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**DRAFT -- CITY OF SULTAN**

**SHORELINE CHARACTERIZATION**

**Prepared for:**

**City of Sultan  
P.O. Box 1199  
Sultan, Washington**

**Prepared by:**

**Adolfson Associates, Inc.  
5309 Shilshole Avenue NW  
Seattle, Washington 98107**

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## **1.0 INTRODUCTION**

### **1.1 PURPOSE OF THE INVENTORY AND CHARACTERIZATION REPORT**

In 2002, the City obtained a grant from the Washington State Department of Ecology (Ecology) to conduct a characterization of its shoreline jurisdiction as defined by the state's Shoreline Management Act (SMA) (RCW 90.58). The purpose of this study is to conduct a baseline inventory and characterization of natural and built conditions in the City's shoreline jurisdiction. The inventory and characterization will provide a basis for the development of the City's Shoreline Master Program.

The City's shoreline management jurisdiction comprises approximately 14 percent (268 acres) of the land within the city limits. The City presently manages land within the shoreline jurisdiction through implementation of the adopted the Snohomish County Shoreline Master Program (SMP) (Snohomish County, 1993). The City currently manages land development within its city limits through its adopted Comprehensive Plan and development regulations (as described in Section 2.1.2 of this report. This study generally describes conditions in both the City's shoreline jurisdiction and within the UGA. However, shoreline areas within the UGA will remain under the jurisdiction of Snohomish County until those areas are incorporated by the City of Sultan through annexation.

The inventory and characterizations presented in this study will help the City identify existing conditions, evaluate functions and values of resources in its shoreline jurisdiction, and explore opportunities for conservation and restoration of ecological functions. Opportunities for public access are also discussed. These findings will help provide a framework for updating the City's shoreline environment designations under the SMA and developing the shoreline management policies and regulations specifically suited for land uses and conditions within those environments.

### **1.2 SHORELINE JURISDICTION AREAS**

Under the State SMA, the City's shoreline jurisdiction currently includes areas within the City limits that are 200 feet landward of the ordinary high water mark 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. Generally, "shorelines of statewide significance" include portions of Puget Sound and other marine water bodies, rivers west of the Cascade range that have a mean annual flow of 1000 cubic feet per second (cfs) or greater, rivers east of the Cascade range that have a mean annual flow of 200 cfs or greater, and fresh water lakes with a surface area of 1000 acres or more. "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.

The SMA specifies two situations where the City's shoreline jurisdiction extends beyond the designated 200-foot limit. These situations involve floodways and "associated" wetlands. In areas of the City where the floodway extends beyond the ordinary high water mark, the City's

shoreline jurisdiction includes the floodway itself and extends landward from the edge of the floodway for 200 feet within the contiguous 100-year floodplain. The City's shoreline jurisdiction also extends to the landward edge of associated wetlands. These are defined as wetlands that physically extend into the shoreline jurisdiction, or wetlands that are functionally related to the shoreline jurisdiction through surface water connection and/or other factors (e.g., wildlife habitat). The specific language from the Revised Code of Washington (RCW) describing the limits of shoreline jurisdictions is as follows:

*“those lands extending landward for two hundred feet in all directions as measured on a horizontal plane from the ordinary high water mark; floodways and contiguous floodplain areas landward two hundred feet from such floodways; and all associated wetlands and river deltas” (RCW 90.58.030(2)(f)).*

### **1.3 STUDY AREA**

The City of Sultan (City) is located in Snohomish County, situated on the northern bank of the Skykomish River between River Mile (RM) 34.4 near the mouth of the Sultan River and RM 35.7 near the mouth of the Wallace River (Figure 1). The City of Sultan encompasses approximately 1,916 acres, or about three square miles. U.S. Highway 2 (US 2) and the Burlington Northern Santa Fe (BNSF) Railroad corridors run east-west through southern portions of the City. The City's urban growth area (UGA) contains an additional 550 acres, or approximately 0.86 square miles comprised of residential development and undeveloped areas (Figure 1).

The study area for City of Sultan Shoreline Characterization includes all land currently within the City's shoreline jurisdiction. These areas include lands within the City limits adjacent to the Skykomish River, Sultan River, and Wallace River. Land adjacent to the Sultan River within the City's UGA is also generally described (Figures 1 and 2). The Skykomish River is designated as a “shoreline of statewide significance.” The Sultan and Wallace Rivers are designated as “shorelines of the state.” In developing master programs for shorelines of statewide significance, the SMA directs local governments to give preference to shoreline uses in the following order of preference:

- Recognize and protect the statewide interest over local interest;
- Preserve the natural character of the shoreline;
- Result in long term over short term benefit;
- Protect the resources and ecology of the shoreline;
- Increase public access to publicly owned areas of the shorelines;
- Increase recreational opportunities for the public in the shoreline; and
- Provide for any other element deemed appropriate or necessary as defined by the SMA (RCW 90.58.020; WAC 173-26-250).

## **2.0 CURRENT REGULATORY FRAMEWORK SUMMARY\***

### **2.1 CITY OF SULTAN**

#### **2.1.1 Current Shoreline Management Act Compliance**

The Shoreline Management Act is implemented through the development of local shoreline master programs (SMPs). SMPs establish a system to classify shoreline areas into specific “environment designations”. The purpose of shoreline environment designations is to provide a framework for the development of goals, policies, and regulations that reflect specific shoreline land uses, ecological conditions, and desires of the community. Generally, environment designations should be based on existing and planned development patterns, biological and physical capabilities and limitations of the shoreline, and a community’s vision or objectives for its future development. Typically, local shoreline master programs have established four shoreline environment designations: Urban, Rural, Conservancy, and Natural, representing a range of development, from high to low intensity.

Chapter 16.96 of the Sultan Municipal Code (SMC) adopts the Snohomish County SMP by reference. The Snohomish County SMP establishes three shoreline environment designations within the City’s limits and the UGA: Conservancy Environment, Rural Environment and Urban Environment (Figure 2). Although the City regulates development with its shoreline jurisdiction, the shoreline designations used as a basis for this regulation reflect county-wide standards and were not specifically developed to reflect conditions and land use constraints in the City. A primary purpose of this study is to provide information and the supporting analysis necessary for the City to evaluate the existing shoreline designations, and if appropriate, develop its own shoreline environment designations and SMP for use in administering the Shoreline Management Act.

#### **2.1.2 Comprehensive Plan, Zoning and Other City Regulations**

The 1995 Sultan Comprehensive Plan Land Use Map identifies residential, commercial, office/industrial, institutional, and park land uses in the City, including areas of the shoreline jurisdiction. The City of Sultan is in the process of updating the Comprehensive Plan. The Draft Comprehensive Plan Update and associated Draft Environmental Impact Statement were issued in January of 2003. Three alternative land use plans, characterized as low, moderate, and high growth scenarios, are currently under consideration. An updated Comprehensive Plan Land Use Map has not been developed at this time. An updated land use map will be prepared once the City adopts one of the land use plan alternatives under consideration.

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\* 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 City’s shoreline jurisdiction or other areas within the City or UGA. Other portions of local code and state and federal regulations may apply to development projects within the City. 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 city limits, an applicant should contact the City and the applicable state and federal agencies to determine actual permit requirements. For development of parcels in the UGA outside of the city limits, an applicant should contact Snohomish County and the applicable state and federal agencies to determine actual permit requirements.

The Draft Comprehensive Plan Update also establishes goals for shoreline management based on existing shoreline conditions and the results of workshop planning sessions. The goals are to:

- Protect natural quality: Preserve and protect the unique, interdependent relationship between Sultan's water, land, and cultural heritage;
- Maintain a mixed-use waterfront: Retain a mixed-use waterfront including those agriculture, fishing, boating, and tourist uses that provide Sultan's shoreline unique appeal; and
- Preserve a quality urban waterfront: Define and enforce the highest quality standards concerning present and future land use developments within Sultan's waterfront areas (City of Sultan, 2002).

