 BMP FACT SHEET
Strengthened Enforcement for Illicit Connections and Illegal Dumping

Responsible Department: Public Works, Maintenance and Wastewater Divisions

Responsible Person: Maintenance and Wastewater Division Directors

ODOT's Level of Involvement: ODOT will evaluate, and possibly modify, their existing authority.

BMP Description: Clarify and strengthen enforcement (e.g., establish civil penalties) of existing regulations which give the City the legal authority to prevent and eliminate the improper disposal of pollutants into the storm system and drainage channels, including illicit connections and illegal dumping.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(B)(1)

Pollutants Addressed: All. Illegal dumping and illicit connections can be a significant source of almost all pollutants in stormwater. Programs to address these problems are a priority in the regulations.

Existing Conditions: Division personnel handle enforcement of nuisance and vegetation code violations regarding trash, debris, garbage, or overgrown shrubbery that may either obstruct flow or cause a health hazard in or along gutters, catchbasins, roadside ditches, and open drainage ways. No routine inspections occur. Problems are identified on a complaint basis. If a nuisance or vegetation code violation occurs on private property, the City will send a letter to the property owner which asks them to eliminate the nuisance within a certain time period. If the nuisance is not removed, the City will clean it up and send the property owner a bill for clean up costs.

Any newly constructed structures with indoor plumbing require a permit from the City. City Sewer Inspectors inspect all new residential and commercial development connections to the public storm and sanitary sewer system to verify adherence to the State Uniform Plumbing Code.

The Maintenance Division is responsible for monitoring sanitary sewer availability, tracking connection status and, when necessary, carrying out connection enforcement procedures for all property within the City limits and those in areas of River Road and Santa Clara where sewer laterals have recently been installed.

The City recently reviewed records and system maps to identify any illegal septic systems (septic systems are not allowed if the building is within 160 feet of the public sewer). The City discovered some historical nonconnects as a result of this review and sent letters which explained to owners their requirement to connect to the public sewer system. Owners were given 6 months to correct the situation. 340 new connections resulted from this program. In situations where owners were not willing to correct the problem, they were taken to municipal court (fines were imposed).

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:

- As discussed in the Legal Authority Section (Section 4.0), a review will be made of the existing inadequacies regarding improper disposal of pollutants into the storm system and drainage channels. A review will also be made to note inadequacies in existing City code regarding illicit connections and illegal dumping.
- As discussed in the Legal Authority Section (Section 4.0) necessary modifications to the existing code will be made which will make the language more specific regarding improper connections and disposal into the storm drainage system.
- Review enforcement action possibilities related to code violations. The Unified Sewerage Agency has nonpolice safety personnel who can issue violation fines with regards to storm drainage (primarily related to construction erosion problems). Determine suitable approach for the City of Eugene.

Task 2:

- Implement, if feasible, authority for inspection personnel to issue fines. Increased field screening (as part of BMPs MON2 and MON3) and other information sources will result in the need for more enforcement of the regulations.
- Include internal training for other affected City employees to present and review recent modifications to City code related to the storm system. Review and discuss enforcement activities and responsibilities.
- Based on the new/modified code, develop an enforcement guide/manual for the staff responsible for enforcement responsibilities. The guide/manual should include enforcement activities for various scenarios of improper disposal activities. The guide/manual should include instructions and possibly forms for record keeping and guidance regarding coordination with other departments and programs (i.e., programs developed for BMPs MON2, and MON3).

Task 3:

- Implement new enforcement activities.

Assessment Methods:

- Report on code modifications and new enforcement authority obtained.
- Document the results of enforcement activities.
- Document training sessions held and manuals developed.

MON2 BMP FACT SHEET
Field Screening for Illicit Discharges

Responsible Department: Public Works, Maintenance Division

Responsible Person: Maintenance Division Director

ODOT's Level of Involvement: ODOT will enter into an intergovernmental agreement with the City for field screening activities, and provide support and follow-up to eliminate illicit connections found within their jurisdiction.

BMP Description: Develop and implement a field program to detect, and prevent dumping or routinely discharging pollutants into the storm system and drainage channels and control illicit connections.

The field program shall include procedures to enforce existing regulations which give the legal authority and enforcement tools to eliminate illicit discharges. (See MON1 for this element of the BMP).

The field program should include the coordination of new and existing investigative efforts (e.g. field screening program, sampling program, in-line sewer inspections, and routine maintenance activities), and various information management systems (e.g., databases, mapping) to facilitate detection and elimination of illicit discharges.

The field program should also include bacteria as an analytical parameter in the illicit discharge field screening and investigations program, to detect and limit illicit connections and leaks from sanitary sewers.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(B)(2), (B)(3), and (B)(7)

Pollutants Addressed: All. Illegal dumping and illicit connections can be a significant source of almost all pollutants in stormwater. Programs to address these problems are a priority in the regulations.

Existing Conditions: In 1992, the City used CCTV (closed caption T.V.) to inspect a portion of the storm system. The purpose of these CCTV inspections was to identify problems related to sanitary system inflow and infiltration. The inspection effort has shown that the City will need to develop an enhanced line cleaning program (BMP OM1 and OM7).

The City does not have a sustained program for identifying illicit connections to the storm system, however, such connections are occasionally found through routine maintenance activities or public complaint. When an illicit connection is found, the field crew is directed to remain on-site until correction of the problem is initiated. If the property owner does not take initiative to correct the problem, the City will correct the problem and bill the liable party.

The Eugene Public Works Maintenance Division removes illegally dumped debris from streets, rights-of-way, alleys, bike paths, roadside ditches and parks. The City tries to find the responsible party and removes the debris as soon as possible so as not to encourage additional dumping. If the responsible party is identified, they are billed for the City's removal costs. Inspections are conducted approximately once a month, and follow ups are also made to the many complaints received from the public.

There are a variety of activities conducted and records kept which would help to detect and eliminate illicit discharges. Currently, these information sources and activities are not coordinated with each other for this purpose.

In October 1990 and August/September 1991, a field screening program was conducted to provide an initial estimate of the occurrence of illicit discharges in Eugene and to satisfy the requirements of EPA's final stormwater rule for Part 1 of the NPDES municipal permit application. The locations selected for field screening analysis included all identified major outfalls (there were 139 identified) discharging from the municipal

stormwater system and 48 other field screening points. The 48 additional points were sampled because they were initially thought to be major outfalls. Field reconnaissance and reevaluation of system maps has shown that the extra 48 sites are not major (with respect to the regulatory definition of a major outfall).

Dry weather flows encountered during the field screening program were sampled and analyzed in the field using field test kits. Information collected during the field screening program was recorded on field data sheets which included a description of each major outfall, its location and type. If a discharge was observed at the outfall, the information included an estimate of the flow; visual observations (e.g., color of the discharge or stains near the outfall); and the results of field tests for temperature, pH, total and free chlorine, total copper, total phenol, total and hexavalent chromium, detergents, free cyanide, and ammonia. In addition, grab samples for laboratory analysis of metals and/or organics were collected at selected locations. Specific details of the program are provided in the NPDES Part 1 permit application.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1: During the first year of the permit period, the City will develop a Field Screening and Investigations Manual which will include procedures for field screening, sample analysis, investigations (to identify sources of dry weather flows) and record keeping. The manual will also include the types of equipment necessary to conduct the inspections.

