

City of Gold Bar
SMA Grant Agreement No. G1000017

Shoreline Analysis Report
*Including Shoreline Inventory and Characterization for
City of Gold Bar's Shorelines: Skykomish River, Wallace River, and May Creek*

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Final

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I.0 INTRODUCTION

I.1 BACKGROUND AND PURPOSE

The City of Gold Bar (City) obtained a grant from the Washington Department of Ecology (Ecology) to conduct a comprehensive Shoreline Master Program (SMP) update. The first step of the update process was to inventory the City’s shorelines as defined by the State’s Shoreline Management Act (SMA) (RCW 90.58). The inventory was conducted according to direction provided in the Shoreline Master Program Guidelines (WAC 173-26-201) and it included areas within current City limits. The shoreline inventory included in this report describes existing biological and physical conditions, and uses Ecology’s guidance to assess the baseline conditions for the qualitative extent of ecological functions provided via ecosystem-wide processes. *“Ecosystem or watershed processes occur over larger landscapes that include both the shoreline and watershed features draining to the shoreline”* (Ecology 2010c). Threats to these functions are provided, where evident, as well as recommendations for restoring processes and functions, where feasible. Ecology’s Guidelines require that the City demonstrate that its updated SMP results in “no net loss” of ecological functions in the shoreline relative to the baseline.

A list of potential information sources relative to shorelines within the City was compiled and an information request letter was distributed to potential interested parties and agencies that may have relevant information (Appendix A). Collected information was supplemented with other resources such as City documents, GIS information, scientific literature, aerial photographs, internet data, and a brief site visit. The analysis follows the guidance established by Ecology. All maps are located in Appendix B.

I.2 SHORELINE JURISDICTION

As defined by the Shoreline Management Act (SMA) of 1971, lands subject to Shoreline jurisdiction include “waters of the state plus their associated “shorelands.” At a minimum, waters of the state are streams whose mean annual flow is 20 cubic feet per second (cfs) or greater, and lakes whose area is greater than 20 acres. In RCW 90.58.030, Shorelands are defined as:

“Those lands extending landward for 200 feet in all directions as measured on a horizontal plane from the ordinary high water mark; floodways and contiguous floodplain areas landward 200 feet from such floodways; and all wetlands and river deltas associated with the streams, lakes, and tidal waters which are subject to the provisions of this chapter...Any county or city may determine that portion of a one-hundred-year-floodplain to be included in its master program as long as such portion includes, as a minimum, the floodway and the adjacent land extending landward two hundred feet there from... Any city or county may also include in its master program land necessary for buffers for critical areas”

The SMA further designates some shorelines as shorelines of statewide significance. Shorelines of statewide significance include portions of Puget Sound and other marine water bodies, rivers with

mean annual flow of 1,000 cfs or greater, and freshwater lakes 1,000 acres or larger. The shoreline of the Skykomish River is defined as a shoreline of statewide significance within the City of Gold Bar (Washington Administrative Code 173-18-350 Snohomish County)

I.3 STUDY AREA

The City of Gold Bar is located in south central Snohomish County, and has been incorporated since 1910. The City is bordered on all sides by Snohomish County. The nearest city is Sultan, located west along State Route 2 (SR 2). State Route 2 passes through the southern section of the City. The railroad runs parallel to SR 2 and it is located between SR 2 and the Skykomish River in Gold Bar. The City encompasses approximately 1.1 square miles. The City has approximately 151.68 acres of potential annexation area (PAA), which is not included in the shoreline study area for the update. The study area for this report includes all land currently within the City's existing shoreline jurisdiction (Figure 1a), including portions of the Skykomish River, Wallace River, and May Creek. The total area that will be subject to the City's updated SMP is approximately 187.24 acres, and encompasses approximately 25,437 lineal feet (4.82 miles) of river shoreline.

I.4 SNOHOMISH (SKYKOMISH/SNOQUALMIE) RIVER WATERSHED (WRIA 7)

I.4.1 Geographic Context

The City of Gold Bar and its jurisdictional shorelines are located within Water Resource Inventory Area (WRIA) 7, which incorporates the entire Snohomish River basin.

The shoreline areas in the City of Gold Bar are made up of portions of the Skykomish River, Wallace River, and May Creek, as well as the floodway, floodplains within 200 feet of the Ordinary High Water Mark (OHWM), and associated wetlands. There are no lakes in the City under shoreline jurisdiction. Ecology defines associated wetlands that are subject to the Shoreline Management Act as “all wetlands which are in *proximity* to and either *influence* or are *influenced by* tidal waters or a lake or stream” (Ecology 2010c).

The Snohomish (Skykomish/Snoqualmie) River Watershed

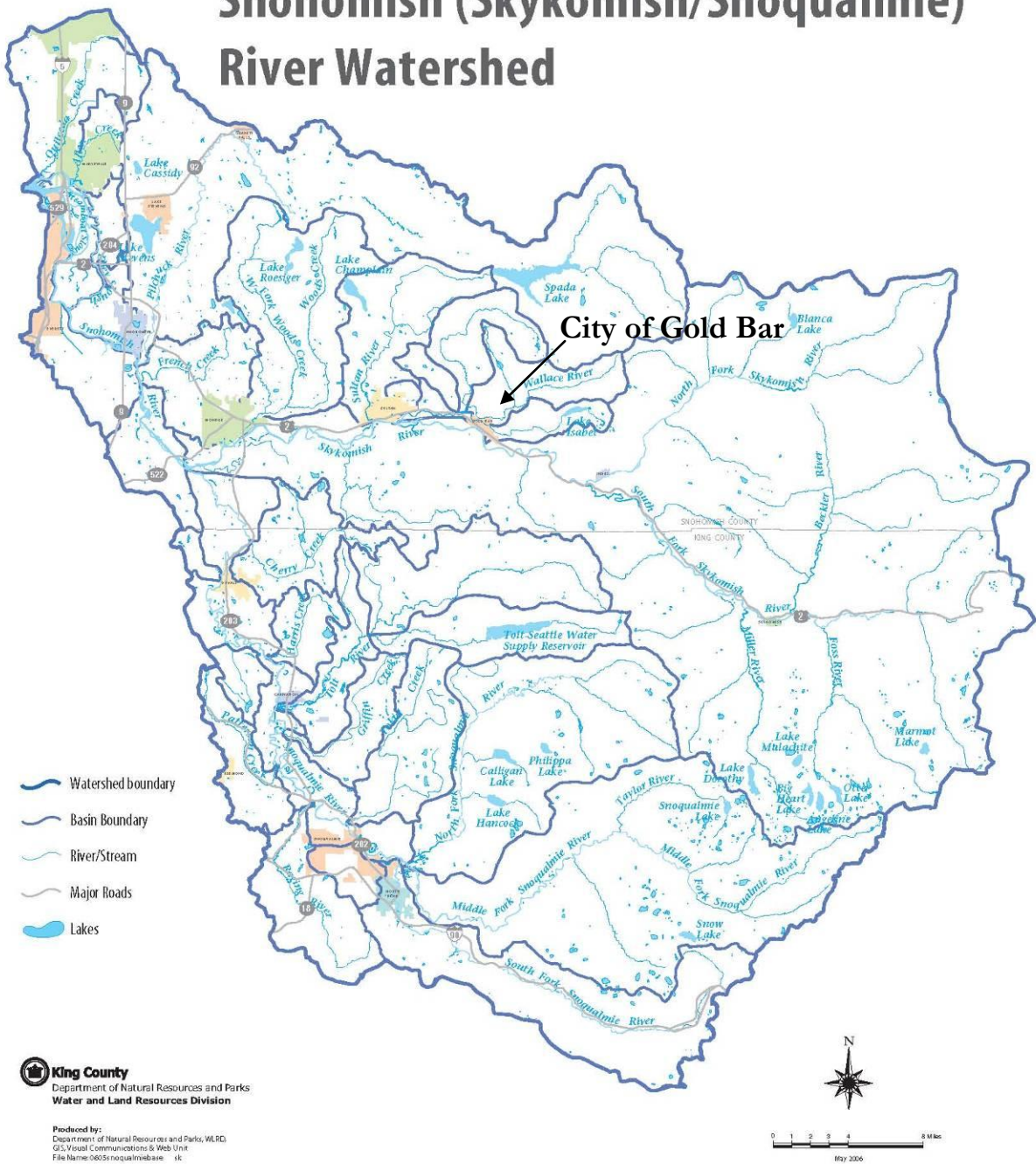


Figure I. Overview of the watershed and its sub-watershed boundaries (King County 2006).

I.4.2 Historic Geology, Topography, and Drainage Patterns

The Skykomish River is part of the Snohomish River Watershed. The Snohomish River Watershed drains approximately 1,980 square miles west of the Cascade Crest. The Skykomish River originates in tertiary granitic rock to the east and flows to the west through glacially influenced valleys and rolling lowlands before draining into Puget Sound via the Snohomish River (Haring 2002). The Skykomish River drains approximately 842 square miles and it is the largest drainage contributing to the Snohomish River Basin. The Skykomish River has a fairly steep gradient, and high sediment loads, which combined provides excellent spawning habitat for anadromous fish. The City's elevation is approximately 200 feet above sea level. Rugged foothills that are undeveloped frame the City to the north and south.

I.4.3 Major Land Use Changes and Current Shoreline Condition

Gold Bar was founded in 1889 as a prospector's camp and it later became a construction camp for work on the Great Northern Railway. Nearby mining operations were also viable sources of income for the area in the late 1800s and early 1900s. During the early to mid-1900s, the town's economy was based on the timber industry. As the logging industry has become greatly scaled back throughout much of Washington State, the economic engine of the timber industry has been greatly reduced in Gold Bar. The town no longer relies on the timber industry and the last of the saw mills have closed. Outside of the City limits, there remains some timber harvesting as well as gravel quarries.

Gold Bar and the Skykomish Valley areas provided important resources for Native Americans as the river valley provided game and native plants as plentiful food sources. The Wallace and Skykomish Rivers were used as transportation routes for Native Americans traversing from the Puget Sound to eastern Washington (Gold Bar 1999). In addition to game and fish, the valley provided berry harvests (Gold Bar 1999). "The Skykomish tribes were a migratory population utilizing the valley as a late spring and early summer residential area on their seasonal travels between the Pacific Coastal area and Eastern Washington. The native peoples returned to the river valley in the fall to coincide with the return of the salmon" (Gold Bar 2005).

Beginning with the depression in the late 1920s, the town's population steadily decreased, falling to just 400 residents in 1970. Gold Bar's growth has been slow but steady since the 1970s, with 2,014 residents in 2000 (per U.S. census), and a population of 2,075 according to the 2010 U.S. census. The City's comprehensive plan states that the projected population in 2025 is approximately 3,500 residents. Due to topography, future development is limited in the areas to the north and south, but growth can continue to the east/west along the Skykomish River valley. The town's intent is to continue as a small bedroom community that relies on revenue from tourists travelling along the U.S. 2 corridor (Gold Bar 2009).

The City's history as a logging and railroad town has impacted the shorelines, particularly with the railroad and U.S. 2 being built adjacent to the Skykomish River. The railroad was constructed in the

early 1900s and transported logs and shingles. As timber was cleared, small agricultural farms sprung up in and around Gold Bar (City of Gold Bar 1999). The construction of housing and small farms has impacted the shorelines of the Wallace River and May Creek, with some areas having shoreline modifications as well as the associated stormwater that may runoff into adjacent water bodies.

Historically, construction of new homes and buildings did not require stormwater management considerations. In most areas of the City, untreated stormwater that does not infiltrate flows directly into the Skykomish River, Wallace River, or May Creek. Additionally, the City does not have a wastewater treatment plant, so all homes and businesses are on private septic systems. The concern with old or unmaintained septic systems is that they can leak untreated sewage into adjacent water bodies. During floods, failing systems can also leak untreated sewage into adjacent water bodies.



Figure 2. Historic aerial photo 1989 (Google Earth 2010).



Figure 3. Current aerial photo 2009 (Google Earth 2010).

I.4.4 ESA Listings

Three federally listed salmonid species occur in the Snohomish Watershed: Chinook salmon, Puget Sound Evolutionary Significant Unit (ESU), (Reaffirmed as Threatened, U.S. Federal Register, 28 June 2005); bull trout, Coastal-Puget Sound Distinct Population Segment (DPS), (threatened, U.S. Federal Register, 1 November 1999); and steelhead of the Puget Sound DPS (U.S. Federal Register, 11 May 2007). Puget Sound-Strait of Georgia Coho salmon also occur in the basin and are listed as a Species of Concern (U.S. Federal Register, 15 April 2004), indicating that they are under less active consideration for formal listing. These three federally listed species are known to occur or are likely to occur in City of Gold Bar shoreline areas. Chinook and Bull trout are present in the Skykomish and Wallace Rivers. Steelhead and Coho are present in the Skykomish and Wallace Rivers and in May Creek. All four (including Coho) species use these water bodies for spawning, rearing, and as migration corridors.

Section I—Introduction

The Snohomish Watershed also contains formally designated critical habitat for Puget Sound Chinook salmon and Coastal-Puget Sound bull trout. Critical habitat for Puget Sound steelhead has not yet been designated but is under development. In 2010, a significant increase in area critical habitat for bull trout has been proposed and it included the main stem of the Skykomish River and Wallace River within the Gold Bar city limits.

Critical habitat was designated for the Coastal/Puget Sound bull trout on September 25, 2005, and critical habitat was designated for Puget Sound Chinook salmon on September 2, 2005. Fish historically or currently present in the South Fork Skykomish River include populations of both anadromous and resident fish. Anadromous species (since 1958) include Chinook, Coho (*O. kisutch*), pink (*O. gorbuscha*), chum (*O. keta*), steelhead, and cutthroat trout (*O. clarki*) (SBSRF 2005).

2.0 CURRENT REGULATORY FRAMEWORK SUMMARY

2.1 CITY OF GOLD BAR

Most uses, developments, and activities regulated in the City's SMP are also subject to the City's Comprehensive Plan, Zoning Code, and various other city, state and federal laws. State statute requires periodic updates of the City's Comprehensive Plan, and the City of Gold Bar ensures consistency between the SMP and other City codes, plans and programs by reviewing each for consistency during these periodic updates. The City's most recent SMP was adopted in 1999, and the new SMP will be integrated with the Comprehensive Plan upon completion.

