



Shoreline Master Program

Grant No. G1000033

Shoreline Characterization

Prepared for:

Town of Skykomish

119 4th Street N.

PO Box 308

Skykomish, WA 98288

Prepared by:

BHC Consultants, LLC

1601 Fifth Avenue, Suite 500

Seattle, WA 98101

TABLE OF CONTENTS

1.0 INTRODUCTION	1
1.1 Purpose of the Inventory and Characterization Report	1
1.2 Shoreline Jurisdiction	1
1.3 Methods	1
1.4 Study Area	2
1.5 Report Organization	2
2.0 CURRENT REGULATORY FRAMEWORK SUMMARY	5
2.1 Shoreline Management Act	5
2.2 Town of Skykomish	6
2.2.1 Current Shoreline Management Act Compliance	6
2.2.2 Comprehensive Plan, Zoning and Other Town Regulations	6
2.3 State and Federal Regulations	7
3.0 ELEMENTS OF THE SHORELINE INVENTORY	9
3.1 Land Use Patterns, Transportation and Utility Facilities	9
3.1.1 Land Use	9
3.1.2 Transportation	10
3.1.3 Wastewater and Stormwater Utilities	10
3.1.4 Shoreline Modifications	10
3.2 Existing and Potential Public Access Sites	10
3.3 Critical Areas and Special Status Species	11
3.4 Floodplains and Channel Migration Zones	12
3.5 Historical or Archaeological Sites	12
3.6 Other Areas of Potential Interest	12
4.0 CONDITIONS BY REACHES	15
4.1 Reach A – Skykomish River, North Bank	15
4.1.1 Land Use Patterns, Transportation and Utility Facilities	16
4.1.2 Existing and Potential Public Access Sites	16
4.1.3 Critical Areas	16
4.1.4 Floodplains and Channel Migration Zones	18
4.1.5 Other Items of Potential Interest	18
4.2 Reach B – Skykomish River, South Bank	19
4.2.1 Land Use Patterns, Transportation and Utility Facilities	19
4.2.2 Existing and Potential Public Access Sites	20
4.2.3 Critical Areas	27
4.2.4 Floodplains and Channel Migration Zones	27

4.2.5 Other Items of Potential Interest.....	27
4.2.6 Opportunity Areas	28
4.3 Reach C. Maloney Creek	28
4.3.2 Existing and Potential Public Access Sites.....	29
4.3.3 Critical Areas	30
4.3.4 Floodplains and Channel Migration Zones	30
4.3.5 Other Items of Potential Interest.....	31
4.3.6 Opportunity Areas	31
5.0 INFORMATION GAPS.....	33
6.0 SHORELINE MANAGEMENT RECOMMENDATIONS.....	35
7.0 REPORT REFERENCES AND BIBLIOGRAPHY	37
APPENDIX A – INVENTORY	
APPENDIX B – MAP FOLIO	
TABLES	
Table 1. Shoreline Planning Reaches	15
Table 2. Reach A Land Use, Zoning, and Shoreline Environment Designations	16
Table 3 Listed Anadromous Fish Species:	18
Table 4. Reach B Land Use, Zoning, and Shoreline Environment Designations	19
Table 5. Listed Anadromous Fish Species:	27
Table 6. Reach C Land Use, Zoning, and Shoreline Environment Designations	29
Table 7. Listed Anadromous Fish Species:	31
FIGURES	
Figure 1: View access at the north end of 5 th Street bridge.....	17
Figure 2: West Levee.....	21
Figure 3: West Levee – Looking west from the 5th Street Bridge	22
Figure 4: Below the 5th Street Bridge.....	23
Figure 5: Below the 5th Street Bridge – Looking west from behind the SkyRiver Inn	23
Figure 6: Vacant parcel at West End of the West Levee	24
Figure 7: Street end access – 3rd Street	24
Figure 8: Street end access – 4th Street	25
Figure 9: Street end access – 4th Street, looking north	25
Figure 10: Unnamed Street End – West end of River Drive	26
Figure 11: Unnamed Street End – West end of River Drive	26
Figure 12: Street end access – Thelma Street	30

1.0 INTRODUCTION

1.1 Purpose of the Inventory and Characterization Report

The Town of Skykomish (Town) obtained a grant (Grant No. G1000033) from the Washington State Department of Ecology (Ecology) to prepare a comprehensive update of the Town's Shoreline Master Program (SMP) as defined by the State of Washington Shoreline Management Act (SMA) (RCW 90.58). The purpose of this study is to conduct a baseline inventory and characterization of the natural and built conditions within the Town's shoreline jurisdiction. This study by BHC Consultants, LLC (BHC) specifically addresses the required elements to complete a shoreline inventory and characterization report.

The purpose of this update is to bring the adopted SMP into compliance with the new state rules; acknowledge recent changes in ownership and use of the shorelands; and address the characteristics of shoreline development activities over which the Town has regulatory responsibility. Recent changes in the SMA rules and the SMA/GMA integration have created a new perspective for local governments. Now, the focus on shoreline restoration introduces a policy direction that for Skykomish, provides new opportunities for linking resource and community objectives.

1.2 Shoreline Jurisdiction

Under SMA, the shoreline jurisdiction includes areas within the Town limits that are 200 feet landward of the ordinary high water mark (OHWM) of waters that have been designated as "shorelines of statewide significance" or "shorelines of the state." These designations were established in 1972 as described in Washington Administrative Code (WAC) 173-18. "Shorelines of statewide significance", as they specifically pertain to rivers west of the Cascade range, are defined as having a mean annual flow of 1000 cubic feet per second (cfs) or greater. "Shorelines of the state" are generally described as shorelines of all other streams or rivers having a mean annual flow of 20 cfs or greater and lakes with a surface area greater than 20 acres.

SMA specifies two situations where the Town's shoreline jurisdiction extends beyond the designated 200-foot limit. These situations involve floodways and "associated" wetlands. In areas of the Town where floodways extend beyond the OHWM, the Town's shoreline jurisdiction includes the floodway plus 200 feet of floodplain, landward of the floodway. Associated wetlands are also included in the shoreline jurisdiction if they are contiguous with either the OHWM or the floodway. Optionally, a local government may, at its discretion, include all or a larger portion of the 100-year floodplain within shoreline jurisdiction.

1.3 Methods

The shoreline inventory specifically documents conditions throughout approximately 1.1 miles of shoreline within the Town limits. Geographic information systems (GIS) mapping data, including land use and critical areas within Town's shoreline jurisdiction, has been prepared by BHC, and is presented separately in the "2009 Town of Skykomish Shoreline Master Plan Map

Portfolio” (the map portfolio). BHC conducted the shoreline inventory by collecting and synthesizing existing maps, plans, surveys, studies, inventories, and other published information and data applicable to the Town's shorelines. A comprehensive list of the publications and studies used is presented in the references section at the end of this report.

A creek walk and a river walk were also conducted as part of the inventory process to spot-check and supplement published information. Where data was available in text but not mapped, the information was considered in the discussion, but it was not provided graphically. Where data were neither available in text nor mapped, the information was identified as a data gap and discussed in Section 5. Specific methods and data used to address the elements of the inventory are described in more detail in Section 3.

The inventory and characterization discussion presented in this study provides the Town with information on existing conditions and evaluates shoreline functions and resources for potential opportunities to enhance public access, conserve natural resources, and take the steps needed to restore ecological functionality to the their shoreline environment.

1.4 Study Area

The Town of Skykomish is located in northeast King County (Map 1), situated west of the confluence of the Beckler River and the South Fork of the Skykomish Rivers between River Mile (RM) 8.8 and 9.6. There are approximately 1.1 miles of shoreline in the Town. US Highway 2 runs east-west and parallel to the north side of the river while the BNSF railway runs east-west through the middle of the Town. The South Fork of the Skykomish River exceeds a mean annual flow of 1,000 cfs and, therefore, is designated as a “shoreline of the statewide significance” (Map 2). Maloney Creek exceeds 20 cfs and therefore also falls under the Shoreline Jurisdiction.