The City's zoning code and land use regulations apply to all land area within the City 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 City's shoreline jurisdiction (Figure 3). Specifically, the City regulates development activity through the implementation of its Unified Development Code. Chapter 16.08 of the code establishes six zoning districts for the City: Low/Moderate Development, Moderate Development, High Density, Urban Center, Highway-Oriented Development, and Economic Development (Figure 2). The Unified Development Code Chapter 16.80 also includes standards for development in and around critical areas including wetlands, streams, and their buffers. In addition, the City regulates development activities under Chapter 16.84 (Fish and Wildlife Habitat), Chapter 16.98 (Stormwater Management Performance Standards), and Chapter 17.08 (Flood Damage Prevention).

## **2.2 STATE AND FEDERAL REGULATIONS**

A number of state and federal agencies may have jurisdiction over land or natural elements within the City'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 City, but regulated resources are common within the City's shoreline jurisdiction (Figure 3). The state and federal regulations affecting shoreline-related resources include, but are not limited to:

- Endangered Species Act: The federal Endangered Species Act (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: The federal Clean Water Act (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 City'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: 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 City or other tributary streams could require a Hydraulic Project Approval (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 five or more acres, and municipal stormwater systems that serve populations of 100,000 or more.

### **3.0 ELEMENTS OF THE SHORELINE INVENTORY**

In recent years, guidelines developed by Ecology for implementation of the SMA and development of SMPs have been invalidated. However, through negotiations between the State and local governments and business groups, Ecology has developed draft guidelines. The guidelines, in part, are meant to assist cities and other local agencies conduct inventories for the purpose of developing Shoreline Master Programs (SMPs) (Ecology, 2002). Ecology recommends that the following elements of the natural and built environment be included in the shoreline inventory:

- Land use patterns, transportation and utility facilities, and shoreline modifications;
- Existing and potential public access sites;
- Critical areas including wetlands, aquifer recharge areas, fish and wildlife habitat conservation areas, geologically hazardous areas, and frequently flooded areas;
- Floodplains and channel migration zones;
- Known historical or archaeological sites; and
- Other areas of potential interest.

In addition to these elements, the Ecology draft guidelines also recommend that an inventory include discussions covering regulatory conditions that affect areas within shoreline jurisdictions (discussed in Section 3 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. Where data have not been mapped, the information was considered unavailable and not addressed. A general discussion of conditions in the City's shoreline jurisdiction for each element is also provided. Section 5,

Shoreline Conditions by Inventory Segment, describes each element within the City's shoreline jurisdiction in greater detail.

### **3.1 LAND USE PATTERNS, TRANSPORTATION AND UTILITY FACILITIES**

The City of Sultan Draft Comprehensive Plan Update (City of Sultan, 2002) and associated Draft Environmental Impact Statement (2003) were the primary sources used to identify land use patterns and transportation and utility features. Existing land use was based on Snohomish County Assessor data (October, 2002), developed as Geographic Information System (GIS) mapping data by the City and its consultants. Personal communications with City staff and consultants working for the City on various projects were also used in compiling information on this inventory element. Specific citations are included in the Section 7.0, References.

#### **3.1.1 Land Use**

Land use in the City's shoreline jurisdiction includes a mixture of single-family and multi-family residential, downtown and highway-oriented commercial development, and parks and recreation areas. Portions of the downtown central business district are located in the shoreline jurisdiction along the north bank of the Skykomish River near US 2 and Main Street. South of US 2 and the Burlington Northern Santa Fe (BNSF) railroad, land use within the shoreline jurisdiction of the Skykomish is largely residential or undeveloped. Parks, open space, and recreational areas are predominant land uses along the Sultan River and portions of the Wallace River within the City's shoreline jurisdiction. Existing land use within the UGA along the east bank of the Sultan River is predominantly residential or undeveloped.

#### **3.1.2 Transportation**

Major roads and transportation facilities in Sultan's shoreline jurisdiction include US 2 and the BNSF railroad. US 2 serves as the principal east-west arterial in Sultan. The US 2 bridge and adjacent BNSF bridge cross the Sultan River just upstream of the confluence with the Skykomish River. Other roads in the shoreline jurisdiction include 1st Street and smaller roads providing access to residential areas from US 2 or the downtown central business district.

#### **3.1.3 Wastewater and Stormwater Utilities**

The City of Sultan Municipal Wastewater Treatment Plant is located on the west bank of the Sultan River near the confluence with the Skykomish River. Treated effluent is discharged from an 8-inch outfall pipe into the Skykomish River downstream from the Sultan River confluence. This outfall location is outside of the City limits and therefore within the County's shoreline jurisdiction, rather than the City's jurisdiction.

The stormwater drainage system in the City of Sultan directs runoff to Wagley's Creek, the Sultan and Skykomish Rivers, and various wetlands. Sultan is currently developing a Surface Water Management Plan for the City and the UGA. The downtown area of the City is served by combined stormwater and sanitary sewer conveyance. High-flow periods during storms result in combined flows of wastewater and stormwater. Combined flows can result in unnecessarily treating stormwater through the wastewater treatment plant and/or discharges of untreated

sewage through stormwater outfalls (combined sewer overflows) into the Sultan and Skykomish Rivers (City of Sultan, 2003).

### 3.1.4 Shoreline Modifications

Shoreline modifications refer to structural alterations of the river's natural bank, including levees, dikes, floodwalls, rip-rap, 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 City of Sultan, shoreline modifications include bulkheads in residentially developed areas along the Skykomish River, rip-rap along the Skykomish River, and pilings supporting the US 2 and BNSF bridges near the confluence of the Sultan and Skykomish Rivers.

## 3.2 EXISTING AND POTENTIAL PUBLIC ACCESS SITES

Existing and potential public access sites were identified from information provided in the Sultan Draft Comprehensive Plan Update (City of Sultan, 2002) and associated Draft Environmental Impact Statement (City of Sultan, 2003). Public access sites were further defined and identified from 2001 aerial photographs and a field reconnaissance of the study area in February 2003.

The City of Sultan, Sultan School District, and WDFW have developed a variety of park, recreation and open space facilities within the City, many of which provide access to the shoreline jurisdiction (City of Sultan, 2003). These resource areas include wildlife conservancies and natural areas as well as trails, boat ramps and other recreational areas. Parks and recreational areas providing public access are shown on Figures 6 through 9.

## 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, References at the end of this study. Frequently flooded areas were identified from information presented in the City of Sultan Repetitive Flood Loss Mitigation Plan (City of Sultan, 2001). Streams and steep slope areas were identified using the Washington State Department of Natural Resources StreamNet database, and additional resources provided by the City. Wetland areas within the City limits were identified and located based on a combination of National Wetland Inventory (NWI) data (USFWS, 1988), as well as more current mapping provided by the City based on 1997 aerial photographs. Wetlands surveyed and delineated in a portion of the City for a Local Improvement District (LID) sewer project were also used. Soils mapped by the Natural Resource Conservation Service (NRCS) are shown on Figure 4. Soil types classified as "hydric", or saturated, are indicative of wetland soils.

Information on the location of aquifer recharge areas and liquefaction hazard areas were not available for use in this inventory.