In 2005, the City adopted its most recent Comprehensive Plan pursuant to Growth Management Act requirements. In 2009, the City passed Resolution 29-03 amending the 2005 Gold Bar Comprehensive Plan to set a new population target for 2025 and take out the proposed UGA. The City's most recent Critical Areas Ordinance (Chapter 18.08) was adopted in 2005.

2.2 STATE AND FEDERAL REGULATIONS

State and federal regulations most pertinent to development activities on lands subject to the City's Shoreline provisions include:

- Section 404 of the Clean Water Act;
- the Endangered Species Act;
- Section 401 Water Quality Certification; and
- Washington State Hydraulic Code.

In addition to those listed above, there are other federal regulations that may be applicable on lands within the shoreline zone of the City. These regulations could include the National Environmental Policy Act (NEPA), the Anadromous Fish Conservation Act, the Clean Air Act, or the Migratory Bird Treaty Act. In most instances, these Federal regulations would only be implemented if an action were either federally initiated, federally funded, or required some other Federal permit.

In addition to federal regulations, there are other Washington State laws that are applicable to the City and its planning process such as the Growth Management Act; however, it is not directly initiated by a proposed land-use action within the City's shorelines. The City implements the State Environmental Policy Act (SEPA) directly through its own SEPA official. The lead agency (in most cases, the City) is responsible for identifying and evaluating the potential adverse environmental impacts of a proposal. This evaluation is documented and, in most cases, sent to other agencies and the public for their review and comment.

Where reasonable and prudent, the update to the City's Shoreline Master Program will incorporate some of the relevant aspects of these regulations to assure clarity for applicants. However, an applicant remains legally responsible to assure a proposed action within the City that triggers state and federal regulations also obtains those relevant permits in addition to applicable City permits.

Section 2—Current Regulatory Framework Summary

In general, an application within the City's Shoreline zone will trigger a permit or review from the U.S. Army Corps of Engineers, National Marine Fisheries Service, U.S. Fish and Wildlife Service, Washington Department of Ecology, or Washington Department of Fish and Wildlife (WDFW) only if the action is below the Ordinary High Water Mark of a Water of the U.S. or a Water of the State; or it poses some risk to a federally listed species or its critical habitat. Involvement by these state and federal agencies would most often be triggered by discharge of fill or pollutants into water or wetlands. State and federal regulations also apply to the construction (or reconstruction) of docks, bulkheads, and other over-water structures.

Provided below is a summary of the key state and federal regulations pertaining to water or habitat within shoreline zones within the City. An applicant may be subject to one or more of these regulations, in addition to the City's Shoreline program.

Section 404 of the Federal Clean Water Act

The Army Corps of Engineers (the Corps), regulates the "discharge of dredged or fill material into waters of the United States, including wetlands." The Seattle District of the Corps has an extensive regulatory program with multiple sources of guidance located here:

(http://www.nws.usace.army.mil/PublicMenu/Menu.cfm?sitename=REG&pagename=Home_Page)

The Corps' legal authority to regulate fill or discharges in "waters of the U.S." overlaps some of the City's Shoreline provisions; there may be instances of actions that the City's Shoreline code allows but which the Corps implementation of Section 404 of the Clean Water Act may preclude or severely limit. An applicant who is proposing any fill or discharge in the jurisdictional shorelines or their associated wetlands or tributary streams (upstream of shoreline jurisdiction) will have a high probability of requiring an application and review by the Corps. Examples of common activities within shoreline jurisdiction that will also trigger the need for a Corps permit would include placement or replacement of a bulkhead, placement or replacement of a dock over-water; repair or installation of discharge pipes or fill for drainage systems, filling or grading wetlands, floodplains, or streams associated with the jurisdictional shorelines. Even activities that are undertaken to restore or create habitat improvements in these aquatic settings may require review and approval by the Corps of Engineers.

The Corps requires applicants to document in sequence, the following actions: avoidance of adverse impacts to "waters," re-design of projects to minimize impacts to "waters," restoration of impacts to "waters" after the project is completed, and finally compensation of unavoidable adverse impacts. If a Corps permit is required for a project, the applicant may also be required to submit documentation to the National Marine Fisheries and/or NOAA Fisheries Service relative to the potential of their project to effect federally listed endangered species (see below for more detail). In addition, the requirement of a Corps permit also would trigger the need for the project to meet the provisions of the Section 106 of the Historical Preservation Act.

Section 2—Current Regulatory Framework Summary

Endangered Species Act (ESA)

The Endangered Species Act (<http://www.epa.gov/lawsregs/laws/esa.html>) is carried out by the National Marine Fisheries Service (NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) (together known as The Services); each Service is responsible for a sub-set of the listed species. The ESA prohibits “take” of listed species or habitat critical to that species survival. “Take” within the ESA is defined as: “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” In general, the provisions of the ESA are triggered when an activity has the potential to affect federally listed species; or the action requires a federal permit (e.g., a Corps permit); or the project receives federal funding (e.g., FHWA funding of public road project), is proposed by a federal agency; or occurs on federal land. Within the City of Gold Bar, it is most likely that a project within Shoreline jurisdiction would trigger the provisions of the ESA (and require consultation with the Services) if it also triggered a Section 404 permit from the Corps.

Section 401 Water Quality Certification

Washington State has been delegated authority to implement Section 401 of the Federal Clean Water Act by the Corps of Engineers (<http://apps.ecy.wa.gov/permithandbook/permitdetail.asp?id=43>). The Department of Ecology reviews, conditions, approves, or denies certain actions that may result in discharges to “state waters,” which includes wetlands. Washington State has state water quality standards that must be met; and actions that result in impacts to waters of the state can be subject to the provisions of Section 401 standards. Discharge of pollutants (or the potential there-of), filling, grading, or other alterations to the Skykomish or Wallace Rivers, May Creek, or their associated wetlands (and tributary streams above shoreline jurisdiction) may be subject to review and approval to meet Ecology’s 401 provisions.

Hydraulic Code

Washington Department of Fish and Wildlife (WDFW) (<http://wdfw.wa.gov/hab/hpapage.htm>) regulates aquatic habitats through Chapter 77.55 RCW (Revised Code of Washington) (the Hydraulic Code). The code gives the state the authority to review, condition, approve, or deny “any construction activity that will use, divert, obstruct, or change the bed or flow of state waters.” As applicable to the City of Gold Bar’s shoreline jurisdiction, actions that occur below the OHWM of the Skykomish or Wallace Rivers, May Creek, or their associated wetlands (or their tributaries outside shoreline jurisdiction) will trigger the need to obtain a Hydraulic Project Approval (HPA) from the WDFW. Examples of activities include stream alteration, culvert installation or replacement, shoreline armoring, bridge construction or reconstruction, etc.

Section 2—Current Regulatory Framework Summary

3.0 ELEMENTS OF THE SHORELINE INVENTORY

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 vegetation 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.

The following discussion identifies each of the required inventory elements for the jurisdictional shorelines, sources of information for each element, and provides a citywide narrative for each element. In addition, regulatory conditions that affect areas within shoreline jurisdictions, cumulative impacts and gaps in existing information will follow. Shoreline-specific discussions, as needed, are found in Section 4.0.

3.1 LAND USE PATTERNS

Land use patterns were derived from GIS mapping of assessor land use data, City zoning classifications, future land use designations from the City's most recent Comprehensive Plan (City of Gold Bar 2005), and from review of aerial photography from 2006 and 2010. Table 1 identifies the estimated acreage of existing land uses, zoning classifications, and existing shoreline designations within the shoreline jurisdiction. Vegetation modifications are derived from site visits and aerial photography.

Table 1. Land Use, Zoning, and Shoreline Environments.

Shoreline Area	Existing Land Use (est. acres)	Zoning Classification (est. acres)	Existing Shoreline Designation (est. acres)
Skykomish River	Und: 14.9	CB: 7.4 R12500: 7.3	Natural 14.9
Wallace River	SFR/Duplex: 18.7 Und: 6.7 Unk: 0.1	PSP: 1.3 R12500: 10.6 R9600: 14.3	Conservancy and Rural 25.5

Section 3—Elements of the Shoreline Inventory

May Creek	CA: 3.6 G/E: 0.3 Mobile: 8.4 R/C: 0.5 ROW: 0.1 SFR/Duplex: 71.4 Und: 39.1 Unk: 0.4 Utilities: 1.2	GC: 1.23 CB: 8.1 PSP: 1.1 R12500: 69.3 R7200: 0.2 R9600: 48.3	Natural, Rural, and Suburban 128.4
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Key:

Existing Land Use

CA: Common Area

G/E: Government/Education

Mobile: Mobile Home Park

R/C: Retail Commercial

ROW: Rights of Way

SFR/Duplex: Single Family Residence/Duplex

Und: Undeveloped

Unk: Unknown

Utilities

Zoning Classifications / Comprehensive Plan Designations

CB: Commercial Business

GC: General Commercial

PSP: Public Space & Park

R 12500: Residential 12500

R 7200: Residential 7200

R 9600: Residential 9600

Note: Zoning acreage does not include rights-of-way or other non-zoned lands.

3.1.1 Existing Land Use

The City of Gold Bar is predominantly a residential community with approximately a dozen highway-oriented businesses along US 2. Approximately 2,373 people are residents of the City of Gold Bar (as estimated in 2008). The city limit encompasses approximately 1 square mile and contains three watercourses under shoreline jurisdiction, the Skykomish and Wallace Rivers and May Creek. The Skykomish River is a shoreline of statewide significance.

The lands along the Skykomish River in the City that are in shoreline jurisdiction have one single-family home and several very small parcels adjacent to the highway that are zoned as commercial. The remainder of the land along the Skykomish in the City is characterized by forested stands with well-developed forests. The Wallace River shoreline jurisdiction has numerous single-family houses. Approximately 1.25 miles of the southern side of the Wallace River in the City limits is within shoreline jurisdiction except for a short segment (centrally located) that remains in City's potential annexation area. This comprises approximately 450 lineal feet of the Wallace River that is not included in the City's shoreline jurisdiction. It contains eighteen residential parcels and one park, Salmon Run Park. The portion of May Creek in the City in shoreline jurisdiction has one adjacent parcel that is zoned General Commercial, currently a mobile home park, and the remaining parcels are zoned residential. There is City owned land on the south bank of May Creek that is the site of an undeveloped park, Evergreen Mini Park.

3.1.2 Zoning Classifications and Comprehensive Plan Land Use Designations

There are six different proposed zoning classifications for the City of Gold Bar. They are Community Business, General Commercial, Public Spaces and Parks, Residential 12500, Residential 9600 and Residential 7500. One parcel adjacent to the Wallace River recently changed zoning to

Section 3—Elements of the Shoreline Inventory

Public Space and Parks. There are no parcels zoned Public Space and Parks adjacent to the Skykomish River.

3.2 TRANSPORTATION

Major roads and transportation facilities in Gold Bar's shoreline jurisdiction include US 2 and the BNSF railroad. US 2 is the only through-road serving the City. There is one right-of-way crossing of shorelines within the City of Gold Bar, one over May Creek and none over the Wallace River or the Skykomish River. There are ten projects identified by the Six Year Transportation Improvement Program, 2010-2015. Three of the ten projects are within the City's shoreline jurisdiction. They are:

Table 2. Proposed Transportation Projects within Shoreline Jurisdiction.

Priority Number	Project Title	Description	Shoreline	Start Date
5	First Street Overlay and Mobility	2-inch overlay at intersection with US-2 to intersection with May Street	May Creek	Original date was 6/1/2012, however behind schedule because of lack of funds.
6	First Ave West Reconstruction	4-inch overlay at intersection with Smeltzer	May Creek	Original date was 6/1/2011, however behind schedule because of lack of funds.
9	Powell Lane	215 lf of paving	May Creek	Original date was 6/1/2011, however behind schedule because of lack of funds.

The projects listed above include asphalt overlay for the First Street and Powell Lane projects. The First Avenue West Reconstruction project includes widening the road to 34 feet total width to provide safer travel. Increasing the road width will increase the amount of pollution generating surface that can eventually drain into May Creek.

3.3 WASTEWATER AND STORMWATER UTILITIES

3.3.1 Wastewater Utilities

Two primary utilities, wastewater and stormwater, can affect shorelines and water quality significantly directly and indirectly. The City is currently completely on sanitary septic for all lands. Per the City's Comprehensive Plan (City of Gold Bar 2005), the City does not currently have a plan for installing public sanitary sewer facilities. However, the Comprehensive Plan outlines policies

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(CF-P32) regarding implementing capital facilities including sanitary sewer. The policy states that the City will seek funding to develop and implement a sewer system plan addressing sanitary sewer facilities and services to provide a sanitary sewerage system to residents and businesses of Gold Bar and the urban growth area (Gold Bar 2005). The policy further states that planning for the sewer system service should prioritize the following areas: “areas proposed for new development; those areas that can be served most efficiently; those areas that are financially feasible to serve; that have existing and planned land uses that cannot be adequately served by septic systems; that are within critical aquifer recharge areas, wetlands, or the 100-year floodplain; and that are experiencing a high percentage of failing septic systems.” Additionally, according to CF-P33 of the Comprehensive Plan, “All new plats in Gold Bar and its urban growth area shall be required to install side sewers and sewer mains within the development to support future connection to a sanitary sewer system” (Gold Bar 2005).

3.3.2 Stormwater Utilities

The City of Gold Bar does not maintain a centralized stormwater management system. However, the City does utilize numerous facilities for stormwater management, including infiltration systems, wet ponds, oil/water separators, bio-swales, and underground storage vaults (Gold Bar 2005). Based on aerial photography and topography, many properties and roadways appear to drain directly to the adjacent water body.

In the City’s Comprehensive Plan (2005), CF-P45 states that the City of Gold Bar shall adopt stormwater management regulations for development and redevelopment to manage the potential impacts of stormwater runoff. Other policies for stormwater management outline the needed improvements based on feasibility, cost, and effectiveness; that new construction or substantial redevelopment will be designed and constructed to include surface water conveyance; future street systems be designed to provide storm water systems within the right-of-way; the City shall adopt flood hazard regulations; and the City shall implement procedures and a maintenance schedule to properly maintain public and private stormwater collection, retention/detention, and treatment systems.

No water quality improvement projects are found within Gold Bar’s city limits, as there are no TMDL (Total Maximum Daily Load) reports listed with Ecology. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards (EPA 2010). Ecology does identify water quality concerns downstream of the City limits in May Creek and upstream of the City limits in the Skykomish River (Ecology 2010b). May Creek has elevated levels for temperatures and PCBs. The Skykomish River has documented exceedances of fecal coliform (Ecology 2010b).

