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memorandum

date May 2, 2011

to Eric Mendenhall and Ryan Windish, City of Sumner

from Reema Shakra and Ikuno Masterson, ESA

subject **City of Sumner, Shoreline Master Program Update – Draft Cumulative Impacts Analysis; Grant Agreement No. G1000024, Task 3.6**

With the assistance of a grant from the State Department of Ecology, the City of Sumner is updating its Shoreline Master Program (SMP) consistent with state guidelines (WAC Chapter 173-26). Under the shoreline guidelines, local jurisdictions are required to evaluate and consider cumulative impacts of reasonably foreseeable future development in the shorelines of the state (WAC 173-26-186(8)(d)). This memorandum assesses the cumulative impacts that would result from development and activities in the shoreline over time under the provisions contained in the Draft SMP (March, 2011). This memorandum is prepared as a grant deliverable (SMA Grant No. G1000024, Task 3.6) and will be revised to reflect the locally adopted SMP.

The City of Sumner, located approximately 12 miles east of Tacoma and 34 miles south of Seattle, encompasses an area of approximately 7.5 square miles. The City's urban growth area (UGA) is approximately 1.3 square miles. Sumner is predominantly located on the valley floor of the Puyallup and White River valleys. As of 2010 (U.S. Census), the City's population was approximately 9,450. Over the recent past, the city has experienced a rapid rate of growth, and a portion of this development has occurred in the shoreline areas of the White and Puyallup Rivers. There are approximately 10.02 miles of shoreline representing designated shorelines of the state (shorelines) in the City's planning area (city limits and urban growth areas). The City's shoreline planning area has been organized into ten distinct segments or "reaches" based broadly on the physical characteristics along the shoreline, the level of ecological functions provided by each segment, as well as existing land uses and zoning.

The purpose of evaluating cumulative impacts is to ensure that, when implemented over time, the proposed SMP goals, policies and regulations will achieve no net loss of shoreline ecological functions from current "baseline" conditions. Baseline conditions are identified and described in the City of Sumner Draft Shoreline Inventory and Characterization Report (ESA Adolfson, June 2010). The draft Sumner SMP provides standards and procedures to evaluate individual uses or developments for their potential to impact shoreline resources on a case-by-case basis through the permitting process. The purpose of this memorandum is to determine if impacts to shoreline ecological functions are likely to result from the aggregate of activities and developments in the shoreline that take place over time.

The guidelines state that, “to ensure no net loss of ecological functions and protection of other shoreline functions and/or uses, master programs shall contain policies, programs, and regulations that address adverse cumulative impacts and fairly allocate the burden of addressing cumulative impacts among development opportunities. Evaluation of such cumulative impacts should consider:

- Current circumstances affecting the shorelines and relevant natural processes;
- Reasonably foreseeable future development and use of the shoreline; and
- Beneficial effects of any established regulatory programs under other local, state, and federal laws.¹

This cumulative impacts assessment uses these three considerations as a framework for evaluating the potential long-term impacts on shoreline ecological functions and processes that may result from development or activities under the proposed SMP over time. In addition, Appendix A evaluates provisions of the draft SMP in the context of shoreline ecological functions and ecosystem-wide processes as defined by the guidelines.

Current Circumstances

As part of the City’s SMP update process, a shoreline inventory and characterization and map folio were prepared and submitted for technical agency review in June 2010. The Shoreline Inventory and Characterization (ESA Adolfson, 2010) identifies existing conditions and evaluates the ecological functions and processes in the City’s shoreline jurisdiction. The inventory included all shoreline areas within the City of Sumner and its designated UGA. A summary of key findings and baseline conditions resulting from the inventory and characterization is included in Chapter 2 of the Draft SMP. Baseline conditions are summarized very briefly below. For additional discussion and detail please refer to the inventory and characterization report and/or Chapter 2 of the SMP.

Physical and Ecological Processes

The City’s shoreline jurisdiction is defined by the surface geology and hydrology of the valley floor of the White and Puyallup River basins, as well as their major tributaries and contributing streams. The headwaters of both the upper Puyallup and White Rivers are predominantly located within the Mt. Rainier National Park, Mount Baker-Snoqualmie National Forest, and private commercial timberlands. Both rivers originate from glaciers on Mount Rainier. The landscape of the jurisdiction has been heavily influenced by frequent flooding and periodic mudflows from Mount Rainier, which have historically covered the valley with layers of mud, silt, ash, and glacial debris. The most recent mudflow (named the Osceola mudflow) occurred in the valley about 5,600 years ago. The broad floodplains of both river systems have created a vast mosaic of fluvial materials and silts eroded from headwater sources.

The White River subbasin originates at the terminus of the Winthrop, Fryingpan and Emmons glaciers on the slopes of Mt. Rainier and drains an area of approximately 494 square miles. Flowing from its origin to the confluence with the Puyallup River, the White River is approximately 68 miles in length. The Puyallup River begins at glaciers (North Mowich, South Mowich, Edmunds, Puyallup, and Tahoma glaciers) on the west and northwest slopes of Mount Rainier and flows north and west into Puget Sound at Commencement Bay in Tacoma.

¹ WAC 173-26-286(8)(d)

The Puyallup River watershed comprises 438 square miles. The Puyallup River flows westward for over 54 miles from Mount Rainier to Commencement Bay.

The Puyallup River Basin was one of the earliest areas settled in the Puget Sound basin. Historically, the study area was characterized by large tracts of old-growth forests, fertile river valley soils, and abundant runs of salmon.

Urbanization and development have been limited in these areas compared to urban areas in the Puget Sound lowlands. However, both the upper Puyallup and upper White River watersheds have been affected by timber harvest and road building practices that have reduced the ability of riparian areas to provide wood and shade to the river and stream channels. These areas also continue to contribute to fine sediments from road construction and landslides in each river system. These activities continue to adversely impact natural salmonid production

Habitat and Species

The shorelines within Sumner provide important habitat for a number of fish and wildlife species. The aquatic environment of both rivers is an important riverine corridor from Mt. Rainier to the Sound. Most notably, the White and Puyallup Rivers have been designated as critical habitat for Chinook salmon and bull trout. Both species are listed as threatened under the Federal Endangered Species Act. Therefore, fish passage, especially for federally listed species, is an important function of the shorelines within the city of Sumner. Priority fish species have not been identified within the Lake Tapps shoreline planning area.

Modifications to the river system have resulted in reduced levels of ecosystem functioning, including hydrology, water quality, riparian habitat, sediment transport, and in-stream habitat. Changes to hydrology focus on modified flow regime due to dam construction, diversion, and urban development. River management and levees have reduced the connection between the rivers and their floodplains, changing the spatial extent of habitats, and increasing the potential for negative water quality impacts. Disturbances to the channel banks have resulted in areas that are dominated by non-native invasive species. Wood, in the form of riparian trees and in-channel wood, is generally lacking throughout the system, which negatively impacts riparian and aquatic habitats. In general, the level of modification increases moving downstream in both river systems, and thus, results in a higher occurrence of riverine disturbances.