Information on special status fish and wildlife species and habitat areas was obtained from several sources. Special status species are species that are listed or proposed for listing under the State or Federal Endangered Species Act, identified by WDFW as state Priority Species, or identified by the U.S. Fish and Wildlife Service (USFWS) as Species of Concern. Information on general fish and wildlife habitat areas was obtained from the WDFW's Priority Habitats and Species (PHS) data. Information on sensitive species was obtained through a data request to the USFWS and data provided the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries). Information from these agencies indicates that the following special status species may occur within the vicinity of the City:

- Wintering bald eagles (*Haliaeetus leucocephalus*)
- Bull Trout (*Salvelinus confluentus*)
- Chinook Salmon (*Oncorhynchus tshawytscha*)
- Long-eared Myotis (*Myotis evotis*)
- Long-legged Myotis (*Myotis volans*)
- Olive-sided Flycatcher (*Contopus cooperi*)
- Pacific Lamprey (*Lampetria tridentata*)
- Peregrine Falcon (*Falco peregrinus*)
- River Lamprey (*Lampetria ayresi*)
- Western Toad (*Bufo boreas*)

Specific information on fish occurrence and habitat use within the City was provided by the PHS data (WDFW, 2003), Washington State Salmon and Steelhead Stock Inventory (SASSI) (WDF, 1994); the SASSI Bull Trout/Dolly Varden Appendix (WDFW, 1998); the Catalog of Washington Streams and Salmon Utilization, Volume 1, Puget Sound Region (Williams et al., 1975); the Snohomish River Basin Chinook Salmon Near Term Action Agenda (Snohomish Basin Salmon Recovery [SBSRF], 2001), Salmonid Habitat Limiting Factors Analysis (Haring, 2002); and additional sources as cited in the text.

### **3.4 FLOODPLAINS AND CHANNEL MIGRATION ZONES**

River boundaries were created from Snohomish County GIS hydrography data and an aerial photo interpretation completed in 1997 by Earth Tech, Inc. The 1997 analysis was based on an orthophotographic image developed by NIES Mapping Group in 1995. Floodway and floodplain boundaries were derived by the City from Federal Emergency Management Agency (FEMA) GIS data and hard copy Flood Insurance Rate Maps. Additional information was provided by the City of Sultan Comprehensive Flood Hazard Management Plan and the City of Sultan Repetitive Flood Loss Mitigation Plan (City of Sultan, 2002, 2001). Specific mapping data for channel migration zones were not available for use in this inventory.

Floodplains are a substantial feature in the City, extending through much of the City's shoreline jurisdiction, as well as beyond the shoreline to other portions of the City, including the central

business district. Based on detailed topographic mapping conducted by the City, Figure 3 shows proposed amendments to the City's mapped floodplain; this includes areas to be added and removed from the 100-year floodplain. Additional information on floodplain conditions is provided under the discussions for each shoreline planning segment in Section 5.

### **3.5 HISTORICAL OR ARCHAEOLOGICAL SITES**

The scope of work for this inventory did not include a site-specific analysis of historical or archaeological sites within the study area nor did the scope of work include specific requests from the State Office of Historic Preservation or local Tribes to provide data.

### **3.6 OTHER AREAS OF POTENTIAL INTEREST**

Areas of special interest not included in the other elements of the inventory, such as priority habitats, rapidly developing waterfronts, eroding shorelines, or other degraded sites with potential for ecological restoration were identified based on the references described above and during the field reconnaissance of the study area in February 2003.

### **3.7 OPPORTUNITY AREAS**

Opportunity areas identify areas within the shoreline jurisdiction that may be appropriate for protection and /or restoration, including elements such as wetlands, habitat, riparian (streamside) vegetation, and river banks modified by riprap or bulkheads. Opportunity areas were initially identified during the compilation of the critical areas materials described above by reviewing maps and relevant reports. Opportunity areas were further defined and identified from 2001 aerial photographs and a field reconnaissance of the study area in February 2003.

## **4.0 CONDITIONS BY INVENTORY SEGMENTS**

To categorize distinct segments of the City's shorelines for planning purposes, the shoreline jurisdiction was classified into five segments (A through E) based broadly on the distinction between water bodies, the level of ecological functions provided by each segment, as well as existing land uses and zoning. Table 1 indicates the location of shoreline segments. Shoreline Planning Segments A through E are shown on Figure 5.

**Table 1. Shoreline Planning Segments**

Segment	River	Approximate Length (feet)	Approximate River Mile	Approximate Acreage
A	Sultan River (East Bank- to City Limits)	6,336	0.1 to 1.3	185
	Sultan River (West Bank)	1,056	0.3 to 0.5	
B	Sultan River (East Bank)	528	0 to 0.1	13
	Sultan River (West Bank)	1,584	0 to 0.3	
C	Skykomish River (North Bank within City Limits)	7,392	34.3 to 35.7	68
	Wallace River (confluence with Skykomish within City Limits)	1,584	0 to 0.3	
D	Wallace River (Some Portions)	2,640	0.3 to 0.8	3
E	Sultan River (City Limits to UGA Boundary – East Bank )	8,448	1.3 to 2.9	89

For each shoreline planning segment, a summary discussion is followed by a discussion of specific elements of the shoreline inventory, as described in Section 3 above. Detailed maps of each Shoreline Planning Segment are included in the Map Folio, Appendix A (Figures 6 through 9). The maps show the boundaries of each planning segment, 2001 aerial photography, streams and wetlands, and opportunity areas for potential protection and/or restoration. Characterization of the shoreline jurisdiction in the City’s UGA (Segment E) is generally described in Section 4.5.

**4.1 SEGMENT A. SULTAN RIVER**

**Summary:** Segment A extends along the Sultan River from approximately RM 0.1 on the east bank and RM 0.3 on the west bank north to RM 1.3 (Figure 6). This segment retains an approximately 200-foot forested riparian corridor in places and offers relatively good quality instream habitat. Land use in Segment A is a mix of residential, pastureland, park, and undeveloped riparian forest. Osprey Park, an approximately 90-acre City-owned park, provides access to the east bank of the Sultan River. Reese Park, an approximately 32-acre City-owned park, provides access to the west bank of the Sultan River. Approximately 73 acres of wetland have been identified within the shoreline jurisdiction. Winters Creek enters the Sultan River within this segment. Culmback Dam upstream of the City limits affects Sultan River in-stream flow conditions within this segment.

**4.1.1 Land Use Patterns, Transportation and Utility Facilities**

**Land Use Patterns.** Land use in Segment A is characterized as open space and park resources, with low-density residential development and undeveloped land. The zoning map (Figure 2) indicates that future land use for this segment 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 Segment A is designated as a Conservancy shoreline environment by the currently adopted SMP. Smaller portions of Segment A have been designated Rural and

Urban (Figure 2). Table 2 below identifies the predominant land use in Segment A and includes the approximate percentage of that land use coverage within the segment. Table 2 also identifies zoning designations and existing shoreline environment designations in Segment A.

**Table 2. Segment A Land Use, Zoning, and Shoreline Environment Designations**

Existing Land Use	City of Sultan Zoning	Existing Shoreline Environment Designations (Snohomish County SMP)
<ul style="list-style-type: none"> <li>• Parks, Open Space, Recreation Areas (66%);</li> <li>• Single-family, Multi-family and Mobile Home Park Residential (17%);</li> <li>• Undeveloped (17%)</li> </ul>	<ul style="list-style-type: none"> <li>• Low/Moderate Density;</li> <li>• Moderate Density;</li> <li>• High Density (near central business district);</li> <li>• Highway-Oriented Development (west bank)</li> </ul>	<ul style="list-style-type: none"> <li>• Conservancy, Rural and Urban (east bank);</li> <li>• Conservancy and Urban (west bank)</li> </ul>

Source: City of Sultan GIS, 2002; Snohomish County Assessor, 2002; Snohomish County SMP, 1993.

