

## CHAPTER ONE

# Introduction

The Pierce County Public Works and Utilities Department, Surface Water Management (Surface Water Management) is responsible for surface water management in unincorporated Pierce County. Surface Water Management plans, designs, secures permits for, builds, and maintains storm drainage and surface water management facilities. Surface Water Management also identifies non-structural solutions to surface water problems, such as monitoring needs, enforcement, or services.

Surface Water Management advises and works with other entities, local jurisdictions, and with private interests to ensure that storm drainage and surface water issues are dealt with by appropriate parties as close as possible to the source of the problem.

Related responsibilities include compliance with the stormwater quality requirements of the federal *Clean Water Act*, the Pierce County's (County) *Municipal Stormwater National Pollutant Discharge Elimination System* (NPDES) permit, state waste discharge permit, and certain fish habitat protection activities.

Other Surface Water Management responsibilities and activities include river levee maintenance, emergency response during floods, stream gauging, water quality monitoring, rainfall data gathering, water supply planning, and providing public information.

Fees paid by property owners in unincorporated Pierce County and grant funds pay for these facilities and services.

## 1.1 BASIN PLANNING PROGRAM

Surface Water Management prepares basin plans to identify and prioritize capital improvement projects and other Surface Water Management activities in individual drainage basins. Basin plans comprehensively address the flooding, water quality and fish habitat aspects of surface water management in the major stream systems of the non-federal lands within unincorporated Pierce County.

The basin plans are updates of the county-wide *Pierce County Storm Drainage and Surface Water Management Plan* (Montgomery Engineers Inc., 1991), referred to here simply as the *1991 Plan*, by identifying and addressing the flooding, water quality, and stream habitat problems in more detail than was possible in 1991. In addition, the basin plans address the relevant requirements of major federal, state and Pierce County laws, regulations, and policies enacted since the *1991 Plan*, such as the *State Growth Management Act*, NPDES, Total Maximum Daily Load (TMDL) requirements of the federal *Clean Water Act*, FEMA's

*Community Rating System* (CRS), and the fish listings under the federal *Endangered Species Act* (ESA).

The basin plans will be implemented primarily through Surface Water Management activities. However, Surface Water Management will share information from basin plans with other entities, non-profit organizations, tribes, and jurisdictions to identify needs and resolve issues that might most effectively be dealt with by those agencies.

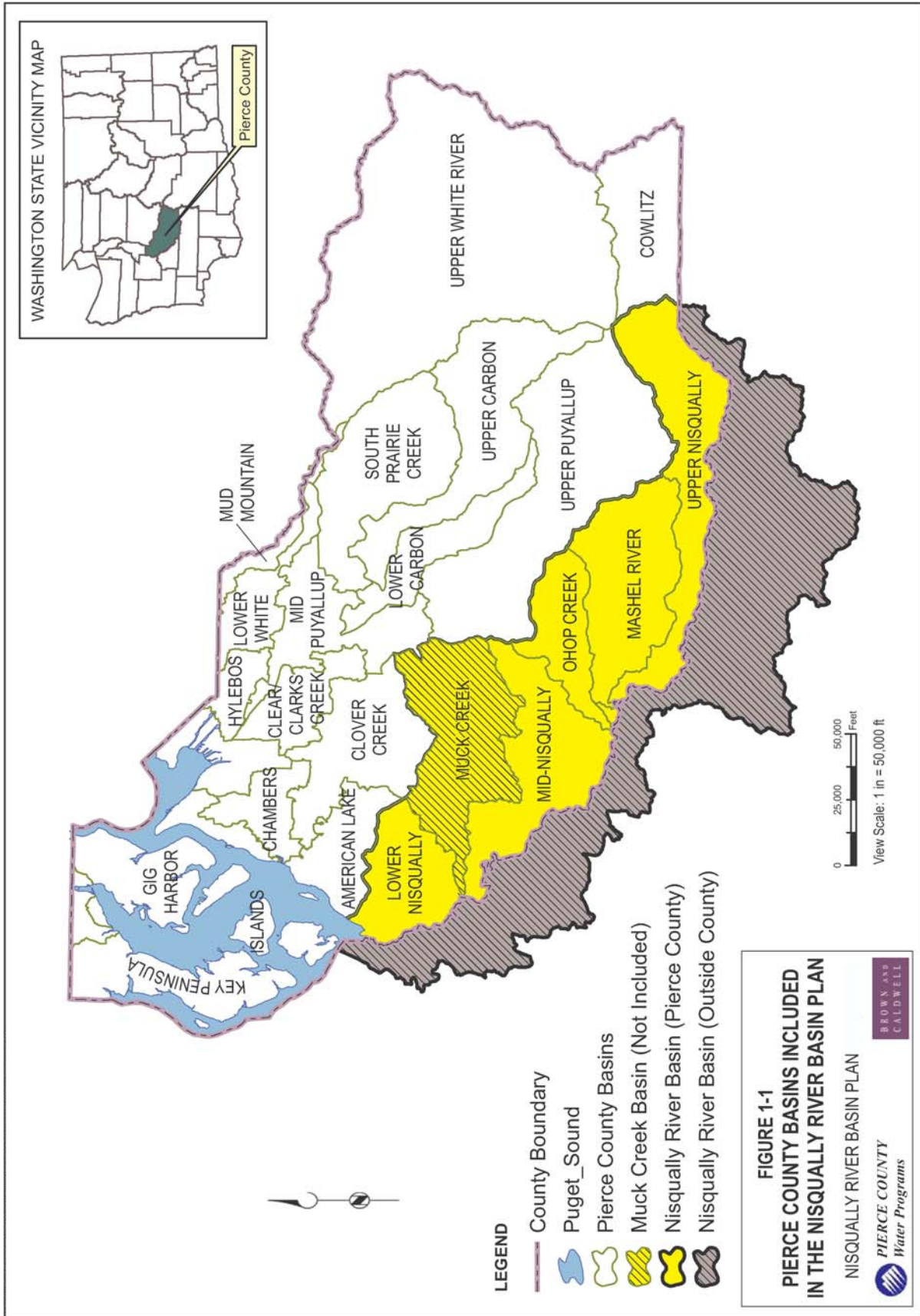
The *Nisqually River Basin Plan* is one of 10 basin plans developed by Surface Water Management. *Figure 1-1* shows the location of the Nisqually River basin relative to the other drainage basins in Pierce County. Basin plans have been completed or are underway for other drainage basins in unincorporated Pierce County.