Important features of Sumner's shoreline environment that provide habitat include:

- Streams (fish and wildlife corridors and sources of fluvial sediments);
- Riparian zones (vegetated bars and vegetation overhanging the stream reach);
- Wetlands; and
- Aquifer recharge areas.

Aquatic and terrestrial species found in or near Sumner that utilize crucial shoreline habitat include:

- Salmonids (including listed species such as Chinook, steelhead, and bull trout);
- Resident cutthroat;
- Waterfowl and other near shore birds;
- Salamanders, frogs, amphibians; and
- Mammals: raccoons, beavers, deer.

Land Use and Public Access

According to Pierce County Assessor records (2008), current land use in Sumner’s shoreline planning area is a mix of vacant, industrial/manufacturing, residential, and parks/open space uses. Lands designated vacant are currently the dominant land use, constituting 43 percent of the entire shoreline planning area. While the term “vacant” may not always accurately reflect current conditions (such as protected open space, agriculture, wetlands, or lands with development restrictions), the classification generally indicates that no structural improvements have been made or assessed for taxes on the property.

Table 1. Major Land Uses in Shoreline Planning Area

| Land Use | Percent in Shoreline Planning Area |
|--------------------------|---|
| Vacant | 43% |
| Industrial/Manufacturing | 16% |
| Residential | 14% |
| Open Space | 11% |

Industrial/manufacturing is the second most common land use (16 percent of entire shoreline planning area) focused almost entirely along the White River. Residential land uses are slightly less common (14 percent of entire shoreline planning area) and are mainly concentrated along the Puyallup River as well as segments along the White River. Designated parks and open space lands compose 11 percent of the entire shoreline planning area with the largest acreage in Segment F at the Sumner Meadows Golf Links.

Water-dependent uses within Sumner are limited to boat launches and utilities. The Puyallup Tribe launch boats into the White River at the Confluence Park as part of their fish-counting research. Water in Lake Tapps is released to the Dieringer Flume via an outfall structure. Even though the Puget Sound Energy Hydropower Project at Lake Tapps ceased operation in January 2004, this outfall structure is likely still considered a water-dependent use. There is an outfall associated with the City’s wastewater treatment plant on the White River. There are two other mapped stormwater and sewer outfalls along the rivers in the City. There are no docks, piers, or marinas within Sumner shorelines.

Public access and educational opportunities are provided at approximately 19 locations in the city and it’s UGA. Existing open space within the shoreline planning area includes both public and private utilities and facilities along with wetlands, undeveloped agricultural lands, vacant land, and the river corridors themselves. Major parks and facilities in the shoreline planning area provide access to a wide variety of activities. Public access to Lake Tapps within the shoreline planning area is not available. Improvements and enhancements to existing park and open space resources are planned in the near future.

Shoreline Alterations

Riverine ecological processes in the Puyallup and White Rivers, through the Sumner reach, have been altered primarily by “shoreline modifications” related to the development of flood control infrastructure. Shoreline modifications refer to structural alterations of the shoreline’s natural bank, including riprap, bulkheads, docks, piers or other in-water / overwater structures. Such modifications are typically used to stabilize the shoreline and prevent erosion. Both the Puyallup and White Rivers are lined through their entire length in Sumner with a system of levees and concrete revetments that were built in the early 1900s. Over time, vegetation has grown and obscured many of the revetments and levees within the Sumner shoreline planning area. The existing levees and high river flows limit water access to the White and Puyallup Rivers. With the exception of bridges, and various power line crossings, there are no docks, piers, or over water structures located on the Puyallup River, White River, or Lake Tapps in the Sumner shoreline planning area. There are no culverts on the main channels of the White or Puyallup Rivers. However, tributaries with culvert barriers within 200 feet of the mainstream reaches have been identified and constitute a concern for fish passage.

Restoration Opportunities

In addition to the inventory and characterization report, a draft Shoreline Restoration Plan will be developed as part of the SMP update. Some of the key findings related to the protection and restoration of shoreline functions include:

PLACEHOLDER: Will add once Restoration Plan is developed.

Reasonably Foreseeable Future Development and Use

Vacant Parcels and Potential Redevelopment

In order to evaluate the potential for shoreline development in the reasonably foreseeable future, a GIS analysis was conducted that involved categorizing all parcels within the shoreline area as:

- Vacant parcels;
- Underdeveloped parcels; or
- Developed parcels.

The parcel analysis is based on Pierce County Assessor’s data (2010). The following land use classifications were excluded from the analysis: floodway, street right-of-way, and water areas. The table below shows the percentage of parcels located within each category by waterbody.

Table 2. Percent Vacant, Underdeveloped and Developed

| Waterbody | Vacant Parcels | Underdeveloped Parcels | Developed Parcels |
|------------------|-----------------------|-------------------------------|--------------------------|
| Puyallup River | 20% | 52% | 28% |
| White River | 45% | 46% | 9% |
| Lake Tapps | 100% | 0% | 0% |
| Total | 46% | 42% | 12% |

The tables in Appendix A describe the acreage and percentage of vacant and underdeveloped parcels by waterbody and shoreline designation.

Vacant Parcels

According to Pierce County Assessor records (2010), forty-six percent of the shoreline planning area in Sumner is classified as vacant. While the term “vacant” may not always accurately reflect current conditions (such as protected open space, steep slopes, wetlands, or other lands with development restrictions), the classification generally indicates that no structural improvements have been made or assessed for taxes on the property. Most of the vacant parcels are classified by the Pierce County Assessor as vacant commercial land and vacant industrial land. The majority of the remaining classifications are vacant land, undeveloped land and agriculture. The vacant parcels are mainly located in Tapps Reservoir and Urban Conservancy designations and are zoned Light Industrial (44 percent).

Table 3. Major Land Use Classifications of Vacant Parcels

| Land Use Classification | Percent |
|--------------------------------|----------------|
| Vacant commercial land | 40% |
| Vacant industrial land | 27% |
| Vacant land undeveloped | 17% |
| Agriculture | 12% |

Redevelopment Potential

In addition to the potential for development on vacant parcels, there is potential for underutilized lots to redevelop at a higher residential density or commercial/industrial use. For the purposes of this Cumulative Impacts Assessment, redevelopment potential was based on the following assumptions, organized by zoning designation:

1. **Commercial, industrial, agriculture, and mixed use zoning districts:** When land value divided by improvement value is greater than 1, then the parcel is considered underdeveloped.
2. **Low density residential zoning districts and Pierce County rural and agriculture zoning districts:** When a parcel area divided by 2.5 times the minimum lot size per zoning is greater than 1, then the parcel is considered underdeveloped.
3. **Medium density and high density zoning districts:** When existing dwelling units per acre divided by 20 percent times the allowed zoning density is less than or equal to 1, then the parcel is considered underdeveloped.