The City does require new development to manage stormwater in accordance with the adopted Washington State Department of Ecology Stormwater Management Manual at the time of construction (Gold Bar 2005).

Policies within the City of Gold Bar Comprehensive Plan include adopting stormwater management regulations, requiring street systems be designed to provide storm water systems within the right-of-

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way and maintaining stormwater facilities properly. There are four recent developments (May Creek Street, Grand Avenue West, Evergreen Way & Evergreen Place, and Shelby Street) that include storm sewer piping, catch basins, curb & gutter, and ponds for treatment. It is unknown whether older existing residences infiltrate their runoff or focus the runoff directly into adjacent water bodies.

3.4 IMPERVIOUS SURFACES

Impervious surface is a hard surface area which either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development, and/or a hard surface area, which causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, rooftops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled, macadam or other surfaces that similarly impede the natural infiltration of stormwater. Figure 9 in Appendix B visually depicts the impervious surfaces in the City of Gold Bar, however; the data is very coarse and is not suitable for accurate calculations of impervious surface coverage of the shoreline area or the City in general.

3.5 SHORELINE MODIFICATIONS

Shoreline modifications can include features such as levees, dikes, bridges, dredging, road embankments, utility crossings, bulkheads, docks or piers, a variety of armoring types (some associated with fill), and other in-water structures such as boatlifts, boathouses, and moorage covers. Shoreline modifications influence functions by changing erosion patterns and sediment movement; affect or limit the presence or distribution of over-hanging or aquatic vegetation; and are often accompanied by upland vegetation loss. Information about shoreline modifications was derived from interpretation of aerial photographs.

Approximately 3,500 linear feet of the railroad embankment appears to be eroding or in danger of eroding due to the proximity of the Skykomish River. There are four rights-of-way crossings of shorelines within the City of Gold Bar, it is unknown whether these crossings are fish passable or contain and treat stormwater before the runoff reaches the water bodies.

3.6 EXISTING AND POTENTIAL PUBLIC ACCESS SITES

Per Ecology, public access can be provided to the shoreline as physical access or visual access. Physical access includes accessing the shoreline by a trail, boat ramp, or parking. Physical access to a shoreline can be implemented through dedication of land, easements, agreements, or acquisition. Visual access can include views from an overpass, breezeways between buildings or views of prominent shoreline trees (Ecology 2010).

According to the Comprehensive Plan, there are approximately 10.6 acres of developed and undeveloped parkland in Gold Bar (some of which are undeveloped rights-of-way). The City maintains but does not lease another 3.4 acres from Burlington Northern to provide a total of 14 acres of parkland. Railroad Avenue Park, a regional park (developed tourist park) on the south side

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of US 2, provides a majority of the total parkland, 9.7 acres. Day travelers pulling into the picnic and restroom facilities use the park primarily. Railroad Avenue Park is located on the north side of the City's shoreline jurisdiction but provides views of the Skykomish River. There is also informal access to the River from the park by crossing over the railroad tracks.

Salmon Run Park is approximately 1.3 acres undeveloped mini-park and provides the only public access point to the Wallace River in the City. The proposed PSE Trail would provide three additional access points to the Wallace River from near May Creek Road, Moonlight Drive, and 396th Avenue. The City's Comprehensive Plan maps the approximate location of the proposed PSE Trail, but does not provide further discussion regarding the construction of the trail. It is assumed that the trail alignment is associated with existing power lines and an easement with PSE (Puget Sound Energy).

Evergreen Mini Park is a 4,500 square foot undeveloped park located at 907 Evergreen Way, next to May Creek. Per the City's Comprehensive Plan, the site has been identified as an area that could be developed as a neighborhood playground. The park is currently zoned as Residential 12,500 (R12500). It is also noted that with its proximity to May Creek, the site could be developed as a potential trailhead. There is one informal right-of-way access point to May Creek located at 1st Street. The addition of the May Creek Trail is noted in the Comprehensive Plan. This trail follows May Creek from its intersection with the western city limits to the intersection with the eastern city limit, including a spur southward to US 2. It is unknown if additional amenities are proposed (Gold Bar 2005).

3.7 CRITICAL AREAS

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 9.0. The primary source for GIS data relating to critical areas was from Snohomish County. Critical areas mapping and identification includes geologically hazardous areas, wetlands, streams, habitat conservation areas, and critical aquifer recharge areas. This information was supplemented with maps or reports obtained from the WDFW, Washington Department of Natural Resources (DNR), and Ecology. Soils information and the potential location of hydric soils were accessed from NRCS and Figure 8 of the City's Comprehensive Plan.

Critical areas are described as they relate to the project segments in Chapter 4.0 and illustrated on Figures 2 through 6 in Appendix B.

The City's most recent Critical Areas Ordinance (CAO) was adopted in 2005 under Title 18 of the City of Gold Bar Municipal Code. Critical areas as defined in the CAO include:

- Wetlands
- Aquifer recharge areas
- Fish and wildlife habitat conservation areas
- Frequently flooded areas
- Geologically hazardous areas

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There are no mapped wetlands as part of the National Wetlands Inventory (Figure 2 in Appendix B). Additional, unmapped wetlands may exist in other areas that are not mapped, especially adjacent to water bodies, including May Creek and the Wallace River.

Aquifer recharge areas are those areas that support aquifers used for potable water. Recharge areas need to maintain both the quality and the quantity of the water that recharges the aquifer. The quantity of recharge water can be protected by limiting impervious surface areas and by infiltrating runoff water. The quality of recharge water can be protected by using and requiring best management practices and stormwater management, and by prohibiting the use and storage of hazard materials. The density and development of septic systems must also be limited to protect ground water quality.

Critical aquifer recharge areas are designated as those areas within the 10-year time-of-travel (TOT) of the City's two well fields. TOT is further defined in Section 3.7.5. These areas are mapped in the Figure 5 in Appendix B.

Potential fish and wildlife habitat areas are mapped by the state Department of Fish and Wildlife. Many species of wildlife exist in the less developed foothills around the City. However, WDFW identifies few mapped habitat areas within the City. The Wallace River, Skykomish River, and May Creek all provide habitat to salmonids, including Chinook salmon and bull trout, which are listed as endangered. The Wallace River also provides harlequin duck breeding areas, a priority species listed by the WDFW (WDFW 2010). All three watercourses provide riparian habitat and may have associated wetlands and/or hydric soils. Potential habitat areas are shown on Figure 2 in Appendix B.

Flood hazard areas are situated throughout the City. Located amongst three watercourses, Gold Bar is subject to flooding. Construction of the railroad and US 2, which generally lie between the City and the Skykomish River, resulted in partially protecting the City from Skykomish River flooding as they are built at a slightly higher elevation. Numerous areas of the City encroach into the floodplains associated with May Creek and the Wallace River. Frequently flooded areas, based on FEMA's mapping of the 100-year floodplain (FEMA 1999), are shown on Figure 3 in Appendix B. All disruptive flooding has happened generally outside of the City limits, with the exception of some back yard flooding.

Geologically hazardous areas consist of steep slopes, erosion hazards; areas subject rock fall, seismic hazards, or other geological hazards. Few steep slopes exist in the City and there are no known areas of high geological hazard. Therefore, the City has not mapped geologically hazardous areas, although they may exist and their presence (or absence) should be verified on a site-by-site basis prior to development.

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3.7.1 Wetlands

Figure 2 in Appendix B, shows potential wetland within the Urban Growth Boundary adjacent to the Skykomish River. According to Ordinance No. 593 – City of Gold Bars Critical Areas Ordinance Update, the City wetland mapping is based on the existing data from FEMA (FEMA 1999), the national wetlands inventory, Snohomish County, and other sources. Areas of hydric soils indicate the potential presence of wetlands. NRCS soil maps accessed online indicate hydric soils in three places: perpendicular to US 2 between 13th and 17th Streets along May Creek, between May Court, May Creek Drive, Amanda Avenue and Woodhaven Court, and spanning the transition between Ley Road and May Creek Road (NRCS 2010).

3.7.2 Geologically Hazardous Areas

According to the Gold Bar Municipal Code (Chapter 18.08 Definitions) Geologically Hazardous Areas are: *“Areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, are not suited to siting residential, commercial, or industrial development consistent with public health or safety concerns. Geologically hazardous areas include, but are not limited to, “landslide hazard areas,” “steep slopes,” and “erosion hazard areas.”* The definitions for these particular types of hazardous areas are listed below as found in Section 7 of Chapter 18.08 of the CAO. Hazardous areas that are identified within the City’s shoreline jurisdiction are discussed in Section 4 as they relate to specific segments. The City has not mapped geologically hazardous areas.

Erosion Hazard Areas: *“Erosion hazard areas are at least those areas identified by the U.S. Department of Agriculture’s Natural Resources Conservation Service as having a “moderate to severe,” “severe,” or “very severe” rill and inter-rill erosion hazard.”*

Landslide Hazard Areas: *“Landslide hazard areas are areas potentially subject to landslides based on a combination of geologic, topographic, and hydrologic factors. They include areas susceptible because of any combination of factors including: bedrock, soil, slope (gradient), slope aspect, geologic structure, hydrology, or other factors.”*

Seismic Hazard Areas: *“Seismic hazard areas are areas subject to severe risk of damage as a result of earthquake induced ground shaking, slope failure, settlement, soil liquefaction, lateral spreading, or surface faulting. One indicator of potential for future earthquake damage is a record of earthquake damage in the past. Ground shaking is the primary cause of earthquake damage in Washington.”*

Mine Hazard Areas: *“Mine hazard areas are those areas underlain by, or affected by mine workings such as adits, gangways, tunnels, drifts, or airshafts, and those areas of probably sink holes, gas releases, or subsidence due to mine workings. Factors that should be considered include: proximity to development, depth from ground surface to the mine working, and geologic material.”*

Volcanic Hazard Areas: *“Volcanic hazard areas are areas subject to pyroclastic flows, lava flows, debris avalanche, inundation by debris flows, lahars, mudflows, or related flooding resulting from volcanic activity.”*

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Other Hazard Areas: *“Geologically hazardous areas shall also include areas determined by the Mayor to be susceptible to other geological events including mass wasting, debris flows, rock falls, and differential settlement.”*

3.7.3 Streams

Streams are regulated under the Gold Bar Municipal Code through Fish and Wildlife Habitat Conservation Areas (Section 8 of Chapter 18.08 in the City’s CAO). In the City of Gold Bar, there are three in shoreline jurisdiction: the Skykomish River, the Wallace River, and May Creek. Information regarding streams was gathered from WDFW’s Priority Habitats and Species (PHS) maps and reports (WDFW 2007) and other on-line and published resources.

3.7.4 Other Fish and Wildlife Habitat Conservation Areas

3.7.4.1 Fish and Wildlife Habitat

Fish commonly found in May Creek, Wallace River and the Skykomish River are Chum, Coho, Pink, and Chinook salmon, Winter-Run and Summer-Run Steelhead, Cutthroat, Rainbow and bull trout. The Endangered Species Act (ESA) lists the Chinook salmon, Steelhead, and bull trout as threatened species. All segments of shoreline within the City of Gold Bar are Washington State Priority Habitats due to the presence of Chinook salmon and/or bull trout.

The WDFW define riparian habitat area as: *A riparian habitat area (RHA) is defined as the area adjacent to aquatic systems with flowing water (e.g., a river, perennial or intermittent streams, seeps, springs) that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.* The WDFW recommended Riparian Habitat Area is 250 feet wide for May Creek, Wallace River and the Skykomish River because they are Shorelines of Statewide Significance (Knutson and Naef 1997).

3.7.5 Critical Aquifer Recharge Areas

The entire City of Gold Bar and the potential annexation areas lie within critical aquifer recharge areas (Figure 5 in Appendix B). Critical aquifer recharge areas (CARA) are those areas with a critical recharging effect on aquifers used for potable water (GBMC 6.1A). The City overlays an area that is considered to have high aquifer sensitivity (0 to 40 feet).

The Gold Bar Comprehensive Plan (2005), Figure 9, illustrates the location of 10-year Time-of-Travel (TOT) plus Buffers for all four City wells based upon 1997 wellhead protection studies. Wellhead Protection Area may have four or five zones (including the 10-year Time-of-Travel), with each zone representing *“the length of time it would take a particle of water to travel from the zone boundary to the well”* (Washington Department of Health 2010). These zones are put in place to prevent pollution and reduce the threat of contaminated drinking water. The Critical Aquifer Recharge Area for Wells 1-3 covers approximately 323.6 acres with 66.3 acres within the City of Gold Bar, between the Wallace River and May Creek. The Critical Aquifer Recharge Area for Well 4 covers 90.4 acres with 21.7 acres within the City of Gold Bar, along its southern boundary. Aquifer recharge areas are regulated under Section 6 of Chapter 18.08 in the City’s CAO.

3.8 FLOODPLAIN AND CHANNEL MIGRATION ZONE

3.8.1 Floodplain

Floodplains are “synonymous with one hundred-year flood plain” and mean that land area susceptible to inundation with a one percent chance of being equaled or exceeded in any given year. The limit of this area shall be based upon flood ordinance regulation maps or a reasonable method which meets the objectives of the act” (WAC 173-26-020). The City has mapped the floodplains via data from the Federal Emergency Management Agency (FEMA). The areas of special flood hazard were identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for Snohomish County, Washington and Incorporated Areas," dated November 8, 1999, as amended, with an accompanying Flood Insurance Map (FIRM), as amended, are adopted by reference and declared to be a part of the ordinance codified in the City of Gold Bar Municipal Code Chapter 15.28. Every shoreline contains mapped floodplains within the shoreline jurisdiction for the City of Gold Bar.

3.8.2 Flood Hazard Areas

Frequently flooded areas “are those areas within the 100-year floodplain and any other areas subject to flooding” (WAC 365-195-090(4)). Every shoreline within Gold Bar’s shoreline jurisdiction contains flood hazard areas. As required by the City’s CAO for frequently flooded areas (Section 9.1 CAO), “*All new subdivisions, short plats, grading, fill and clearing permits, variances, conditional use permits, building permits and rezones within a flood zone of the Flood Insurance Rate Map shall complete a survey and elevation study to determine the appropriate 100 year flood plain delineation.*”

3.8.3 Channel Migration Zone

According to definitions in Ecology’s Shoreline Master Program Guidelines (WAC 173-26-020), “Channel migration zone (CMZ) means the area along a river within which the channel(s) can be reasonably predicted to migrate over time as a result of natural and normally occurring hydrological and related processes when considered with the characteristics of the river and its surroundings.”