Task 2: The City of Eugene will conduct a field screening and investigations program aimed at identifying the source, location, and nature of illegal discharges and illicut connections to its municipal stromwater system, and eliminating the flows where appropriate. High priority will be given to investigate those basins with known pollution problems. Priority levels may change as problems are identified, located and corrected, or as new problems are identified in basins that were initially classified as low priority. The following field activities are planned for outfalls where dry weather flows are encountered:

- Photograph the outfall at the point where the discharge enters the water-course or channel.
- Complete a field data sheet which provides general information and a description of the site.
- Estimate the flow rate and velocity of flow from the outfall.
- Record and note the presence of floatables, deposits or sheens on the field data sheet.
- Where additional information is desired, collect a grab sample from the flow and analyze the sample using a field test kit.

The Part 2 permit regulations require the co-applicants to propose a schedule for implementing the field screening component throughout the initial permit term. Most major outfalls screened in Part 1 will be further investigated in Part 2. Field screening procedures are designed to reflect a continuously narrowing process to trace illicit and improper discharges to their source. According to the City's proposed schedule, field screening and associated investigations may be conducted as frequently as twice a month during the summer months for the high priority basins to once a year and upon receipt of a complaint for the low priority basins. The field work will be conducted according to procedures outlined in the Field Screening and Investigations Manual to be developed by the City during the first year of the permit period (see Task 1).

Task 3: For outfalls with flow, the City will conduct upstream tracking of the flow. Inspection of the storm system to track the flow may include the following methods:

- Examining and verifying piping schematics
- Physically tracking the flow through the storm system
- Performing remote inspections using TV cameras
- Conducting dye or smoke tests.

Any of these methods may be more or less suitable depending on prevailing conditions. Field inspectors may incorporate several methods during investigation of a given confirmed or highly suspected illicit discharge.

Under certain circumstances, the inspectors may obtain a water sample for laboratory analysis. Submittal to a laboratory will provide a more detailed description of chemical parameters than can be obtained in the field (using the field test kits), and laboratory results may be necessary as evidence for enforcement purposes should the need arise. Sampling procedures will be verifiable, repeatable, and consistent among sampling locations. Since the sample results may be used for enforcement purposes, quality control/quality assurance and chain-of-custody procedures will be followed.

After the source of an illicit discharge has been identified and confirmed, elimination of the flow will be pursued. Ordinances prohibiting illicit discharges into the stormwater systems will allow for enforcement procedures to ensure removal of the illicit connection. See BMP MON1 regarding enforcement. The industrial monitoring program (BMP MON3) will provide additional procedures for conducting follow-up inspection of industrial sites and enforcing applicable local regulations to ensure the elimination of an illicit discharge at an industrial or commercial facility.

Task 4: Develop a method which coordinates the various activities and information sources for detecting illicit discharges. For example: develop a means to ensure coordination between field investigators and enforcement personnel (BMPs MON1 and MON2).

Task 5: A field screening and investigations program will require field personnel to have training in the following areas: field screening, follow-up investigations, and sample collection. A training program will be developed to instruct field personnel how to conduct tasks associated with this BMP. Training will include a review of the Field Screening and Investigations Manual developed under Task 1.

Assessment Methods:

- Prepare an annual report of field screening accomplishments and results. Include a summary of problems that were identified and resolved.
- Document modifications made to the program.

MON3 BMP FACT SHEET
Monitor Industrial Facilities

Responsible Department: Public Works, Wastewater Division

Responsible Person: Wastewater Division Director

ODOT's Level of Involvement: None.

BMP Description: Implement a program to monitor stormwater from select industrial facilities (including closed municipal landfills and TSD facilities for municipal waste) as outlined in the NPDES regulations.

- Combine/integrate with the sanitary system Industrial Pretreatment Program and the Department of Public Safety Hazardous Materials Management Program.

- Include City review of industrial NPDES permits (and general permits for TSDs and landfills) before they are issued by DEQ. Where appropriate, recommend controls to be included in industrial stormwater pollution control plans.
- Include inspection and enforcement activities as necessary and coordinate with DEQ's activities. Inspection activities should also be coordinated with activities conducted as part of BMP MON2. Enforcement activities should be coordinated with activities conducted as part of MON1.
- Coordinate with County, if needed, regarding the monitoring of landfills and TSDs within the permit area.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(C)(2)

Pollutants Addressed: Depends on industry. Heavy metals, organics, and oil and grease are the most probable pollutants addressed.

Existing Conditions: **Industrial NPDES Permitting Program:** Industries with specific SIC codes are required to apply for industrial NPDES permits (from DEQ) for their stormwater discharges. DEQ will be issuing a series of general permits that they have developed for specific industrial categories. General permits required the facilities to submit a Notice of Intent (NOI) to apply for a general permit by October 1, 1992. Following issuance of permits by DEQ, industries are required to develop and implement stormwater pollution prevention plans (SWPPPs), and collect and analyze grab samples twice a year. To date (4/93), DEQ has received applications for industrial NPDES permits from 43 facilities in Eugene. Permits have been issued to these 43 facilities.

Industrial Inspection Programs: The City of Eugene has an existing industrial wastewater permitting program. Certain industries within the city are required to provide pretreatment, containment, or install sampling manholes at the branch connection prior to discharge to the public sanitary sewer system (not storm). Annual inspections are conducted in association with this pretreatment permit program.

Inspections are also conducted by the Department of Public Safety (DPS) as part of the City's Hazardous Materials Management Program. DPS inspects for compliance with the Uniform Fire Code provisions regarding the management of hazardous materials.

Industrial Database: An industrial database was developed for the Part 2 NPDES stormwater permit application (Section 5.0) which identifies the industries in Eugene which were required to apply to DEQ for an NPDES stormwater permit. The database contains names and addresses for most facilities, and facility descriptions (SIC codes, etc.). In addition, information on chemicals used and environmental permits held by industrial facilities is included for some facilities (or will be included as the database is updated and modified for Eugene within the first permit year). The database will also be updated to include an indication as to which industries have notified the municipalities that they discharge to municipal storm drains and hence may need to comply with the federal stormwater regulations.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1: The City will establish a committee to create a strategy for industrial inspections/ monitoring.

The City will prepare a letter to notify industries that have not complied with the NPDES requirements and make them aware that (1) they must notify the City if they are discharging to the City's system, and (2) they must obtain an NPDES permit for stormwater discharges from DEQ.

For those industries that have obtained an industrial NPDES stormwater permit from DEQ, the City will prepare a letter requesting a copy of the industries' Stormwater Pollution Prevention Plans.

Task 2: Based on information obtained from Task 1, an industrial monitoring plan will be prepared during the first year of the permit period. The plan will address the NPDES regulations which require monitoring of stormwater discharges from (1) industrial facilities, (2) treatment, storage, disposal and/or recovery (TSD) facilities, and (3) operating or closed municipal landfills.

Task 3: Implement the Industrial Monitoring Plan developed under Task 2.