These assumptions are similar to the assumptions used as part of the 2010 Sumner Comprehensive Plan Amendments that included a population capacity analysis. The underdeveloped parcels are mainly classified as parks, single-family dwellings, and general warehousing storage with the remaining parcels a mix of utilities, contractor services, and industrial land. Most of the parcels classified as underdeveloped are located in the Urban Conservancy designation (87 percent) and are zoned Light Industrial (54 percent).

Table 4. Major Land Use Classifications of Underdeveloped Parcels

| Land Use Classification | Percent |
|-----------------------------|---------|
| Parks | 27% |
| Single-family dwellings | 18% |
| General warehousing storage | 11% |

Sumner’s Urban Growth Areas

A portion of shorelines characterized in Sumner’s shorelines Inventory and Characterization report are located in the City’s UGA and proposed UGA. The City’s UGA is primarily located east of the city center extending south from Auburn toward Salmon Creek and includes several tributaries of the White River and Lake Tapps. The City’s proposed UGA is generally located between the city limits and Orting Highway (SR 162) to the west; city limits and SR 410 to the north; and extending east and south along the Puyallup River to the boundaries of Pierce County’s Riverside County Park. Until these areas are incorporated into the City, Pierce County’s SMP will regulate development. It is unknown at this time when these areas would be annexed into the City. However, shoreline environment designations, general use and modification standards, and environment specific standards have been developed in the Draft SMP to address development in the City’s UGA. The Draft SMP has been developed to adequately regulate the UGA areas immediately upon annexation.

Efforts have been made to ensure consistency between the Draft SMP and the latest Pierce County Draft SMP. For example, the Tapps Reservoir environment designation has been applied to Lake Tapps in Sumner’s UGA to ensure consistency with Pierce County’s draft environment designations.

Beneficial Effects of Any Established Regulatory Programs under Other Local, State, and Federal Laws

A variety of other regulatory programs, plans, and policies work in concert with the City's SMP to manage shoreline resources and regulate development near the shoreline (see Chapter 1 of the Inventory and Characterization Report).

Sumner Municipal Code and Long Range Plans

Sumner Comprehensive Plan

The City's Comprehensive Plan establishes the general land use pattern and vision of growth and development the City has adopted for areas both inside and outside the shoreline jurisdiction. Chapter 9 of the Comprehensive Plan contains goals and policies specifically for shoreline management and is intended to maintain consistency with the Shoreline Master Program goals and policies.

Title 13 Public Services (Sumner Municipal Code)

SMC Chapter 13.48. Stormwater Management Regulations: The city of Sumner, in accordance with National Pollutant Discharge Elimination Systems (NPDES) and department of Ecology has developed protocol for a Stormwater Management Program (SWMP). The intent of stormwater management, as stated in Chapter 13.48 of the SMC, is to “protect, maintain, and enhance public health, safety, and general welfare by establishing minimum requirements and procedures to control the adverse impacts associated with increased stormwater runoff and water quality degradation for all sites located within the city” (SMC 13.48.020 (1)). The City adopts the 2005 Department of Ecology Stormwater Management Manual for Western Washington together with amendments or corrections. Stormwater management regulations include minimum requirements for pollution prevention during construction, control of pollutant sources, treatment of runoff, control of stormwater flow volumes, long-term operation and maintenance, and protection of wetlands. The manual also provides the methods for meeting requirements through best management practices (BMPs) for construction and long-term operation, as well as the procedure for determining which BMPs are appropriate for the specific site and construction methods.

Title 15 Building and Construction (Sumner Municipal Code)

SMC Chapter 15.52 Flood Damage Prevention: The purpose of Chapter 15.52 of the SMC is to promote public health, safety, and general welfare, and to minimize public and private losses due to flooding. In order to accomplish its purpose, this chapter includes methods and provisions for: restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities; requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; controlling the alteration of natural floodplains, stream channels and natural protective barriers which help accommodate or channel floodwaters; controlling filling, grading, dredging and other development which may increase flood damage; and preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas. Chapter 15.52 outlines specific requirements, construction procedures, permitting and requirements for the development of lands located within areas subject to flood hazard.

Title 16 Environment (Sumner Municipal Code)

SMC Chapter 16.04 SEPA Procedures and Policies: Every project requiring a shoreline permit must also demonstrate compliance with the State Environmental Policy Act (SEPA). The SEPA process assures that environmental impacts, including compliance with SMP regulations, are identified, minimized and mitigated, where possible. The City's SEPA procedures and policies are outlined in Chapter 16.04 of the SMC, including adoption of the state's SEPA rules by reference (Chapter 197-11 WAC).

SMC Chapter 16.05 Control of Erosion and Sedimentation of Waterways: The city of Sumner has adopted standards to regulate all land-disturbing activities in order to control accelerated erosion and prevent damage to public or private property and to prevent sediment or sediment-related pollution of water and sedimentation of creeks, rivers, wetlands, and other water resources in the city (SMC 16.05.020). Additionally these regulations establish procedures by which erosion and sedimentation can be prevented or mitigated. The provisions of this chapter apply to all land-disturbing activities that are currently under construction, proposed land-disturbing activities that currently have all necessary approvals to begin construction, and common agricultural activities. This chapter provides regulations applicable to land clearing and grading as well as guidance for sediment control and slope stabilization. The goal is to provide standards by which erosion and sedimentation resulting from land disturbance activities can be safely controlled.

Title 18 Zoning (Sumner Municipal Code)

SMC Chapters 18.40 Design and Development Guidelines: The Sumner Design and Development Guidelines (SMC 18.40) are intended to implement the goals outlined in the design element of the Comprehensive Plan. The adopted manual contains landscaping requirements for new development and redevelopment on enhancing natural areas so that developments are integrated into existing conditions.

SMC Chapter 18.41 Required Landscaping: The landscaping standards provided in this chapter are intended to maintain the overall density of vegetation in the city, provide buffers between differing land uses, and to minimize environmental impacts and improve aesthetic impacts of development. Regulations for landscaping are to "mitigate impacts of development such as soil erosion and light/glare, promote natural systems, improve air quality, provide habitat, reduce noise, and reduce the impacts on storm drainage system and provide a buffer between land uses" (SMC 18.41.010). When possible, natural plants will be utilized to complement the nature of the Pacific Northwest which are drought tolerant and are adaptable to the climatic, topographic and hydrologic characteristics of the site (SMC 18.41.070). Sites adjoining critical areas should use landscaping practices that enhance that sensitive area.