**Transportation.** Segment A does not contain any major transportation facilities of the City of Sultan. First Avenue, the western-most road within the central business district transportation grid is located in Segment A. First Avenue extends north from Main Street in the central business district, providing access to residential development.

**Wastewater and Stormwater Facilities.** No wastewater treatment facilities are located within Segment A. Sanitary sewer service is, however, provided to residential areas in Segment A. The City’s Surface Water Management Plan has categorized four broad drainage basins. Planning Segment A includes portions of three of the drainage basins:

- Central Business District Basin: Drains to the Sultan River
- Northern Basin: Drains an area north of High Street into Winters Creek and the Sultan River
- Western Basin: Drains an area west of the confluence of the Sultan and Skykomish Rivers

**Shoreline Modifications.** No shoreline modifications were noted on the Sultan River within shoreline planning Segment A.

4.1.2 Existing and Potential Public Access Sites

Existing parks, recreation or public access sites within Planning Segment A include:

- Reese Park: 32-acre City of Sultan Park located on the west bank of the Sultan River at 216 Old Owen Road; and
- Osprey Park: 90-acre City of Sultan Park located on the east bank of the Sultan River at 801 1<sup>st</sup> Street.

The potential to expand access to the shoreline in Segment A includes development of publicly owned property abutting the Sultan River, or enhancement park facilities at Reese and Osprey Parks to encourage public use. The draft Comprehensive Plan Update (City of Sultan, 2002) establishes a goal of developing a system that connects and provides access to significant natural environmental features and public facilities, including those within the shoreline jurisdiction.

#### 4.1.3 Critical Areas

**Wetlands.** Relative to other areas of the City’s shoreline jurisdiction, Segment A contains the largest area of wetlands. These include wetlands that have been delineated from aerial photography (1997), as well as wetlands that appear on NWI maps. Forested, scrub-shrub, and emergent wetland types occur in this segment. Most wetland areas are associated with Winters Creek or the Sultan River shoreline. An area of emergent wetland area extends into privately-owned pasture land. In total, wetlands within Segment A cover up to 73 acres, or approximately 40 percent of the total area (Figure 6).

**Geologically Hazardous Areas.** Soil types within the shoreline jurisdiction are mapped on Figure 5. No soils with 15 percent slopes or greater are identified within the shoreline jurisdiction in Segment A. Similarly, City of Sultan critical area mapping indicates no steep slope areas occur within Planning Segment A (Figure 3). Liquefaction hazard areas in the City have not been mapped.

**Fish and Wildlife Habitat.** This segment includes a band of mixed coniferous and deciduous riparian vegetation ranging from approximately 500 feet to over 1,000 feet in width along both banks of the Sultan River. These areas are mostly contained within parkland, and add to the Sultan River’s value as a wildlife corridor. Winters Creek flows southwest through developed residential land, and has been dredged and straightened outside of the mapped shoreline jurisdiction (Haring, 2002). The stream enters Segment A through a forested wetland, flows beneath Trout Lake Road, and through Osprey Park to the Sultan River. Winters Creek and the associated riparian forest offer valuable wildlife habitat, providing water, food, and cover. Evidence of beaver activity in the side channel of the Sultan River in the vicinity of Winters Creek mouth was noted by Haring (2002).

**Frequently Flooded Areas.** Based on flood studies conducted by the City, no areas of frequent flooding concern have been identified in Segment A (City of Sultan, 2001).

#### 4.1.4 Floodplains and Channel Migration Zones

The limits of the FEMA-mapped floodplain are depicted on Figure 3. The approximate location of the floodway has been mapped from FIRM maps. Haring (2002) reports that the active channel has likely decreased from its historical width as a result of the reduced frequency and magnitude of peak flows resulting from the upstream “Henry M. Jackson Hydroelectric Project”. Although not falling within the City’s jurisdiction, this project affects those reaches of the Sultan River within Segments A, B, and E, and is briefly described below.

The “Sultan River Project” was designed to increase available water supply for the City of Everett and generate power for Snohomish County Public Utility District. The “Sultan River

Project” included the construction of George Culmback Dam (constructed in 1960) at RM 16.5, and the associated Spada Reservoir (constructed in 1984) behind the dam. The hydroelectric stage of the project was renamed the “Henry M. Jackson Hydroelectric Project”. Water from the Spada Reservoir is diverted through a four-mile long tunnel bored through Blue Mountain and then through a four-mile long buried pipeline before reaching a powerhouse constructed adjacent to the Sultan River at RM 4.5. After traveling through the turbine-generators at the powerhouse, water is either released to the Sultan River, or piped to Chaplain Reservoir northwest of the powerhouse. At times, to ensure adequate water flows for fish, water from Chaplain Reservoir is transported through a supply tunnel which discharges to the Sultan River at RM 9.0.

4.1.5 Other Areas of Potential Interest

**Priority Species Use.** Bald eagle may occur throughout this shoreline planning segment foraging on waterfowl or spawned out fish carcasses. An osprey nest is mapped along the west (left) bank of the Sultan River within this segment. Pink salmon primarily utilize the lower three miles of the river. Chum salmon primarily congregate at RM 1.5, upstream (outside) of Segment A, but may be present within the segment. Chinook salmon and steelhead trout use the entire river to varying degrees, while coho salmon use side channels and tributaries (Haring, 2002). The mouth and lower reaches of Winters Creek are used as rearing habitat by juvenile salmonids that enter from the Sultan River during periods of high water (Haring, 2002). State- and federally-listed priority habitat species (PHS) that may occur within the Sultan River in this shoreline planning segment are listed in below in Table 3. “Anadromous” indicates fish species that may migrate through this habitat seasonally, as opposed to “resident” species that may occur year-round.

Table 3. Listed Fish Species: Segment A

Segment	PHS Listed Species	Anadromous/ Resident	Spawning/ Rearing
A Sultan River	Bull trout	Anadromous	Rear
	Chum Salmon	Anadromous	Spawn/Rear
	Coho Salmon	Anadromous	Rear
	Fall Chinook	Anadromous	Spawn
	Pink Salmon	Anadromous	Spawn
	Summer Steelhead	Anadromous	
	Winter Steelhead	Anadromous	Spawn/Rear
	Rainbow Trout	Resident	
	Resident Cutthroat	Resident	

Source: WDFW, Streamnet, 2002

**Shoreline Ecological Functions.** Overall, shoreline ecological functions in planning Segment A are generally intact. This area is used by chinook salmon for spawning and rearing. The lower three miles of river from the Bonneville Power Administration powerline crossing (located in the City’s UGA – Segment E) to the confluence with the Skykomish River has several side channels and off-channel areas available for fish use (Haring, 2002). The Henry M. Jackson Hydroelectric Project powerhouse located at RM 4.5, approximately four miles upstream of the City’s shoreline jurisdiction, is regulated to protect both habitat conditions and fish life stages (SBSRF, 2001). State and federal permits for the project have set minimum instream flows as

ranging between 165 and 200 cubic feet per second (cfs) (SBSRF, 2001). No adverse effects as a result of this project have been documented. As reported by Haring (2002), the reduction of the frequency, duration, and velocity of peak flows resulting from the project has decreased damage to salmonid spawning and rearing habitat. The Sultan River within this planning segment does not appear on the 1998 303(d) list of impaired waterbodies (Ecology, 2002).

#### 4.1.6 Opportunity Areas

**Opportunity Area A-1 (*Enhancement*).** Encourage planting of native vegetation and limit clearing and disturbance on privately-owned residential properties with shoreline frontage.

**Opportunity Area A-2 (*Protection and Enhancement*).** City-owned land within Reese Park along the length of the right (east) bank of the Sultan River offers continued potential for habitat preservation, including an existing osprey nest. Disturbed areas offer opportunities for habitat enhancement.