Assessment Methods:

- Document development of the industrial inspection program (including the development of a manual).
- Document inspection and monitoring efforts annually.
- Document any modifications made to the program as a result of ongoing assessments of the program

PUBLIC EDUCATION

ED1 BMP FACT SHEET
Stormwater Education

Responsible Department: Public Works Administration

Responsible Person: Public Communication Manager

ODOT's Level of Involvement: ODOT will ask the Department of Motor Vehicles to include flyers in information provided with motor vehicle registration and drivers license renewal mailings.

BMP Description: Develop a comprehensive information and education program for the public, school children, City personnel, and others about natural resources and stormwater pollution problems from both nonpoint and point sources and show the impacts of their actions on Eugene's water quality.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(A)(6), and (B)(6)

Pollutants Addressed: All

Existing Conditions: Beginning in the spring of 1991, the City began a public involvement/education process to support the Comprehensive Stormwater Management Program. Public communication played a central role in leading to the City Council's adoption of the Program in November, 1993. Outreach activities included:

- Base-line community survey of 400 City residents to provide statistically valid information of initial awareness of stormwater issues.
- Formation of citizens' advisory group to help develop rate methodology for the financing of an enhanced stormwater program.
- Community workshops (4) on the Comprehensive Stormwater Management Program.
- Staffed displays (8) at community events drawing 100-3,500 participants each.
- City-wide special focus newsletters (3 issues to 60,000 plus community residents each issue).

- Speaking engagements (39) to civic and community groups
- Purchase of "Eco*Masters" interactive children's computer game to help children see how their actions affect water quality.
- Demonstration project near the Delta Ponds to show how a constructed filtration area can be used to filter harmful pollutants from stormwater.
- Public hearings (2) and work sessions (2) with the City Council.
- Placement of internal policies about recycling and reusing materials.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

NOTE: Coordinate activities conducted under this BMP with educational efforts outlined under other BMPs whenever possible.

Task 1:
- Participate in meetings conducted under P&A6 (solid waste management program). Document modified recycling and disposal practices/policies developed under BMP P&A6.
- Continue to educate City and department staff about disposal and recycling activities, as well as application and handling of lawn and garden chemicals.
- Develop a series of posters for use internally to educate City and department staff about recycling and disposal activities that reduce impacts to stormwater quality.

Task 2:
- Work with City's Planning Department, Solid Waste staff, to implement a program for safe and effective onsite composting of yard trimmings and kitchen waste.

Task 3:
- Develop ongoing articles regarding problems associated with the quality of stormwater runoff to be published in appropriate trade journals and in neighborhood and business newsletters. Coordinate with activities conducted under BMP OM2 (vegetation management program).
- Develop and conduct one water-awareness workshop/seminar each year for community residents. Develop video and handouts to support.
- Develop a series of handouts for distribution to targeted audiences.
- Continue to produce a tabloid for City-wide distribution with information on methods for improving stormwater quality.
- Continue presentations to community groups on stormwater pollution. Provide handouts and other support materials.

Task 4:
- Develop an education program for property owners regarding the protection of natural resources on their property.

Task 5:
- Develop public education programs to support activities outlined in the Comprehensive Stormwater Management Program as needed.

Task 6:
- Develop advertising campaigns as appropriate to support projects, programs, special opportunities, and targeted pollutants.

Task 7:
- Educate local public agencies about stormwater and their impact on water quality.

Task 8:
- Develop education materials to support ED4 (volunteer activities and natural resources protection) with activities conducted under P&A3 (incentives to preserve private property) to develop an incentive program for property owners who protect natural resources on their property.

Task 9:
- Develop programs to work with school staff to increase education and awareness about stormwater and water quality.

- Work with school teachers to develop units on stormwater pollution. Create a teacher advisory committee.
- Work with area schools to develop a water quality campaign and to interest school children and teachers in cleanup campaigns on channels and streams near their schools (coordinate with Task 5).

Task 10:

- Coordinate stormdrain stenciling program with the unit on stormwater to be developed for school children. Work with teacher advisory committee to develop the unit, including video and other support materials.

Assessment Methods:

- Conduct community surveys at 2-year intervals. Compare the results to previous surveys (such as conducted in FY 92-93) to measure increases in level of awareness of the stormwater pollution problem and solutions that the public can become involved in. Consider structuring the surveys so that information is compiled regarding the public's perception of the cost-effectiveness of the program and suggestions for future direction of the program.
- Conduct evaluations at all workshops and seminars offered. Utilize the results to plan for future activities and events, including elimination of certain activities and reallocation of resources where warranted.
- Keep records of the numbers of materials distributed, audiences targeted, number of people participating in events, etc. Utilize the records to plan for future development and distribution of educational materials.

ED2 BMP FACT SHEET
Storm Drain Stenciling

Responsible Department: Public Works Maintenance

Responsible Person: Maintenance Division Director

ODOT's Level of Involvement: ODOT has supported, and will continue to support, efforts to label storm drains.

BMP Description: Coordinate efforts to label storm drain inlets and provide signs along the banks of drainage channels and creeks explaining the environmental impacts of dumping wastes.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(A)(6), (B)(5), (B)(6)

Pollutants Addressed: All

Existing Conditions: The City's storm drain stenciling program provides volunteers with stencils, nontoxic paint, safety vests, traffic cones, and a map of a designated area to stencil the street pavement by storm drains with the message, "dump no waste, drains to stream."

Three tabloids have been mailed to more than 60,000 households and businesses in Eugene offering the storm drain stenciling program as an opportunity for groups to make a difference in Eugene's water quality.

Support materials promoting the storm drain stenciling program include:
- Graphic display panel used at workshops and community events.
- Handout distributed at presentations and workshops.
- News releases announcing a volunteer work party's project.
- Door hangers distributed to neighborhood households where storm drains are being painted.

This BMP will be coordinated with ED1 and ED5 to install signs along the banks and channels explaining the impacts of dumping.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:

- Continue to incorporate media coverage of volunteer storm drain stenciling activities.
- Continue presentations at workshops and community events.
- Include articles in the tabloids distributed city-wide. (tabloid sent out under Task 3 of BMP ED1).
- Develop articles for business and civic newsletters to encourage business support of the program.

Task 2:

- Develop volunteer programs for schools, neighborhood associations, or organizations on storm drain stenciling, similar to the NeighborWoods tree planting program.
- Enhance efforts to enlist help of school children and scout groups in storm-drain stenciling activities.

Assessment Methods:

- Use the community surveys described in ED1 to measure the public's increased awareness of the stormwater problem, as a result of the stenciling activities (i.e., ask a specific question on the survey related to storm drain stencils).
- Keep records of volunteer participation in the stenciling program (note increases/ decreases in level of involvement).

ED3 BMP FACT SHEET
Tree Planting Programs

Responsible Department: Public Works Maintenance

Responsible Person: Urban Forester

ODOT's Level of Involvement: ODOT will continue to provide support for tree planting programs.

BMP Description: Support government and community tree planting programs. Trees are known to absorb and hold large quantities of rain water, both in the above-ground mass and in the root systems. This characteristic can reduce erosive runoff, stabilize soils, and buffer seasonal stream flows. Root systems have been found to effectively filter pollutants in groundwater, especially related to landfills. Trees offer many other environmental benefits such as air quality improvement, community ambiance, energy reduction, economic enhancement and wildlife habitat.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(A)(2), (4), (5), (6), and (D)

Pollutants Addressed: Sediments, nutrients, organics, possibly metals.