Within the Town of Skykomish, the shoreline jurisdiction has been identified as extending 200 feet from the Skykomish River OHWM and up to 200 feet of 100-year floodplain, landward of the floodway. The shoreline jurisdiction also includes Maloney Creek 200 feet landward OHWM and up to 200 feet of 100-year floodplain, landward of its floodway. The study area includes all lands currently within the Town limits that fall within the shoreline jurisdiction as defined above (Maps 6, 7, 8 and 9).

1.5 Report Organization

The report is organized into seven sections with maps contained at the end of the report. Section 1 introduces the study area and the concepts of shorelands and shoreline jurisdiction. Section 2 covers the SMP framework as it applies to the Town’s comprehensive plan, zoning, and other regulations as well as applicable state and federal regulations. Section 3 discusses specific methods and data used to address each of the required elements of the shoreline inventory including land use patterns, critical areas, other areas of potential interest, and areas for restoration and enhancement opportunities. Section 4 summarizes the approach to dividing the shoreline jurisdiction into distinct segments as well as the required elements of the inventory associated with each of the shoreline segments. Section 5 covers gaps pertaining to the inventory

that are required by SMA but which could not be discussed because of a lack of available information and Section 6 provides shoreline management recommendations based on restoration opportunities in the context of other local and regional planning opportunities. Section 7 contains a comprehensive list of references that were used in creating this report.

The included sections are as follows:

- Section 1 – Introduction
- Section 2 – Current Regulatory Framework
- Section 3 – Elements of the Shoreline Inventory
- Section 4 – Conditions by Inventory Segment
- Section 5 – Informational Gaps
- Section 6 – Shoreline Management Recommendations
- Section 7 – References

2.0 CURRENT REGULATORY FRAMEWORK SUMMARY

The discussion of regulatory requirements included herein is not intended to be a complete list of all permits or approvals necessary for work within the Town's shoreline jurisdiction or other areas within the Town or UGA. Other portions of local code and state and federal regulations may apply to development projects within the Town. The permits and approvals necessary for construction may vary from parcel to parcel regardless of shoreline jurisdiction and may vary depending on the type and intensity of the work proposed. Prior to any construction within town limits, an applicant should contact the Town and the applicable state and federal agencies to determine actual permit requirements. For development of parcels in the UGA outside of the town limits, an applicant should contact King County and the applicable state and federal agencies to determine actual permit requirements.

2.1 Shoreline Management Act

The general purpose of the Act is to provide a statutory framework to assist local governments in developing shoreline master programs (SMPs); to serve as standards for the regulation of shoreline development in the absence of a master program along with the policy and provisions of the Act; and, to be used along with the policy of RCW 90.58.050, as criteria for state review of local master programs under RCW 90.58.090 (Washington State Shoreline Master Program Guidelines 2003 WAC 173-26).

The SMP is both a planning and regulatory instrument. The primary goals of the SMP are to: 1) balance and integrate the objectives and interests of local citizens; 2) address the full variety of conditions of the shoreline; 3) guide planning and regulatory measures for adjacent land use; and 4) address conditions and opportunities of specific shoreline segments by classifying the shorelines into "environment designations." The method for local government to account for different shoreline conditions is to assign an environment designation to each distinct shoreline section in its jurisdiction. The environment designation system provides a framework for the development of local goals, policies, and regulations that reflect specific shoreline land uses, the biological and physical character and limitations of the shoreline, and goals and aspirations of the local community for its future development. SMA defines six general shoreline environment designations (High-Intensity, Shoreline Residential, Urban Conservancy, Rural Conservancy, Natural, and Aquatic) representing a range of development, from high to low intensity.

The SMP Update process (WAC 173-26) will culminate in a SMP that is based on technical and scientific information. This information is compiled in the Shoreline Inventory & Characterization Report, which can then be used to determine "cumulative impacts," "mitigation," and "no net loss" to the shoreline environments. The Inventory & Characterization Report is the baseline for determining current environmental conditions in the Town of Skykomish and the immediately surrounding areas. The Report will be used throughout the review process to establish appropriate Shoreline Designations and sound policies and regulations to protect, restore, or enhance the shoreline resources for "no net loss" of long-term ecological functions.

2.2 Town of Skykomish

2.2.1 Current Shoreline Management Act Compliance

Under SMA, the Town is responsible for: 1) developing an inventory of the natural characteristics and land use patterns along shorelines covered by SMA; 2) preparing a Master Program to determine the future uses, conservation, and restoration of the shorelines; and 3) implementing a permit system to further the goals and policies of both SMA and the local Master Program.

The Town's SMP outlines goals and policies for the shorelines of the Town and establishes regulations for development proposed in those areas. The Town last updated its SMP in September of 1999.

The current adopted shoreline environment designations of the Town's SMP are *Aquatic*, *Natural*, *Conservancy*, *Small Town Mixed Use*, and *Transportation* (Map 3). These designations generally coincide with those of King County at the Town limits.

2.2.2 Comprehensive Plan, Zoning and Other Town Regulations

The Town's Comprehensive Plan Land Use Map and Zoning Map designate areas of the shoreline jurisdiction for Commercial, Historic Commercial, Industrial, Public, and Residential uses (Map 4). As required by the Growth Management Act (RCW 36.70A), the Comprehensive Plan references the Town's existing SMP.

The Town currently does not have an Urban Growth Area (UGA) that is larger than the Town limits. The Comprehensive Plan update scheduled for 2010 may include evaluation of areas that could be considered for creation of the UGA, which would require amendment of the King County Comprehensive Plan. If a proposed UGA includes shorelines, the SMP will have to be amended so that environments consistent with the Town system can be established.

The Town's development regulations include standards for development in and around critical areas, including wetlands, critical habitats, aquifer recharge areas, and geological and flood hazard areas in the Skykomish Municipal Code Chapter 16.15 (Critical Areas) and Chapter 16.10 (Flood Damage Prevention). The Town's zoning code and land use regulations apply to all land area within the Town limits. However, many of the regulations relate to features such as streams, wetlands, fish and wildlife habitat areas, and floodways that are prevalent in the Town's shoreline jurisdiction.

Since the 1999 SMP amendment, the Town has issued three shoreline permits. One was for rebuilding the SkyRiver Inn after the BNSF remediation project and the others were related to the installation of the Skykomish wastewater system.

2.3 State and Federal Regulations

A number of state and federal agencies may have jurisdiction over land or natural elements within the Town's shoreline jurisdiction. Local development proposals most commonly trigger requirements for state or federal permits when they impact wetlands or streams; potentially affect fish and wildlife listed under the federal Endangered Species Act (ESA); result in over five acres of clearing and grading; or affect the floodplain or floodway. As with local requirements, state and federal regulations may apply throughout the Town, but regulated resources are common within the Town's shoreline jurisdiction. The state and federal regulations affecting shoreline-related resources include, but are not limited to:

- **Endangered Species Act:** The federal ESA addresses the protection and recovery of federally listed species. The ESA is jointly administered by the National Oceanic and Atmospheric Administration (NOAA) Fisheries (formerly referred to as the National Marine Fisheries Service [NMFS]), and the United States Fish and Wildlife Service (USFWS).
- **Clean Water Act (CWA):** The federal CWA requires states to set standards for the protection of water quality for various parameters, and it regulates excavation and dredging in waters of the U.S., including wetlands. Certain activities affecting wetlands in the Town's shoreline jurisdiction or work in the adjacent rivers may require a permit from the U.S. Army Corps of Engineers and/or Ecology under Section 404 and Section 401 of the CWA, respectively.
- **Hydraulic Project Approval (HPA):** The Washington Department of Fish and Wildlife (WDFW) regulates activities that use, divert, obstruct, or change the natural flow of the beds or banks of waters of the state and may affect fish habitat. Projects in the shoreline jurisdiction requiring construction below the ordinary high water mark of the three rivers in the Town or other tributary streams could require an HPA from WDFW. Projects creating new impervious surface that could substantially increase stormwater runoff to waters of the state may also require approval.
- **National Pollution Discharge and Elimination System (NPDES):** Ecology regulates activities that result in wastewater discharges to surface water from industrial facilities or municipal wastewater treatment plants. NPDES permits are also required for stormwater discharges from industrial facilities, construction sites of one or more acres, and municipal stormwater systems that serve populations of 100,000 or more.