**Opportunity Area A-3 (*Restoration*).** The *Snohomish River Basin Chinook Salmon Near Term Action Agenda* (SBSRF, 2001) makes several general recommendations, one of which is the restoration or enhancement of the area, functions, and values of degraded or destroyed wetlands to improve watershed processes and fish habitat. Wetlands located within privately-owned pasture in this shoreline planning segment offer potential future opportunities for restoration or enhancement.

**Opportunity Area A-4 (*Protection and Enhancement*).** City-owned land within Osprey Park along the length of the right (east) bank of the Sultan River offers opportunity for habitat preservation and restoration. This segment is located within an area noted to offer significant rearing habitat for salmonids. Recommendations from *Snohomish River Basin Chinook Salmon Near Term Action Agenda* (SBSRF, 2001) include enhancing riparian areas with additional native vegetation, especially conifers. Areas dominated by alders could be underplanted or replanted with conifers as the alders die off (SBSRF, 2001).

**Opportunity Area A-5 (*Protection and Restoration*).** A culvert barrier has been identified in area A-5 along Winters Creek. Protection of the entire area of A-5 has a high potential to improve salmonid and wildlife habitat. This area is identified as part of “Focus Area IX”, an area with potential for protection and acquisition, in the *Snohomish River Basin Chinook Salmon Near Term Action Agenda* (SBSRF, 2001).

**4.2 SEGMENT B. CONFLUENCE OF SULTAN AND SKYKOMISH RIVERS**

**Summary:** Segment B extends along the east bank of the Sultan River from approximately RM 0.0 to RM 0.1, and along the west bank from approximately RM 0.0 to RM 0.3 (Figure 7). This segment includes public open space that has been modified and offers limited instream habitat. Land use in Segment B is predominantly public utilities and park. Sportsman’s Park, a 5-acre park on the west bank of the Sultan River, offers public access and fishing. River Park, a 6-acre park, offers an open space area of maintained lawn. SR 2 and the BNSF railroad cross the Sultan River in this segment. Approximately 3.5 acres of riparian wetlands were mapped by the NWI along both banks of the Sultan River within this segment.

**4.2.1 Land Use Patterns, Transportation and Utility Facilities**

**Land Use Patterns.** Land use within Planning Segment B is characterized as a mix of urban and utility oriented uses (downtown core and the municipal wastewater treatment plant) with open space park resources providing riverfront access (Sportsman’s Park and River Park) (Figure 7). Commercial land uses along Highway 2 and residential uses near the central business district also occur in Segment B. The zoning map indicates that future land use would be consistent with existing land use patterns (Figure 2). Table 4 below summarizes existing land use, zoning designations, and currently adopted shoreline environment designations within Segment B.

**Table 4. Segment B Land Use, Zoning, and Shoreline Environment Designations**

Existing Land Use	City of Sultan Zoning	Existing Shoreline Environment Designations (Snohomish County SMP)
<ul style="list-style-type: none"> <li>• Parks, Open Space, Recreation Areas (42%)</li> <li>• Government/Educational (21%)</li> <li>• Single-family, Multi-family Residential (18%)</li> <li>• Undeveloped (8%)</li> <li>• Utilities/Transportation (8%)</li> <li>• Commercial (3%)</li> </ul>	<ul style="list-style-type: none"> <li>• Urban Center</li> <li>• High Density</li> <li>• Moderate Density</li> <li>• Low/Moderate Density</li> </ul>	<ul style="list-style-type: none"> <li>• Urban (both banks)</li> </ul>

Source: City of Sultan GIS, 2002; Snohomish County Assessor, 2002; Snohomish County SMP, 1993.

**Transportation.** Major roads and transportation facilities in Planning Segment B include US 2 and the BNSF railroad (BNSF). The US 2 bridge and adjacent BNSF bridge cross the Sultan River just upstream of the confluence with the Skykomish River (Figure 7).

**Wastewater and Stormwater Facilities.** Stormwater drainage conveys runoff to the Sultan and Skykomish Rivers in this segment. Planning Segment B includes portions of two surface water management drainage basins:

- Central Business District Basin: Drains to the Sultan and Skykomish Rivers; includes two outfalls along the east bank of the Sultan River north of the confluence with the Skykomish (Figure 7).
- Western Basin: Drains an area west of the confluence of the Sultan and Skykomish Rivers.

The City of Sultan Municipal Wastewater Treatment Plant is located in Planning Segment B, on the west bank of the Sultan River near the confluence with the Skykomish River (Figure 7). Originally constructed in 1970, the plant was expanded in 1998 to a treatment capacity of 720,000 gallons per day. The treatment process consists of conventional biological treatment. Treated effluent is discharged from an 8-inch outfall pipe into the Skykomish River downstream from the Sultan River confluence. This outfall is located south of Planning Segment B, outside of the City limits and therefore outside of the City's shoreline jurisdiction. Sanitary sewer service is provided throughout Planning Segment B, and is conveyed from the central business district core to the treatment plant via a 10-inch diameter influent pipe. This pipe crosses beneath the Sultan River approximately 150 feet upstream of the confluence with the Skykomish River.

**Shoreline Modifications.** Segment B is impacted in the vicinity of the SR 2 and BNSF bridges over the Sultan River by bank armoring, bank hardening, and floodplain confinement. Over the years, Snohomish County, the U.S. Army Corps of Engineers, and BNSF railways have implemented modifications such as rip-rap and a training dike that appear to have adversely affected the hydraulic flow at the confluence of the Sultan and Skykomish Rivers. Near the mouth of the Sultan River, the shoreline has been partially modified by residential development and bank hardening, including bank armoring and floodplain confinement upstream of Sportsman's Park in Sultan (Haring, 2002). The portion of the Sultan River within this planning segment does not appear on the 1998 303(d) list of impaired waterbodies (Ecology, 2002).

#### 4.2.2 Existing and Potential Public Access Sites

Existing parks, recreation and public access sites within Planning Segment B include:

- River Park: 6-acre City of Sultan Park located on the east bank of the Sultan River at 1st Street and Main.
- Sportsman's Park: 5-acre WDFW-owned park (maintained by Sultan) located on the west bank of the Sultan River, providing a boat launch and fishing access.

Potential to expand access to the shoreline in Segment B is limited, as the majority of land is already publicly owned. The existing parks and boat launch provide adequate riverfront access along the Sultan River.

#### 4.2.3 Critical Areas

**Wetlands.** According to the NWI, this segment contains wetlands associated with the east bank shoreline of the Sultan River. The wetland area is classified by the NWI as forested; however, current conditions indicate the presence of an emergent wetland swale/detention area located in

River Park. Wetlands cover an area of up to 3.5 acres, or approximately 26 percent of the total segment area.

**Geologically Hazardous Areas.** Soil types within the shoreline jurisdiction are mapped on Figure 5. No soils with 15 percent slopes or greater are mapped in the shoreline jurisdiction in Segment B. Similarly, City of Sultan critical areas mapping indicates that Planning Segment B contains no steep slopes. Liquefaction hazard areas in the City have not been mapped.

**Frequently Flooded Areas.** The *City of Sultan Repetitive Flood Loss Mitigation Plan* identifies the major area of frequent flooding within the shoreline jurisdiction between the confluence of the Sultan and Skykomish Rivers and the intersection of First Street and Cedar Street. According to flood prevention or mitigation approaches considered for Segment B include:

- The Comprehensive Flood Hazard Management Plan (City of Sultan, 2002),
- Development of a floodwall or setback levee parallel to the Sultan River, west of First Street extending approximately 2,000 feet north to Date Street;
- Elevating First Street;
- Acquisition, demolition or relocation of repetitive flood loss properties;
- Elevating and/or floodproofing structures in frequently flooded areas; and
- Revision of floodplain development regulations.