Existing Conditions: The City has an existing volunteer program called "Neighborwoods." Each year, the City purchases trees for planting in Eugene neighborhoods. Local residents volunteer to help with the program. A neighborhood leader finds additional volunteers and coordinates the tree planting in his/her neighborhood. The leader also acts as a steward during the trees' first few sensitive years. The program is promoted through articles, news releases, handouts, and one-on-one contacts.

Support Activities:

- An annual Arbor Day week tree planting event in targeted public rights-of-way. These events are jointly sponsored area schools and/or businesses. News releases, handouts, buttons, posters, and ground breaking ceremonies have been used to focus attention on the event.

- The City's Urban Forest Management Plan has a number of policies that protect and enhance trees in the urban area. The plan recognizes the environmental benefits provided by trees and outlines measures to protect and enhance the urban forest.
- An entrance beautification program recognizes the importance of trees in establishing a positive image of Eugene in the minds of visitors. The policy suggests that trees and shrubs be planted at all City entrances and exits. The policies are applied to all construction projects involving major streets into and out of Eugene.

RECOMMENDED IMPLEMENTATION ACTIONS:

Task 1:
- Continue to coordinate annual Arbor Day celebrations.
- Develop a pocket guide for residents about how to care for trees in public rights-of-way in front of their homes or businesses.
- Develop news releases on Arbor Day programs.

Task 2:
- Include articles describing the benefits of trees (with regards to enhancing stormwater quality) in newsletters developed for neighborhood and in-house distributions (developed under BMP ED1).
- Tie in with other stormwater activities, such as workshops, tabloids, handouts, business workshops.

Task 3:
- Continue to work with the state of Oregon to ease restrictions on planting trees in rights-of-way or along median strips.

Assessment Methods: Track the implementation of the Urban Forest Management Plan. Record the number of projects on which policies of the management are enforced, or when measures recommended in the plan are implemented.

ED4 BMP FACT SHEET
Volunteer Activities and Natural Resource Protection

Responsible Department: Public Works Maintenance

Responsible Person: Maintenance Division Director

ODOT's Level of Involvement: None.

BMP Description: Promote public involvement in "keep watershed clean" campaigns and "adopt-a-creek" programs for specific waterways (e.g., Amazon Creek).

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(A)(1)

Pollutants Addressed: All

Existing Conditions: The Public Works Department has:
- Co-sponsored and assisted with annual area clean up days that focus on cleaning specific waterways in the city, including the Amazon Creek and the Mill Race. More than 300 people volunteered for the successful 1992 and 1993 cleanup events of the Amazon.
- Assisted with area-wide cleanup campaigns — working with area businesses and media. The mayor and interested City councilors have participated.
- Helped the subsidiary of a national corporation take on an "adopt-a-stream" project. The Red Lobster restaurant has adopted the Delta Ponds for an annual cleanup effort. The Department will assist in providing receptacles and equipment.

RECOMMENDED IMPLEMENTATION ACTIONS:

Coordinate activities conducted under other educational BMPs with this BMP as appropriate.

Task 1:

- Identify successful programs in others areas. Identify and develop programs that would be appropriate for Eugene (or modify existing programs).
- Develop articles and news releases to support the programs and attract interest (volunteers).

Task 2:

- Identify groups that may be interested in forming and guiding volunteer programs, including school children and teachers.
- Develop a volunteer program to adopt streams for cleanup and monitoring or to help with appropriate areas of channel maintenance. Information will include materials for the volunteer leaders and support materials for other volunteers.
- Develop a workshop to train volunteer leaders.

Assessment Methods:

- Conduct evaluations of various volunteer programs and use the information to modify the programs as needed.
- Keep records of involvement in the "adopt-a-stream" program.
- Document the estimated amount of debris collected and/or linear feet of creek revegatated in this program and at annual clean-up days.

ED5 BMP FACT SHEET
Commercial/Industrial Housekeeping Practices

Responsible Department: Public Works Administration

Responsible Person: Public Communication Manager

ODOT's Level of Involvement: Distribute any educational materials developed by the City.

BMP Description: Develop a comprehensive program to educate the commercial/industrial sector about how their housekeeping, hauling, and disposal practices affect water quality.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(B)(6)

Pollutants Addressed: Oil and grease

Existing Conditions: Lane County Solid Waste has an ordinance requiring covers to be placed over all public trucks that haul materials to the landfill.

RECOMMENDED IMPLEMENTATION ACTIONS:

Where possible, tie into educational activities conducted under other BMPs (for example, include information in articles, newsletters, and ad campaigns).

Task 1:

- Develop a survey for industries and commercial businesses that asks questions regarding housekeeping, disposal, and hauling practices. Administer during the first permit year to establish baseline level of understanding.

Task 2:

- Identify successful business awareness programs and materials developed in other areas. Identify programs and materials that would be appropriate for Eugene.

Task 3:
- Identify and develop an inventory of local industries and commercial businesses that would be most likely to conduct activities that contribute pollutants to the stormwater system (use the industrial inventory created for this permit application - Section 5.0). Coordinate information needs with activities conducted under BMP MON3.

Task 4:
- Develop a business awareness program (based on Task 2) for industries and commercial businesses (identified in Task 3) to provide education regarding nonpolluting housekeeping, hauling, and disposal activities.
- Develop training manuals, handouts, mailings, and videos that can be used by interested businesses.

Task 5:
- Implement the business awareness program throughout the term of the permit.

Task 6:
- Develop a volunteer program where volunteers distribute information at businesses.

Task 7:
- As part of BMP MON3, use industrial inspections and discussions with site operators as opportunities to distribute educational materials.

Assessment Methods:
- Conduct periodic surveys and compare results to baseline information (Task 1) to measure increase in industry's level of awareness in the problem and participation in reducing pollutant discharges.
- Request feedback on the usefulness of the documents, and obtain suggestions for future activities and materials.
- Maintain records of business involvement.

ED6 BMP FACT SHEET
Report of Illegal Dumping

Responsible Department: Public Works Maintenance

Responsible Person: Maintenance Division Director

ODOT's Level of Involvement: ODOT will post new signs and modify existing signs to reflect the "hotline" number created under this BMP by the City.

BMP Description: Facilitate efforts to report illegal dumping, illicit connections, and other incidents. Work with citizen action groups; consider operation of a telephone "hot line" for citizens to report incidents; and post signs in areas where illegal dumping may occur to encourage citizens to report incidents. Coordinate with BMPs MON2, MON3, OM9 and P&A5.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(B)(5)

Pollutants Addressed: All

Existing Conditions: A centralized collection point for illegal dumping complaints.

An infiltration and inflow program operates and addresses the issue of illegal connections. Smoke testing of the sanitary sewer system detects the illicit connections and some cross connections to the storm system.

Three tabloids have been mailed to more than 60,000 households and businesses to provide an introduction to stormwater runoff and disposal practices to protect the quality of stormwater runoff. The topic of illegal dumping and illicit connections was also included in the tabloids, on the display boards prepared for the community workshops, in the community survey, and in the survey distributed in the second tabloid.