3.0 ELEMENTS OF THE SHORELINE INVENTORY

The master program guidelines (WAC 173-26-201(3)(c)) require that the following elements of the natural and built environment be included in the shoreline inventory:

- Land use patterns, including existing structures and impervious surfaces, open spaces, water-related utilities, shoreline modifications, transportation and navigation, and existing and potential public access sites.
- Critical areas, including wetlands, aquifer recharge areas, geologically hazardous areas (landslide, erosion, seismic, and volcanic), habitat and species (listed and priority), and frequently flooded areas (floodways and flood hazards).
- Known historical or archaeological sites.
- Toxic/hazardous waste cleanup sites.
- Other areas of potential interest.
- Opportunity areas include those areas that represent potential for restoration, enhancement or protection.

In addition to these elements, the guidelines recommend that an inventory include discussions covering regulatory conditions that affect areas within shoreline jurisdictions (discussed in Section 2 above), cumulative impacts such as channel modifications and development, and gaps in existing information.

Methods and data sources used to address each of these elements are described below. Information sources included published reports and mapped data. Specific citations are included in Section 7.0, References. Where data have not been mapped, the information was considered unavailable and not addressed. A general discussion of conditions in the Town's shoreline jurisdiction for each element is also provided. Section 5, Conditions by Inventory Segment, describes each element within the Town's shoreline jurisdiction in greater detail.

3.1 Land Use Patterns, Transportation and Utility Facilities

The Town's Comprehensive Plan was the primary source of literature used to identify land use patterns within the shoreline jurisdiction. This element of the shoreline inventory was referenced from the Existing Land Use GIS mapping data provided by BHC (Map 4).

3.1.1 Land Use

Current land use in the Town's shoreline jurisdiction is primarily a mixture of vacant, undeveloped areas and residential uses but it also includes the Town's historic district and commercial areas. Since 2003, the Town's population has been stable at 210 residents after steadily decreasing since 1990. This stable population along with the lack of a town-wide sewer

system and small lots has lead to little new development in the last 10 years. The Town's current Shoreline Environment includes most of the developed areas within the Town. All of the Comprehensive Plan's future land uses are included within the shoreline areas.

Most of the approximately 300 parcels in Town are included in the Skykomish shoreline jurisdiction area. Some are totally within and some are partially within the shoreline area. Of this total, 12 parcels are town-owned, 9 parcels are owned by other public agencies, 5 are owned by utility companies, 5 by the school district, 3 by BNSF and the remaining parcels are privately owned (see Map 5).

3.1.2 Transportation

Major roads and transportation facilities in Skykomish's shoreline jurisdiction include US 2, Old Cascade Highway and the BNSF railroad. The 5th Street bridge across the Skykomish River serves as the gateway to Skykomish. Other roads in the shoreline jurisdiction include Railroad Avenue and most residential streets in the town.

3.1.3 Wastewater and Stormwater Utilities

The Town of Skykomish is currently installing wastewater facilities which will include service for the entire town. The treatment facility is located east of town on Old Cascade Highway. Two pump stations have been built and the first round of connections should be installed by the end of 2009.

The stormwater drainage system in the Town of Skykomish directs runoff to Skykomish River through outfalls at the end of town streets.

3.1.4 Shoreline Modifications

Shoreline modifications refer to structural alterations of the river's natural bank, including levees, dikes, floodwalls, riprap, bulkheads, docks, piers or other in-water structures. Such modifications are used to stabilize the river bank and prevent erosion. These modifications also restrict channel migration and alter flow dynamics.

Within the Town of Skykomish, shoreline modifications include levees along the south side of the Skykomish River, protecting the center of town, riprap along other parts of the Skykomish River, and structures along Maloney Creek to help prevent flooding (Map17).

3.2 Existing and Potential Public Access Sites

Existing and potential public access sites were identified from information provided in the 2005 Skykomish Parks, Trails, & Open Space Plan. Public access sites were further defined and identified from 2009 aerial photographs and a field reconnaissance of the study area in September 2009 (see Map 18).

3.3 Critical Areas and Special Status Species

The inventory of critical areas was based on a wide range of information sources. A complete listing of citations used to compile information on critical areas is included in Section 7.0, Report References and Bibliography at the end of this study. These references are from the Town's 2004 critical areas ordinance update. Streams were identified using King County GIS data. The 2004 Comprehensive Plan identifies wetlands within the Town limits although none are identified in the National Wetland Inventory (NWI) (see Map 10). Subsequently the Former Maloney Creek West Wetland was delineated in 2008 and is shown on Map 10. Town wells are located just east of the town limits and the wellhead protection areas are mapped in the Town's 2004 Comprehensive Plan.

3.3.1 Wildlife Habitat

Information on special status fish and wildlife species and habitat areas was obtained from *Final Supplemental Environmental Impact Statement (FSEIS)* for BNSF's cleanup effort in the Town. BNSF contacted WDFW, USFS, and USFWS to determine the presence of special status or priority habitat wildlife species in the vicinity of the Town and the following special-status or priority-habitat species were identified:

- Cascades Frog
- Northern Red-Legged Frog
- Oregon Spotted Frog
- Tailed Frog
- Northern Goshawk
- Harlequin Duck
- Peregrine falcon
- Pileated woodpecker
- Pacific Townsend's big-eared bat.

Threatened and Endangered Species: Three listed species of birds are known to occur in the general vicinity of the site. These species include the **bald eagle, marbled murrelet, and northern spotted owl**. Three listed mammal species, **Canada lynx, gray wolf, and grizzly bear**, could potentially occur in the site vicinity; however, no suitable habitat for these three mammals is present in the site vicinity and no sightings of the species have been documented (Ecology 2007) Other animals that may use the shoreline habitat in the area include, but are not limited to, common crow, coyote, raccoon, and mink. Other mammal species likely to utilize the site include deer, squirrel, and other small rodents.

The three threatened or endangered species of fish present in the Skykomish River are Puget Sound Chinook salmon, bull trout, and steelhead. In addition, coho salmon, listed as a federal candidate species, is present. Juvenile chinook would be expected to be present within the Skykomish River near the Town of Skykomish from mid to late February through May. Although juvenile bull trout rear in headwater streams and tributaries to the Skykomish River, juvenile bull trout are not expected to be present within the Skykomish River (Ecology 2007).

Other fish found in the Skykomish River and Maloney Creek are coho salmon, rainbow trout and cutthroat trout.

3.3.2 Plant Habitat

The site is located in the western hemlock vegetation zone, the most widespread vegetation zone in western Washington (Franklin and Dyness, 1973). The mild climate of this zone supports growth of productive coniferous forests dominated by Douglas fir, western hemlock, and western red cedar. Common understory plants include swordfern, salal, salmonberry, red osier dogwood, vine maple and huckleberry.

Also found in the vicinity is mid-seral hardwood trees and deciduous shrubs including second growth black cottonwood, red alder, and big-leaf maple. Red-osier dogwood and salmonberry are additional shrub species present. Native herbaceous plant species present within the area include large-leaf avens, small-fruited bulrush, piggy-back plant, and common horsetail. Reed canary grass is also present. Non-native and invasive plant species including giant knotweed, Himalayan blackberry are also found around Skykomish.

3.4 Floodplains and Channel Migration Zones

River boundaries were created from King County GIS hydrography data and aerial photos completed in August 2009 by Pictometry. Floodway and floodplain boundaries were derived by the Town from Federal Emergency Management Agency (FEMA) GIS data, Flood Insurance Rate Maps and data interpreted by Washington Department of Ecology Floodplain Management Specialist. There is no channel migration zone in Skykomish as verified by Ecology (Map 7).