**Fish and Wildlife Habitat.** Much of the riparian habitat in Segment B has been modified and is now disturbed lawn, offering limited wildlife habitat.

#### 4.2.4 Floodplains and Channel Migration Zones

The limits of the FEMA-mapped floodplain are depicted on Figure 3. This segment experiences frequent flooding described previously in Section 4.2.3 above.

#### 4.2.5 Other Areas of Potential Interest

**Priority Species Use.** Bald eagle may occur throughout this segment foraging on waterfowl or spawned out fish carcasses. Pink salmon may be present within the segment, chinook salmon and steelhead trout use the entire river to varying degrees, and coho salmon use side channels and tributaries (Haring, 2002). State- and federally-listed priority habitat (PHS) species that may occur within the Sultan River in this shoreline planning segment are listed below in Table 5.

**Table 5. Listed Fish Species: Segment B**

Segment	PHS Listed Species	Anadromous/ Resident	Spawning/ Rearing
B Sultan River	Bull trout	Anadromous	Rear
	Chum Salmon	Anadromous	Spawn/Rear
	Coho Salmon	Anadromous	Rear
	Fall Chinook	Anadromous	Spawn
	Pink Salmon	Anadromous	Spawn
	Summer Steelhead	Anadromous	
	Winter Steelhead	Anadromous	Spawn/Rear
	Rainbow Trout	Resident	
	Resident Cutthroat	Resident	

Source: WDFW, Streamnet, 2002

**Shoreline Ecological Functions.** Overall, shoreline ecological functions in planning Segment B have been impacted by human disturbance. The SR2 Bridge and the BNSF railroad Bridge cross the Sultan River within this segment. Riparian vegetation consists of disturbed grass species, Himalayan blackberry, and red alder. Adjacent land use includes the City Wastewater Treatment Plant, Sportsman’s Park, and River Park. Two outfalls conveying stormwater runoff from the downtown area discharge to the Sultan River in this segment (Figure 7). This segment, located at the confluence of the Sultan River with the Skykomish River, experiences frequent flooding described previously in Section 4.2.3 above. The Sultan River within this planning segment does not appear on the 1998 303(d) list of impaired waterbodies (Ecology, 2002).

**4.2.6 Opportunity Areas**

**Opportunity Area B-1 (Restoration).** Sportsman’s Park, located adjacent to the City’s Wastewater Treatment Plant, is used as a picnic area and for fishing access. Denuded areas could be planted with riparian vegetation, such as Pacific and Sitka willow, Pacific ninebark, and beaked hazelnut, all species that are already present in this area. Access to the water could be restricted to one or two areas to reduce the potential for disturbance and erosion.

**Opportunity Area B-2 (Restoration).** River Park, along the east bank of the Sultan River, is maintained grass to the shoreline. River banks could be planted with riparian vegetation, as recommended for B-1 above. This reach of the Sultan River floods most of the adjoining lands, on both sides of the river. The wetland swale within this park could be planted with a diversity of wetland species to provide improved habitat and water quality functions.

**Opportunity Area B-3 (Acquisition and Restoration).** This area has been called out in the *City of Sultan Repetitive Flood Loss Mitigation Plan* as a frequently flooded area. Options include property acquisition or the development of a floodwall along First Street that would allow the potential for increased flood storage as well as increased wildlife habitat. Recommendations include replanting with native vegetation, especially conifers, in riparian areas. Increasing vegetative cover in urban areas can serve as an effective tool to control stormwater. These replanted areas should have a maintenance plan until the plants are established (SBSRF, 2001).

**4.3 SEGMENT C. SKYKOMISH RIVER**

**Summary:** Segment C extends from approximately RM 34.3 to RM 35.7 of the Skykomish River (Figure 5). Segment C is limited to sections of the north bank only. The most significant factors in this segment are bank armoring throughout the segment, the conversion of riparian habitat to residential land use, and the corresponding increase in impervious surface. Approximately 21 acres of riparian wetlands were identified by NWI maps within the shoreline jurisdiction. Wagleys Creek enters the Skykomish River within this segment (Figure 3).

**4.3.1 Land Use Patterns, Transportation and Utility Facilities**

**Land Use Patterns.** Land use in Segment C is a mix of developed and undeveloped residential. Commercial development along US 2 and the BNSF railroad near the downtown central business district are also located within the western portion of Planning Segment C (Figure 8). Zoning and the currently adopted shoreline environment designations reflect this land use pattern (Figure 2). Table 6 below summarizes existing land use, zoning designations, and shoreline environment designations within Segment C.

**Table 6. Segment C Land Use, Zoning, and Shoreline Environment Designations**

Existing Land Use	City of Sultan Zoning	Existing Shoreline Environment Designations (Snohomish County SMP)
<ul style="list-style-type: none"> <li>• Single-family, Multi-family Residential (72%)</li> <li>• Undeveloped (22%)</li> <li>• Transportation (3%)</li> <li>• Commercial (3%)</li> </ul>	<ul style="list-style-type: none"> <li>• Urban Center, Moderate Density and Low/Moderate Density</li> </ul>	<ul style="list-style-type: none"> <li>• Urban (west of 5<sup>th</sup> Street) and Rural (east of 5<sup>th</sup> Street)</li> </ul>

Source: City of Sultan GIS, 2002; Snohomish County Assessor, 2002; Snohomish County SMP, 1993.

**Transportation.** Major roads and transportation facilities in the western portion of Planning Segment C include US 2 and the BNSF Railroad. The Fifth Street Bridge, also providing access into downtown Sultan, crosses the Skykomish River at approximately RM 34.75 (Figure 8). The eastern portion of Planning Segment C is comprised of smaller roads providing access to residential development along the north bank of the Skykomish River.

**Wastewater and Stormwater Facilities.** No wastewater treatment facilities are located within Planning Segment C. Sanitary sewer service is provided to the residential areas located in Segment C. No wastewater conveyance pipes cross the Skykomish River within Segment C.

Within Segment C, stormwater is conveyed to the Skykomish River and discharged via two outfalls. Planning Segment C includes portions of two surface water management drainage basins:

- Central Business District Basin: Drains to the Skykomish River, west of 10th Street; includes two outfalls located along the north bank of the Skykomish River (Figure 8).

- Eastern Basin: Drains to the Skykomish River, east of 10<sup>th</sup> Street; no outfalls are located within this area.

**Shoreline Modifications.** Within Segment C, natural floodplain function along the Skykomish River is impaired by presence of private and public roads, including US 2, the Fifth Street Bridge overpass, and the BNSF Railroad. Burlington Northern placed rip-rap on the north bank of the Skykomish River, in an area just east of the confluence with the Sultan River. A “training dike” (short dike primarily designed to direct/redirect the main channel of the river, rather than to provide flood control along a long length of river shoreline) is located at RM 34.3 on the Skykomish River (City of Sultan, 2001). This “training dike” is located a few hundred yards south of the confluence with the Sultan River, outside of Segment C and the City’ shoreline jurisdiction.

#### 4.3.2 Existing and Potential Public Access Sites

Existing parks, recreation and public access sites within Planning Segment C include the Skykomish River Boat Launch, a one-acre boat launch facility owned by the WDFW. The facility is located on the north bank of the Skykomish River with access from US 2.

Potential to expand access to the shoreline in Segment C is limited. There is little existing parks and publicly owned property. Most privately owned property within Segment C is developed and abuts the Skykomish riverfront.