Basin plans identify existing conditions that affect storm drainage and surface water, forecast future hydrological conditions, identify existing and potential problems, and evaluate alternative solutions based on technical, environmental, and cost considerations. The basin plans are used to develop Surface Water Management' capital improvement, maintenance, repair, property acquisition, and program schedules and budgets.

The basin plans concentrate on remedies for frequently flooded areas, water quality problems, fish habitat protection, and other surface water management concerns in the unincorporated parts of Pierce County. Drainage facilities within incorporated cities and towns, national forests, certain timber lands, tribal lands, parks, and military bases are not within the scope of basin plans unless they affect surface water management in unincorporated areas within the basin plan service area.

The basin planning process involves three phases:

- **Phase 1 - *Basin Characterization*.** This phase consists of inventorying and documenting existing conditions, such as a history of flooding, water quality and fish habitat problems; existing storm drainage and surface water management facilities; the regulatory environment; existing and future land use; stream flow characteristics; stream reaches and associated wetlands; other critical areas; the creek's ability to support various fish species; and the fish species present. It also identifies key problem areas and data gaps that are addressed in *Phase 2*. A basin characterization report is developed to document the results of *Phase 1* of the Nisqually River basin planning process.
- **Phase 2 - *Plan Development and Adoption*.** This phase builds on the findings of *Phase 1* by filling information gaps, correcting information, performing hydrologic analyses based on planned future conditions, investigating problems, identifying solutions, and recommending solutions.
- **Phase 3 – *Implementation and Monitoring*.** This phase consists of plan implementation, on-going monitoring, and future plan updates.