Channel migration zones apply to each shoreline within the City of Gold Bar. Maintaining adequate buffers for each channel migration zone limits the probability of property damage. The railroad and US 2 are within the Skykomish River and May Creek CMZs. The Wallace River CMZ is largely undeveloped.

3.9 HISTORICAL OR ARCHAEOLOGICAL SITES

The Washington State Department of Archaeology and Historic Preservation (DAHP) WISAARD website was searched to identify known historical or archaeological features. The DAHP does not have record of any historic sites or structures in Gold Bar’s shoreline jurisdiction.

3.10 OTHER AREAS OF SPECIAL INTEREST

Areas of special interest not included in the other elements of the inventory, such as water-oriented uses, toxic waste sites, or other degraded sites with potential for ecological restoration were identified based on the references described above, through aerial photos, and other information gathering. Areas of special interest are outlined below.

3.10.1 Water-Oriented Uses

According to Ecology's SMP Guidelines (173-26-020 WAC), "water-oriented use means a use that is water-dependent, water-related, or water-enjoyment, or a combination of such uses."

White water rafting and kayaking are popular water sports on the Skykomish River. There is no point of access within the City for putting in or taking out boats.

3.10.2 Toxic or Hazardous Waste Sites

No hazardous sites were identified in Gold Bar on the Washington Department of Ecology's *Hazardous Sites List* (dated February 17, 2010) but the DOE does list two abandoned mines within the City Boundary. The DOE's Environmental Information Management System identifies Copper Belle 1 and Copper Belle 2 mine's as part of an Abandoned Mine Lands Initial Investigations study.

According to the U.S. Environmental Protection Agency's (EPA) Envirofacts Data Warehouse website, one site in Gold Bar is listed as being regulated by EPA. None of these sites listed by Ecology or EPA is in the City of Gold Bar's shoreline jurisdiction.

3.11 OPPORTUNITY AREAS

Ecology's *Shoreline Master Program Guidelines* (173-26 WAC) includes the following definition:

"Restore," "Restoration" or "ecological restoration" means the reestablishment or upgrading of impaired ecological shoreline processes or functions. This may be accomplished through measures including but not limited to re-vegetation, removal of intrusive shoreline structures and removal or treatment of toxic materials. Restoration does not imply a requirement for returning the shoreline area to aboriginal or pre-European settlement conditions.

Consistent with Ecology's definition, use of the word "restore," or any variations, in this document is not intended to encompass actions that re-establish historic conditions. Instead, it encompasses a range of actions that can be approximately delineated into three categories: creation (of a new resource), restoration (of a converted or substantially degraded resource), and enhancement (of an existing degraded resource). The City can encourage applicants to implement restoration actions that will improve ecological functions relative to the applicant's pre-project condition. As stated in WAC 173-26-201(2) (c):

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It is intended that local government, through the master program, along with other regulatory and non-regulatory programs, contribute to restoration by planning for and fostering restoration and that such restoration occur through a combination of public and private programs and actions. Local government should identify restoration opportunities through the shoreline inventory process and authorize, coordinate and facilitate appropriate publicly and privately initiated restoration projects within their master programs. The goal of this effort is master programs which include planning elements that, when implemented, serve to improve the overall condition of habitat and resources within the shoreline area of each city and county.”

The Opportunity Areas discussions in Chapter 4 present options for “restoration” that would improve ecological functions. Enhancement of shoreline vegetation, reductions, or modifications to shoreline hardening, and minimization of in- and over-water structures would each increase one or more ecological parameters of the City’s shoreline. These options could be implemented voluntarily by the City or City residents or, depending on specific project details, could be required to mitigate adverse impacts of new shoreline projects.

Restoration and preservation opportunities on public lands exist on the City-owned land in the shoreline jurisdiction. Opportunities on private property would likely occur only through voluntary means or through re-development proposals.

4.0 CONDITIONS BY INVENTORY SEGMENT

In categorizing the Shoreline Planning Segments, the segments are classified into eight segments based broadly on the distinction between water bodies, the level of ecological functions provided by the segment, as well as existing land uses and zoning as directed in the guidance from Ecology (<http://www.ecy.wa.gov/programs/sea/shorelines/smp/toolbox.html>). The current shoreline designation for all of Skykomish River is natural, while the Wallace River is a mixture of rural and conservancy and May Creek is suburban, rural, and natural. Recommendations for potential future environmental designations are provided in Section 7.0.

For each shoreline planning segment, a summary discussion is followed by a discussion of specific elements of the shoreline inventory for those elements that are not covered in sufficient detail in Section 3 above. Inventory maps are included in the Map Folio in Appendix B.

Table 3. Shoreline Planning Segments.

Shoreline Segment	River/Creek	Approximate Area (acres)	Percent of Shoreline Area
1	Skykomish River – Right Bank along southern edge of city limits	23.0	12.3%
2	May Creek - Right Bank from East City Limits to 1 st Street	18.0	9.6%
3	May Creek - Right Bank from 1 st Street to the West City Limit, left bank from extension of Green Lane (at west end) to the extension of Evergreen Lane (at east end)	64.3	34.4%
4	May Creek – Tributary/Wetland between Skykomish River and May Creek and left bank at north end of Shelby Street development	33.6	17.9%
5	May Creek - Left Bank from the extension of Green Lane to the west edge of the Community Business Zone	9.2	4.9%
6	May Creek - Left Bank from west edge of the Community Business Zone to west City Limit (current agriculture land)	12.0	6.4%

Section 4—Conditions by Inventory Segment

Shoreline Segment	River/Creek	Approximate Area (acres)	Percent of Shoreline Area
7	Wallace River—From Left Bank at east City Limit to unincorporated property around Moonlight Drive	7.8	4.2%
8	Wallace River—From unincorporated property around Moonlight Drive to west City Limit	19.3	10.3%
TOTALS		187.2	100%

SKYKOMISH RIVER

4.1 SEGMENT 1: SKYKOMISH RIVER NORTH BANK

Table 4. Skykomish River Inventory and Planning Segment.

Shoreline Segment	Approximate Area (acres)	Percent of Shoreline Area
1—Right Bank along southern edge of City limits	23.0	12.3%

4.1.1 Land Use

Segment 1 extends along the right bank of the Skykomish River from the westward extension of 164th Street to the southward extension of Nugget Road. The only portions of the floodplain of the Skykomish River that are in the City's shoreline jurisdiction are those portions of the floodplain that are located within the City limits. The rest of the floodplain of the River in this vicinity is within unincorporated Snohomish County and the lands fall under the jurisdiction of the County's shoreline program. The portions in the City's shoreline jurisdiction are intact upland habitat at the north and south ends of Segment 1. The central area between the east and west portions of Segment 1 is immediately adjacent to the Burlington Northern Santa Fe (BNSF) Railroad and US 2, and not within the floodplain, therefore it's not within shoreline jurisdiction (see Figure 1a in Appendix B).

Three different land uses are within Segment 1. They are undeveloped riparian forest, residential and transportation. Two residential parcels are within this segment with only one residence built on the properties. The Burlington Northern Railroad and US 2 travel approximately 3,400 feet through portions of this Segment, as the City limits boundary vary through this section.

Informal public access to the Skykomish River is gained via Railroad Avenue Park, on the south side of US 2, and crossing the BNSF railroad tracks. Segment 1 is zoned as Commercial Business at the western end of the Segment and as Residential (R12500) at the eastern end of the Segment.

4.1.2 Critical Areas

The majority of Segment 1 has a relatively undisturbed bank that is dominated by undeveloped riparian forest in the northern and southern portions. Approximately 1,000 feet in the central portion of Segment 1 consists of the railroad bed being immediately adjacent to the river in an area where the riverbank appears to have eroded over time.

Wetlands and hydric soils are identified in the southern portion of this Segment on the Comprehensive Plan's Figure 8 while this report's Figure 2 in Appendix B does not identify any wetlands within Segment 1. Hydric soils connect May Creek to the Skykomish River at the southern end of this Segment (NRCS 2010). Although there were no wetlands mapped for this analysis report, there may still be wetlands onsite, which will be identified on a project-by-project basis at the time of land use action.

Chinook, steelhead, Coho, pink, Bull trout, and chum are identified by WDFW in the Skykomish River, making this water body a WDFW priority habitat. The riparian buffer of the Skykomish River is considered a Fish and Wildlife Habitat Conservation Area.

Frequently Flooded Areas (100 year flood), as identified by the Comprehensive Plan, coincide with the extent of wetland and hydric soils. This report's Figure 3 in Appendix B identifies the northern portion of the segment as a Frequently Flooded Area.

4.1.3 Shoreline Modifications

The BNSF railroad and U.S. 2 constrain the Skykomish River to the north with hardened banks. This constraint reduces channel complexity of the Skykomish River and can increase the maintenance of these transportation facilities due to the possibility of increased erosion caused by the Skykomish River.

4.1.4 Wastewater and Stormwater Utilities

There appears to be only one residential septic system in this segment. The remainder of the segment has not been constructed.

Infiltration is the citywide approach for the management of stormwater. There is a data gap for a topographic survey to analyze runoff yet, it appears that water that does not infiltrate will run off directly into the Skykomish River.

4.1.5 Opportunity Areas

Enhancement opportunities within this segment are numerous. Opportunities include: encourage residents to maintain native vegetation and limit clearing and disturbances for properties with shoreline frontage; provide appropriate wastewater treatment for residences and businesses to prevent water contamination; encouraging regular inspections, maintenance and pumping of septic systems in order to keep the septic systems operating properly; educate the public of the value for the Skykomish River in its natural state.

Section 4—Conditions by Inventory Segment

Privately owned parcels about the Skykomish River; consequently, restoration opportunities are concentrated on private properties. Encouraging private landowners to consider bulkhead removal and shoreline enhancement projects, including installation of native vegetation, could enhance these areas. New construction should be discouraged from installing bulkheads or other forms of shoreline modification and shorelines that are more natural should be encouraged.

May Creek

Table 5. May Creek Inventory and Planning Segments.

Segment	Approximate Area (acres)	Percent of Shoreline Area
2—Right Bank from East City Limits to 1 st Street	18.0	9.6%
3 - Right Bank from 1 st Street to the West City Limit, left bank from extension of Green Lane (at west end) to the extension of Evergreen Lane (at east end)	64.3	34.4%
4 – Tributary/Wetland between Skykomish River and May Creek and left bank at north end of Shelby Street development	33.6	17.9%
5 - Left Bank from the extension of Green Lane to the west edge of the Community Business Zone	9.2	4.9%
6 - Left Bank from west edge of the Community Business Zone to west City Limit (current agriculture land)	12.0	6.4%
TOTALS	137.1	73.2%

4.2 SEGMENT 2: MAY CREEK: RIGHT BANK FROM EAST CITY LIMITS TO 1ST STREET

4.2.1 Land Use

Segment 2 is zoned as Residential (R9600 and R12500) with the closest built structures located between 85 and 100 feet from the channel. Approximately 500 feet of shoreline is occupied by a plant nursery at the extension of Gilmore Lane. There are no known public access points along this Segment. The current shoreline designations are rural and suburban.

4.2.2 Critical Areas

This segment does not include any mapped wetlands or hydric soils according to the Comprehensive Plan (2005), NWI (2010), or the NRCS Soil Survey (2010). However, based on aerial photography, there is a large forested wetland complex located on the right bank of May Creek just south of 1st

Section 4—Conditions by Inventory Segment

Street. It also appears that a side channel engages when May Creek experiences high flows. Although there were no wetlands mapped for this analysis report, there may still be wetlands onsite, which will be identified on a project-by-project basis at the time of land use action.

Steelhead, Coho, and chum are identified by WDFW in May Creek, making May Creek a WDFW priority habitat. Bull trout are mapped as being located in May Creek, but downstream of the City limits. The riparian buffer of May Creek is considered a Fish and Wildlife Habitat Conservation Area.

Segment 2 is identified as being in the 100-year flood zone, as shown in Figure 3.

4.2.3 Shoreline Modifications

It is unknown if areas of the bank along Segment 2 have been modified by the installation of boulders or other bulkhead-like structures. Publicly available aerial photos indicate the channel is in a fairly natural state (Google Earth 2010).

4.2.4 Wastewater and Stormwater Utilities

There are many residential septic systems in this Segment associated with the residential housing. There are no known stormwater facilities along Segment 2. This indicates that storm flows either infiltrate or flow directly into adjacent water bodies.

4.2.5 Opportunity Areas

Based on review of current aerial photographs and the lack of City owned property, it would appear that the opportunity areas for restoration are on private properties. In areas with modified shorelines, private homeowners should be educated and encouraged to remove shoreline armoring and replaced with native vegetation. New construction should discourage the installation of shoreline armoring. Homeowner education should also focus on discouraging the use of chemicals on lawns and shrubs as well as the importance of maintaining shoreline vegetation.

As development occurs, other opportunities in the shoreline area could include educational signage and outreach regarding the creek. If warranted, buffer enhancement around the creek would provide improved water quality, habitat, and volunteer opportunities within the City.

4.3 SEGMENT 3: MAY CREEK: RIGHT BANK FROM 1ST STREET TO THE WEST CITY LIMIT AND THE LEFT BANK FROM EXTENSION OF GREEN LANE (WEST END) TO THE EXTENSION OF EVERGREEN LANE (EAST END)

4.3.1 Land Use

The 1st Avenue West right-of-way and numerous single-family residential properties are the land uses in this segment. The right-of-way runs approximately 1,400 feet through Segment 3. Segment 3 is zoned as Residential (R12500 and R9600) and Public Spaces and Parks (PSP). The current shoreline designation is suburban. No areas within this portion of the Segment that provide formal shoreline access points. There is a potential for access at the intersection of May Creek and 1st

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Street, where the area is currently used as an informal access point. A portion of two parcels that are zoned as PSP is located within the shoreline jurisdiction boundary, but the park (Prospector Park) does not provide access to May Creek.

4.3.2 Critical Areas

This segment does not include any mapped wetlands or hydric soils according to the Comprehensive Plan (2005), NWI (2010), or the NRCS Soil Survey (2010). Although there were no wetlands mapped for this analysis report, there may still be wetlands onsite, which will be identified on a project-by-project basis at the time of land use action.

