

CHAPTER 1. INTRODUCTION

1.1 BASIN PLANNING PROGRAM DESCRIPTION

The 2002 Clover Creek Basin Plan is a comprehensive guide to surface water management in unincorporated areas of the Clover Creek Basin. The plan focuses on multiple aspects of surface water management, including water quality, flooding, and habitat issues. This plan was developed as part of Pierce County's Basin Planning Program, which was developed to create a more focused approach to watershed management in each of the County's major drainage basins. Previously, the *Pierce County Storm Drainage and Surface Water Management Plan* addressed directed surface water management county-wide for over a decade. The focus of that plan was primarily on reducing flooding problems and improving water quality entering the sole source aquifer underlying much of Clover Creek. As the plan addressed all basins in the County, only one chapter in the plan addressed issues in the Clover Creek basin. This plan can also be has been used as a source of information on pertinent studies, plans, and regulatory mechanisms related to water resources in the Clover Creek basin.

1.1.1 Study Area

Clover Creek flows generally northwest for 13.8 miles from its headwaters about 6 miles east of the Spanaway community to Steilacoom Lake. Its 74-square-mile drainage basin makes up about half of the combined Chambers-Clover Creek drainage area (Chambers Creek is the 5-mile creek flowing from Steilacoom Lake to Puget Sound). Significant tributaries to Clover Creek include Morey Creek and the North Fork of Clover Creek. The largest lakes in the basin are Spanaway, Tule, and Steilacoom Lakes. Figure 1-1 shows the location of the creek and its basin.

The Clover Creek basin contains portions of unincorporated Pierce County, including the Parkland and Spanaway communities, a significant portion of the City of Lakewood, a small portion of the City of Tacoma, and portions of McChord Air Force Base and Fort Lewis. A small portion of the Wards Lake watershed contained within unincorporated Pierce County is also addressed in this planning effort.

1.1.2 Key Elements of the Basin Plan

The Clover Creek Basin Plan differs from previous planning efforts in the basin in providing a multi-objective framework for basin planning. The basin plan identifies conditions that lead to surface water and groundwater problems and develops appropriate solutions to mitigate existing problems and minimize the creation of new problems. Key elements addressed in the basin plan are as follows.

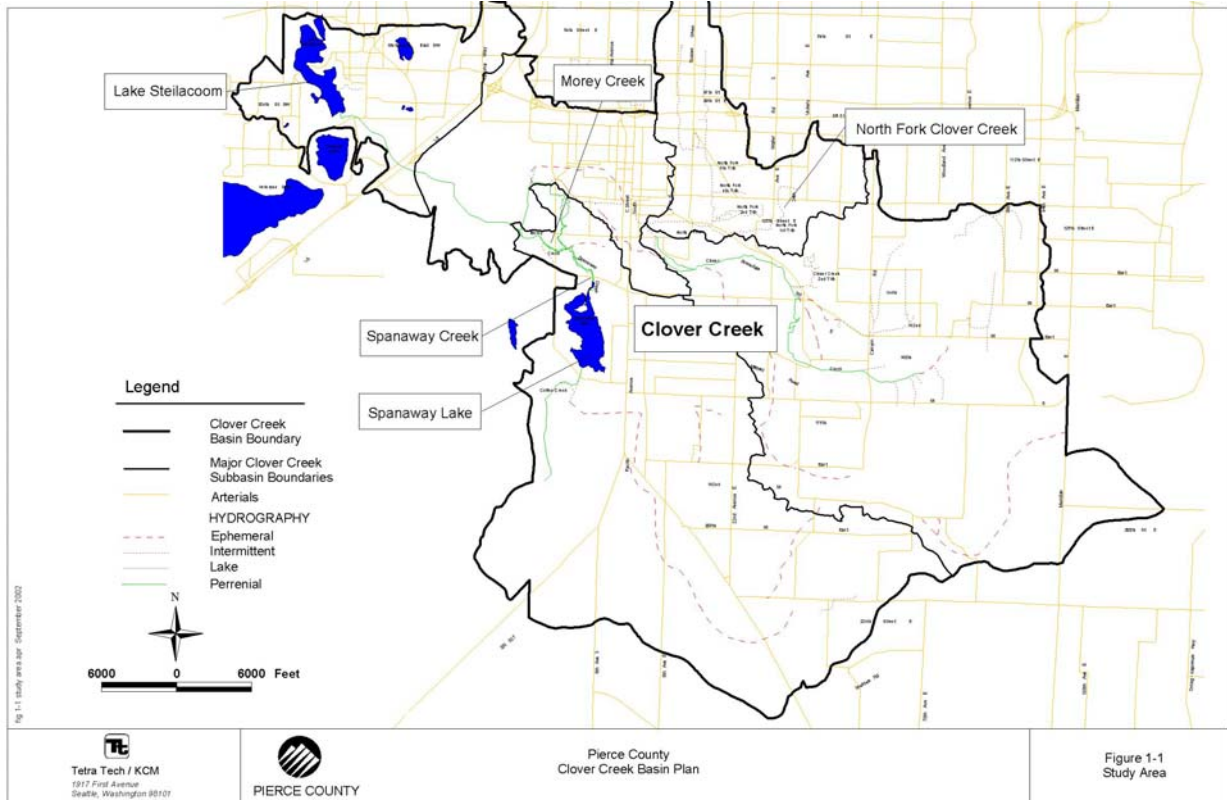
- **Problems**—The following problem categories are assessed:
 - Flooding due to surface water and groundwater
 - Surface water and groundwater quality impairment
 - Stream, wetland, and riparian habitat degradation