## 1.2 Planning Area

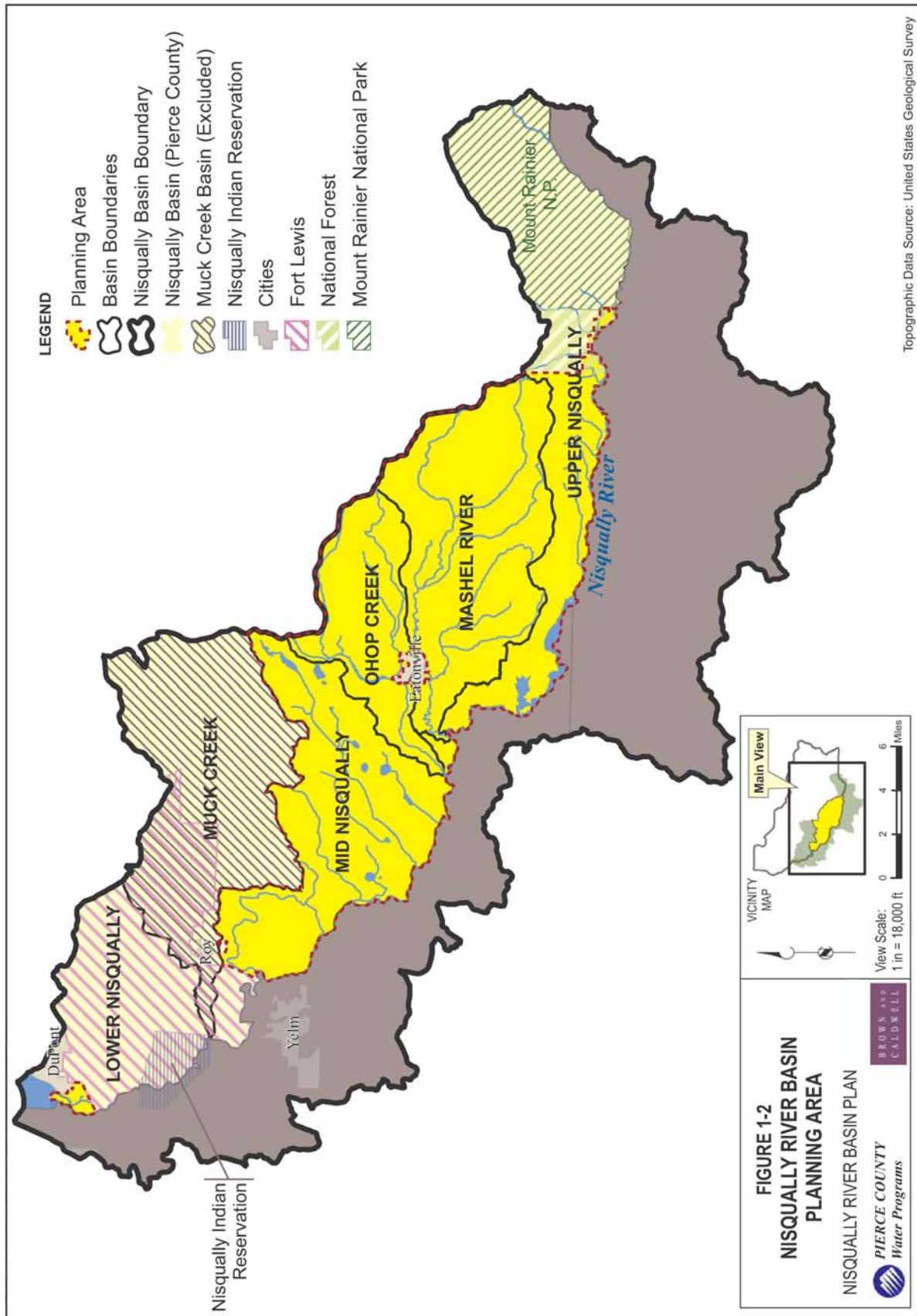
The Nisqually River originates on Mount Rainier and flows approximately 78 miles before discharging into Puget Sound. It is the only river in the nation with its headwaters in a national park and its estuary in a national refuge. The Nisqually River drains an area of approximately 760 square miles.