Steelhead, Coho, and chum are identified by WDFW in May Creek, making May Creek a WDFW priority habitat. Bull trout are mapped as being located in May Creek, but downstream of the City limits. The riparian buffer of May Creek is considered a Fish and Wildlife Habitat Conservation Area.

Segment 3 is identified as being in the 100-year flood zone, as shown in Figure 3.

4.3.3 Shoreline Modifications

Using publicly available aerial photography, Segment 3 of May Creek appears to have little channel modification and maintains several natural bends. The concrete and steel structure of the 1st Street Bridge over May Creek was built in 2007.

4.3.4 Wastewater and Stormwater Utilities

All homes in Segment 3 utilize septic systems.

On the right bank, the adjacent right-of-way (May Creek Road) is approximately 50 feet away from May Creek in some areas. No stormwater facilities direct roadway runoff into May Creek.

4.3.5 Opportunity Areas

Vacant parcel in Segment 3 provide opportunity for the City to purchase lands if there is a willing seller and if City funds are available, that could be used for public access and/or stormwater control for the neighborhood. As with all Segments, encouraging homeowners to retain riparian vegetation, replant with native plant material, and removal of invasive vegetation (i.e. Himalayan blackberry and Japanese knotweed etc.) is always desirable.

Primarily privately owned parcels surround this segment of May Creek; consequently, the restoration opportunities are concentrated on private properties. Encouraging private landowners to implement shoreline enhancement projects, including installation of native vegetation, could enhance these areas. New construction should be discouraged from installing bulkheads or other forms of shoreline modification and shorelines that are more natural should be encouraged. As development occurs, other opportunities in the shoreline area could include educational signage and outreach regarding the creek. If warranted, buffer enhancement around the creek would provide improved water quality, habitat, and volunteer opportunities within the City.

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Restoration or development at the City owned properties along this segment of May Creek should focus on shoreline restoration using native plants. If new facilities are constructed on any City owned properties, the City should use LID and green building techniques for the buildings and parking areas. There may be opportunities for enhancing street ends for improved public access. Other opportunities in the shoreline area could include educational signage and outreach regarding the creek. If warranted, buffer enhancement around the creek would provide improved water quality, habitat, and volunteer opportunities within the City.

4.4 SEGMENT 4: MAY CREEK: TRIBUTARY/WETLAND BETWEEN HIGHWAY 2 AND MAY CREEK AND SOUTH BANK OF MAY CREEK TO EASTERN CITY LIMITS

4.4.1 Land Use

Segment 4 is comprised of May Creek as it enters the City from the Cascade foothills to the east, as well as a wetland complex that acts like a tributary emptying into May Creek from the south near Hwy 2. It may be that this wetland complex is an historical meander channel of the Skykomish but it has not carried river flows for a very long time. In current conditions there is no surface connection between this wetland complex and the river southwest on the other side of the highway.

Segment 4 is zoned primarily as Residential 12500 with small areas of General Commercial and PSP. There are no known public access points to May Creek or its tributary.

4.4.2 Critical Areas

This segment does not include any mapped wetlands, but does include hydric soils according to the Comprehensive Plan (2005), NWI (2010), or the NRCS Soil Survey (2010). The hydric soils are mapped along the tributary that is located between Highway 2 and May Creek. Although there were no wetlands mapped for this analysis report, there may still be wetlands onsite, which will be identified on a project-by-project basis at the time of land use action.

Steelhead, Coho, and chum are identified by WDFW in May Creek, making May Creek a WDFW priority habitat. Bull trout are mapped as being located in May Creek, but downstream of the City limits. The riparian buffer of May Creek is considered a Fish and Wildlife Habitat Conservation Area.

Segment 4 is identified as being in the 100-year flood zone, as shown in Figure 4.

4.4.3 Shoreline Modifications

Using publicly available aerial photography, Segment 4 does not appear to have significant shoreline modifications or armoring.

4.4.4 Wastewater and Stormwater Utilities

The northern portion of one housing development (Shelby Street) is located within the shoreline jurisdiction for Segment 4. The housing development is located near the left bank of May Creek,

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near the eastern City limits. As with all housing in Gold Bar, these homes are also use septic tanks for wastewater.

The development on Shelby Street utilizes storm sewer piping, catch basins, curb & gutter, and ponds for treatment of stormwater.

4.4.5 Opportunity Areas

The wetland/tributary located south of May Creek presents an excellent opportunity for conservation of a large piece of land of unknown size if there is a willing seller and if City funds are available. This area could be used for educational purposes and provide public access for wildlife viewing.

Primarily privately owned parcels surround this segment of May Creek; consequently, the restoration opportunities are concentrated on private properties. Encouraging private landowners to implement shoreline enhancement projects, including installation of native vegetation, could enhance these areas. New construction should be discouraged from shoreline armoring. As development occurs, other opportunities in the shoreline area could include educational signage and outreach regarding the creek. If warranted, buffer enhancement around the creek would provide improved water quality, habitat, and volunteer opportunities within the City.

Restoration or development at the publicly owned properties along this segment of May Creek should focus on shoreline restoration using native plants. If new facilities are constructed on any publicly owned properties, the City should use LID and green building techniques for the buildings and parking areas. Other opportunities in the shoreline area could include educational signage and outreach regarding the creek. If warranted, buffer enhancement around the creek would provide improved water quality, habitat, and volunteer opportunities within the City.

4.5 SEGMENT 5: MAY CREEK: LEFT BANK COMMUNITY BUSINESS ZONE WEST OF THE EXTENSION OF GREEN LANE

4.5.1 Land Use

Segment 5 is zoned primarily as Community Business with a small portion as Residential (R9600). Approximately 60 mobile homes are located on the parcel located within this Segment, although not all of the mobile homes are located within the shoreline jurisdiction. Several mobile homes located within this Segment are situated within 35 to 45 feet of the channel. The northeastern portion of the Segment remains undeveloped but it may be the location of the mobile home parks septic drainfield (mostly mowed grass). There is no known public access to May Creek located within Segment 5.

4.5.2 Critical Areas

This segment does not include any mapped wetlands or hydric soils according to the Comprehensive Plan (2005), NWI (2010), or the NRCS Soil Survey (2010). Although there were no wetlands

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mapped for this analysis report, there may still be wetlands onsite, which will be identified on a project-by-project basis at the time of land use action.

Steelhead, Coho, and chum are identified by WDFW in May Creek, making May Creek a WDFW priority habitat. Bull trout are mapped as being located in May Creek, but downstream of the City limits. The riparian buffer of May Creek is considered a Fish and Wildlife Habitat Conservation Area.

Segment 5 is identified as being in the 100-year flood zone, as shown in Figure 3

4.5.3 Shoreline Modifications

During a review of publicly available aerial photography, the northeastern portion of Segment 5 appears to have a dense tree and shrub canopy (Google Earth 2010).

4.5.4 Wastewater and Stormwater Utilities

The location of the drainfield for the septic systems associated with the numerous mobile homes is unknown. However, it may be located in a portion of the northeastern section of Segment 5 that is mowed lawn. There are no known stormwater facilities along Segment 5, either indicating that storm flows infiltrate or flow directly into adjacent water bodies.

4.5.5 Opportunity Areas

The Community Business parcel at 501 US 2 has a 5-acre portion to the north that is undeveloped (except maybe a septic drain field). If there is a willing seller and if City funds are available, this parcel could provide an opportunity for public access to May Creek as well as restoration opportunity of what is now mowed lawn. It is highly encouraged that the currently forested riparian area in the northeastern portion of Segment 5 be maintained.

Privately owned parcels surround this segment of May Creek; consequently, the restoration opportunities are concentrated on private properties. Encouraging private landowners to implement shoreline enhancement projects, including installation of native vegetation, could enhance these areas. New construction should be discouraged from installing bulkheads or other forms of shoreline modification and shorelines that are more natural should be encouraged. As development occurs, other opportunities in the shoreline area could include educational signage and outreach regarding the creek. If warranted, buffer enhancement around the creek would provide improved water quality, habitat, and volunteer opportunities within the City.

4.6 SEGMENT 6: MAY CREEK: LEFT BANK FROM EXTENSION OF POWELL LANE TO WEST CITY LIMIT (CURRENT AGRICULTURE LAND)

4.6.1 Land Use

One parcel covers most of this segment and it is zoned Residential 12500. A small parcel is Residential 7200. There is a narrow riparian fringe of trees and shrubs along roughly half of this Segment; the majority of the stream channel does not have a woody buffer. The interior of the large

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parcel appears to be perhaps a wetland based on the presence of surface water standing in the fields from an aerial dated 2010 available online. There is no known public access to May Creek in Segment 6.

4.6.2 Critical Areas

This segment does not include any mapped wetlands or hydric soils according to the City's Comprehensive Plan (2005). Additionally, neither NWI nor NRCS soils information maps wetlands or hydric soils in Segment 8. Although there were no wetlands mapped for this analysis report, there may still be wetlands onsite, which will be identified on a project-by-project basis at the time of land use action.

Numerous fish species are identified by WDFW as using May Creek making the Creek a WDFW priority habitat. Fish species identified as using May Creek within the City limits include Coho, chum, and steelhead (Figure 6 in Appendix B) (WDFW 2010). Bull trout are noted as using May Creek, but the extent of their habitat is located downstream of City limits. The riparian buffer of May Creek is considered a Fish and Wildlife Habitat Conservation Area.

Segment 6 is identified as being in the 100-year flood zone, as shown in Figure 3.

4.6.2 Shoreline Modifications

There is one single-family residence in Segment 6 and it appears that the land has been cleared for agriculture. The channel of May Creek appears rather straight through this Segment, indicating that there may have been channel modifications, however, this has not been field confirmed.

4.6.3 Wastewater and Stormwater Utilities

There is one residential septic system and no known stormwater facilities in Segment 6.

4.6.4 Opportunity Areas

The entire Segment is comprised of a 13.52-acre parcel. Should the City decide to purchase this parcel in the future, potential uses include public access to May Creek, habitat restoration, stormwater control, and Community Park. It is adjacent to US 2, with direct access to the highway, which also makes it a potential tourist park.

A privately owned parcel abuts this segment of May Creek; consequently, the restoration opportunities are concentrated on private property. Encouraging the private landowner to implement shoreline enhancement projects, including installation of native vegetation, could enhance this area. New construction should be discouraged from installing bulkheads or other forms of shoreline modification. As development occurs, other opportunities in the shoreline area could include educational signage and outreach regarding the creek. If warranted, buffer enhancement around the creek would provide improved water quality, habitat, and volunteer opportunities within the City.

Wallace River

Table 6. Wallace River Inventory and Planning Segments.

Segment	Approximate Area (acres)	Percent of Shoreline Area
7—From Left Bank at east City Limit to unincorporated property around Moonlight Drive	7.8	4.2%
8—From unincorporated property around Moonlight Drive to west City Limit	19.3	10.3%
TOTALS	27.1	14.5%

4.7 SEGMENT 7: WALLACE RIVER LEFT BANK AT EAST CITY LIMIT TO UNINCORPORATED PROPERTY AROUND MOONLIGHT DRIVE

4.7.1 Land Use

There are five parcels with one residence within this 0.5 mile-long Segment. Zoning is Residential 12500. Based on aerial photography, the residence appears to be located approximately 100 feet from the channel. There is a narrow riparian fringe of vegetation along the south (left) bank of the river through this Segment. Most of the vegetation has been removed for residential or hobby farm activities.

4.7.2 Critical Areas

This segment does not include any mapped wetlands or hydric soils according to the City's Comprehensive Plan (2005). Additionally, neither NWI nor NRCS soils information maps wetlands or hydric soils in Segment 7. Although there were no wetlands mapped for this analysis report, there may still be wetlands onsite, which will be identified on a project-by-project basis at the time of land use action.

Numerous fish species are identified by WDFW as using the Wallace River making the River, and thus Segment 7 a WDFW priority habitat. Fish species identified as using the Wallace River within the City limits include Chinook, Coho, pink, chum, Bull trout, and steelhead (Figure 6 in Appendix B) (WDFW 2010). Portions of this Segment are also identified in the City's Comprehensive Plan (Figure 6) as Harlequin Duck Breeding Area and riparian areas. The riparian buffer of the Wallace River is considered a Fish and Wildlife Habitat Conservation Area.

The western portion of Segment 7 is identified as being in the 100-year flood zone, as shown in Figure 3.

4.7.3 Shoreline Modifications

The developed property appears to have removed native vegetation from approximately three-quarters of an acre.

4.7.4 Wastewater and Stormwater Utilities

There is one residential septic system and no known stormwater facilities in Segment 7.

4.7.5 Opportunity Areas

Per Figure 2 of the City's Comprehensive Plan, the proposed PSE Trail will cross diagonally from the northwest to the southeast through Segment 7. Installation of the trail will create an opportunity for public access to and education regarding the Wallace River. Because most of the canopy appears to be intact in this Segment, property owners should be encouraged to maintain canopy coverage within shoreline area, specifically shading the watercourse. Areas where the canopy has been reduced, restoration plantings of native shrubs could enhance riparian functions.

Privately owned parcels abut this segment of the Wallace River; consequently, the restoration opportunities are concentrated on private properties. Encouraging private landowners to implement shoreline enhancement projects, including installation of native vegetation, could enhance these areas. New construction should be discouraged from installing bulkheads or other forms of shoreline modification and shorelines that are more natural should be encouraged. As development occurs, other opportunities in the shoreline area could include educational signage and outreach regarding the river. If warranted, buffer enhancement around the river would provide improved water quality, habitat, and volunteer opportunities within the City.

4.8 SEGMENT 8: CITY LIMIT AT MOONLIGHT DRIVE/WALLACE RIVER TO WESTERN CITY LIMITS

4.8.1 Land Use

There are 13 parcels along this segment. The zoning includes one Public Space & Park (Salmon Run Park), four Residential 12500, eight Residential 9600 and the 399th Avenue SE right-of-way. There are five built residences within Segment 8. The bridge at the 399th Avenue SE right-of-way crossing over the Wallace River is concrete and steel construction. The river has heavy recruitment of large woody debris; as evidenced by a large logjam located at the west end of the Segment visible on the 2010 aerial on-line.