Floodplains are a substantial feature in the Town, extending through much of the Town's shoreline jurisdiction, as well as beyond the shoreline to other portions of the Town, including the central business district. Areas of the Town are highly flood-prone.

3.5 Historical or Archaeological Sites

The Town of Skykomish includes historic structures and buildings listed on the National and State Registers of Historic Places. The Town also includes an area zoned as Historic Commercial Zone. There is a National and State Registered designated Historic District. The Town's Historic Commercial Zone is shown on the Land Use and Zoning map (Map 4). Based on the findings of the Cultural Resources Assessment and comments from local affected Tribes, cultural or archaeological materials may be present within the project area. However, no significant cultural resources were discovered during the Levee Zone Interim Action for Cleanup during 2006 (Ecology 2007).

3.6 Other Areas of Potential Interest

Other degraded sites along Maloney Creek with potential for ecological restoration were identified based on the references described above and during the creek walk in September 2009.

3.7 Toxic/Hazardous Waste Cleanup Sites

Located in northeast King County, Skykomish supported maintenance and fueling operations for the BNSF Railway beginning in the 1890s. Then a bustling railroad town, trains stopped for refueling before making the long climb over Steven's Pass. In 1974, the railroad operations in Skykomish were significantly reduced with the closure of the town's railway depot. Today, more than 20 trains pass through Skykomish each day along BNSF's main line, and Skykomish is the site for staging of snow removal equipment and other track maintenance operations. (BNSF, 2006)

Historic activities in Skykomish resulted in the release of oil and heavy metals into the environment, contaminating surface soils and groundwater. The contamination has spread under the town through the groundwater, and into the Skykomish River. For a number of years, the Washington State Department of Ecology, and BNSF Railway Company have been working with the Town of Skykomish to determine the most effective approach for cleaning up the contamination. In June 2006, work began to excavate portions of the existing levee and nearby upland areas. Significant environmental cleanup work was completed in 2007, 2008 and 2009, and more cleanup work is schedule for 2010.

Cleanup activities will continue to have a significant impact on the town and local community. The community is actively being consulted for their input on cleanup activities and is kept informed throughout the development and implementation of the cleanup plans. During cleanup, representatives from BNSF and Ecology are available to receive and respond to comments and concerns from the community and the public.

The Final Consent Decree that describes the scope of the cleanup effort can be found at <http://www.skykomishcleanup.com/documents.aspx>.

4.0 CONDITIONS BY REACHES

To categorize distinct reaches of the Town’s shorelines for planning purposes, the shoreline jurisdiction was classified into three reaches (A through C) based broadly on the distinction between water bodies, the level of ecological functions provided by each reach, as well as existing land uses and zoning. Table 1 indicates the location of shoreline reaches. Shoreline Planning Reaches A through C are shown on Map 12.

Table 1. Shoreline Planning Reaches

Reach	Water	Approximate Length	Approximate River Mile
A	South Fork Skykomish River, North Bank – Entire length through Town	3,866 feet	8.8 to 9.6
B	South Fork Skykomish River, South Bank – Entire length through Town	4,198 feet	8.8 to 9.6
C	Maloney Creek – Entire length through Town	1,670 feet	0.0 to 0.3

Source: King County GIS

For each shoreline planning reach, a summary discussion is followed by a discussion of specific elements of the shoreline inventory. Detailed maps of each Shoreline Planning Reach are included at the end of this document, Maps 12 through 16. The maps show the boundaries of each planning reach, 2009 aerial photography, streams, and opportunity areas for potential protection and/or restoration.

Characterization of the shoreline jurisdiction in the Town and ecosystem-wide processes including shoreline ecological functions are detailed in the King County Shorelines Technical Appendix to the 2009 King County Shoreline Master Program (King County 2007). Data from the King County Technical Appendix was used in individual reach analysis.

4.1 Reach A – Skykomish River, North Bank

Summary: Reach A extends along the North Bank of the Skykomish River from the Town boundary of the east to the Town boundary on the west. Also included in this reach is two acres located directly across Highway 2 along the western edge of town. The reach is primarily a forested riparian corridor and offers relatively good quality instream habitat. Land use in Reach A consists of 25 residential properties, three commercial businesses and two large vacant parcels totaling approximately 13.5 acres. U.S. Highway 2 borders the north edge of this reach.

4.1.1 Land Use Patterns, Transportation and Utility Facilities

Land Use Patterns. Land use in Reach A is characterized as undeveloped areas, commercial and low-density residential development. The zoning and land use map (Map 4) indicates that future land use for this reach will remain relatively similar to current conditions (low-moderate to moderate-density development), although it does not specifically designate parks or open space. Most of the two large parcels are designated as *Natural* shoreline environments by the currently adopted SMP while most of the residential and commercial areas are designated *Small Town Mixed Use*. Smaller portions of Reach A have been designated *Conservancy* or *Transportation* (Map 3). Table 2 below identifies the predominant land use in Reach A and includes the approximate percentage of that land use coverage within the reach. The table also identifies zoning designations and existing shoreline environment designations in Reach A.

Table 2. Reach A Land Use, Zoning, and Shoreline Environment Designations (Maps 3 & 4)

Land Use	Zoning	Existing Shoreline Environment Designations
Single Family Residential (35%)	Residential	Small Town Mixed Use
Commercial (3%)	Commercial	Small Town Mixed Use
Vacant or Undeveloped (62%)	Residential	Natural and Conservancy

Source: Town of Skykomish Comprehensive Plan, King County GIS

Transportation. Reach A contains approximately 1,580 feet of US Highway 2 which runs along the north edge of Reach A and bisects the reach at the far western Town boundary.

Wastewater and Stormwater Facilities. No wastewater treatment facilities are located within Reach A. Sanitary sewer service will be provided, during phase three of the Town’s new wastewater system construction.

Shoreline Modifications. Reach A is impacted in the vicinity of the 5th Street bridge over the Skykomish River by bank armoring, bank hardening, and floodplain confinement (Map 17). No other shoreline modifications were noted on the Skykomish River within shoreline planning Reach A.

4.1.2 Existing and Potential Public Access Sites

The only public access to the river from Reach A is the view access from the 5th Street bridge (see Figure 1). The bridge includes pedestrian walkways on both the east and west sides, accessible from either end (Map 18).

4.1.3 Critical Areas

Wetlands. Two wetlands, identified in the Town’s 2004 comprehensive plan update, are located in Reach A. The area north of Highway 2 and on the western town boundary, has been identified

as a potential wetland, primarily due to its floodplain designation and local knowledge. A second area, south of Highway 2, was also identified in the 2004 update (see Map 10).



Figure 1: View access at the north end of 5th Street bridge (Source: Pictometry 2009)

Geologically Hazardous Areas. Soil types range from sandy loam to gravely sandy loam. Slopes vary from 0 to 67 percent although the steepest slopes are primarily located on the river bank around the 5th Street Bridge (see Map 11). Generally, most of Reach A slopes 0 to 8 percent. The relatively wide band of intact riparian forest allows this reach of shoreline to maintain fairly stable banks.

On the right side of the South Fork of the Skykomish River (looking downstream) the geologic and soil conditions indicate there are no constraints to migration. The entire area is alluvium consisting of Arent soils composed of greater than 75% sand with coarse gravel. Both materials are easily eroded, with a depth to an erosion restriction being greater than 16 feet. Leaving the floodway undeveloped would protect property and structures from future migration or bank erosion.

An area upstream of the bridge on the right side (looking downstream) where a side channel is a potential avulsion (AHZ) and bank erosion (EHZ) hazard area. Two additional areas located downstream of the city center which may have greater potential to migrate. Under certain circumstances, these areas could become avulsion pathways. (Olson 2010)

Fish and Wildlife Habitat. This reach includes mixed coniferous and deciduous riparian vegetation ranging up to approximately 500 feet wide. A single family residential development is located at the eastern end of the reach. These lots range from 12,000 to 15,000 square feet and are heavily vegetated. The approximately eight acre parcel directly west of the residential development is generally in a natural state and heavily wooded. The central area of the reach is developed as a commercial area including a deli, a service station and a towing business. This reach also includes the main entry into the Town from Highway 2 via the 5th Street bridge. West of the commercial area is another primarily natural area of five acres, extending to the west end of the Town. Across the highway to the north is a connected floodplain that is also mostly natural.