RECOMMENDED IMPLEMENTATION ACTIONS:

Wherever possible, coordinate the following activities with those conducted under other educational BMPs and other BMPs (P&A5, and P&A6). For example, include information from this BMP in volunteer cleanup programs created under BMP ED4. And include the topic of reporting illegal dumping in presentations and handouts developed under ED1.

Task 1:
- Begin work to coordinate efforts with Neighborhood Watch Programs, neighborhood groups, and people who live along channels and streams.
- Develop a direct mail piece with the new "hotline" number for neighborhood groups, Neighborhood Watch, and people who live along channels and streams.

Task 2:
- Include additional information in the future tabloids (sent out under BMP ED1, Task 3).

Task 3:
- Under BMPs MON1 and MON2, the Eugene Municipal Code will be strengthened with respect to illegal dumping and illicit connections into the storm system; when completed, develop news release and advertisements about the new ordinance.

Task 4:
- Develop a centralized "hotline" telephone number for reporting complaints of illicit connections and illegal dumping. Develop news releases and flyers regarding the new "hotline" number and distribute as appropriate. (Coordinate with activities conducted under BMPs MON1 and MON2 to ensure a response to complaints).
- Include fact sheets about the illegal dumping and illicit connections problem.

Task 5:
- Develop signs about the impacts of polluting to post along streams and channels; include "hotline" number on the signs.

Assessment Methods:
- Use survey discussed in ED1 to gather data on perceived public effectiveness of the illegal dumping program.
- Track number of public complaints received on the "hotline" number. Use the information to prioritize certain "problem" sections of the City for focussing educational/inspection efforts. Measure the increase in complaints to determine if other educational efforts to increase public awareness are working.
- Keep records of follow-up conducted in response to complaints including location of dumping incident, possible source, hours spent conducting follow-up, and corrective actions taken.

ED7 BMP FACT SHEET
Education for Design Practices

Responsible Department: Public Works Administration

Responsible Person: Public Communication Manager

ODOT's Level of Involvement: None.

BMP Description: Develop a program to educate architects, engineers, construction site operators, and property owners of new structural techniques that reduce negative water quality impacts to streams and the storm system. Include education on stormwater-friendly design practices to reduce the need for fertilizers, herbicides, and pesticides.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(D)(4), and (A)(6)

Pollutants Addressed: All

Existing Conditions: A display was prepared regarding this BMP for the Permit and Information Center (PIC), a one-stop building permit center. Developers, contractors, landscape architects, engineers, and residents frequent the facility. The display includes photos and copy blocks illustrating the stormwater problem (e.g., how impervious surfaces affect the quality of stormwater, a summary of the regulatory requirements related to stormwater, and local financial issues related to stormwater).

RECOMMENDED IMPLEMENTATION ACTIONS:

Task 1:

- Conduct research regarding structural techniques that could be implemented by engineers and construction site operators to reduce negative impacts to water quality (coordinate with activities conducted under OM2, P&A2, P&A4, P&A5, and P&A7). Determine how this information should be distributed in Eugene (i.e., what types of information to which groups?).

Task 2:

- Make presentations to professional organizations, such as landscape architects, engineers, developers, and real estate agents.
- Develop a presentation for landscape architect classes at the University of Oregon; provide handouts for students.
- Prepare and staff booths at community events that reach homeowners.
- Include articles in newsletters and trade journals about the advantages of employing native vegetation.

Task 3:

- Develop a direct mail piece and distribute to names on association (e.g., engineering associations, etc.) mailing lists.
- Develop a handout for real estate agents and nursery outlets about alternative techniques targeted at purchasers of vacant land, homeowners, and gardening enthusiasts.
- Make information available for the extension service for inclusion in newsletters and handouts.

Assessment Methods:

- Conduct evaluations of workshops/seminars held and presentations given. Utilize the information to plan future events, redesign agendas and topic areas, and determine target audiences.

ED8 BMP FACT SHEET
Household Hazardous Waste Disposal Program

Responsible Department: Planning and Development Department

Responsible Person: Business License/Land Use Management Programs Supervisor

ODOT's Level of Involvement: None.

BMP Description: Coordinate with Lane County to expand programs which provide a convenient means for people to properly dispose oil, antifreeze, pesticides, herbicides, paints, solvents, other potentially harmful chemicals, and other waste materials. Recycle if possible.

NPDES Reg. Number: 40 CFR 122.26 (d)(2)(iv)(A)(6), and (B)(6)

Pollutants Addressed: Oil and grease, organics and metals

Existing Conditions: Many household cleaning and maintenance products contain substances that can threaten human health and the environment if they are disposed improperly. Without convenient, well-publicized collections, people will dispose household hazardous wastes by pouring

them down drains and into the storm system, burning or burying them in the backyard, or combining them with nonhazardous household waste hauled by a solid waste collector.

The Lane County Waste Management Division currently operates a biannual household hazardous waste (HHW) roundup, on the first Saturdays of May and November at the County refuse transfer site serving primarily Eugene and Springfield.

In November 1992, the HHW roundup collected 230 drums (or 56,000 pounds) of wastes from 1,167 people. Items collected included paints, pesticides, solvents, aerosols, and caustics.

As part of the roundup, usable household items are placed on a table for an informal waste exchange. Latex paints are recycled by combining surplus paint for reuse. Other items are taken by a private contractor for disposal through incineration, disposal in a hazardous waste landfill, or for recycling offsite.

The HHW roundup is publicized through (1) print advertising and (2) flyers mailed to utility customers with billing statements.

RECOMMENDED IMPLEMENTATION ACTIVITIES:

Task 1:

- Identify potential City funding and other resources to support HHW collection and education, and supplement the existing County program.

Task 2:

- Establish a work group with the City of Eugene, the City of Springfield, and Lane County staff to begin discussing opportunities for coordination and cooperation in household hazardous waste collection and education.
- Support Lane County planning efforts to establish a permanent facility for HHW collection that would be open to the public on a weekly or monthly basis.
- Assist Lane County in developing ways to collect household hazardous wastes from community residents who have limited mobility.

Task 3:

NOTE: Task 3 activities should be coordinated with activities conducted under BMP ED1 (Stormwater Education).

- Identify ways to incorporate education about household hazardous wastes and less toxic alternatives into solid waste reduction and recycling programs in the schools.
- Identify ways to educate retailers about the household hazardous wastes they sell, and assist them in informing consumers about use, disposal, and recycling of such products.
- Develop a program for educating solid waste haulers about identifying and handling household hazardous wastes they may find in garbage containers placed for pickup. Help licensed haulers implement a tag program for rejecting hazardous waste and informing customers about proper disposal.
- Identify nonusers of HHW collection program and target education.

Assessment Methods:

- Document efforts to coordinate with Lane County in providing household hazardous waste collection and education.

Appendix B
EXISTING LOCAL GOALS AND POLICIES

The Eugene-Springfield Metro General Plan and *Eugenes Community Goals and Policies* contain the existing policy direction for managing stormwater issues within the Eugene city limits. These planning documents were developed through a comprehensive planning process involving diverse segments of the community. Additional policy direction on financial aspects of the program are provided in the City's Public Facilities Plan and Financial Management Goals and Policies. The following are the relevant stormwater goals, objectives, and policies of these documents.