4.8.2 Critical Areas

This segment does not include any mapped wetlands or hydric soils according to the City's Comprehensive Plan (2005). Additionally, neither NWI nor NRCS soils information maps wetlands or hydric soils in Segment 8. Although there were no wetlands mapped for this analysis report, there may still be wetlands onsite, which will be identified on a project-by-project basis at the time of land use action.

Numerous fish species are identified by WDFW as using the Wallace River making the River, and thus Segment 8 a WDFW priority habitat. Fish species identified as using the Wallace River within the City limits include Chinook, Coho, pink, chum, Bull trout, and steelhead (WDFW 2010). The riparian buffer of the Wallace River is considered a Fish and Wildlife Habitat Conservation Area.

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The majority of Segment 8 is identified as being in the 100-year flood zone, as shown in Figure 3.

4.8.3 Wastewater and Stormwater Utilities

There are approximately five built residences within the shoreline area, each with a septic system. No roadway stormwater facilities exist within the shoreline area yet there is a subdivision on May Creek Court, which has curb and gutter. This subdivisions stormwater facility outfall and treatment is unknown.

4.8.4 Shoreline Modifications

A 400-foot clearing spans the River downstream of the 399th Avenue SE crossing. It is unknown if this clearing is used for agricultural or other purposes. There is also a crossing culvert or bridge at 399th Avenue SE.

4.8.5 Opportunity Areas

Salmon Run Park may be developed to accommodate public access. If the park is developed, it may be used to exhibit LID and Green Building techniques and approaches to building within the shoreline.

Primarily privately owned parcels abut this segment of the Wallace River; consequently, the restoration opportunities are concentrated on private properties. Encouraging private landowners to implement shoreline enhancement projects, including installation of native vegetation, could enhance these areas. New construction should be discouraged from installing bulkheads or other forms of shoreline modification and shorelines that are more natural should be encouraged. As development occurs, other opportunities in the shoreline area could include educational signage and outreach regarding the river. If warranted, buffer enhancement around the river would provide improved water quality, habitat, and volunteer opportunities within the City.

Restoration or development at the City owned properties along this segment of the Wallace River should focus on shoreline restoration using native plants. If new facilities are constructed on any City owned properties, the City should consider LID and green building techniques for the buildings and parking areas. There may be opportunities for enhancing street ends for improved public access. Other opportunities in the shoreline area could include educational signage and outreach regarding the river. If warranted, buffer enhancement around the river would provide improved water quality, habitat, and volunteer opportunities within the City.

5.0 ANALYSIS OF ECOLOGICAL FUNCTIONS AND ECOSYSTEM WIDE PROCESSES

Ecology requires a three step process to determine what ecological processes are occurring within Shoreline jurisdiction, determine the existing relationship to between those landscape-scale processes and the performance of ecological functions (to qualitatively assess which functions are present, degraded or not present); and then based on existing conditions and potential future conditions, to recommend measures to maintain and/or restore the functions associated with the ecosystem-wide processes. Described below are those three ‘steps’: an overview of the landscape-scale processes provided at the three streams in Gold Bar’s shoreline jurisdiction in existing conditions, a qualitative assessment of functions (presence/absence or degree of performance) in existing conditions (summarized by Shoreline Segment in Appendix C); and lastly recommendations for management actions to maintain or restore landscape-scale processes to positively influence functions performed.

5.1 OVERVIEW OF LANDSCAPE-SCALE PROCESSES

Ecology provides direction on the four landscape-scale processes that are to be assessed in relation to providing or impairment of functions by Shoreline segment. The four processes are presented and summarized below for their condition in existing conditions within the shoreline zone of the three streams in the City’s shoreline jurisdiction. Questions that should be considered in ascertaining the degree that these four processes have been impaired (and therefore the ability of the shoreline to provide key functions is impaired) are:

- The percentage of imperviousness in the stream’s contributing watershed;
- The presence/absence of flooding problems or connectivity between the shoreline and its floodplain;
- Habitat for listed and priority species;
- Are there identified or documented water quality problems;
- Do conditions in the contributing area to the streams imply the potential for significant sediment or pollutant loading; and
- Is there evidence of the presence of contaminated sediments?

Water Flow: Water flow relates to the natural movement of water through a stream channel or into and out of a wetland or lake, the physical complexity of vegetation overhanging the shore, and the presence/absence of physical structures that influence water movement in/through the shoreline environments.

Generally speaking, water flows through the City in an east-to-west direction by way of the Skykomish River, Wallace River, and May Creek. There are no man-made dams on any of these water bodies within the City limits. It is likely that there are, on occasion, debris jams, blocked culverts, and/or beaver dams that influence the flow of these systems. However, these are considered temporary and are not analyzed as part of the assumed existing conditions that influence water flow. Water flow is also influenced by the amount of impervious surface in the contributing

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watershed of each water body, which affects the volume and rate at which water reaches the water body as impervious surface impedes infiltration. Additionally, there are areas of these shorelines that have been modified to stabilize the banks.

Vegetation: The presence and the condition of native vegetation within the Shoreline zone relates to its potential ability to filter sediments, influence water temperature, provide structure for wildlife use; provide food sources for wildlife; provide bank stabilization, and provide a source for large woody debris (LWD) recruitment.

Hyporheic Flow: In order to assess how the streams and wetlands function in relation to hyporheic flow it must be determined the extent of connectivity that remains between the shoreline water and the surrounding shallow groundwater in the immediate vicinity of these water bodies relative to late summer recharge; influence on shallow groundwater, and water quality. The analysis of the correlation of river/stream flows to hyporheic flows is based on the mapped soils within the immediate vicinity of the river and the land-use on lands in the immediate vicinity.

Sediment: This function assesses the extent to which the physical condition of the shoreline and the riparian vegetation has the potential to influence inputs of sediment, or conversely, the extent to which the shoreline water body may benefit downstream resources by functioning as a sediment entrapment zone.

Streams and rivers may have less ability to store sediment on a long-term basis due to their flow-through nature. When the water is slower moving (summer/early fall), sediments often drop out, but when these systems are moving fast due to high rainfall or snow melt, the sediment will mobilize and can be moved downstream. The main areas of the City's shoreline that will function to store sediment are the wetlands and floodplains adjacent to the jurisdictional stream and rivers. The floodplains and wetlands primarily receive sediment during flood events. It is during these same flood/high flow events that the systems are going to experience erosion and input sediment to the system, which will make its way downstream.

Habitat: These functions include the physical, chemical and biological structure necessary to support the life cycle needs of aquatic invertebrates, amphibians, birds, mammals and native fish. Natural erosion and the transport of sediment within river basins such as the Skykomish, May, and Wallace Rivers form complex habitats such as side channels, which can provide spawning grounds and refugia.

5.2 PROCESSES AND FUNCTIONS FOR SKYKOMISH AND WALLACE RIVERS AND MAY CREEK

Ecological processes and functions of the Skykomish and Wallace Rivers and May Creek and associated wetlands within the City of Gold Bar are summarized in the table that is located in Appendix C. Ecology recommends assessing the relative ecological functions that each segment provides for Hydrologic, Vegetation, Hyporheic, and Habitat processes at the landscape scale. We have provided that assessment for each Segment, providing a qualitative rating of Low,

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Low/Moderate, Moderate, Moderate/High, and High when compared to the other Shoreline Segments within the City, not County-wide. We then assigned a numeric value of 1-5 (low to high) to those qualitative values for each function assessed. Finally, in Table 7, we compare the function “scores” between each Segment to illustrate, in a qualitative way, the relative degree that each segment may provide a particular function compared to another Segment within the City.

Gold Bar’s jurisdictional shorelines were divided into eight segments:

- **Segment 1**—Right bank of the Skykomish River;
- **Segment 2**—Right bank of the May Creek from east City limits to 1st Street;
- **Segment 3**—Right bank of May Creek from 1st Street to the west City limits, and left bank from the extension of Green Lane (at west end) to the extension of Evergreen Lane (at east end);
- **Segment 4**—Tributary/wetland located between the Skykomish River and May Creek and the left bank of May Creek at the north end of Shelby Street;
- **Segment 5**—Left bank of May Creek from the extension of Green Lane to the west edge of the Community Business zone;
- **Segment 6**—Left bank of May Creek from the west edge of the Community Business zone to the western City limits;
- **Segment 7**—Left bank of the Wallace River at eastern City limits to unincorporated property around Moonlight Drive;
- **Segment 8**— Left bank of the Wallace River from unincorporated property around Moonlight Drive to western City limits.

Due to the size of the table that outlines the shoreline functions by segment, it has been placed in Appendix C.

In Table 7, below, the resulting functions scores are separated by segment and by function. As mentioned previously, the qualitative scores range from 1 through 5 (1 being low and 5 being high). Because the scores were qualitatively assigned, no sums or averages were used to conclude the outcome.

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Table 7. Function Score by Segment.

Functions	Segments							
	1	2	3	4	5	6	7	8
Hydrologic								
Transport of water & sediment	4 (East)	3	2	4	2.5	3	3	5
Attenuation of flow energy	4 (East)	4	2.5	4	2	2	3	4
Development of pools, riffles & gravel bars	4 (East)	3	2.5	4	2	2	4	3
Recruitment & transport of LWD & other organic material	4 (East)	4		5	2	2	4	4.5
Vegetation								
Maintaining temperature	3 (East)	3	2.5	4	2	2	3	3
Removing excess nutrients & toxic compounds	3 (East)	2.5	2	3.5	2	1	3	2.5
Sediment removal & bank stabilization	3 (East)	4	2	4	2	1.5	3	3
Attenuation of flow energy	3 (East)	4	2	4	2	2	2.5	3
Provision of LWD & organic matter	4 (East)	4	2.5	5	2	1.5	3	3
Hyporheic								
Removing excess nutrients & toxic compounds	3	2.5	2	3	2	1.5	2.5	2.5
Water storage	2	4	3	2.5	2	2	2	3
Support of vegetation	3	4	2	4	2	2	2.5	2.5
Sediment storage & maintenance of base flows	2	4	3	4	2	2.5	2	2.5
Habitat								
Physical space & conditions for life history	4 (West)	4	2	4	2	1	4.5	3
Food production & delivery	4	5	2	5	2	1	4.5	3

Segments such as 1, 2, 4, and 8 have higher function scores based on the relatively natural state of the Segment. Segments 3, 5, 6, and 7 have more surrounding development, thus generally resulting in lower function scores.

6.0 LAND USE ANALYSIS

As noted in Section 3.1, examining land use patterns and existing public access opportunities are important considerations in the SMP analysis because such analyses can identify opportunities for “preferred uses,” especially water-dependent, water-oriented and water-enjoyment uses. Land uses adjacent to the water are also a determinant in assigning environment designations to specific sections of the shoreline. Additionally, an analysis of land use conditions is necessary to determine potential land use changes and their effect on shorelines with respect to SMA objectives. The proposed environment designation boundaries and provisions must be mutually consistent with the City of Gold Bar’s Comprehensive Plan.

6.1 LIKELY CHANGES IN LAND USE

The majority of the City of Gold Bar shoreline is designated as Residential in the City of Gold Bar’s Comprehensive Plan and zoned for single-family residences with minimum lot sizes ranging from 7,200 to 12,500 square feet in size. Properties are generally developed as single-family homes under current land use regulations, and therefore changes would generally be limited to remodels, additions and teardown/rebuilds or small residential subdivisions or short subdivisions. The small number of vacant or underdeveloped parcels that could be built out would not significantly change the developed character of the shoreline. This type of development would generally increase impervious surface cover.

A portion of the south bank of May Creek designated for Park/Open Space use is described below in Section 6.1.1. The existing mobile home park in the northwest corner of the City along May Creek is designated Community Business and could be redeveloped into a more intense commercial use.

6.1.1 Existing Public Access

May Creek

The Creekside Vista subdivision is located in the eastern portion of the City, just beyond the current Urban Growth Area of the City. Two tracts in the subdivision have been conveyed to the Homeowner’s Association (HOA) for ongoing maintenance. Both tracts, immediately adjacent to May Creek have been set aside as native growth protection areas (NGPA), and are designated to remain in a natural state in perpetuity. There is no clearing, grading, filling, building construction or placement, or road construction of any type allowed on these tracts.

May Creek Park Plat is another subdivision in the City developed alongside May Creek which has a 4,500 square foot undeveloped park tract adjacent to the shoreline. A 15-foot public access easement was granted to the City from the right-of-way on Evergreen Way to access the park and water’s edge. The City’s Comprehensive Plan – Parks, Trails and Recreation Appendix notes that the park could be developed as a trailhead. The City’s Pedestrian and Bicycle Plan identifies a proposed soft surface trail running through the park connecting to the path that runs adjacent to May Creek.

Wallace River

Wallace River Estates is another subdivision, located off May Creek Road, adjacent to Wallace River in the northern portion of the City. There is also designated NGPA associated with the plat immediately adjacent to Wallace River. A 15-foot public ingress/egress easement was granted from the new plat road through to the NGPA along the Wallace River to provide public access.

Salmon Run Park off 399th Avenue SE is an undeveloped park totaling approximately 1.3 acres on the south bank of Wallace River. The property was dedicated to the City for use as a park as part of the Olson Short subdivision.

6.1.2 Visual Access to the Shoreline

1st Street Bridge over May Creek

A two-lane bridge on 1st Street over May Creek provides visual access. A natural gas line is attached to the underside of the bridge. There is a pedestrian sidewalk on both sides of the road over the bridge. There are also lookout points on either side of the bridge providing additional visual access to the creek below.



Figure 4. View of May Creek, looking west from 1st Street Bridge. (AHBL, 2010)



Figure 5. View of May Creek from 1st Street Bridge, looking southwest. Lookout point for shoreline is provided. (AHBL, 2010)



Figure 6. View looking northeast. Residential uses adjacent to May Creek are visible. (AHBL, 2010)



Figure 7. View looking southwest. Lookout point and bollards are visible. (AHBL, 2010)

May Creek Road/1st Avenue West

1st Avenue West just to the north of May Creek follows the creek's curving path through primarily residential land. The riverbank slopes gently down to the creek from the road. Since there are no structures along the north side of the creek, only trees and vegetation, there are some very attractive views offered to the water.



Figure 8. View looking southwest at May Creek from 1st Avenue West. (AHBL, 2010)



Figure 9. 1st Avenue West looking westward adjacent to May Creek. (AHBL, 2010)



Figure 10. Attractive views of May Creek from 1st Avenue West to wetland area on the south side of the creek. (AHBL, 2010)



Figure 11. Views from 1st Avenue West through to May Creek. (AHBL, 2010)

399th Avenue South East Bridge over Wallace River

A two-lane road (399th Avenue SE) intersects the Wallace River along the north perimeter of the City limits and provides visual access. There is low-density residential land on either side of the river.