Frequently Flooded Areas. Except for Highway 2 and the central commercial area in Reach A, most of the reach is in the FEMA designated 100 year floodplain.

4.1.4 Floodplains and Channel Migration Zones

The limits of the FEMA-mapped floodplain are depicted on Map 7. The location of the floodway has been mapped from FIRM maps. No channel migration zone has been identified for the river in the Town of Skykomish.

4.1.5 Other Items of Potential Interest

Table 3 Listed Anadromous Fish Species:

	PHS Listed Species	Spawning/ Rearing /Migrating	Salmonid Stock Inventory Status	Federal ESA Listing	State Specie of Concern Listing
Skykomish River	Bull Trout	Rearing	Healthy		Candidate
	Coho Salmon	Rearing	Healthy	Concern	
	Fall Chinook	Migrating	Depressed	Threatened	Candidate
	Pink Salmon	Spawning	Healthy		
	Summer Steelhead	Spawning	Healthy	Threatened	
	Coastal Cutthroat	Migrating	Unknown		

Source: WDFW 2009, Ecology 2009

Priority Species Use. Bald eagle may occur throughout this shoreline planning reach foraging on waterfowl or spawned out fish carcasses. Chinook salmon are known to spawn and rear in the South Fork Skykomish River. Bull trout use the Skykomish River as a migrating path to the Foss River (Skykomish 2007). State- and federally-listed priority habitat species (PHS) that may occur within the Skykomish River in this shoreline planning reach are listed in Table 3.

Shoreline Ecological Functions. Overall, shoreline ecological functions in planning Reach A are generally intact. Contributing to this is that almost two thirds of this reach is undeveloped

and the residential area at the east end of the reach around Sky Lane, that is developed on large lots, is also heavily wooded. King County’s analysis of ecological functions that included hydrologic cycle, large woody debris, light energy, nutrients, phosphorus, sediment and toxins shows only the area along Highway 2, especially around the intersection with 5th Street, as lower functioning areas. Proximity to the highway and the commercial ventures at the intersection are most likely the reason that area is rated lower functioning than the rest of the north bank of the river. (King County 2007)

4.1.6 Opportunity Areas

Two areas are largely untouched and high functioning areas. Both areas consist of a single large parcel and both are candidates for designation as Natural or Urban Conservancy (see Map 13).

Opportunity Area A-1 (Protection). Encourage preserving in the current state.

Opportunity Area A-2 (Protection). Encourage preserving in the current state.

4.2 Reach B – Skykomish River, South Bank

Summary: Reach B extends along the South Bank of the Skykomish River from the Town boundary on the east to the Town boundary on the west. The reach includes many of the commercial properties in town along with the Town’s largest employer. Land use in Reach B consists of 9.5 acres of residential, 1 acre of commercial, 4 acres of historic commercial and approximately 5.2 acres of railway industrial.

Table 4. Reach B Land Use, Zoning, and Shoreline Environment Designations (Maps 3 & 4)

Land Use	Zoning	Existing Shoreline Environment Designations
Single Family Residential (48%)	Residential	Small Town Mixed Use & Conservancy
Commercial (5%)	Commercial	Small Town Mixed Use & Conservancy
Historic Commercial (20%)	Historic Commercial	Small Town Mixed Use & Conservancy
Railroad Industrial (26%)	Industrial	Transportation and Conservancy

Source: Town of Skykomish Comprehensive Plan 2004; Town of Skykomish SMP, 1999.

4.2.1 Land Use Patterns, Transportation and Utility Facilities

Land Use Patterns. Land use within Planning Reach B is characterized as a mix of commercial and residential uses with the west levee providing riverfront access. This reach includes most of the historic core of Skykomish including Skykomish School, Maloney General Store, and the Skykomish Hotel. Town hall is also in this reach.

Transportation. Major roads and transportation facilities in Planning Reach B include 5th Street which is the main route into Town, and Railroad Avenue, the historic “main street” in town. The

BNSF railroad borders most of the southern edge of the reach and is in the reach at the eastern end.

Wastewater and Stormwater Facilities. Stormwater drainage conveys runoff to the Skykomish River in this reach. Sanitary sewer service is provided throughout Planning Reach B, and is conveyed from the area to the treatment plant east of the Town limits. A pump station for the new sewer system is located in the reach, near the end of Railroad Avenue.

Shoreline Modifications. Reach B is impacted in the vicinity of the 5th Street bridge over the Skykomish River by bank armoring, bank hardening, and floodplain confinement. East of the 5th Street bridge, the levee extends approximately 1,000 feet. The levee west of the bridge extends approximately 700 feet and was rebuilt in 2006 as part of BNSF's Interim Action for Cleanup of the Levee Zone. This was the initial phase of the remedial action of the BNSF Former Maintenance and Fueling Facility (Map 17).

4.2.2 Existing and Potential Public Access Sites

Below are existing and potential public access sites within Planning Reach B. These can also be seen in Map 18.

Existing Public Access Site

West Levee: Located between the river and River Drive, west of the 5th Street bridge. As part of the Interim Action, a paved trail with pedestrian scale lighting was built along the top of the levee. The trail provides views of the river along with seating and a viewing platform. (see Figures 2 and 3 below)