State and Federal Regulations

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

Endangered Species Act: The federal ESA addresses the protection and recovery of federally listed species. The ESA is jointly administered by the National Oceanic and Atmospheric Administration (NOAA) Fisheries (formerly referred to as the National Marine Fisheries Service), and the United States Fish and Wildlife Service (USFWS).

Clean Water Act (CWA): The federal CWA requires states to set standards for the protection of water quality for various parameters, and it regulates excavation and dredging in waters of the U.S., including wetlands. Certain activities affecting wetlands in the City's shoreline jurisdiction or work in the adjacent rivers may require a permit from the U.S. Army Corps of Engineers and/or Washington State Department of Ecology under Section 404 and Section 401 of the CWA, respectively.

Federal Emergency Management Agency (FEMA) National Flood Insurance Program: Communities that participate in the National Flood Insurance Program receive federally backed flood insurance. In order to participate, the community must adopt and enforce floodplain management ordinances, which reduce future flood damage. The National Flood Insurance Program is also responsible for mapping the country's flood hazard areas.

National Pollutant Discharge Elimination System (NPDES): Ecology regulates activities that result in wastewater discharges to surface water from industrial facilities or municipal wastewater treatment plants. NPDES permits are also required for stormwater discharges from industrial facilities, construction sites of one or more acres, and municipal stormwater systems that serve census-defined Urbanized Areas, which include any urbanized areas with more than 50,000 people and densities greater than 1,000 people per square mile.

Hydraulic Project Approval (HPA): The Washington Department of Fish and Wildlife (WDFW) regulates activities that use, divert, obstruct, or change the natural flow of the beds or banks of waters of the state and which may affect fish habitat. Projects in the shoreline jurisdiction requiring construction below the ordinary high water mark of rivers or lakes could require an HPA from WDFW. Projects creating new impervious surface that could substantially increase stormwater runoff to waters of the state may also require approval.

Preliminary Conclusion

The cumulative actions taken over time in accordance with the City of Sumner's proposed SMP are not likely to result in a net loss of shoreline ecological functions from existing baseline conditions. This conclusion is based on an assessment of the three factors identified in the Ecology guidelines for evaluating cumulative impacts:

- Current circumstances affecting the shorelines and relevant natural processes;
- Reasonably foreseeable future development and use of the shoreline; and
- Beneficial effects of any established regulatory programs under other local, state, and federal laws.

In concert with implementation of restoration actions in the city, the regulatory provisions of the Draft SMP (March 2011) would serve to maintain or improve the overall condition of shoreline resources. The proposed SMP provides a new system of shoreline environment designations that establishes more uniform management of the City's shoreline. The updated development standards and regulation of shoreline modifications provides more protection for shoreline processes. The updated standards and regulations are more restrictive of activities that

would result in adverse impacts to the shoreline environment. The restoration planning effort, when developed, would provide the City with opportunities to improve or restore ecological functions that have been impaired as a result of past development activities. In addition, the proposed SMP is meant to compliment several city, county, state and federal efforts to protect shoreline functions and values.

Changes in subsequent drafts of the SMP will be considered in future revisions of the cumulative impact analysis.

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**City of Sumner, Shoreline Master Program Update
May 2, 2011 Cumulative Impacts Analysis**

**Appendix A
Assessment of Shoreline Functions Along Sumner Shorelines**

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Current and Future Performance of Shoreline Ecological Functions

The following table describes the existing performance of shoreline ecological functions along Sumner shorelines as described in the Shoreline Inventory and Characterization Report (ESA Adolfson, 2010). Regulations from the Draft SMP (March 2011) that protect ecological functions are identified. The future performance is then assessed based on the type and amount of expected development in the shoreline and the level of protection the proposed SMP regulations provide. Future performance is ranked “degradation,” “no change,” and “potential improvement” depending on the expected changes from existing conditions over the next twenty years.

| | Ecological Processes/Functions WAC 173-26-201(3)(d)(i)(C) | Current Performance Shoreline Inventory and Characterization Report - ESA Adolfson, 2010 | Likely Development | SMP Provisions Protection or Restoration Protection = Proposed SMP regulations (with reference to SMP section number) Restoration = Draft Restoration Plan Policy | Future Performance |
|-----------------------|---|--|---|--|---|
| Puyallup River | | | | | |
| Shoreline Residential | <p>Hydrology Flow regime, sediment transport, and floodplain interaction</p> | <p>The river channel through this designation is characterized by a series of confined and reinforced revetments that have acted to restrict the river to a straight, northwest trending channel. A large reduction in size and distribution of gravel bars due to increased gradient and sediment transport capabilities has resulted from confinement, channel incision, and possible loss of bedload materials from upstream gravel operations. With the conclusion of upstream gravel mining, the river is subject to increased sediment loads. The full effect of increased sediment loads on channel dynamics is not known.</p> <p>Notable shoreline modifications through this reach include: reinforced revetments; dikes; high-density residential development; and upstream gravel mining.</p> | <p>Vacant parcels: 2 acres (8%)</p> <p>Underdeveloped parcels: 11 acres (54%)</p> | <p>Protection</p> <p>Boat Launch Ramps</p> <ul style="list-style-type: none"> Boat launch ramps are permitted as a CUP (Chapter 4, Table 4-X). Boat launch ramps must be placed near flush with the foreshore slope to minimize the interruption of geohydraulic processes (Chapter 7, Section III, Boat Launch Ramps Regulation #6). <p>Dredging and Dredge Material Disposal</p> <ul style="list-style-type: none"> Dredging is permitted as a CUP. Dredge material disposal is permitted (Chapter 4, Table 4-X). Dredging and dredge material disposal is permitted only when it will not adversely alter natural drainage and circulation patterns, currents, and river flows, or significantly reduce floodwater capacities (Chapter 7, Section VI, Regulation #2). Dredging waterward of the OHWM is allowed only in support of the following: establishing navigation channels; maintenance dredging; water-dependent use; environmental clean-up activities; habitat improvement project; to improve flood control, water flow or water quality; or in conjunction with a bridge, utility, navigational structure or instream structure (Chapter 7, Section VI, Regulation #5). If dredged material is disposed within a river’s channel migration zone, a CUP is required (Chapter 7, Section VI, Regulation #11). <p>Flood Control Works/Flood Hazard Reduction</p> <ul style="list-style-type: none"> Dikes and levees are permitted as a CUP (Chapter 4, Table 4-X). New structural flood hazard reduction measures is allowed only when it is necessary to protect existing development and that non-structural measures are not feasible (Chapter 7, Section VIII, Regulation #1). Rehabilitation or replacement of existing flood control structures is allowed when the existing structure does not provide an appropriate level of protection for surrounding lands or does not meet engineering design standards for stability (Chapter 6, Section VIII, Regulation #12). Expansion of existing flood control structures is allowed only when existing structures do not provide an appropriate level of protection, do not meet engineering design standards for stability or if a new flood control structure is identified by a flood protection plan (Chapter 7, Section VIII, Regulation #2) New dikes and levees must be placed landward of associated wetlands and the floodway (Chapter 7, Section VIII, Regulations #4 and 7). The City will require engineered design of flood protection works where such projects may cause interference with normal river geohydraulic processes. Non-structural measures are preferred over structural (Chapter 6, Section VIII, Regulation #7). Removal of gravel for flood management purposes is permitted if consistent with an adopted flood hazard reduction plan and after a biological and geomorphological study shows that extraction has a long-term benefit to flood hazard reduction, does not result in a net loss and is part of a comprehensive flood management solution (Chapter 6, Section VIII, Regulation #19). | <p>No Change Since hydrological functions and processes are impaired by existing revetments, changes to hydrology are unlikely. Some soft-shore stabilization may replace existing structural stabilization.</p> |