There is no pedestrian sidewalk provided. Salmon Run Park off 399th Avenue SE is an undeveloped park totaling approximately 1.3 acres on the south bank of Wallace River. The property was dedicated to the City as a park as part of the Olson Short subdivision. Although the park is currently undeveloped, there is potential for future improvements.



Figure 12. View of the Wallace River, looking from 399th Avenue SE Bridge. (AHBL, 2010)



Figure 13. View of the Wallace River, looking from 399th Avenue SE Bridge. (AHBL, 2010)

6.2 IMPLICATIONS FOR SHORELINE MANAGEMENT

Based on the guidance provided in WAC 173-26-211, a range of Shoreline Environment designations would appear to be appropriate in the City of Gold Bar's shoreline jurisdiction.

Environment designations must be based on existing land use patterns, the biological and physical character of the shoreline, the goals and aspirations of the community as expressed in the Comprehensive Plan, as well as the criteria provided in WAC 173-26-211(4) and (5). In delineating environment designations, the City of Gold Bar must assure that existing shoreline ecological functions are protected with the proposed pattern and intensity of development. Figure 12 in Appendix B shows the preliminary shoreline segments.

For the area currently developed as a mobile home park (Segment 5) that is zoned for future commercial development, the High Intensity Shoreline Environment seems to be the most appropriate designation. The full utilization of the existing commercial urban areas with the City of Gold Bar has been achieved as demonstrated by the reasonable long-ranged projections of municipal land use completed during preparation of the Comprehensive Plan under GMA. This included the recognition that areas designated for commercial development need to occur within the Water Service Area and adequate vehicle access to primary travel routes such as State Route 2. This analysis addresses the requirements of WAC 173-26-211(5)(d)(ii)(B) that need to be met before the further expansion of intensive development is allowed.

In areas currently dominated by single family homes at urban or suburban densities (portions of Segments 2 – 7), the Shoreline Residential Environment appears to be appropriate when examining the Purpose and Designation Criteria contained in WAC 173-26-211(5)(f).

In areas such where existing land use, future land use, and existing physical character support the protection and restoration of the “ecological functions of open space, floodplain and other sensitive lands” (portions of Segments 4 – 7), the Urban Conservancy Designation should be applied.

In the areas along the Skykomish River (Segment 1) that are “relatively free of human influence or that include intact or minimally degraded shoreline functions intolerant of human use,” the Natural designation should be applied.

This report provides a strong basis for designation, but cannot fully capture “the goals and aspirations of the community” without additional public input. The City will further investigate potential designations during the public involvement process with Planning Commission review and citizen comments.

6.2.1 Likely Changes in Land Uses

The overall ecological function (summarized in Section 5 above) of the Low Density Residential area is generally low. The continued use of this area for single-family development is appropriate. The current low function is due to the predominance of yards and other effective impervious areas, the clearing of both shoreline and upland vegetation, and extensive shoreline modifications. As build-out of the few remaining vacant parcels and redevelopment of existing smaller homes with larger structures occurs, the ecological function of this area could be expected to diminish further absent additional shoreline regulations. Based on observed regional trends, additions and rebuilds can be expected generally to increase the size of homes, the amount of vegetation cleared, and the amount of impervious surface created over time, absent specific shoreline restrictions.

Shoreline regulations should address limits on impervious surface and clearing and preservation of vegetation. Consideration should also be given to offering incentives to implement low impact development stormwater practices and to increase shoreline and upland vegetation in order to improve functions such as habitat, wave attenuation, water temperature regulation, removal of excess nutrients and toxins, and recruitment of organic matter.

6.2.2 Opportunities for Public Access to the Shoreline

Wallace River/Ley Road intersection

On the City's easternmost edge, Ley Road provides visual access to the Wallace River. Ley Road continues north beyond the City limits to the Wallace Falls State Park. The road has two lanes and no pedestrian sidewalks. West of Ley Road, within the City limits is undeveloped residentially zoned land. There is a potential for additional public river access to be added once these residential areas are developed.



Figure 14. View of the Wallace River from the Ley Road Bridge. (AHBL, 2010)



Figure 15. View of the Wallace River. (AHBL, 2010)



Figure 16. View looking south from the Ley Road Bridge. (AHBL, 2010)



Figure 17. View of the Wallace River from the Ley Road Bridge. (AHBL, 2010)

7.0 SHORELINE MANAGEMENT RECOMMENDATIONS

7.1 SHORELINE MASTER PROGRAM

7.1.1 Environment Designation Provisions

- Recommendations for specific shoreline segments are discussed in Chapter 6.0.
- Areas currently developed as single family in the Comprehensive Plan and Zoning Code should be designated as Shoreline Residential.
- Areas in which critical area recharge (10-year Time of Travel, defined in Section 3.7) and wetland/hydric soil overlap should be preserved in order to accommodate future growth, habitat function and preserve the drinking water sources.

7.1.2 General Policies and Regulations

Shorelines of Statewide Significance

The Skykomish River is a Shoreline of Statewide Significance within the Shoreline Management Area in the City of Gold Bar. There is currently no formal public access to the Skykomish River within the City but there is public access two miles southeast and west of the City, near Sultan. There is informal access to the Skykomish River across the BNSF Railroad tracks from Railroad Park. May Creek and Wallace River are considered Shorelines of the State.

Archaeological and Historic Resources

- Few areas within Gold Bar's shoreline area have not been previously graded or excavated. The areas most likely to have been undisturbed by humans are very likely to be disturbed by the three watercourses within the City. This does not preclude the possibility of finding artifacts and the Shoreline Master Program should provide clear direction regarding circumstances when a special study may be necessary, and what action to undertake in the event of an unexpected discovery. Per Ecology's SMP guidelines, the following standards shall be incorporated into the City's SMP:
 - Require that developers and property owners immediately stop work and notify the local government, the office of archaeology and historic preservation and affected Indian tribes if archaeological resources are uncovered during excavation
 - Require that permits issued in areas documented to contain archaeological resources require a site inspection or evaluation by a professional archaeologist in coordination with affected Indian tribes

Critical Areas Regulations

- Provide for critical area regulations within the Shoreline Management Area that provide at least an equal level of protection to the current citywide critical area regulations.
- Incorporate and/or reference the City's critical areas regulations, watershed plans, and state, tribal and federal programs in the Master Program.

Section 7—Shoreline Management Recommendations

Flood Hazard Management Regulations

- When flood hazard mapping is updated and it alters flood hazard areas within the shoreline jurisdiction, the City should include policies and regulations that address the protection of properties located along the City's floodplain/floodways.

Parking Regulations

- During the planning stages for shoreline access parks or other development in the shoreline jurisdiction, policies should be put in place that consider the placement of parking lots and their effects on the shoreline and adjacent water bodies. Parking lots should be placed away from the shoreline and vegetative planting strips or other vegetated areas should be placed between the shore and the parking area. Other low impact development ideas are discussed below.

Public Access

- Public access to the shoreline within the Gold Bar SMA is currently limited to one public space and park (Wallace River at Salmon Run Park) and numerous informal access points through public rights-of-way. Updates to the City's comprehensive plan should include an investigation into additional suitable sites available to add public access to the Wallace River, May Creek and the Skykomish River.
- Guidance should be provided for the construction and way finding of the PSE Trail and the BPA Trail to facilitate connections and way finding to other trails, city businesses and the community in general. The PSE and BPA Trails are included in the City's Comprehensive Plan map, however, it is an assumption that the trails will be constructed on property owned by PSE and BPA (Bonneville Power Administration) and currently used as utility corridors.
- The proposed May Creek Trail places a trail along May Creek, extending from the northwest city limit, along May Creek to the northern extent of Shelby Street with a spur heading south through the wetland due west of Shelby Street.

Water Quality

- Implement the recommendations outlined in the City's Comprehensive Plan for capital improvements relating to stormwater and wastewater.
- The City should provide education regarding the importance of maintenance to private septic systems and replacement when those systems are failing.
- Existing single-family residences with septic systems pose a continued source and risk of pollution to adjacent water bodies. Required connection to future sewer facilities will help address this risk; however, this is a long-term solution.
- The City should provide education regarding the use of pesticides and fertilizers and the negative impact they have to adjacent water bodies.

Vegetation Management

- Conservation of existing native vegetation during land development and ongoing use is critical to maintaining the ecological processes and natural functions of shoreline areas.
- The removal of mature trees and native vegetation should be regulated in a manner that provides protection that is equal to or greater than current Critical Area Regulations.

Section 7—Shoreline Management Recommendations

- Vegetation removal in wetland areas and associated buffers within the Gold Bar’s open spaces and parks with shoreline areas should be restricted to allow only the removal of hazardous trees. Owners of currently undeveloped parcels should be encouraged to retain as much native vegetation as possible, particularly along areas closest to the shoreline.
- Incentives and education should be provided for the retention and planting of native vegetation, particularly in areas recommended for designation as Shoreline Residential.
- Include provisions for monitoring and control of aquatic invasive species in the shoreline areas.

Low Impact Development and “Green Building” Practices

- Incentives should be provided for the use of Low Impact Development techniques and Green Building practices within the Shoreline Management Area. Requirement of Green Building practices should be required for portions of the home that affect water use and water quality of the shoreline area.
- Low impact development and green building practices, such as those promoted through the Leadership in Energy and Environmental Design (LEED) and Green Built programs should be encouraged, particularly to properties that are replacing a small cabin with a larger home.
- Use LID techniques and Green Building practices on public parcels to set an example for the citizens.

7.1.3 Shoreline Modification Provisions

Shoreline Stabilization

- Explore a range of solutions to reduce the amount of bulkheads and shoreline armoring over time. Alternative methods to typical shoreline armoring using native vegetation and other natural shoreline features should be considered.
- Implement policies that require new construction on vacant properties to use alternative methods for shoreline armoring, such as native vegetation, two-inch minus gravel embankments, and other soft methods of shoreline armoring only—no vertical hard armoring within the shoreline areas.
- Educate the community of case studies for removing bulkheads to encourage the removal of bulkheads on their properties.

Overwater Structures

- All new or reconstructed overwater structures should be consistent with WDFW design standards, and recognize any special local issues or circumstances.
- All overwater structures regulations should also be consistent with the permitting requirements of the U.S. Army Corps of Engineers.

Fill

- As directed by the SMP Guidelines, provide appropriate limitations on placement of fill in shoreline areas, including areas waterward of the ordinary high water mark. Restoration fills should be encouraged as needed to implement shoreline restoration. Federal and state laws allow fill under certain permit conditions that apply regardless of the Shoreline Master Program.

Section 7—Shoreline Management Recommendations

Breakwaters, Jetties, Groins and Weirs

- There are no known breakwaters, jetties, groins and weirs within the shoreline area of Gold Bar.

Dredging and Dredge Material Disposal

- As directed by the SMP Guidelines, provide limitations on dredging (excavation) in shoreline areas. Dredging activities are not expected to occur on a frequent basis, but may be conducted as part of certain conveyance maintenance activities or to implement restoration projects. Federal and state laws allow dredging and material disposal under certain permit conditions that apply regardless of the Shoreline Master Program.

Shoreline Habitat and Natural Systems Enhancement Projects

- To the maximum extent feasible, the SMP should include provisions to encourage restoration projects, particularly in areas identified as having low function and high potential. This should include but is not limited to, bulkhead removal, non-native and invasive plant removal and replanting with native plants. A restoration plan for the City's shoreline areas will be developed at a later date as part of the SMP update process.

7.1.4 Shoreline Uses

Boating Facilities

- There are no boating facilities known within the shoreline area of Gold Bar.

Industry

- Generally, shoreline master programs must give first preference to water-dependent industrial uses over non-water-dependent industrial uses; and second, give preference to water-related industrial uses over non-water-oriented industrial uses. Lands designated for industrial uses should not include shoreline areas with severe environmental limitations, such as critical areas. The City of Gold Bar does not have any areas in its shoreline area that are zoned for industrial use, nor does it have any plans to include industrial areas in its future land use.

Recreation

- The SMP should give shoreline recreational development priority and assure the activities are related primarily to the public access and enjoyment of the water and shoreline area. In addition to emphasizing water-oriented recreational uses, appropriate limits should be established for non-water oriented activities and facilities, such as the proximity and location of parking areas, ball fields, and other potential park facilities such as storage areas and restrooms.
- The SMP provisions must protect the ecological functions of the shoreline area and associated wetlands.
- The SMP should specifically address trail location, design and construction. Trail and other construction should emphasize the use of low impact development methods.

Section 7—Shoreline Management Recommendations

Residential Development

- The SMP must address continued shoreline residential development, particularly redevelopment, replacement, and expansion of existing homes. The SMP should address the redevelopment to be consistent with control of pollution and prevention of damage to the natural environment.
- The SMP should include provisions that address and educate homeowner regarding shoreline armoring, storm water runoff, septic systems, introduction of pollutants, and vegetation modification and removal. Provisions should be put in place to begin converting homes from septic systems to the City's sewer system, when the City develops plans for a system in the future.
- Residential shoreline restoration plans should include native grass, shrub, or tree planting at least 15-feet wide to stabilize soil surfaces, limit erosion, filter runoff pollutants (especially lawns and pollution generating impervious surfaces), and provide shade to the near shore within two years of planting.

Commercial Development

- Generally, the SMP must give preference to water-dependent commercial uses over non-water dependent commercial uses; and second, give preference to water-related and water-enjoyment commercial uses over non-water oriented commercial uses. The City of Gold Bar has one area in its shoreline area that is zoned for commercial use, currently a low-density mobile home park.
- Commercial shoreline restoration plans should include non-turf grass planting at least 15-feet wide to stabilize soil surfaces, limit erosion, filter runoff pollutants (especially pollution generating impervious surfaces), and provide shade to the near shore within two years of planting.