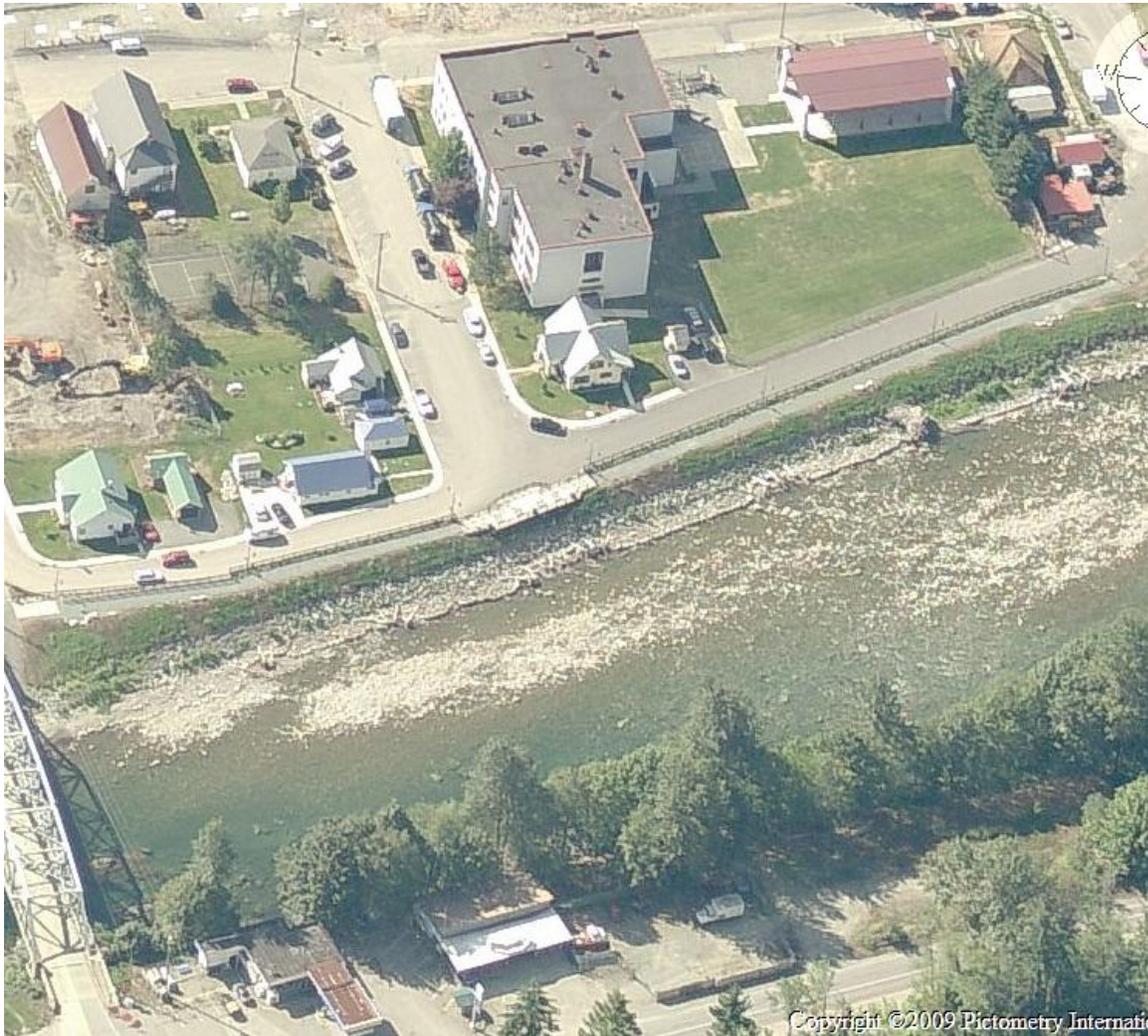


Figure 2: West Levee (Source: Pictometry 2009)



Figure 3: West Levee – Looking west from the 5th Street Bridge (Source: Stan May 2009)

Potential Public Access Sites

Below the 5th Street bridge – Potential Public Access Site: This area will provide water access that could be used to launch kayaks and other small water craft. (see Figures 4 and 5)

West End of the West Levee: This is a vacant parcel with the potential to extend public access. (see Figure 6)

Street Ends: North-south unnamed street at the west end of Railroad Avenue right-of-way; North end of 4th Street; North end of 3rd Street. (see Figures 7 – 11)



Figure 4: Below the 5th Street Bridge (Source: Pictometry 2009)



Figure 5: Below the 5th Street Bridge – Looking west from behind the SkyRiver Inn (Source: Stan May 2009)



Figure 6: Vacant parcel at West End of the West Levee (Source: Pictometry 2009)



Figure 7: Street end access – 3rd Street (Source: Pictometry 2009)



Figure 8: Street end access – 4th Street (Source: Pictometry 2009)



Figure 9: Street end access – 4th Street, looking north (Source: Stan May 2009)



Figure 10: Unnamed Street End – West end of River Drive (Source: Pictometry 2009)



Figure 11: Unnamed Street End – West end of River Drive (Source: Stan May 2009)

4.2.3 Critical Areas

Wetlands. According to the NWI and the Skykomish Comprehensive Plan, this reach contains no wetlands associated with the south bank shoreline of the Skykomish River.

Geologically Hazardous Areas. Most of this reach is relatively flat, sloping gently from east to west toward the Skykomish River. The soil is comprised of mainly gravelly sandy loam. (Map 11)

Frequently Flooded Areas. According to FEMA flood maps and King County, most of Reach B is in the 100 year floodplain and much of the reach west of 5th Street is in the floodway. This reach experiences frequent flooding, particularly at the west end where the river backwashes through a stormwater outfall. This results in several low lying properties experiencing frequent floodwaters (Map 7)

Fish and Wildlife Habitat. Most of the riparian habitat in Reach B has been modified and is dominated by shoreline armoring.

4.2.4 Floodplains and Channel Migration Zones

The limits of the FEMA-mapped floodplain are depicted on Map 7. The location of the floodway has been mapped from FIRM maps. No channel migration zone has been identified for the river in the Town of Skykomish.

4.2.5 Other Items of Potential Interest

Priority Species Use. Bald eagle may occur throughout this shoreline planning reach foraging on waterfowl or spawned out fish carcasses. Chinook salmon are known to spawn and rear in the South Fork Skykomish River. Bull trout use the Skykomish River as a migrating path to the Foss River. (Skykomish 2007). State and federally listed priority habitat species (PHS) that may occur within the Skykomish River in this shoreline planning reach are shown in Table 5.

Table 5. Listed Anadromous Fish Species:

	PHS Listed Species	Spawning/ Rearing /Migrating	Salmonid Stock Inventory Status	Federal ESA Listing	State Specie of Concern Listing
Skykomish River	Bull Trout	Rearing	Healthy		Candidate
	Coho Salmon	Rearing	Healthy	Concern	
	Fall Chinook	Migrating	Depressed	Threatened	Candidate
	Pink Salmon	Spawning	Healthy		
	Summer Steelhead	Spawning	Healthy	Threatened	
	Coastal Cutthroat	Migrating	Unknown		

Source: WDFW 2009, Ecology 2009

Shoreline Ecological Functions. Overall, shoreline ecological functions in planning Reach B have been impacted by human disturbance. The reach is almost fully developed, includes the town center and is bordered by BNSF's former fueling and maintenance facility. The 5th Street Bridge crosses the Skykomish River within this reach. There are two levees protecting much of the riverfront in this reach. Approximately half of the shoreline has homes or commercial buildings within 100 feet of OHWM. Adjacent land use includes the town school, two lodging facilities, other commercial uses and residential. Outfalls convey stormwater runoff from the downtown area and discharge to the Skykomish River in this reach.

Some of the results of these disturbances are:

- Natural light has been altered due to removal of shoreline vegetation and at the same time, artificial light interferes with wildlife.
- There are few large trees to contribute to restocking of large woody debris.
- In the past, most properties used septic sewer systems and in some cases, direct sewer outfalls to the river contributing to high pathogen levels.
- Automobiles and the railroad fueling and maintenance facility combined with stormwater outfalls directly into the river have led to high levels of toxins in the reach. (King County 2007, Ecology 2007)

As part of a Consent Decree between the State of Washington and BNSF, the railroad is in the process of taking remedial actions to clean up groundwater containing oil and other toxins (Ecology 2007b).

4.2.6 Opportunity Areas

Opportunity areas in Reach B can be seen in Maps 14 and 15.

Opportunity Area B-1 (*Protection*). Encourage preserving in the current state.

Opportunity Area B-2 (*Acquisition*). Consider acquiring this parcel as a town park with public access to the river.

Opportunity Area B-3 (*Public Access*). Develop the area below the 5th Street bridge for public access and launching of small watercraft.

Opportunity Areas B-4 and B-5 (*Public Access*). Develop street ends as public viewing areas with benches and information kiosks.

Opportunity Area B-6 (*Protection*). Encourage preserving in the current state.

4.3 Reach C. Maloney Creek

Summary: Reach C extends from the town boundary south of the old Forest Service property to the mouth of the creek on the Skykomish River (Map 16). Much of the reach is residential (5.2 acres) with 3.6 acres of undeveloped parcels, 2.3 acres of railroad industrial and an acre of public facilities. With the exceptions of the areas where it crosses Old Cascade Highway and the former

railroad maintenance yard, the reach has only been modestly impacted overall by human disturbance.

4.3.1 Land Use Patterns, Transportation and Utility Facilities

Land Use Patterns. Land use in Reach C is primarily residential. Zoning and the currently adopted shoreline environment designations reflect this land use pattern. Table 6 below summarizes existing land use, zoning designations, and shoreline environment designations within Reach C.

Table 6. Reach C Land Use, Zoning, and Shoreline Environment Designations (Maps 3 & 4)

Land Use	Zoning	Existing Shoreline Environment Designations
Single Family Residential (44%)	Residential	Small Town Mixed Use & Conservancy
Vacant or Undeveloped (30%)	Residential	Small Town Mixed Use, Natural & Conservancy
Railroad Industrial (20%)	Industrial	Transportation & Natural
Public (6%)	Public	Small Town Mixed Use

Source: Town of Skykomish Comprehensive Plan 2004; Town of Skykomish SMP, 1999.

Transportation. There are few roads in Reach C, notably Old Cascade Highway bisects the reach and the railroad crosses the very end, near the mouth of Maloney Creek.