METROPOLITAN AREA GENERAL PLAN

(1987 as amended through 1991)

GOALS

- "Protect valuable natural resources and encourage their wise management, proper use, and reuse, reflecting their special natural assets." *(#1, p. III-C-6)*.
- "Maintain a variety of open spaces within and on the fringe of the developing area." *(#2, p. III-C-6)*.
- "Protect life and property from the effects of natur al hazards." *(#3, p. III-C-6)*.
- "Provide a healthy and attractive environment, including clean . . . water, for the metropolitan population." *(#4, p. III-C-6)*.
- "Protect, conserve, and enhance the natural, sceni c, environmental, and economic qualities of river and waterway corridors." *(#1, p. III-D-3)*.
- "Provide and maintain public utilities, services and facilities in an orderly and efficient manner." *(#1, p. III-G-4)*.

OBJECTIVES:

- "Maintain the benefits associated with environment al resources in an urban setting. Those resources include. . . clean . . . water, . . . scenic areas, wildlife and wildlife habitat, and vegetation .... *(#1, p, III-C-6)*.
- Improve and maintain . . . water quality to meet federal, state, and local standards." *(#3, p. III-C-6)*.
- "Minimize problems associated with water quantity ...." *(#4, p. III-C-6)*.
- "Manage open space areas for their diverse and mul tiple values." *(#5, p. III-C-6)*.
- "Prevent damage to life and property and expenses associated with flooding ...." *(#6, p. III-C-7)*.
- "Encourage use of river and waterway corridors to fulfill open space, recreation, and resource protection needs. *(#1, p. III-D-3)*.

- "Ensure that development occurring within river an d waterway corridors is responsive to and provides protection of these valuable natural assets." *(#2, p. III-D-4)*.

- "Encourage, where appropriate . . . development th at respects the quality of rivers and waterways and provides a variety of opportunities for enjoyment of those resources by the public." *(#3, p. III-D-4)*.

- "Encourage coordinated water planning and the development of the area's waterways, where appropriate, as part of the area's open space and park system." *(#4, p. III-D-4)*.

POLICIES:

- "Springfield, Lane County, and Eugene shall consider downstream impacts when planning for urbanization, flood control, urban storm runoff, recreation, a water quality along the Willamette and McKenzie rivers." *(#1, p. III-C-7)*.

- "Except as otherwise allowed according to FEMA regulations, development shall be prohibited in floodways if it could result in an increased flood level. The floodway is the channel of a river or other water course and the adjacent land area that must be reserved to discharge a one-percent-chance flood in any given year." *(#2, p. III-C-7)*.

- "When development is allowed to occur in the floodwa y or floodway fringe, local regulations shall control such development in order to minimize the potential danger to life and property. Within the urban growth boundary, development should result in in-filling of partially developed land. Outside the urban growth boundary, areas affected by the floodway and floodway fringe shall be protected for their agricultural and sand and gravel resource values, their open space and recreational potential, and their value to water resources." *(#3, p. III-C-7)*.

- "Local governments shall develop plans and program s which carefully manage development on hillsides and in water bodies and restrict development in wetlands in order to protect the scenic quality, surface water and groundwater quality . . . vegetation, and wildlife values of those areas." *(#18, p. III-C-9)*.

- "Local governments shall develop policies and loca l controls for protection and management of wetland areas ...." *(#19, p. III-C-9)*.

- "In order to improve water quality and quantity in the metropolitan area, local governments shall consider developing regulations or instituting programs to:

  a. increase public awareness of techniques and practices private individuals can employ to help correct water quality and quantity problems;
  b. improve management of industrial and com mercial operations to reduce negative water quality and quantity impacts;
  c. regulate site planning for new developme nt and construction to better control drainage and erosion and to manage storm runoff;
  d. increase storage and retention of storm runoff to lower and delay peak storm flows;
  e. utilize natural and simple mechanical tr eatment systems to provide treatment for contaminated runoff waters;
  f. reduce street-related water quality and quantity problems;
  g. minimize the use of toxic substances; an d
  h. minimize the negative effects of chemical and petroleum spills." *(#20, p. III-C-9)*.

- "Local governments shall continue to monitor, to p lan for, and to enforce applicable . . . water quality standards and shall cooperate in meeting applicable federal, state, and local . . . water quality standards." *(#22, p. III-C-10)*.

- "Prior to the completion of the next Plan Update, th e air, water, and land resource quality of the metropolitan area will be reassessed." *(#37, p. III-C-12)*.

- "Land use regulations and acquisition programs alo ng river corridors and waterways shall take into account all the concerns and needs of the community, including recreation, resource, and wildlife protection; enhancement of river corridor and waterway environments; potential for supporting non-automobile transportation; opportunities for residential development; and other compatible uses." *(#2, p. III-D-4)*.

- "Eugene . . . and Lane County shall continue to cooperate in expanding water-related parks and other facilities, where appropriate, that allow access to and enjoyment of river and waterway corridors." *(#3, p. III-D-4)*.

- "A system of user charges for public services, utilities and facilities to cover operation costs and the improvement or replacement of obsolete facilities shall continue to be implemented, where appropriate." *(#3, p. III-G-5)*.

EUGENE COMMUNITY GOALS AND POLICIES

(1984)

GOAL:

- "To ensure that citizens have an understanding of th e issues that face our community and to assure them of a voice in the resolution of these issues." *(#1, p. 3)*.

- "To protect and improve the quality of our . . . water, and protect and enhance the quality of our environment, so that Eugene will retain its appeal as a good place to live." *(#6, p. 3)*.

- "To protect the continued availability of natural resources by wise management and careful assessment of future as well as current needs, and to face realistically the difficult choices that must be made to provide that protection."*(#7, p. 3)*.

- "To play a proper role in the development of the metropolitan area, recognizing the difference between those problems that are suitable for solution by City action alone, and those that require city leadership or cooperation to develop solutions which are metropolitan, regional, state, or national in scope." *(#10, p.3)*.

POLICIES:

- "Involve citizens of the community in the review, development, and implementation of City goals and policies." *(#1, p. 4)*.

- "Recognize the importance of communication between the City, the neighborhood groups, and citizens." *(#6, p. 4)*

- "Develop broader and more comprehensive methods to convey information to citizens and to solicit input about City issues." *(#7, p. 5)*.

- "Continue to budget City resources for neighborhood groups to participate effectively in their advisory role to the City and for self-help projects within the neighborhoods." *(#8, p. 5)*.

- "Support protection of agricultural land and natural areas." *(#2, p. 10)*.

- "Balance public expenditures to conserve existing community resources and provide for the future." *(#7, p. 11)*.

- "Recognize that Eugene's natural environment is a major factor in the community's attraction as a place to live and work, and therefore, efforts to expand the economic base should be compatible with efforts to maintain and enhance the natural environment." *(#1.0, p. 12)*.

- "Support control of all sources of pollution, both public and private." *(#2.0, p. 12)*.

- "Support . . . water quality budgets that will pro vide for adequate equipment and staff to enforce acceptable standards." *(#3.0, p. 12)*.

- "Manage and protect the waterways and wetlands within the City's jurisdiction." *(#6.0, p. 13)*.