- **Impacts**—The following categories of impacts are addressed:
 - Loss of beneficial uses (recreation, water supply, habitat, and drinking water, etc.)
 - Violation of federal, state and local regulations (drinking water standards, stormwater quality regulations, etc.)
 - Property damage from flooding, inadequate drainage, or high groundwater
 - Threats to public health and safety (road inundation, degradation of surface water quality and drinking water quality, etc.)
- **Solutions**—The following forms of solutions were examined:
 - Capital projects (e.g., flood control facilities, and creek and watershed restoration)
 - Direct or indirect control of land use (e.g., zoning, buffers, and acquisitions)
 - Basin-specific development standards (e.g. discharge rate and volume control)
 - Storm drainage system maintenance
 - Public education, outreach, and involvement activities
 - Additional research or ongoing monitoring.

1.1.3 Report Organization

This report presents information collected from recent field data collection and previous investigations that were used to identify problems, and describes current physical conditions in the Clover Creek watershed. The goals and objectives of the basin plan, the stakeholders involved in the plan’s development, and applicable regulations that will affect the outcome of the plan’s recommendations are also presented. This report consists of the following chapters:

- Chapter 2 summarizes pertinent information on existing programs, including the 1991 Storm Drainage and Surface Water Management Plan, hereafter referred to as the 1991 Plan, related community and government programs, policies and regulations, and existing studies and reports related to the topics covered in this report.
- Chapter 3 identifies stakeholders in the planning process and describes how development of the basin plan provided for public participation
- Chapter 4 summarizes existing basin conditions, focusing on land use, drainage features, basin hydrology, habitat, and water quality.
- Chapter 5 describes site specific and basin wide problems relating to flooding, water quality and habitat degradation, and potential land use impacts on resource quality.



- Chapter 6 describes the hydrologic and hydraulic modeling that was carried out as part of this planning process, and presents known or possible causes of identified flooding problems. Potential solutions for each problem are listed that were analyzed during the planning process.
- Chapter 7 describes the potential causes of water quality problems in the basin and alternative solutions to the problems.
- Chapter 8 discusses the condition of the riparian habitat and ways to improve it.
- Chapter 9 describes the process that was used to analyze potential solutions and describes the solutions that were selected through this process.
- Chapter 10 outlines the recommendations that have been made as a result of the planning process.

1.2 STATEMENT OF PURPOSE

The Clover Creek Basin Plan is a surface water management plan for the Clover Creek Basin. It documents the existing condition of the basin’s water resources, identifies water resource problems and issues, and recommends a plan to improve conditions in the basin. Recommendations include not only capital projects, but also modifications to planned land use, development regulations and educational programs.

Phase 1 of the planning process documented the existing conditions of the basin’s water resources and identified water resource problems and issues. Phase 1 also established the

regulatory framework within which the complete basin plan was developed. During Phase 2 of the Clover Creek Basin Plan, problems and issues identified in Phase 1 were analyzed and solutions were recommended. This plan is a result of those analyses and several public meetings.

The 2002 Clover Creek Basin Plan will ensure that limited financial and staff resources are applied to best capital facility projects and programs for comprehensive surface water management in the Basin. To that end, the Basin Plan strategically identifies and evaluates surface water management issues in the Basin and recommends a comprehensive suite of projects and programs to reduce flood hazards, improve water quality and improve associated habitat throughout the Basin.