Wastewater and Stormwater Facilities. A pump station for the new sewer system is located in the reach, along Old Cascade Highway. Sanitary sewer service is provided to the homes and other buildings located in Reach C. Wastewater conveyance pipes do cross the Maloney Creek on the old highway bridge.

Shoreline Modifications. A permeable rock berm extends behind several properties from the vicinity of Reginald Street to beyond Helen Street (Map 17).

4.3.2 Existing and Potential Public Access Sites

There are no existing parks, recreation or public access sites within Planning Reach C. A potential public access point within the reach is the street end at Thelma Street (Figure 12). The Thelma Street location also could make use of the old Forest Service property which is now owned by the Town of Skykomish (Map 18).



Figure 12: Street end access – Thelma Street (Source: Pictometry 2009)

4.3.3 Critical Areas

Wetlands. The former Maloney Creek West wetland (Map 10) was delineated in 2008 and will be excavated and restored as part of the BNSF cleanup and mitigation for converting the former Maloney Creek East wetland (ENSR 2008).

Geologically Hazardous Areas. Most of this reach is relatively flat, sloping gently from east to west toward the Skykomish River (Map 11). The soil is comprised of mainly gravelly sandy loam and loamy fine sand.

Frequently Flooded Areas. According to FEMA flood maps and King County, most of Reach C is in the 100-year floodplain (Map 7).

Fish and Wildlife Habitat. Except for the area around Old Cascade Highway, the shoreline within this reach retains thick vegetation along most of the creek.

4.3.4 Floodplains and Channel Migration Zones

The limits of the FEMA-mapped floodplain are depicted on Map 7. Much of this reach is located in the 100-year floodplain. Unlike the Skykomish River floodplain that was studied in 1998, the Maloney Creek floodplain lies in an area south of the “limits of detailed study” as shown on the draft work map provided by Ecology in April of 2009. The floodplain shown for Maloney Creek is based on earlier FEMA studies.

4.3.5 Other Items of Potential Interest

Priority Species Use. Steelhead Trout, a threatened species and Coho salmon, a federally-listed candidate species are present in Maloney Creek. State- and federally-listed priority habitat species (PHS) that may occur within the Skykomish River in this shoreline planning reach are listed In Table 7 below.

Table 7. Listed Anadromous Fish Species:

	PHS Listed Species	Spawning/ Rearing /Migrating	Salmonid Stock Inventory Status	Federal ESA Listing	State Specie of Concern Listing
Maloney Creek	Coho Salmon	Migrating	Healthy		
	Summer Steelhead	Migrating	Healthy	Threatened	

Source: WDFW 2009, Ecology 2009

Shoreline Ecological Functions. Overall, shoreline ecological functions in planning Reach C have not been fully impacted by human disturbance. Impacts to the reach are primarily located around Old Cascade Highway and the railroad. In those areas, homes, buildings and other uses are within 200 feet of the shoreline. Adjacent land use includes a few commercial uses and the rest is residential (King County 2009b).

The functions that are most severely impacted are:

- Natural light near the highway and the railroad has been altered due to removal of shoreline vegetation and at the same time, artificial light interferes with wildlife.
- Automobiles and the railroad have led to high levels of toxins in the reach.

Although not shown in the King County data, the sediment function appears to also be negatively impacted. The creek is currently being studied and a restoration plan is in development.

4.3.6 Opportunity Areas

Opportunity areas in Reach C can be seen in Map 16.

Opportunity Area C-1 (Public Access). The (former) Forest Service property and the end of Thelma Street are great candidates for developing a public access site.

Opportunity Area C-2 (Protection and Restoration). This area offers opportunities for habitat protection and restoration. A Maloney Creek Restoration Plan is currently under development by the Town.

Opportunity Area C-3 (Protection). The Town should encourage preserving much of this area in the current state.

5.0 INFORMATION GAPS

Gaps in existing information or areas beyond the scope of work for this inventory are identified below. Consistent with Ecology's recommendations, the information described below would enhance this inventory and the Town of Skykomish's development of its Shoreline Master Program.

- Liquefaction and landslide hazard areas within the Town of Skykomish have not been mapped and were not included in this inventory regarding geologically hazardous areas.
- Calculating impervious area within the Town's shoreline jurisdiction was beyond the scope of work for this inventory. However, impervious area could be estimated based on existing land use and methods established by Ecology's Storm Water Management Manual for Western Washington. Estimates of impervious area within shoreline jurisdiction would be helpful in establishing master program policies, use regulations and appropriate enhancement/mitigation/restoration measures.
- Aquifer recharge areas have not been mapped and were not included in this inventory.
- Unable to acquire the delineation report for the Former Maloney Creek West Wetland. The title and author of the report is: *Former Maloney Creek Zone West Wetland Delineation and Maloney Creek Assessment*, Seattle, Washington: The ENSR Corporation, July 2008.
- Unable to acquire the Special Design Report Cleanup document for the Former Maloney Creek West Wetland. The title and author of the report is: *Former Maloney Creek West Wetland Special Design Report: Former Maintenance and Fueling Facility – Skykomish, Washington*. Seattle, Washington. AECOM Environment, August 2009.
- The long-term viability and success of the BNSF contaminated site cleanup could be considered a gap in information, especially as it relates to creating a locking steel plate barrier between the fueling yard and the rest of the town down slope from this contaminated area.

6.0 SHORELINE MANAGEMENT RECOMMENDATIONS

The following recommendations synthesize the area-specific opportunities identified in Section 4 above and provide additional shoreline management recommendations in the context of other local and regional planning activities. These recommendations are intended to frame the future development of the Town's shoreline master program by identifying opportunities for ecological conservation, enhancement, and restoration, as well as areas to enhanced public access to the shoreline.

- The Town of Skykomish has several large undeveloped areas in its shoreline jurisdiction, primarily located in the floodway and floodplain. However, zoning in these areas is residential. Zoning does not specifically reflect the open space characteristics of these areas. Less intensive zoning designations would offer significant habitat value and opportunities for continued conservation habitat by maintaining them in their undeveloped state and should be considered.
- Consistent with goals established in the Parks, Trails and Open Space Plan (PTOS), develop a system of trails that link natural resource and recreational areas to developed neighborhoods and urban areas to enhance public access to the shoreline.
- Several street ends owned by the Town have been identified as potential public access sites. The Town of Skykomish should consider updating the Parks, Trails and Open Space Plan to identify these street ends as potential parks and work towards designating them as such. This would make it easier to procure grants and other available funds for developing these parks.
- Other areas that should also be identified in an updated PTOS is the potential access site below the south end of the 5th Street Bridge, parts of the former Forest Service compound and the area just west of the west levee if it could be acquired by the Town.
- The development of the Shoreline Master Program and shoreline environment designations should be consistent with the Comprehensive Plan Land Use Plan as required by the Growth Management Act and the Shoreline Management Act.

