

CHAPTER 1. INTRODUCTION

1.1 PURPOSE AND PROJECT DESCRIPTION

King County recently expanded the service area of its surface water utility services to much of the rural area of the County. The County is committed to providing a comprehensive surface water program to these new areas. This rural reconnaissance report provides a general overview of the existing stream and basin conditions and problems related to surface water in the Patterson Creek Basin.

1.2 STUDY AREA

The Patterson Creek Basin covers 12,711 acres (19.86 square miles) in eastern King County, along the east slope of the Sammamish Plateau. It includes a small portion of the City of Sammamish. Patterson Creek is 12.1 miles long and flows into the Snoqualmie River north of Fall City. The Snoqualmie River flows into the Snohomish River, which flows into Puget Sound in the City of Everett.

The elevation of the Patterson Creek Basin varies from about 70 feet at the confluence with the Snoqualmie River to 1,400 feet in the southwest corner. Surficial geology types in the basin are 79 percent till and 13 percent outwash. The remaining 8 percent is wetland. Under existing (2001) land use conditions, 3 percent of the basin is impervious surface (based on land use conversion factors listed in Table 2-3; see Section 2.2.1 for detailed description).

1.3 GOALS AND OVERALL APPROACH

The Patterson Creek rural reconnaissance report has two basic goals:

- **Characterization**—To produce a rapid, systematic inventory and analysis of stream conditions and drainage systems, covering resources and problems under both current and future land uses. Each subbasin is to be ranked, classified as “impacted,” “sensitive,” or “not supporting,” and identified as “restorable” or not, using definitions from *Watershed Vulnerability Analysis* (Center for Watershed Protection 2002). A description of this analysis is provided in Appendix F.
- **Action Plan**—To identify high-priority management needs in the study area and to recommend programs for surface-water and habitat management.

1.4 PROJECT APPROACH

1.4.1. Characterization

The intent of the rural reconnaissance characterization is to describe stream basin conditions through a thorough analysis of all available data for the basin. Using methods

outlined in *Watershed Vulnerability Analysis*, the characterization analysis describes the hydrologic, geomorphic, and ecological processes that affect habitat and create surface water problems in each subbasin. The characterization identifies significant resource areas that contribute to ecosystem health, including open space and other highly functioning ecological areas. The characterization identifies significant flooding, water quality, erosion and aquatic resource problems. It also attempts to project the likely future conditions of the basin. For the Patterson Creek Basin, the characterization used available information and a limited amount of newly collected information including field sketches, site photographs, and pipe/channel measurements as needed. Table 1-1 summarizes the main elements of the characterization process.

TABLE 1-1. MAIN ELEMENTS OF THE BASIN CHARACTERIZATION PROCESS		
Compile Existing Data	Analyze and Interpret Data	Develop Report
Remote Data Aerial photography Oblique photos GIS Data sets Classified Land Cover Public Lands	<ul style="list-style-type: none"> ▪ Conduct hydrologic analysis ▪ Calculate impervious surface areas ▪ Analyze existing data ▪ Review published reports 	<ul style="list-style-type: none"> • Description of important hydrologic, geomorphic and ecological processes affecting basin • Description of significant resource areas and habitat functions warranting protection
Field Data Stream Typing Rain Gage Data Stream Gage Data Complaint Records Ambient Water Quality Data	<ul style="list-style-type: none"> ▪ Analyze remote and field data ▪ Analyze existing reports and data on major private and public development projects ▪ Analyze complaint records ▪ Conduct air photo analysis of land use and habitat conditions. 	<ul style="list-style-type: none"> • Description of significant surface water problems warranting remediation • Description of likely future basin conditions
Published Reports	<ul style="list-style-type: none"> ▪ Conduct targeted field inspections of likely aquatic habitat and surface water problems. 	

1.4.2 Action Plan

The action plan identifies projects for inclusion in the capital improvement program (CIP) that will reduce risks posed by surface water problems to human health and safety, rural infrastructure, personal property, and aquatic resources. The projects resolve surface water problems in a way that either maintains or improves aquatic habitats.

1.5 REPORT CONTENTS

This report represents a basin plan for the Patterson Creek Basin. It characterizes the existing stream and basin conditions and describes capital improvements needed to reduce existing flooding, protect or improve water quality, protect or improve habitat, and improve the overall health of the basin.

Chapter 2 discusses land cover characteristics in the Patterson Creek Basin and their effects on hydrology and habitat. Chapter 3 analyzes basin hydrology for predevelopment,

existing (2001), and future conditions. Chapters 4, 5, 6, and 7 discussed the basin's geomorphology, water quality, stream habitat, and drainage/erosion impacts and needs. Chapter 8 discusses the hydrology, geomorphology, and ecological processes affecting the Patterson Creek Basin and likely future impacts. Chapter 9 discusses the projects that have been identified and provides a recommended action plan.

1.6 PUBLIC INVOLVEMENT

The County and the consultant performing this study met with the Patterson Creek Flood Control Zone District on December 5, 2002 and March 6, 2003.

The purpose of the first meeting was to introduce the design team, describe the overall scope of work, and solicit input on known flooding and habitat problems in the basin. The main concern presented by those in attendance was mainstem flooding along SR 202. In their opinion, the main causes of this flooding were beaver dams, a build-up of vegetation in the channel, especially reed canary grass, and uncontrolled development in the basin. County staff stated that the riparian vegetation and future development conditions would be included in this study but that the control of beaver dams was beyond the scope of this study and the authority to manage those dams rested with the Washington State Department of Fish and Wildlife. Several basin maps were left for committee members to review and highlight problem areas.

At the second meeting, the consultant presented the findings of the study as well as a preliminary list of potential capital improvement projects. In their opinion the list addressed the major problem areas. There was some concern however that the future forested conditions were not being accurately modeled. The consultant stated that the criteria would be reviewed and coordinated with King County basin modelers in order to assure that the assumptions were consistent with other King County basin studies.

1.7 KING COUNTY WORKSHOPS

Following the completion of the Draft Patterson Creek Rural Reconnaissance Reports, the findings including the CIP and basinwide recommendations were reviewed by an expanded team of King County Staff. Comments from this review were discussed at two workshops with the expanded team and consultants. Based upon these workshops, modifications were made to the report including the recommended CIP list.