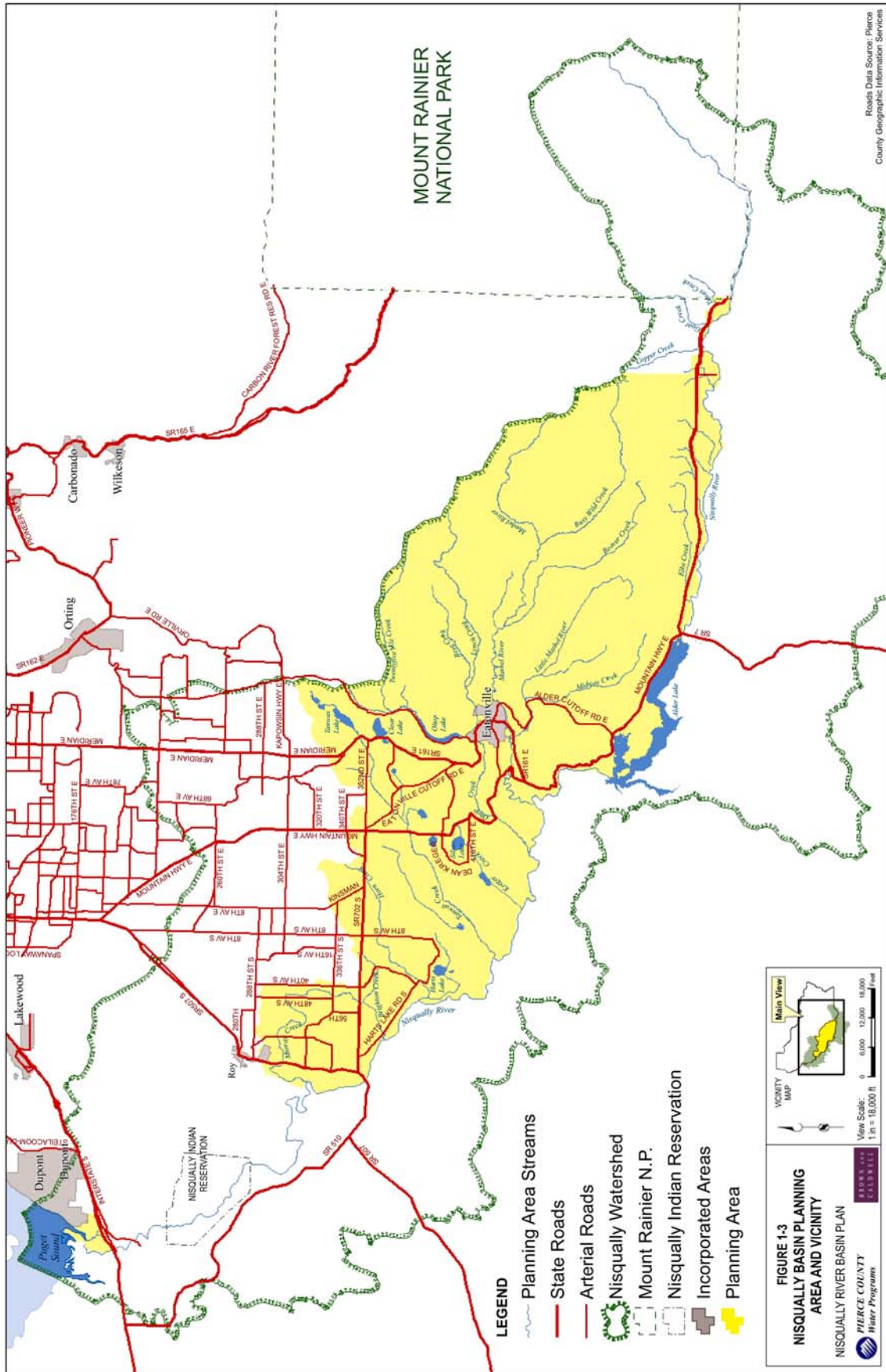
The Washington State Department of Ecology (Ecology) has designated the Nisqually River basin as “Water Resource Inventory Area” (WRIA) 11. The Nisqually River basin planning area includes the unincorporated Pierce County portion of WRIA 11, exclusive of the Muck Creek Basin. The Muck Creek Basin was addressed separately by the Muck Creek Basin Plan (2004). Moreover, the Nisqually Basin Plan does not cover areas of the Basin that lie within other jurisdictions. This includes incorporated towns and cities, commercial timber lands regulated by the Washington State Department of Natural Resources (DNR), Thurston and Lewis counties, and federal lands; except where activities in these areas may contribute to surface water management problems in unincorporated Pierce County. *Figure 1-2* shows the 240 square mile planning area. *Figure 1-3* shows the planning area and vicinity. [Chapter 4](#) of this report describes the general characteristics of the planning area.