7.0 REPORT REFERENCES AND BIBLIOGRAPHY

- BNSF. 2006. *Skykomish Cleanup* [WWW document]. URL <http://www.skykomishcleanup.com/>
- Cleve Steward Senior Fisheries Scientist / AMEC Earth & Environmental, Inc. Led Maloney Creek Walk with Townsfolk, October 1, 2009
- Cleve Steward Senior Fisheries Scientist / AMEC Earth & Environmental, Inc. Led Skykomish River Walk with Townsfolk, September 24, 2009
- ENSR. 2008. Former Maloney Creek Zone West Wetland Delineation and Maloney Creek Assessment, Seattle, Washington: The ENSR Corporation, July 2008.
- Franklin, J. F. and C. T. Dyrness, 1973. "Natural Vegetation of Oregon and Washington." Oregon State University Press. p. 452. Corvallis, Oregon. 1988.
- King County. 2007. *Shoreline Master Program, Technical Appendix*. King County, WA
- King County. 2009a. *GIS data, SMP Shoreline Characterization, Reach Quality*. King County, WA
- King County. 2009b. *Shoreline Ecology*. King County, WA .
<http://www.kingcounty.gov/environment/waterandland/shorelines/program-update/shoreline-ecology.aspx>
- Olson, Patricia. 2010. *Potential Avulsion & Bank Erosion Hazards* – memo from Patricia Olson (Ecy) to Patricia Lambert (Ecy), dated March 19, 2010.
- Pictometry (under contract with King County). 2009a. *2009 King County (Pictometry) Oblique and vertical Neighborhood-level imagery: King County*. King County; WA.
- Pictometry (under contract with King County). 2009b. *2009 King County (Pictometry) Orthoimagery - 6 in (west) and 1 ft (east) : King County*. King County; WA.
- Stanley, S., J. Brown, and S. Grigsby. 2005. Protecting aquatic ecosystems: A guide for Puget Sound Planners to understand watershed processes. Washington State Department of Ecology. Publication #05-06-027. Olympia, WA.
- Stanley, Stephen, Wetlands Restoration Biologist, WA Dept of Ecology SEA Program. Led Skykomish River Walk with Townsfolk, September 24, 2009
- Town of Skykomish. 1997. *Flood Damage Prevention, SMC 16.10*. Skykomish, WA
- Town of Skykomish. 1999. *Shoreline Master Program, Town adopted September 13, 1999; DOE adopted October 25, 2001*. Skykomish, WA
- Town of Skykomish. 2004. *Comprehensive Plan*. Skykomish, WA

Town of Skykomish. 2005a. *Parks, Trails & Open Space Plan*. Skykomish, WA

Town of Skykomish. 2005b. *Critical Areas Ordinance SMC 16.15*. Skykomish, WA

Town of Skykomish. 2007. *General Sewer and Facilities Plan*. Skykomish, WA

Washington Administrative Code (WAC) Chapter 173-18 Definitions. *Shoreline Management*
<http://www.wa.gov/ecology/pubs/wac17318.pdf>. *Act-Streams and Rivers Constituting
Shorelines of the State*.

Washington Department of Ecology (Ecology). 2007. *Final Environmental Impact Statement for
BNSF Railway Former Maintenance and Fueling Facility Skykomish, Washington*.

Washington Department of Ecology (Ecology). 2007b. *Final Consent Decree for BNSF Railway
Former Maintenance and Fueling Facility Skykomish, Washington*.
URL <http://www.skykomishcleanup.com/>

Washington Department of Ecology (Ecology). 2009. *Water Resource Inventory Area (WRIA)
Maps*. <http://www.ecy.wa.gov/services/gis/maps/wria/wria.htm>

Washington Department of Fisheries (WDF), Washington Department of Wildlife (WDW), and
Western Washington Treaty Indian Tribes. 1994. *1992 Washington State Salmon and
Steelhead Stock Inventory*. Olympia, Washington.

Washington State Department of Fish and Wildlife (WDFW). 2009. *Species of Concern*.
<http://wdfw.wa.gov/wlm/diversty/soc/soc.htm>

Washington State Department of Fish and Wildlife (WDFW). 2003. *Priority Habitats and
Species Map*. Habitat Program. Olympia, Washington.

APPENDIX A – INVENTORY

Compile all pertinent and reasonably available data, plans, studies, inventories, maps and other applicable information. The following information has been collected to the extent that such information is relevant and reasonably obtainable:

1. Shorelines of the State (all marine shorelines, streams >20 cfs mean annual flow, lakes >20 acres, and shorelands) as defined in RCW 90.58.030, located in the Recipient's jurisdiction.

South Fork Skykomish River – WAC 173-18, *From confluence of Tye River and Foss River (Sec.31, T26N, R12E) downstream to Snohomish County line (Sec.3, T26N, R10E) excluding all federal lands. The 1,000 cfs MAF point begins at mouth of Beckler Creek (Sec.25, T26N, R11E).*

Shoreline of Statewide Significance – South Fork Skykomish River, King County Map E2/S2, September 12, 2007

Maloney Creek – WAC 173-18, *From the Snoqualmie National Forest boundary (Sec.35, T26N, R11E) downstream to mouth at South Fork Skykomish River (Sec.26, same township).*

2. General location of channel migration zones, floodplains, and the floodway.

CMZ – None, phone conversation with Barbara Nightingale, DOE, August 2009, reference Patricia Olson conversation, DOE hydrologist

Potential Avulsion & bank Erosion Hazards – memo from Patricia Olson (Ecy) to Patricia Lambert (Ecy), dated March 19, 2010.

Floodplain map – King County Standard GIS Data Disk, January 2009

Floodplain – Department of Ecology letter, April 21, 2009, clarifying FEMA floodplain maps.

Floodway map – King County Standard GIS Data Disk, January 2009

3. Critical areas, including wetlands, aquifer recharge areas, fish and wildlife conservation areas, geologically hazardous areas, and frequently flooded areas, as defined in RCW 36.70A, the Growth Management Act.

Habitat Conditions map, August 8, 2003, Town of Skykomish Comprehensive Plan

Gap – Liquefaction and landslide hazard areas within the Town of Skykomish have not been mapped

4. Shoreline and adjacent land use patterns/density and transportation and utility facilities, including the extent of existing structures, impervious surfaces, vegetation and shoreline modifications within shoreline jurisdiction. Platted lots including undeveloped lots (except those not developable under local subdivision ordinance).

Town of Skykomish Comprehensive Plan, August 16, 2004

Aerial photography – King County 2002, 2007, 2009

King County Standard GIS Data Disk, January 2009

Maloney Creek Walk, October 1, 2009 with Cleve Steward Senior Fisheries Scientist/AMEC Earth & Environmental, Inc.

Skykomish River Walk, September 24, 2009 with Cleve Steward Senior Fisheries Scientist/AMEC Earth & Environmental, Inc. and Stephen Stanley, Wetlands Restoration Biologist, WA Dept of Ecology SEA Program.

5. Degraded areas and sites with potential for ecological restoration.

Final Environmental Impact Statement for BNSF Railway Former Maintenance and Fueling Facility Skykomish, Washington, Washington State Department of Ecology, Oct 2007

Maloney Creek Walk, October 1, 2009 with Cleve Steward Senior Fisheries Scientist/AMEC Earth & Environmental, Inc.

Skykomish River Walk, September 24, 2009 with Cleve Steward Senior Fisheries Scientist/AMEC Earth & Environmental, Inc. and Stephen Stanley, Wetlands Restoration Biologist, WA Dept of Ecology SEA Program.

6. Areas of special interest, such as priority habitats, rapidly developing waterfronts, previously identified toxic or hazardous material clean-up sites, and eroding shorelines.

Final Environmental Impact Statement for BNSF Railway Former Maintenance and Fueling Facility Skykomish, Washington, Washington State Department of Ecology, Oct 2007

7. Existing and potential shoreline public access sites, including public rights-of-way and utility corridors. The inventory will include descriptions of recorded public access easements, their prescribed use, maintenance and terms.

Town of Skykomish Parks, Trails & Open Space Plan, June 2005

Community River Walk, September 24, 2009

Community Creek Walk, October 1, 2009

8. Historical aerial photographs documenting past conditions to assist in preparing an analysis of cumulative impacts of development.

GAP – No historical aerial photographs located

9. Archaeological and historic resources in shoreline jurisdiction.

The town holds many historic photographs and other materials documenting the Town's historical significance. The historic district is mapped in the Town's zoning map and historic buildings are well known in the town.

10. Policies and regulations in shoreland and adjacent areas that affect shorelines, such as surface water management and land use plans and regulations (Critical Areas Ordinance, flood ordinance, etc.).

Town of Skykomish Comprehensive Plan, August 16, 2004

Critical Areas Ordinance SMC 16.15, 2005

Flood Damage Prevention, SMC 16.10, 1997

Town of Skykomish Shoreline Master Program, Town adopted September 13, 1999; DOE adopted October 25, 2001

11. Other inventory sources.

King County GIS data, SMP Shoreline Characterization, Reach Quality

King County Shoreline Ecology, Aug 25 2009,
<http://www.kingcounty.gov/environment/waterandland/shorelines/program-update/shoreline-ecology.aspx>