| | Ecological Processes/Functions WAC 173-26-201(3)(d)(i)(C) | Current Performance Shoreline Inventory and Characterization Report - ESA Adolfson, 2010 | Likely Development | SMP Provisions Protection or Restoration Protection = Proposed SMP regulations (with reference to SMP section number) Restoration = Draft Restoration Plan Policy | Future Performance |
|-----------------------|--|---|--------------------|--|--------------------|
| Shoreline Residential | | | | <p>Instream Structures</p> <ul style="list-style-type: none"> • Instream structures are permitted as a CUP (Chapter 4, Table 4-X). • Instream structures that divert water must return flow to the stream in as short distance as possible (Chapter 7, Section X, Regulation #3) . • All instream structures must be designed to permit the natural transport of bedload materials (Chapter 7, Section X, Regulation #3). <p>Fill</p> <ul style="list-style-type: none"> • Fill is permitted as a CUP within the floodway only in association with an allowed use. Fill is permitted outside the floodway only in association with an allowed use (Chapter 4, Table 4-X). • Fill waterward of the floodway is permitted for: water-dependent uses, in conjunction with a bridge, utility or navigational structure, as part of an ecological restoration/enhancement project, dredge project in accordance with the Dredged Material Management Program, for public access, and for cleanup and disposal of contaminated sediments (Chapter 7, Section XI, Regulation #2). • Pier or pile supports are preferred over fills (Chapter 7, Section XI, Regulation #3). • Fills must not be located where shoreline stabilization would be necessary (Chapter 7, Section XI, Regulation #4). • Fill is permitted only where it is demonstrated that the action will not adversely alter natural drainage and current patterns or significantly reduce floodwater capacities (Chapter 7, Section XI, Regulation #6). • Fills not overlain with impervious surface must be composed of material that allows surface water penetration into aquifers (Chapter 7, Section XI, Regulation #10). <p>Mining</p> <ul style="list-style-type: none"> • Mining is permitted as a CUP (Chapter 4, Table 4-X). • Mining waterward of the floodway is prohibited, except for scalping of river bars, which may be permitted if the removal of sand and gravel will not adversely affect the natural processes of gravel transportation for the river system as a whole (Chapter 7, Section XII, Regulation #1). <p>Shoreline Stabilization</p> <ul style="list-style-type: none"> • Hard armoring and soft armoring are permitted (Chapter 4, Table 4-X). • New bulkheads and revetments are not allowed unless existing primary structures are in danger of shoreline erosion, new water-oriented development cannot be developed without shore protection or remediation of hazardous substances requires hard armoring (Chapter 7, Section XVII, General Regulations, #5). • Replacement of an existing structure is permitted only if it serves to protect an existing primary structure from erosion caused by currents or waves(Chapter 7, Section XVII, General Regulations, #6). • New bulkheads and expansion of existing bulkheads must incorporate Green Shoreline approaches consistent with USACE and NMFS standards (Chapter 7, Section XVII, General Regulations, #11). • Shoreline stabilization must to the extent possible, be planned, designed and constructed to allow for channel migration. These developments must not reduce the volume and storage capacity of rivers and adjacent wetlands or floodplains (Chapter 7, Section XVII, General Regulations, #15). <p>Restoration PLACEHOLDER</p> | |

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|-----------------------|---|--|--------------------|--|---|
| Shoreline Residential | <p>Water Quality Retention of particulates, nutrient cycling, pathogens, delivery movement, and loss</p> | No portion of the Puyallup River within this designation is listed under the Clean Water Act 303(d) list of polluted waters. | | <p>Protection SED Specific Standard:</p> <ul style="list-style-type: none"> Maximum impervious lot coverage is 40% (Chapter 4, Table 4-6). <p>Water quality</p> <ul style="list-style-type: none"> Hazardous and/or toxic materials shall be prohibited within shoreline jurisdiction (Chapter 6, Section IV, Regulation #5). The release of oil, chemical, or hazardous materials onto or into the water is prohibited. Equipment for the transportation, storage, handling or application of such materials shall be maintained in a safe and leak-proof condition (Chapter 6, Section IV, Regulation #6). The use of herbicides and pesticides is prohibited to remove noxious and invasive plants in the riparian management zone of rivers and wetland areas, except where no reasonable alternative exists. A CUP is required in such cases (Chapter 6, Section IV, Regulation #7). For lawns and other vegetation maintained within shoreline jurisdiction, alternatives to the use of chemical fertilizers, herbicide or pesticide is the preferred BMP (Chapter 6, Section IV, Regulation #8). Stormwater facilities must be located outside the shoreline jurisdiction whenever feasible. Treatment facilities are not allowed within riparian management zones except when it would be a benefit to shoreline functions (Chapter 6, Section IV, Regulation #9). <p>Clearing and Grading</p> <ul style="list-style-type: none"> Clearing and grading is a permitted use only in association with an allowed use (Chapter 4, Table 4-X). An erosion and sedimentation control program is required when vegetation is removed or earth materials are being stockpiled (Chapter 7, Section IV, Regulation #10). All debris, overburden and other waste materials must be disposed in a manner that prevents their entry into a waterbody by erosion (Chapter 7, Section IV, Regulation #12). <p>Dredging and Dredge Material Disposal</p> <ul style="list-style-type: none"> Projects shall include mitigating measures to minimize impacts such as turbidity, release of nutrients, heavy metals, sulfides, organic materials or toxic substances, and depletion of oxygen (Chapter 7, Section VI, Regulation #3). <p>Fill</p> <ul style="list-style-type: none"> Fills must prevent, minimize, and control all material movement, erosion and sedimentation from the affected area (Chapter 7, Section XI, Regulation #8). Fill materials must be clean sand, gravel, soil, rock or similar material. Use of polluted dredge spoils and sanitary fill is prohibited (Chapter 7, Section XI, Regulation #9). <p>Parking</p> <ul style="list-style-type: none"> Parking as an accessory to an allowed use is permitted (Chapter 4, Table 4-x). All landscaping shall be designed to provide biofiltration functions for runoff from the parking area (Chapter 7, Section XIII, Regulation #6). Alternatives to conventional stormwater treatment must be considered to minimize impacts due to runoff (Chapter 7, Section XIII, Regulation #7). <p>Restoration PLACEHOLDER</p> | <p>No Change Water quality will likely not be degraded by new development since applicants would be required to meet stormwater management standards and develop an erosion and sedimentation control program.</p> |