### 1.2.1 Key Elements of the Basin Plan

Key elements that will be addressed in the Nisqually River Basin Plan are:

- **Existing Conditions**
  - ✓ Characterization of topography, soils, current and future flow volume, water quality, fish habitat, and land cover factors influencing surface water runoff.
- **Problems**
  - ✓ Flooding due to surface water and/or groundwater.
  - ✓ Surface water quality impairment related to stormwater runoff.
  - ✓ Stream and riparian habitat degradation due to stormwater.
- **Impacts**
  - ✓ Negative effects of stormwater runoff affect the ability to meet federal, state, and local regulations.
  - ✓ Property damage from flooding, inadequate drainage or high groundwater.
  - ✓ Threats to public health and safety (road inundation, impaired surface water quality, etc.).
- **Solutions**
  - ✓ Capital projects (e.g., flood control facilities, creek and watershed restoration, etc.).
  - ✓ Direct or indirect control of land uses (e.g., planning, zoning, buffers, stormwater facility design standards, etc.).
  - ✓ Basin-specific development standards (e.g., discharge rates and volume control).
  - ✓ Storm drainage system maintenance activities.
  - ✓ Additional research or on-going monitoring.
  - ✓ Other activities as appropriate.





## 1.3 STATEMENT OF PURPOSE

The purpose of the *Nisqually Basin Plan* is to establish the actions Pierce County will take and what is needed to reduce flood hazards, protect water quality, and to protect fish and wildlife habitat in the Nisqually River Drainage Basin. To determine basin plan actions and needs, consideration is given to the following: physical characteristics of the basin; laws, policies and regulations that apply to surface water management in Pierce County; the preferences of citizens in the County and in the Nisqually River Basin; and the character of existing land use and planned growth as set out in the *Comprehensive Plan for Pierce County, Washington*.

## 1.4 PLAN GOALS AND OBJECTIVE

Before embarking on the basin planning process, Surface Water Management prepared a basin planning guidance document to promote consistency among the basin plans. The goals and objectives for the Nisqually River basin plan, listed in *Table 1-1* below, are derived from the Surface Water Management' guidance document. These will form the basic criteria for selection and prioritization of the actions recommended in the basin plan. This will help ensure consistency and comparability with Water Program's other basin plans.

The Nisqually River Basin Plan differs from the other Surface Water Management' basin plans in several respects:

- The Nisqually Plan addresses flooding issues on the mainstem of the river. Surface Water Management' other basin plans do not address mainstem flooding, because these issues are being addressed through flood hazard management plans. Flood hazard management plans have been developed for the other large rivers in Pierce County, but not for the Nisqually River.
- The Nisqually Basin Plan is larger and more rural in nature than the other basins.
- Unlike the other basins, extensive fish habitat analysis data is available for the Nisqually River and its tributaries. The Nisqually Tribe has been collecting field data and analyzing fish habitat conditions throughout the basin for more than 20 years, and has amassed a substantial body of information on river and stream conditions, problems, and restoration or protection needs. The Nisqually River Basin planning approach has been tailored to take full advantage of the river and stream data collected by the Nisqually Tribe.

**TABLE 1-1**  
**Goals and Objectives of the Nisqually River Basin Plan**

Goal	Objectives
Reduce flood hazards	<p>Property loss and repetitive damage are reduced.</p> <p>Streams will not be adversely impacted by flood events.</p> <p>Pierce County standing under the Federal Emergency Management Agency's Community Rating System is improved.</p> <p>New development is located outside of flood-prone areas.</p>
Improve fish habitat	<p>Number of stream miles available for wild, native fish populations is increased.</p> <p>Population numbers of species listed as endangered or threatened under the ESA are maintained or increased.</p> <p>Quality and quantity of available wetlands and riparian habitat is improved.</p>
Improve water quality	<p>State Surface Water Quality Standards (WAC 173-201a) are met.</p> <p>Number of impaired (303d listed) water bodes is reduced.</p> <p>Pierce County complies with its NPDES permit for stormwater by meeting permit terms and condition to the maximum extent practicable.</p> <p>Risk of groundwater contamination is reduced.</p> <p>Rates of erosion are reduced.</p>
Demonstrate coordinated and responsible use of public resources	<p>Cost of maintaining stormwater facilities are reduced.</p> <p>Project value is favorable when measured in terms of costs and benefits.</p> <p>Polls demonstrate that public awareness of flooding, fish habitat, and water quality issues has increased.</p> <p>Monitoring and enforcement programs demonstrate an increase in services per dollar spent.</p> <p>Basin plan implementation addresses elements of other Pierce County plans.</p> <p>Other agencies and jurisdictions use basin plan to support their surface water management activities.</p>
Influence location and methods for new development	<p>Low Impact Development techniques are widely used.</p> <p>Effective BMPs are identified and widely used.</p>

Source: *Guidance for Basin Planning, Pierce County Surface Water Management*, Pierce County Public Works & Utilities, Surface Water Management; Pierce County Storm Drainage and Surface Water Management Advisory Board, June 2005.