#### 4.3.3 Critical Areas

**Wetlands.** The NWI maps one area of forested wetland associated with the Skykomish River shoreline within this segment. Wetlands cover an area of up to 21 acres, or approximately 31 percent of the total segment area.

**Geologically Hazardous Areas.** Soil types in the shoreline jurisdiction are mapped on Figure 5. No soils with 15 percent slopes or greater are identified within Segment C. Similarly, City of Sultan critical area mapping indicates that there are no steep slope areas in Segment C (Figure 3). Liquefaction hazard areas in the City have not been mapped.

**Frequently Flooded Areas.** The City of Sultan Repetitive Flood Loss Mitigation Plan indicates that the major area of frequent flooding in the City is located in Segment B; however, the Skywall district, located between the BNSF railroad and the Skykomish River in the eastern-most portion of Segment C, was also called out as a frequently flooded area. According to the Comprehensive Flood Hazard Management Plan (City of Sultan, 2002), flood prevention or mitigation approaches considered for Segment C include:

- Channel modifications within the Skykomish River;
- Acquisition, demolition or relocation of repetitive flood loss properties;
- Elevating and/or floodproofing structures in frequently flooded areas; and
- Revision of floodplain development regulations.

**Fish and Wildlife Habitat.** The shoreline within this planning segment retains a narrow band of scattered conifers in residential yards, with no understory vegetation. Wagleys Creek flows through industrial and residential areas before entering the Skykomish River within this segment. This stream has been channelized, and riparian vegetation is limited in places to a single row of immature alders.

#### 4.3.4 Floodplains and Channel Migration Zones

The limits of the FEMA-mapped floodplain are depicted on Figure 3. Much of this segment is located in the floodplain. The Skykomish River in the vicinity of this segment is a lower gradient depositional reach, where sediment and wood are actively deposited (Haring, 2002). This reach is braided and very dynamic (Haring, 2002). However, because the shoreline is hardened along this shoreline planning segment, the river channel is limited in its capacity to shift to the north.

#### 4.3.5 Other Areas of Potential Interest

**Priority Species Use.** A bald eagle territory is mapped along the Skykomish River, approximately 0.75-mile southwest of this shoreline planning segment. A bald eagle winter communal roost is mapped approximately two miles southeast of this shoreline planning segment. Eagles, federally-listed as threatened, congregate in this area during the height of salmon spawning in the fall and perch and forage along the river, including areas falling within Segment C (WDFW, 2003). Chinook and bull trout, both listed as threatened species under federal regulations, and coho salmon, a federally-listed candidate species, along with many other fish species, may all be present in the Wallace River. State- and federally-listed priority habitat species (PHS) that may occur within the Sultan River in this shoreline planning segment are listed In Table 7 below.

**Table 7. Listed Fish Species: Segment C**

Segment	PHS Listed Species	Anadromous/ Resident	Spawning/ Rearing
C Skykomish River	Bull trout	Anadromous	Rear
	Chum Salmon	Anadromous	Spawn/Rear
	Coho Salmon	Anadromous	Rear
	Fall Chinook	Anadromous	Spawn
	Pink Salmon	Anadromous	Spawn
	Summer Steelhead	Anadromous	
	Winter Steelhead	Anadromous	Spawn/Rear
	Rainbow Trout	Resident	
	Resident Cutthroat	Resident	

Source: WDFW, Streamnet, 2002

**Shoreline Ecological Functions.** Overall ecological functions along this segment are considered impaired. The BNSF railroad tracks, US 2, and the City of Sultan constrain the Skykomish River to the north, reducing channel complexity and wood recruitment, as well as salmon migration (SBSRF, 2001). The banks of the Skykomish River are hardened the length of this segment within the shoreline jurisdiction, including a short dike at RM 34.3.0. Riparian

vegetation in this segment is limited for the entire shoreline, with a very narrow strip of vegetation paralleling the existing residential development. In other areas, the riparian zone is completely cleared to the river's edge. Known as the "braided reach," this area of the Skykomish River has a great deal of hydraulic complexity, although the lack of large woody debris and intact riparian reserves are very noticeable (SBSRF, 2001). There are many important resting pools in the area, as well as sizeable side channels, creating excellent rearing and refuge habitat (SBSRF, 2001). The portion of the Skykomish River within this planning segment does not appear on the 1998 303(d) list of impaired waterbodies (Ecology, 2002).

#### 4.3.6 Opportunity Areas

Opportunities within the segment planning area are limited due to the developed nature of the north bank of the shoreline within this segment (Figure 8).

**Opportunity Area C-1 (*Enhancement*).** This area includes privately-owned residential properties with shoreline frontage. The City could encourage planting of native vegetation and limit clearing and disturbance along the banks. Sensitive resources, such as wetlands, would be regulated by the City's sensitive areas code.

**Opportunity Area C-2 (*Protection and Restoration*).** These two areas offer opportunities for habitat protection and restoration, within the limits of the future projected land use (low-moderate to moderate density development) (Figure 8). The westernmost area is mapped as wetland on the NWI, and both areas retain native trees and shrubs.

**Opportunity Area C-3 (*Enhancement*).** Limited opportunities exist along this reach; however, plantings of native shrubs could enhance riparian functions in Area C-3.

#### 4.4 SEGMENT D. WALLACE RIVER

**Summary:** Segment D includes two short reaches of the north (left) bank of the Wallace River, from approximately RM 0.0 to RM 0.3, and from RM 0.75 to RM 0.8 (Figure 9). This segment has a wide band of intact riparian forest and offers significant in-stream habitat. Land use adjacent to shoreline jurisdictional areas in Segment D includes industrial area and park land adjacent to the Cemetery Park reach, and low-density residential adjacent to the second reach. Approximately 2 acres of riparian wetlands have been mapped by the NWI along the shoreline.

#### 4.4.1 Land Use Patterns and Transportation and Utility Facilities

**Land Use Patterns.** Planning Segment D is primarily comprised of a portion of Cemetery Park, with riverfront access to the Wallace River. East of Cemetery Park, the City limits are located north of the Wallace River and only small portions are within the shoreline jurisdiction along the Wallace River. This area is near US 2, west of 339<sup>th</sup> Street where commercial development along the highway is the predominant land use (Figure 9). Along US 2, zoning reflects this commercial development pattern; Cemetery Park is zoned for Economic Development. The currently adopted shoreline environment designation along the Wallace River is Conservancy (Figure 2).

**Transportation.** Major roads and transportation facilities in the eastern portion of Planning Segment D include US 2. The BNSF railroad crosses the Wallace River south of Planning Segment D and outside of the City's shoreline jurisdiction.

**Wastewater and Stormwater Facilities.** No wastewater treatment facilities or conveyance pipes are located within Planning Segment D. Portions of Segment D supporting commercial development along Highway 2 have access to sanitary sewer service. There are no City stormwater outfalls that discharge to the Wallace River within this shoreline planning segment.

**Shoreline Modifications.** No bank armoring was noted on the Wallace River within shoreline planning Segment D.

#### 4.4.2 Existing and Potential Public Access Sites

Cemetery Park includes 1.5 acres of property privately-owned by the cemetery. The park is developed with ball fields and located on the north bank of the Wallace River along Cascade View Drive. Potential to expand access to the shoreline in Segment D is limited because the cemetery reserves the right to develop portions of the park as cemetery plots in the future.

#### 4.4.3 Critical Areas

**Wetlands.** The NWI maps forested and scrub-shrub wetland associated with the Wallace River shoreline within this segment. These wetland areas are located along a bench between 30 and 60 feet lower in elevation than Cemetery Park and US 2. According to NWI, wetlands cover an area of up to 2 acres, or approximately 84 percent of the total segment area.