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| Shoreline Residential | <p>LWD, Organics and Habitat Maintain characteristic plant community and source of large woody debris (LWD)</p> | <p>Riparian vegetation is limited due to the conversion of riparian habitat to residential lands. Riparian vegetation is limited to 50% of the shoreline, with a very narrow strip of vegetation paralleling the existing residential development. An approximately 100-foot segment of early successional/mixed age cottonwood is located between SR 410 and the River.</p> <p>No documented wetland habitat is present. Small tributaries enter the river.</p> <p>Priority habitat within the reach has been identified for passage by fall chinook, pink, coho, and chum salmon, as well as winter steelhead and Dolly Varden/bull trout. Fall Chinook and coho salmon use the area for rearing and pink salmon use for spawning. Cutthroat trout are resident.</p> | | <p>Protection SED specific standard</p> <ul style="list-style-type: none"> A 100-foot minimum riparian management zone for non-water-dependent development, public access and water-related recreational development (Chapter 4, Table 4-6). <p>Vegetation Conservation</p> <ul style="list-style-type: none"> Should a development create unavoidable impacts adverse to native shoreline vegetation, mitigation shall be required. Mitigation must ensure that there will be no net loss in the amount of vegetated area or the ecological functions performed by the disturbed vegetation (Chapter 6, Section III, General Regulation #3). The riparian management zone shall be established by a permanent protective easement or other similar protective mechanism (Chapter 6, Section III, Riparian Management Zone regulation #1). In all cases where clearing is allowed, it shall be followed by revegetation; native plants are preferred (Chapter 6, Section III, Riparian Management Zone regulation #5). <p>Environmental Impact Mitigation</p> <ul style="list-style-type: none"> Projects must be designed to avoid the removal of trees in shorelines wherever practicable and to minimize the removal of other woody vegetation. Where riparian vegetation is removed, measures to mitigate the loss of vegetation must be implemented to assure no net loss (Chapter 6, Section V, Regulation #5). When mitigation is required for loss to ecological function and processes, a habitat management plan is required along with annual monitoring reports for at least 10 years (Chapter 6, Section V, Regulation #8 and 9). <p>Critical Areas Protection</p> <ul style="list-style-type: none"> Impacts to critical areas must be mitigated (Chapter 6, Section 6.1). <p>Boat Launch Ramps</p> <ul style="list-style-type: none"> Boat launch ramps must minimize impediments to migrating fish and will not locate on sites important to salmonids, including spawning, feeding or rearing areas (Chapter 7, Section III, Boat Launch Ramps Regulation #7). <p>Dredging and Dredge Material Disposal</p> <ul style="list-style-type: none"> Projects shall include mitigating measures to minimize impacts such as disruption of food chains, loss of benthic productivity and disturbance of fish runs and important localized biological communities (Chapter 7, Section VI, Regulation #3). <p>Flood Control Works</p> <ul style="list-style-type: none"> New dikes and levees shall be shaped and planted with vegetation suitable for wildlife habitat (Chapter 7, Section VIII, Regulation #3). New structural flood hazard reduction measures must be placed landward of designated riparian management zones (Chapter 7, Section VIII, Regulation #4). <p>Shoreline Stabilization</p> <ul style="list-style-type: none"> Upon project completion, all disturbed shoreline areas must be restored to as near pre-project configuration as possible and replanted with vegetation. All losses in riparian vegetation or wildlife habitat shall be mitigated at a ratio of 1:2 (habitat lost to habitat replaced) (Section XVII, General Regulations, #14). <p>Restoration PLACEHOLDER</p> | <p>No Change Establishing a 100-foot riparian management zone for non-water-dependent uses will result in protection of existing functions.</p> |

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| Urban Conservancy | <p>Hydrology Flow regime, sediment transport, and floodplain interaction</p> | <p>The flow regime and sediment transport capabilities have been heavily influenced by an array of anthropogenic activities. Just outside city limits, and much of the Puyallup River, the channel has been confined by several shoreline modifications including: rock groins; levees and reinforced revetments; rip-rap bank armoring; agricultural development; rural development; and in-channel gravel mining. These modifications have acted to confine and straighten the river profile.</p> <p>There are several shoreline modifications at the confluence of the White and Puyallup Rivers including: reinforced revetments; upstream gravel mining; dredging; and placement of concrete slabs and rip-rap revetments. These modifications have acted to confine and entrench the river profile, interrupting hydrology and sediment transportation regimes through the segment.</p> <p>A large reduction in size and distribution of gravel bars due to increased gradient and sediment transport capabilities has resulted from confinement, channel incision, and possible loss of bedload materials from upstream gravel operations. With the conclusion of upstream gravel mining, the river is subject to increased sediment loads. The full effect of increased sediment loads on channel dynamics is not known.</p> | <p>Vacant parcels: 19 acres (40%)</p> <p>8 acres of vacant land is classified as in agricultural use.</p> <p>Underdeveloped parcels: 5 acres (11%)</p> <p>Most of the underdeveloped parcels relate to the City's wastewater treatment plant</p> | <p>Protection Boat launch ramp standards are the same as for the Shoreline Residential designation. Dredging and dredge material disposal standards are the same as for the Shoreline Residential designation except that dredge material disposal requires a CUP. Flood control work standards are the same as for the Shoreline Residential designation. Industrial Development</p> <ul style="list-style-type: none"> Water-dependent industrial development is a permitted use. Water-oriented and non-water-oriented is permitted as a CUP (Chapter 4, Table 4-X). Storage and/or disposal of industrial wastes is prohibited within shoreline jurisdiction, provided that public wastewater treatment system may be allowed if alternate inland areas are unavailable (Chapter 7, Section IX, Regulation #10). Unpaved storage areas underlain by permeable soils shall have at least 4-foot separation between the ground surface and the highest seasonal water table(Chapter 7, Section IX, Regulation #14). Berms, dikes, grassy swales, vegetated buffers, retention ponds, or other means must be used to ensure that surface runoff is collected and discharged from the storage area at one point. It must be demonstrated that water quality standards are met (Chapter 7, Section IX, Regulation #15). <p>Instream structure standards are the same as for the Shoreline Residential designation. Fill standards are the same as for the Shoreline Residential designation. Shoreline stabilization standards are the same as for the Shoreline Residential designation except that hard armoring is permitted as a CUP.</p> <p>Restoration PLACEHOLDER</p> | <p>No Change Since hydrological functions and processes are impaired by existing revetments, changes to hydrology are unlikely. Some soft-shore stabilization may replace existing structural stabilization.</p> |
| | <p>Water Quality Retention of particulates, nutrient cycling, pathogens, delivery movement, and loss</p> | <p>No portion of the Puyallup River within the designation is listed under the Clean Water Act 303(d) list of polluted waters.</p> | | <p>Protection SED Specific Standard:</p> <ul style="list-style-type: none"> Maximum impervious lot coverage is 40 % (Chapter 4, Table 4-6). <p>Water quality standards are the same as for the Shoreline Residential designation. Clearing and grading standards are the same as for the Shoreline Residential designation. Dredging and dredge material disposal standards are the same as for the Shoreline Residential designation. Fill standards are the same as for the Shoreline Residential designation. Park standards are the same as for the Shoreline Residential designation.</p> <p>Restoration PLACEHOLDER</p> | <p>No Change Water quality will likely not be degraded by new development since applicants would be required to meet stormwater management standards and develop an erosion and sedimentation control program.</p> |