7.2 RESTORATION PLAN

The Restoration Plan should be prepared consistent with 173-26-201(2)(f)(i-vi) by addressing the following six subjects:

- I. *Identify degraded areas, impaired ecological functions, and sites with potential for ecological restoration;*
- II. *Establish overall goals and priorities for restoration of degraded areas and impaired ecological functions;*
- III. *Identify existing and ongoing projects and programs that are currently being implemented, or are reasonably assured of being implemented (based on an evaluation of funding likely in the foreseeable future), which are designed to contribute to local restoration goals;*
- IV. *Identify additional projects and programs needed to achieve local restoration goals, and implementation strategies including identifying prospective funding sources for those projects and programs;*
- V. *Identify timelines and benchmarks for implementing restoration projects and programs and achieving local restoration goals;*
- VI. *Provide for mechanisms or strategies to ensure that restoration projects and programs will be implemented according to plans and to review appropriately the effectiveness of the projects and programs in meeting the overall restoration goals.*

Section 7—Shoreline Management Recommendations

SMP guidelines only apply to those developments that occur after SMP adoption and are not retroactive. As such, the City can take the opportunity at the time of new development permit application to provide incentives for developers to invest in shoreline restoration. Potential restoration opportunities with the City are listed below Table 8.

Function	Unimpaired Conditions	Impairments	Potential Solutions
Water Quantity Functions	Presence of broad floodplain/wetland area in southeast portion of City, associated with May Creek.	Lack of significant flood storage through floodplain or wetlands along May Creek and Wallace River. Overbank flooding affects residential and commercial areas.	Preserve currently intact floodplains and wetlands. Reconnect floodplain and wetland connectivity to the rivers by acquiring property, through construction activities, and as park features.
Water Quality Functions	No known septic system failures within the City.	Narrow or missing vegetative buffers result in the ability to effectively trap and filter sediment and reduce water velocities during floods.	Riparian plantings and fencing of buffers to reduce human disturbance.
	Some intact riparian wetlands and areas of vegetated river banks.	Lack of riparian shading necessary to control water temperatures.	Install shrubs and trees along the banks to improve shading. Protect existing shrubs and trees when possible.
		Bank erosion.	Encourage maintaining and installing shoreline vegetation for the purpose of bank stabilization.
		Water quality may be impaired from road runoff.	Do not allow road runoff to flow directly into the rivers. Construct vegetative rain gardens or detention ponds to allow filtration of sediment and toxins.
Habitat Functions	Some areas of vegetative diversity and low percent cover of invasive species, particularly in wetland associated with May Creek.	Lack of vegetative diversity along river banks on private property.	Encourage maintaining shoreline vegetation and provide education regarding the importance of vegetative diversity for habitat purposes.
	Reasonable amounts of large woody debris.	Culverts that may be fish barriers.	Inventory culverts and address maintenance issues to maintain culvert passability.
	Habitat connectivity to the Cascade Mountains in some areas.	Terrestrial habitat is at risk for further segmenting as there is additional growth/construction.	Focus construction in core areas to maintain habitat connectivity.

8.0 DATA GAPS

The following items represent information that was unavailable or incomplete during the evaluation of shoreline conditions and processes in the City of Gold Bar. However, these items did not significantly impact analyses of shoreline conditions and processes, and they are not expected to affect designation of shoreline environments or the update of the City's SMP.

- Channel Migration Zone (CMZ) Maps are not available for the City of Gold Bar on a spatially explicit reach-based scale, and Snohomish County maps show the linear geographic extents where channel migration can occur on the Skykomish and Wallace Rivers, but not the lateral extent of the CMZ. For purposes of this Shoreline Analysis Report, CMZ may be conservatively estimated as the lateral extent of the 100-year flood zone for all shorelines within the City of Gold Bar UGA (Figure 7 in City of Gold Bar Comprehensive Plan, 2005). Site-specific CMZ analyses should be conducted to inform activities proposed to occur within regulated shoreline areas.
- As noted in Sections 3.3.2 and 4.1.4, there is a lack of information in some portions of the regulated shoreline areas related to the discharge of stormwater into the Skykomish River and/or other water bodies within the City, including location of outfalls and presence and type of stormwater treatment. Information regarding discharge of stormwater directly into water bodies associated with regulated shoreline areas, and an analysis of the efficacy of the City of Gold Bar stormwater infiltration facilities, would provide a clearer picture of water quality and stormwater management within the City's shoreline areas. Topographic surveys conducted within the City could provide information to address this data gap.
- As noted in Section 3.1, unmapped wetlands may exist adjacent to or within regulated shoreline areas, notably May Creek and the Wallace River. Depending upon the location of unmapped wetlands and their association with the shoreline, the boundaries of assessed shoreline management areas may be subject to alteration. Mapping wetlands associated with regulated shoreline areas in the City of Gold Bar would provide a greater degree of resolution for jurisdictional shoreline boundaries.
- As noted in portions of Section 4 (4.2.3; 4.6.2; 4.8.4), the presence, and/or extent of channel and bank modifications in certain shoreline segments is unclear. Although this did not significantly affect the analyses conducted for this Shoreline Analysis Report, shoreline surveys conducted within the City could provide information to address this data gap.
- The City of Gold Bar does not have either a GIS system or other forms of electronic mapping. It relies on Snohomish County for GIS mapping and data as well as private consultants who have prepared other types of electronic mapping related to Comprehensive Plan, Zoning and other maps for the City in the past. Although this did not significantly affect the analyses conducted for this Shoreline Analysis Report, a City-based development of a GIS system and

coordination/incorporation of existing and future data into a municipal GIS system will address this data gap.

9.0 REFERENCES

- City of Gold Bar. 1999. A Brief History of Gold Bar.
http://www.cityofgoldbar.us/uploads/GOLD_BAR_HISTORY_1_.pdf
- City of Gold Bar. 2002. City of Gold Bar Design and Construction Standards and Specifications. February 2002. http://www.cityofgoldbar.us/uploads/Design_and_Construct_STDs.pdf
- City of Gold Bar. 2005. City of Gold Bar Comprehensive Plan. January 2005.
http://www.cityofgoldbar.us/uploads/Gold_Bar_Comprehensive_Plan.pdf
- City of Gold Bar. 2009. City of Gold Bar Comprehensive Plan 2009 Changes. June 2009.
http://www.cityofgoldbar.us/uploads/2009_Comp_plan_changes.pdf
- City of Gold Bar. 2009a. Municipal Code. January 6, 2009.
<http://search.municode.com/html/16370/level1/CODE.html>
- City of Gold Bar. 2009b. Proposed Six Year Transportation Improvement Program for 2010-2015.
http://www.cityofgoldbar.us/uploads/Gold_Bar_STIP_draft.pdf
- Federal Emergency Management Agency (FEMA). 1999. The Flood Insurance Study for Snohomish County, Washington and Incorporated Areas. November 8, 1999, as amended, with accompanying Flood Insurance Rate Map (FIRM).
- Google Earth. 2010. Gold Bar and Vicinity using U.S. Geological Survey/2010 DigitalGlobe Image.
- Haring, Donald. 2002. *Salmonid Habitat Limiting Factors Analysis for Snohomish River Watershed WRLA 7*. Washington State Conservation Commission;
http://www.co.snohomish.wa.us/documents/Departments/Public_Works/surfacewatermanagement/aquaticahabitat/salmon/snohomish/hab_limit_factors/fulldoc.pdf
- King County. 2006. Department of Natural Resources and Parks. *The Snohomish (Skykomish/Snoqualmie) River Watershed Map*.
<http://your.kingcounty.gov/dnrp/library/archive-documents/wlr/watersheds/sky-snoq/pdf/snohomish-river-watershed-map.pdf>
- Knutson, K. L., and V. L. Naef. 1997. Management recommendations for Washington's priority habitats: riparian. Wash. Dept. Fish and Wildlife, Olympia. 181pp.
- Natural Resources Conservation Service (NRCS). 2010. <http://websoilsurvey.nrcs.usda.gov/app/>
- National Wetlands Inventory. 2010. <http://www.fws.gov/wetlands/>
- Revised Code of Washington. Shoreline Management Act of 1971 Chapter 90.58.
<http://apps.leg.wa.gov/RCW/default.aspx?cite=90.58>
- Snohomish Basin Salmon Recovery Forum (SBSRF). 2001. *Snohomish River Basin Chinook*

Section 9—References

- Salmon Near Term Action Agenda*. Snohomish County Surface Water Management Division. Everett, Washington.
- Washington Administrative Code. <http://apps.leg.wa.gov/wac/>
- Washington State Department of Health. 2010. Washington State Wellhead Protection Program Guidance Document. June 2010 DOH 331-018 (Revised).
- Washington State Department of Archaeology and Historic Preservation (DAHP) WISAARD. 2010. <https://fortress.wa.gov/dahp/wisaard/>
- Washington Department of Ecology (Ecology). 2010a. Environmental Information Management System. <http://www.ecy.wa.gov/eim/>
- Washington Department of Ecology (Ecology). 2010b. Water Quality Assessment 303(d). <http://www.ecy.wa.gov/programs/wq/303d/2008/index.html>
- Washington Department of Ecology (Ecology). 2010c. Shoreline Management. <http://www.ecy.wa.gov/programs/sea/shorelines/index.html>
- Washington Department of Ecology (Ecology). 2005. Stormwater Management Manual for Western Washington. January 17, 2007. <http://www.ecy.wa.gov/biblio/0510029.html>
- Washington Department of Fish and Wildlife (WDFW). 2010. Priority Habitat and Species. <http://wdfw.wa.gov/conservation/phs/list/>
- U.S. Environmental Protection Agency (EPA) Envirofacts Data Warehouse. 2010. <http://www.epa.gov/enviro/>
- U.S. Environmental Protection Agency (EPA). Impaired Waters and Total Maximum Daily Loads. 2010. <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/index.cfm>

Figure 5:

USGS Aquifer Sensitivity

We received this data from Snohomish County.

Source: U.S. Geological Survey "The Ground-Water System and Ground-Water Quality in Western Snohomish County, Washington" (1997).

APPENDIX A

Information Request Letter and Distribution List

Appendix A—Information Request Letter and Distribution List

February 9, 2010

Project: City of Gold Bar Shoreline Master Program Update, Our File No. 209372.30
Subject: City of Gold Bar, Shoreline Inventory and Assessment,
Request for Existing Information: Skykomish River, Wallace River, and May Creek

Dear Stakeholders:

The City of Gold Bar is in the early stages of examining its Skykomish River, Wallace River, and May Creek Shorelines for the purposes of updating its Shoreline Master Program per requirements of the Washington State Department of Ecology. AHBL, Inc. and Otak, Inc. will assist with Shoreline characterization, analysis, and regulatory review. A Shoreline inventory, conducted by biologists from Otak, Inc., will be the first step. The products of the inventory include a map portfolio and a report characterizing ecological functions and ecosystem-wide processes, among other things.

The City is requesting your help in obtaining all existing physical and biological information regarding Skykomish River, Wallace River, and May Creek, their associated riparian and wetland areas, and other water relevant watershed or basin information. We are interested in any and all inventories, assessments, water quality analyses, and/or fish and wildlife distribution and habitat information. A map identifying the City's Shorelines is attached.

We are hoping to assemble our inventory by February 26, 2010 in order to complete the necessary characterization and analysis, and resultant recommendations, in a timely manner. Because we are hoping to reduce redundant data collection at the field level, a response would be appreciated by February 19, 2010. If possible, please provide hard copies or electronic files of any studies instead of a list of citations; contact us if a copy fee is required. If you believe that another individual within your organization would be a more appropriate contact for this solicitation, please forward this letter to that individual, and notify us of the change in contact.

If you have any questions or need additional information, please feel free to telephone me at (253) 383-2422, e-mail me at bmedrud@ahbl.com or contact John Light, the Public Works Director, City of Gold Bar at either (360) 793-1101 or j.light@cityofgoldbar.us.

Sincerely,

Brad Medrud
Senior Planning Project Manager

BM/lah

c: John Light, City of Gold Bar

Enclosure

Appendix A—Information Request Letter and Distribution List

Mailing List:

PUD

ATTN: SEPA REVIEWER
120 E. FREMONT STREET
Monroe, WA 98272

SULTAN LIBRARY

Attn: SEPA Reviewer, Public Info
515 Main Street
Sultan, WA 98294

SNO-PAC 911 EMERGENCY

1121 S.E. Everett Mall Way
Suite 200
Everett, WA 98208-2832

F.E.M.A

Federal Regional Center
Attn: SEPA Reviewer
130-228th St. S.W.
Everett, WA 98201-9796

COMMUNITY TRANSIT

Attn: Brent Russell/SEPA Reviewer
7100 Hardeson Road
Everett, WA 98203-5834

SNOHOMISH COUNTY HEALTH

Attn: SEPA Reviewer
3020 Rucker Ave
Everett, WA 98201

SULTAN SCHOOL DISTRICT

Attn: Jerry Alles/SEPA Reviewer
PO BOX 399
Sultan, WA 98294

SNOHOMISH COUNTY EDC

Deborah K. Knutson
728 134th St. S.W. Suite 219
Everett, WA 98204

ATTN: DOUG THOMPSON WSDOT-NW REGION

15700 Dayton Avenue North
PO BOX 330310
Seattle, WA 98133-9710

CORPS OF ENGINEERS- SEATTLE

Attn: SEPA Reviewer
PO Box 3755
Seattle, WA 98124-2255

SNOHOMISH COUNTY PDS

Attn: SEPA Reviewer
M/S 604 – 3000 Rockefeller
Everett, WA 98201

MR. DAVID ANDERSON

Growth Management-CTED
PO Box 48350
Olympia, WA 98504-8350

ELAINE BABBY,MUNICIPAL PLANNER

Puget Sound Energy
PO Box 90868 MS MER-4
Bellevue, WA 98009-0868

SNOHOMISH COUNTY PUD #1

Engineering Services
PO Box 1107
Everett, WA 98206-1107

GTE

C/O GARY NELSON
2403 West Casino Road
Everett, WA 98204

DEPARTMENT OF ECOLOGY

Environmental Reviewer
300 Desmond Drive
Olympia, WA 98504-7600

Appendix A—Information Request Letter and Distribution List

TULALIP TRIBES

Planning Committee
6700 Beach Drive
Marysville, WA 98270

SNO LAND CONSERVANCY

ATT: CJ EBERT
2911 ½ Hewitt
Everett, WA 98201

GROWTH MANAGEMENT SERVICES

Dept. of CTED
PO Box 42525
Olympia, WA 98504-8350

WASHINGTON STATE PARKS

Headquarters
7150 Cleanwater Lane
PO Box 42650
Olympia, WA 98504-2650

APPENDIX B

Map Folio

APPENDIX C

Function Summary by Segment