**Geologically Hazardous Areas.** Soil types within the shoreline jurisdiction are mapped on Figure 5. No soils with 15 percent slopes or greater are mapped within the shoreline jurisdiction in Segment D. Portions of Segment D have steep slopes, according to the City's critical areas mapping (Figure 3).

**Frequently Flooded Areas.** No frequently flooded areas are identified by the *City of Sultan Repetitive Flood Loss Mitigation Plan* within this shoreline planning segment. Both Cemetery Park and the area adjacent to US 2 are elevated between 30 and 60 feet above the floodplain.

**Fish and Wildlife Habitat.** Riparian vegetation along the Wallace River is predominantly a mix of immature deciduous and coniferous forest. The undeveloped riparian forest and wetlands

adjacent to the Wallace River offer significant fish and wildlife value for foraging and cover habitat, as well as a migratory corridor.

4.4.4 Floodplains and Channel Migration Zones

The limits of the FEMA-mapped floodplain are depicted on Figure 3. Steep slopes limit the capacity of the river channel to migrate to the west.

4.4.5 Other Areas of Potential Interest

**Priority Species Use.** A bald eagle nest is mapped by the WDFW (2002) as occurring approximately 500 feet east of this shoreline planning segment, along the south (right) bank of the Wallace River. The bald eagle is federally-listed as threatened. Chinook and bull trout, both federally-threatened species, and coho salmon, a federal candidate species, along with many other fish species, may all be present in the Wallace River. State- and federally-listed priority habitat fish species (PHS) that may occur within the Sultan River in this shoreline planning segment are listed below (Table 8).

**Table 8. Listed Fish Species: Segment D**

Segment	PHS Listed Species	Anadromous/ Resident	Spawning/ Rearing
D Wallace River	Bull trout	Anadromous	Rear
	Chum Salmon	Anadromous	Spawn/Rear
	Coho Salmon	Anadromous	Rear
	Fall Chinook	Anadromous	Spawn
	Pink Salmon	Anadromous	Spawn
	Summer Steelhead	Anadromous	
	Winter Steelhead	Anadromous	Spawn/Rear
	Rainbow Trout	Resident	
	Resident Cutthroat	Resident	

Source: WDFW, Streamnet, 2002

**Shoreline Ecological Functions.** Floodplain function on the Wallace River within the vicinity of Sultan is described to be generally intact except in limited areas where development encroaches on the channel (Haring, 2002). In most areas, however, the riparian corridor is predominantly a 25- to 100-foot wide early successional/mixed-age stand dominated by cottonwood, with scattered Douglas fir and western red cedar. The riparian areas adjacent to the river are relatively intact, although there is development pressure that could affect the long term viability of these areas (SBSRF, 2001).

The Wallace River is one of the larger tributaries to the Skykomish River, although Wallace Falls, above the Town of Gold Bar, limits upstream access. The Wallace River is included on the 1998 303(d) list of impaired waterbodies for temperature (Ecology, 2002).

#### 4.4.6 Opportunity Areas

**Opportunity Area D-1 (Protection).** The *Snohomish River Basin Chinook Salmon Near Term Action Agenda* (SBSRF, 2001) identifies “Focus Area XI”, which includes the Wallace River from its mouth to Gold Bar, as offering potential for acquisition and protection of forested riparian areas. The report notes that this area is under development pressure.

**Opportunity Area D-2 (Protection).** Area D-2 includes residential property bounded by US 2 and commercial business to the west, north, and east. Retention of native trees and shrubs, especially along the steep slopes, is recommended to reduce impacts on water temperature and protect the adjacent floodplain.

### 4.5 SEGMENT E. URBAN GROWTH AREA

A detailed characterization of the shoreline jurisdiction within the City’s UGA was beyond the scope of this inventory. Mapping (Figures 1 through 5) and a general discussion of conditions in this area are provided in Section 3.

In general, conditions in this segment are similar to those found in Planning Segment A, located downstream. Planning Segment E remains largely undeveloped and contains mixed areas of forest, pasture, and low-density residential (Figures 1 and 5). The currently adopted shoreline environment designations in the UGA are Rural and Conservancy (Figure 2).

As the City identifies areas for annexation within the UGA, it could further evaluate conditions in these areas with respect to the elements of this shoreline inventory for the purposes of administering the Shoreline Management Act in newly incorporated areas.

## 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 City of Sultan’s development of its Shoreline Master Program.

- As noted in Section 4, the scope of work for this inventory did not include historic or archaeological sites. Consultation with the State Office of Archaeology and Historic Preservation, local Tribes, and local historical societies would help identify sites within the City’s shoreline jurisdiction.
- Information on mapped channel migration zones of the Sultan, Skykomish, and Wallace Rivers was not available for this inventory.
- Aquifer recharge areas within the City of Sultan have not been mapped and were not included in this inventory.
- Liquefaction and landslide hazard areas within the City of Sultan have not been mapped and were not included in this inventory regarding geologically hazardous areas.

- Parcel data identifying publicly owned and managed property within each shoreline planning segment were not available. This information could better refine the definition of opportunity areas within the City's shoreline jurisdiction.
- Calculating impervious area within the City'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.
- A detailed characterization of the shoreline jurisdiction within the City's urban growth area (UGA) was beyond the scope of this inventory. Mapping and a general discussion of conditions in this area is provided.

## **6.0 SHORELINE MANAGEMENT RECOMMENDATIONS**

The following recommendations synthesize the area-specific opportunities identified in Section 5 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 City'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 City of Sultan has protected large areas of open space in its shoreline jurisdiction, primarily through development of parks and limiting development in the floodway and floodplain. However, zoning in these areas is low-moderate to moderate density development. 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 of stream and off-channel habitat by maintaining them in their undeveloped state and should be considered.
- In other well-forested areas within the shoreline jurisdiction, new policies, regulations, or incentive programs could help conserve and retain native forest vegetation. Preserving floodplains helps protect watershed processes, reduce potential flood hazard damages and the need for future bank armoring, and provides value as open space (Snohomish Basin Salmon Recovery Forum [SBSRF], 2001). Several regulatory and non-regulatory approaches could be incorporated into the City's shoreline policies and regulations, to provide landowners with options such as on-site density transfers, conservation easements, offsite transfer of development rights, and technical assistance for restoration projects.
- Riparian areas upstream of salmon habitat support essential watershed processes and could be included as candidates for protection. Protection and restoration of riparian habitat and wetlands could help decrease stream temperatures, control erosion and sedimentation, distribute nutrients and food, and maintain a more natural flow regime (SBSRF, 2001).
- Coordinating shoreline conservation activities with ongoing floodplain management activities would help to coordinate projects so that enhancement of ecological functions could be considered, for example, in levee management plans or flood control projects.

- The City of Sultan Comprehensive Flood Hazard Management Plan (2002) recommends pursuing non-structural alternatives for short-term flood reduction in the City, and continuing to study the feasibility of structural alternatives such as the floodwall for longer-term flood reduction efforts.
- For shoreline stabilization projects, demonstration of the need for engineering approaches to shoreline stabilization could be required before approval. The use of bioengineering (such as root wads and replanting) where possible and minimizing new dikes or bank hardening could be encouraged in the City's shoreline master program.
- Consistent with goals established in the Draft Comprehensive Plan Update, 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.
- Cumulative impacts include the effects of actions when considered in combination with other past, present, or reasonably foreseeable future actions. Upon development of updated shoreline policies and regulations, the City should conduct an evaluation of cumulative impacts to examine the implications of full build-out of the City's shoreline jurisdiction to basin-wide ecological conditions.

## 7.0 REPORT REFERENCES AND BIBLIOGRAPHY

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## **APPENDIX A –MAP FOLIO**