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|--------------------|--|---|--|---|--|
| Urban Conservancy | LWD, Organics and Habitat Maintain characteristic plant community and source of large woody debris (LWD) | <p>Portions of the riparian corridor consist of a 25 to 100 foot wide early successional/mixed age stands of vegetation, generally dominated by cottonwood, with an understory of non-native blackberry. Pacific willow is common along banks in many areas. Tracks of forested land and agricultural land use were also noted through the reach segments.</p> <p>Limited wetland habitat (less than 1 acre) was identified along the river. The city's wastewater treatment plant outfall is located approximately 400 feet upstream of the confluence of the White and Puyallup Rivers. A small tributary enters the river via a culvert.</p> <p>Priority habitat within the reach has been identified for passage by fall chinook, pink, coho, and chum salmon, as well as winter steelhead and Dolly Varden/bull trout. Fall Chinook and coho salmon use the area for rearing and pink salmon use for spawning. Cutthroat trout are resident.</p> | | <p>Protection SED specific standard</p> <ul style="list-style-type: none"> A 100/200 foot minimum riparian management zone for non-water-dependent development, public access and water-related recreational development (Chapter 4, Table 4-6). <p>General standards</p> <ul style="list-style-type: none"> Vegetation Conservation is the same as for the Shoreline Residential designation. Environmental Impact Mitigation is the same as for the Shoreline Residential designation. Critical Areas Protection is the same as for the Shoreline Residential designation. Boat launch ramp standards are the same as for the Shoreline Residential designation. Dredging and dredge material disposal standards are the same as for the Shoreline Residential designation. Flood control work standards are the same as for the Shoreline Residential designation. Shoreline stabilization standards are the same as for the Shoreline Residential designation. <p>Restoration PLACEHOLDER</p> | No Change Establishing a 100/200-foot riparian management zone for non-water-dependent uses will result in protection of existing vegetation. |
| White River | | | | | |
| Urban | Hydrology Flow regime, sediment transport, and floodplain interaction | <p>The White River was completely confined in a dredge channel by 1931, and by 1965 the segment was confined by reinforced revetments and levees that restrict the river. As a result of human modifications (i.e. channelization and dredging) the reach is deeply entrenched.</p> <p>Shoreline modifications include: dredging of the channel and adding revetments along the entire segment; commercial and industrial development; and installing concrete slabs and riprap revetments.</p> | <p>Vacant parcels: 3 acres (13%)</p> <p>Underdeveloped parcels: 15 acres (60%)</p> <p>Both vacant and underdeveloped parcels are associated with commercial uses or commercial vacant lands.</p> | <p>Protection Boat launch ramp standards are the same as for the Shoreline Residential designation. Instream structure standards are the same as for the Shoreline Residential designation. Dredging and dredge material disposal standards are the same as for the Shoreline Residential designation. Flood control work standards are the same as for the Shoreline Residential designation. Fill standards are the same as for the Shoreline Residential designation. Mining standards are the same as for the Shoreline Residential designation. Shoreline stabilization standards are the same as for the Shoreline Residential designation.</p> <p>Restoration PLACEHOLDER</p> | No Change Since hydrological functions and processes are impaired by existing revetments and levees, changes to hydrology are unlikely. Some soft-shore stabilization may replace existing structural stabilization. |

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| | <p>Water Quality Retention of particulates, nutrient cycling, pathogens, delivery movement, and loss</p> | <p>Seven-day mean maximum temperatures of over 66 degrees F have been recorded along this portion of the river.</p> <p>This portion of the river is on the 303(d) list for high fecal coliform concentrations.</p> | | <p>Protection SED Specific Standard: maximum impervious lot coverage is 80% (Chapter 4, Table 4-6). Water quality standards are the same as for the Shoreline Residential designation. Clearing and grading standards are the same as for the Shoreline Residential designation. Dredging and dredge material disposal standards are the same as for the Shoreline Residential designation. Industrial development standards are the same as for the Urban Conservancy designation except that water-oriented and non-water-oriented are permitted uses. Fill standards are the same as for the Shoreline Residential designation. Park standards are the same as for the Shoreline Residential designation.</p> <p>Restoration PLACEHOLDER</p> | <p>No Change The establishment of a 50-foot riparian management zone protection of existing native vegetation on the river banks. Applicants for new development would be required to meet stormwater management standards and develop an erosion and sedimentation control program.</p> |
| Urban | <p>LWD, Organics and Habitat Maintain characteristic plant community and source of large woody debris (LWD)</p> | <p>Vegetation ranges considerably from large stands of riparian vegetation, to complete bank clearing.</p> <p>In most areas the riparian corridor consists of a 25-100 foot wide early successional/mixed age stands dominated by cottonwood. Some areas are characterized by narrow strips of riparian vegetation, approximately 10 to 40 feet wide and consisting of big leaf maple, cottonwood, and alder with an understory of snowberry. At certain points, land has been cleared to the top of the riverbank leaving only a limited riparian fringe between the top of the bank and the ordinary high water mark. In other areas, the riparian zone is completely cleared to the river's edge. The riparian fringe consists of willow, snowberry, and non-native blackberry.</p> <p>There is limited wetland habitat along the river (least than 1 acre).</p> <p>River is used for passage by fall and spring chinook, pink, coho, sockeye, and chum salmon, as well as winter steelhead and Dolly Varden/bull trout. Spring Chinook and coho and pink salmon use the area for rearing. Cutthroat trout are resident.</p> | | <p>Protection SED specific standards</p> <ul style="list-style-type: none"> Development requiring a Shoreline Substantial Development Permit, Conditional Use Permit, Variance or SEPA review must meet requirements under Chapter 6, Section V. Developments exempt from such permits or review must provide for mitigation in a combination of the following ways: increased riparian management zone on undeveloped areas of the property, increased building setbacks, protection, restoration or enhancement of vegetation, reduced project scope, limitations on construction hours or hours of operations, and relocation of access. A 50-foot minimum riparian management zone for non-water-dependent development, public access and water-related recreational development (Chapter 4, Table 4-6). <p>Vegetation Conservation is the same as for the Shoreline Residential designation. Environmental Impact Mitigation is the same as for the Shoreline Residential designation. Critical Areas Protection is the same as for the Shoreline Residential designation. Boat launch ramp standards are the same as for the Shoreline Residential designation. Dredging and dredge material disposal standards are the same as for the Shoreline Residential designation. Flood control work standards are the same as for the Shoreline Residential designation. Shoreline stabilization standards are the same as for the Shoreline Residential designation.</p> <p>Restoration PLACEHOLDER</p> | <p>No Change, Potential Improvement Establishing a 50-foot riparian management zone for non-water-dependent uses will result in protection of existing vegetation.</p> |