- "Maintain and enhance the appearance of Eugene by following plans which emphasize our natural resources of beauty and prevent the destruction of these resources by disorganized development, clutter, and sprawl. We should strive for the beauty that is achieved by the harmonious relationship of parts: natural topographical features, parks and parkways, living areas, working areas, arterial systems, and peripheral open space." *(#1.0, p. 15)*.

- "Preserve areas of the city that are important nat ural habitats for a diversity of wildlife and for rare, threatened, and endangered plants and animals." (#2.0, p. 15).

- "Preserve and enhance those features and landmarks , including significant sites and vegetation, which are unique to the community and which serve as visible reminders of our past." *(#13, p. 20)*.

- "Recognize the interdependence of local government s, municipally owned utilities, special service districts, and public educational institutions, and support formalized communication on short- and long-range planning, facility use, and development and service operations." *(#1, p. 32)*.

EUGENE/SPRINGFIELD METROPOLITAN AREA PUBLIC FACILITIES PLAN TECHNICAL REPORT

November 1987

- "A financing strategy should be developed to adequat ely fund capital construction and on-going maintenance of the regional storm sewer system." (Recommendation 3, p. 26).

CITY OF EUGENE FINANCIAL MANAGEMENT GOALS AND POLICIES

(1992)

- "To provide cost effective services to citizens." *(Goal 3, p. ii)*.
- "To the maximum extent possible, the City will secure a dedicated revenue source to fund general and storm sewer capital projects." *(Policy #5, p. 12)*.

Appendix C BACKGROUND MATERIAL

The following describes the Comprehensive Stormwater Management Plan (Stormwater Plan) and why it was necessary to prepare and adopt it. The following sections were originally contained in chapters one and two of the Draft Stormwater Plan.

WHAT IS THE STORMWATER PLAN?

As a public planning policy document, the Stormwater Plan is a refinement plan that fits within the framework of the Eugene/Springfield Metropolitan Area General Plan (Metropolitan Plan). The goals and policies of the Stormwater Plan were adopted by the Eugene City Council to direct community action for the construction, maintenance, management, and financing of the stormwater system to meet multiple community objectives and to meet state and federal laws and regulations related to clean water, flood control and drainage, and natural resources.

As a refinement plan to the Metropolitan Plan, the Stormwater Plan's goals and policies refine the general policies in the Metropolitan Plan. In all cases, the more specific policies of the Stormwater Plan are consistent with the general direction in the Metropolitan Plan.

As a functional plan of the City of Eugene, the Stormwater Plan is consistent with the direction of the Eugene Community Goals and Policies, which provides more detailed direction about the quality of life in the City of Eugene within the *Metropolitan Plan* framework.

The Stormwater Plan applies to the entire city and all the neighborhood and open space plans of the city, including the portion of the *West Eugene Wetlands Plan* study area (1992) that lies within the city limits.

Land use decisions include the siting of major utility projects that are scheduled over the short term (0-5 years) and long term (6-20 years). The Stormwater Plan has not identified any specific storm drainage projects over the short- and long-term periods. It contains only the policy framework that could eventually lead to specific projects through the preparation of master basin plans. These policies do not constitute land use actions and, therefore, do not require amendments to the *Metropolitan Plan*. Policies that deal with financing are not land use decisions, and are adopted by the City Council to provide direction for the financing system, future capital improvement programming, and the annual budget process. The Eugene Council has the discretion to make its budget decisions based on these policies, but may weigh funding availability and alter financing through its fiscal authority without having to go through the formal land use notice and Stormwater Plan amendment process.

WHY PREPARE THE STORMWATER PLAN?

This section briefly describes the reasons for preparing the Stormwater Plan.

A. THE NEED

The decision to prepare the Stormwater Plan in 1991 was primarily due to the imminent requirements of federal mandates requiring local jurisdiction of Eugene's size to address and manage stormwater quality. With these new mandates coming shortly after local community adoption of the West Eugene Wetlands Plan and a goal to protect natural resources, the implications to the city, and in particular the current stormwater program, were significant. Without the necessary organizational structure and programmatic resources in place for managing stormwater quality and related natural resources, the City was faced with the following fundamental questions regarding these new mandates:

- What are the implications to existing City policies, standards, practices and procedures?
- What are the minimum level of services needed, and how are they to be provided?
- What is the most effective, efficient, and economical way to meet the mandates?
- How are conflicts, gaps, and overlaps with other City programs addressed?
- How are the new mandates to be incorporated into the existing flood control and drainage services program without jeopardizing the current level o f services?
- How are the new mandates to be coordinated with the recen tly approved West Eugene Wetlands Plan?
- How are the new mandates to be funded?

With the implications of the new federal mandates, coupled with existing local commitments to protect water related resources, such as the West Eugene Wetlands Plan, it became clear that to best serve the interests of the public, and to meet these new obligations, the City should approach the full range of stormwater issues within a coordinated and comprehensive framework. Thus, the Stormwater Plan was initiated with the primary objective to bring the various stormwater issues together so that an effective, efficient, coordinated, and economical management approach could be developed.

B. INFLUENCING FACTORS

The following describes in greater detail the factors that influenced the City's decision to prepare the Stormwater Plan.

Most of the influencing factors were external to the City organization, such as federal water quality mandates where local participation is mandatory. Some were the result of local decisions, such as the "quality of life" policies contained in the Metropolitan Plan. The primary influencing factors are:

- Obligations to meet new federal water quality mandates;
- Commitments to assist with the implementation of the recently approved West Eugene Wetlands Plan;
- Potentially new policies addressing riparian and waterway corridors throughout the city (Natural Resources Plan);
- Recognition to implement existing "quality of life" goals and policies contained in the Eugene/Springfield Metropolitan Plan that are relevant to stormwater systems; and
- The ongoing commitment to provide drainage and flood control services through participation in the National Flood Insurance Program.

C. FEDERAL AND STATE WATER QUALITY MANDATES

The 1987 re-authorization of the federal Clean Water Act (CWA) by the U.S. Congress contains significant new requirements associated with the quality of stormwater runoff. These mandates are precedent setting as they require, for the first time, local communities to reduce stormwater pollution within their municipal storm drainage systems. The mandates require the preparation of a water quality plan that outlines the measures to be taken (referred to as Best Management Practices, or BMPs) over a five-year permit period for reducing stormwater pollutants to "the maximum extent practicable." At the end of the permit period, the effectiveness of the water quality management plan is evaluated for permit renewal. Administration and enforcement of the requirements will occur at the state level, through the "National Pollutant Discharge Elimination System (NPDES)" permitting program. The Oregon Department of Environmental Quality (DEQ) is the responsible state agency for administering the program.

Eugene has prepared the required water quality plan, and has submitted the application for the NPDES permit. The permit was considered at a public hearing on October 24, 1994, and is expected to be issued by December 1994. The water quality plan contains 34 BMPs which are reflected in Chapter III of the plan as NPDES: BMPs under the Implementation Measures section. A complete list and description of the BMPs are contained in Appendix A.

The implications of the new federal mandates to local communities are significant. All segments of the community are affected. Through the BMPs, residents will be informed and asked to modify conventional behaviors related to the use, storage, and disposal of household chemicals; runoff from certain industrial and commercial uses will be required to serve separate NPDES permits for the management of stormwater quality, which includes monitoring to ensure permit compliance; new development may be required to provide on-site pretreatment; and the way the City designs, builds and maintains its drainage system will be modified to take better advantage of the treatment qualities of natural systems.