In addition, the Basin Plan furthers the County's compliance with its federal Clean Water Act National Pollutant Discharge Elimination System (NPDES) municipal stormwater permit. The County's NPDES stormwater permit provides for and favors basin planning as a major strategy for water quality compliance. Specific recommendations in the Basin Plan will result in improved compliance for the County. Also, under pending stormwater NPDES Phase II (anticipated to begin in March 2003), numerous Pierce County cities will be required to manage stormwater. The Basin Plan enables coordination with those cities within and adjacent to the basin and provides for programs that can leverage both County and cities' compliance requirements.

In addition, the Basin Plan furthers the County's Endangered Species Act (ESA) compliance by eliminating or reducing existing potential habitat issues that could cause "jeopardy" for protected species. The Basin Plan also identifies projects and programs that can be used to assess overall effectiveness of County actions through the Ecological Diagnostic and Treatment (EDT) method for determining salmonids affects caused by environmental change. In this respect, the Basin Plan also provides information and recommendations that could be used for salmonid conservation and recovery planning.

The Basin Plan is also intended to support Pierce County's upgrade to a Class 4 Community Rating under the Federal Emergency Management Agency's (FEMA) Community Rating System (CRS). Under that system, communities that conduct effective flood hazard management planning and develop infrastructure associated with that planning are eligible for a reduction in flood insurance premiums for local residents. Some of the CRS Class 4 prerequisites are accomplished through this Basin Plan.

The Basin Plan also supports the County's Hazard Mitigation Planning being conducted in response to recent Congressional action requiring this planning through FEMA in order to retain eligibility for federal disaster relief funding (44 CFR, Section 201.1). This Basin Plan provides flood hazard planning information in support of the Hazard Mitigation Plan requirements.

Finally, Pierce County will submit the Basin Plan to the Washington Department of Fish and Wildlife (WDFW) for consideration as a programmatic memorandum of agreement or five-year maintenance approval agreement under RCW 77.55.100 which allows for these agreements upon request for work conducted in accordance with the Basin Plan.

1.3 GOALS, OBJECTIVES, AND STRATEGIES

The goals and objectives for this plan, listed in Table 1-1, were used to formulate alternative measures for identified problems and related issues. The goals and objectives relate to the following basin issues:

- Surface water and groundwater hydrology
- Surface water and groundwater quality
- Riparian and stream habitat
- Flood damage reduction
- Basin planning.

1.3.1 Strategies

During the basin planning process, it became apparent that there are a multitude of reasons for impaired habitat and water quality in the basin, as well as for ongoing flood damage. Because of the diversity of objectives for the plan, and the diversity of problems to be solved, the plan needs to be comprehensive. Solutions required not only that capital projects be constructed, but that development regulations be modified, public education and involvement be increased and a variety of other measures be considered. In addition, other jurisdictions have a significant role to play in the successful implementation of this basin plan.

TABLE 1-1.
GOALS OF CLOVER CREEK BASIN PLAN

Goal	Objectives
<i>Surface and groundwater hydrology</i>	
Protect and, where feasible, restore the natural conveyance system and flow regime in Clover Creek.	<p>Address and solve surface water and groundwater quantity issues together to account for hydrogeologic conditions that connect them.</p> <p>Provide systematic capital improvement planning and programming for stormwater drainage and detention.</p>
<i>Surface and groundwater quality</i>	
Protect the surface and groundwater water quality of Clover Creek and its tributaries.	<p>Prevent surface and groundwater contamination from the discharge of excess nutrients, sediment and pollutants.</p> <p>Improve the quality of the surface water to meet Class A standards.</p>
<i>Riparian and stream habitat</i>	
Protect and, where feasible, restore existing in-stream and riparian habitat.	<p>Reduce the effects of urbanization and other anthropogenic impacts on in-stream and riparian habitats.</p> <p>Restore safe fish passage throughout Clover Creek, where feasible.</p> <p>Preserve wetlands for flood storage, water quality, and habitat purposes.</p>
<i>Flood damage reduction</i>	
Reduce the potential for damages to private structures and public infrastructure and the potential for loss of life.	<p>Implement appropriate flood hazard management measures that will reduce the potential for future flood damage based on the following criteria:</p> <ul style="list-style-type: none"> • Severity of problem • Effectiveness, emphasis on solving regional problems • Impact (both physical and social) • Enhancement of the riparian environment • Public acceptance • Capital cost and potential funding opportunities
<i>Basin Planning</i>	
Develop a comprehensive plan that is accepted by the community and concerned stakeholders.	<p>Develop and implement the Clover Creek Basin Plan in coordination with other agencies with jurisdiction and interest.</p> <p>Develop and implement the Clover Creek Basin Plan using a citizen participation process involving stakeholders and the general community.</p>