The cost to administer, implement, and enforce the BMPs will generally be borne by the "users" of the system through the monthly user fee. Site specific programs may be funded in part by new permit fees.

D. WEST EUGENE WETLANDS PLAN

The federal Clean Water Act (CWA) also regulates fill activities within jurisdictional wetlands, considered "waters of the U.S." The CWA requires wetlands to be preserved, unless a permit is obtained to undertake fill activities. If a permit can be obtained, compensation (mitigation) is required for "unavoidable effects." Oregon's Fill/Removal law has similar regulatory requirements. These laws became effective in 1977 (federal) and 1985 (state).

In 1989 and 1990, wetland inventories revealed the presence of over 1,300 acres of wetlands in West Eugene - the heart of the community's future industrial and residential growth area. To help resolve the resulting conflicts between wetland protection laws and the need for economic development, the Eugene Council initiated the West Eugene Wetlands Special Area Study. In 1992, the West Eugene Wetlands Plan (WEWP) was adopted. WEWP calls for the protection of over 1,000 acres of wetlands within the context of a multiple objectives management plan. The multiple objectives include: Flood Control, Drainage Services, Water Quality Treatment, Natural Resources Protection, and Recreation and Education opportunities.

Because most of the wetlands are within flood plain boundaries or adjoin major waterway corridors, such as Amazon Creek, Willow Creek, the A-3 Channel, and Bertelsen Slough, they are hydrologically connected to the City's flood conveyance system. The WEWP, and the wetlands it protects, represent an opportunity to integrate stormwater management goals with wetland management goals. Protection and restoration of wetlands in West Eugene can contribute to the flood capacity and, where appropriate, may contribute to the water quality treatment needs of the larger stormwater system. In turn, improvements and modifications of the existing stormwater conveyance system can contribute to the diversity, continuity, and long-term health of the wetlands system. This reciprocal relationship leads to a natural linkage between the WEWP and stormwater management.

The management and operation of the west Eugene wetlands complex will be a three-way partnership between the City, the federal Bureau of Land Management (BLM) and The Nature Conservancy. The stormwater user fee is the primary revenue source for the City's contribution of operation and maintenance services to the three-way management partnership.

E. NATURAL RESOURCES FUNCTIONAL PLAN

In 1988, as part of Oregon's Statewide Land Use planning requirements for Goal 5 resources, the cities of Eugene and Springfield, and Lane County jointly funded the preparation of a wildlife habitat inventory for the Eugene/Springfield urban growth boundary areas. This study mapped and evaluated over 100 natural resources sites, including wetlands, riparian areas, and upland habitat.

Within the Eugene city limits and urban growth boundary, 10 riparian sites (134 acres) and 16 waterway corridors (372 acres) were recommended for protection or partial protection as part of the draft Natural Resources Functional Plan (NRFP). While the NRFP is not yet adopted, these corridors and riparian areas are recognized for their wildlife habitat values as well as their role in treating stormwater runoff. Many of these waterways have been acknowledged to be part of the City's stormwater conveyance system.

The NRFP calls for the City's stormwater program to address the relationship between riparian habitat, water quality, and flood conveyance. When the relationship is clear, the city's stormwater program could be expanded along these waterways to include conveyance, water quality, protection, restoration, and maintenance of these systems.

F. EXISTING LOCAL POLICY FRAMEWORK

The Eugene/Springfield Metropolitan Area General Plan (Metro Plan) provides the broad land use and public infrastructure policy framework for the metropolitan region, within which most other land use planning policy exists, such as Neighborhood Refinement Plans, Functional Plans, and Facility Plans. In addition to these plans, implementation plans are prepared and adopted "administratively," without formal public review and comment. *The Eugene Areawide Drainage Master Plan* (DMP) is an example. The DMP contains capital improvement projects that support the city's conventional approach to stormwater management. As part of the Stormwater Plan program, the DMP will be updated to better reflect the multiple-use goals of the community.

The *Metro Plan* directs growth to occur in a compact form, concurrent with the provision of a full range of urban services, and as a livable place for people to live, work, recreate, and socialize. The current *Metro Plan* policies encourage environmentally-sound stormwater management practices, and require consideration of steps to improve water quality and quantity, including:

- Control erosion through use of site planning for new development;
- Use natural and simple treatment systems for contamina ted runoff waters;
- Protect natural water features and drainageways to the maximum extent practicable;
- Reduce street related water quality and quantity impacts; and
- Use on-site systems to delay the volume and rate of stormwater runoff.

The *West Eugene Wetlands Plan* is a Refinement Plan to the *Metro Plan*. It contains policies requiring the protection of wetlands for flood control, stormwater conveyance, water quality treatment, and wildlife habitat that pertain only to the west Eugene area.

When the *Natural Resources Functional Plan* is adopted, it will become a Functional Plan and it will apply to the Metropolitan regional area.

Thus, local policies are in place that encourage a multiple objectives approach to stormwater management, including flood control, stormwater conveyance, water quality treatment, and natural resources protection. However, there has been little or no implementation of these policies over the last decade. With the recent commitment to the *West Eugene Wetlands Plan*, implementation activities are beginning to occur through the Wetland Acquisition Program and the development of wetland and waterway protection ordinances.

G. EXISTING STORMWATER PROGRAM

Eugene is a participating jurisdiction in the National Flood Insurance Program (NFIP). This federal program is on a volunteer basis, and is administered by the Federal Emergency Management Agency (FEMA). To participate, local jurisdictions must enact flood hazard standards and procedures for new development that is located within the 100 year flood hazard zone. The effect of the flood hazard standards is to prohibit new development within the floodway area (generally the area needed to convey the 100 year flood volume) while permitting new development in the floodway fringe (where inundation occurs) provided habitable floors are at or above the flood elevation. In exchange, affected property owners are eligible for reduced flood insurance premiums. Reductions in insurance premiums can be reduced further through the Community Rating Service (CRS). The CRS allows local jurisdictions to voluntarily increase flood management standards to gain the additional reductions in insurance rates. Eugene also participates in the CRS.

In addition to enacting flood hazard land use provisions, participation in the NFIP obligates Eugene to a certain level of flood protection services to its residents and business community.

The design, construction, and maintenance of the City's current stormwater system has primarily focused on meeting its obligation to provide flood control and drainage services. Similar to most communities across the nation, the design of Eugene's flood control and drainage system is guided by the concept of conveyance where stormwater runoff is conveyed away from the urban area and into receiving waters as quickly as possible. A conventional system of conveyance facilities (storm pipes, open channels, gutters, and catch basins) has been installed, in some cases replacing natural waterways, creeks, and wetlands. Stormwater runoff is conveyed within these facilities and discharged directly into "receiving waters," such as the Willamette River and Amazon Creek. Stormwater is generally not treated for pollutant removal prior to discharge. As a result, pollutants are also conveyed and concentrated into the receiving waters at the discharge points.

The City employs a maintenance program to maintain the capacity and efficiency of the conveyance system. The resulting system has proven to be very effective at preventing flooding, conveying runoff, and maximizing land use availability for buildable lands. Except for hazardous waste materials and spills, the City's current program does not address water quality issues.