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| Urban Conservancy | <p>Hydrology Flow regime, sediment transport, and floodplain interaction</p> | <p>The flow regime and sediment transport capabilities have been heavily influenced by an array of anthropogenic activities. Shoreline modifications including dredging of the channel and placements of revetments along the banks, installation of concrete slabs and riprap revetments, the construction of earthen levees and dikes, encroachment of vegetation and to a lesser extent commercial, industrial, and agricultural development have caused the river to become deeply entrenched and channelized. These modifications have directly and indirectly influenced the hydrology and sediment transport regimes through the reach.</p> | <p>Vacant parcels: 191 acres (49%)</p> <p>26 acres of vacant parcels are in agricultural use. The remaining parcels are classified as commercial vacant land.</p> <p>Underdeveloped parcels: 164 acres (42%)</p> <p>75 acres of underdeveloped parcels are associated with the Sumner Meadows Golf Course, greenbelt common areas, utilities and open space.</p> | <p>Protection See Urban Conservancy under Puyallup River.</p> <p>Restoration PLACEHOLDER</p> | <p>No Change Since hydrological functions and processes are impaired by existing revetments, changes to hydrology are unlikely. Some soft-shore stabilization may replace existing structural stabilization.</p> |
| | <p>Water Quality Retention of particulates, nutrient cycling, pathogens, delivery movement, and loss</p> | <p>Seven-day mean maximum temperatures of over 66 degrees F have been recorded along this portion of the river.</p> <p>This portion of the river is on the 303(d) list for high fecal coliform concentrations.</p> | <p>Most of the remaining underdeveloped parcels are classified as contractor services, general warehousing storage, single-family dwelling and industrial land with improvement land value only.</p> | <p>Protection See Urban Conservancy under Puyallup River.</p> <p>Restoration PLACEHOLDER</p> | <p>No Change The establishment of a 50-foot riparian management zone may result in protection of existing native vegetation on the river banks. Applicants for new development would be required to meet stormwater management standards and develop an erosion and sedimentation control program.</p> |

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| Urban Conservancy | <p>LWD, Organics and Habitat Maintain characteristic plant community and source of large woody debris (LWD)</p> | <p>Riparian vegetation throughout the river corridor consists of a 25- to 100-foot wide early successional/mixed age stand dominated by cottonwood, with an understory of willow, snowberry, and non-native blackberry. In some areas, portions of the riparian corridor has been cleared to the top leaving only a limited fringe between the top of the bank and the ordinary high water mark. The bank is armored in areas and lacks vegetative cover.</p> <p>Salmon creek and the associated riparian wetlands provide a significant habitat corridor for fish and wildlife, providing water, food and cover. Mid-channel islands populated with cottonwood and willows in an early successional stage were identified in portions of the river associated with an accumulation of woody debris, offering good edge habitat.</p> <p>Approximately 9 acres of wetland habitat was identified within this designation. Additionally, Wapato Creek, Sotain Creek, 8th Street Creek, and Salmon Creek enter the White River.</p> <p>Priority habitat within the river is utilized for passage by fall chinook, pink, coho, and chum salmon, as well as winter steelhead and Dolly Varden/bull trout. Fall Chinook and coho salmon use the area for rearing and pink salmon use for spawning. Cutthroat trout are resident.</p> | | <p>Protection See Urban Conservancy under Puyallup River.</p> <p>Restoration PLACEHOLDER</p> | <p>No Change Establishing a 100-foot riparian management zone for non-water-dependent uses will result in protection of existing vegetation.</p> |

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|---------|--|--|---|---|---|
| Natural | Hydrology Flow regime, sediment transport, and floodplain interaction | Shoreline modifications including the deposition of sediment, encroachment of vegetation, dredging of channel, construction of earthen levees, agricultural and industrial development, and installation of concrete slabs, riprap revetments, and dikes have altered the flow regime and sediment transportation capabilities of the channel through this segment. Sedimentation and vegetation encroachment in particular have decreased the channel surface area by 15% since 1985. | Vacant parcels: 15 acres (70%) Underdeveloped parcels: 6 acres (30%) Most of the area designated natural is mapped as high quality wetland habitat. Therefore, development in this designation is anticipated to be substantially restricted by the requirements in the critical areas code. | Protection Dredging and dredge material disposal standards are the same as for the Shoreline Residential designation except that dredge material disposal requires a CUP and is only allowed as part of a restoration project. Instream structure standards are the same as for the Shoreline Residential designation. Fill standards are the same as for the Shoreline Residential designation except that it must be associated with a restoration project. Flood control work standards are the same as for the Shoreline Residential designation. Shoreline stabilization standards are the same as for the Shoreline Residential designation except that hard armoring is permitted as a CUP. Restoration PLACEHOLDER | No Change Wetland habitat will be protected from development through the critical area requirements in the Draft SMP. |
| | Water Quality Retention of particulates, nutrient cycling, pathogens, delivery movement, and loss | No portion of the White River within this designation is listed under the Clean Water Act 303(d) list of polluted waters. | | Protection SED Specific Standard: maximum impervious lot coverage is 20% (Chapter 4, Table 4-6). Water quality standards are the same as for the Shoreline Residential designation. Clearing and grading standards are the same as for the Shoreline Residential designation except that it is only allowed in association with a restoration project. Dredging and dredge material disposal standards are the same as for the Shoreline Residential designation. Fill standards are the same as for the Shoreline Residential designation. Restoration PLACEHOLDER | No Change Water quality will likely not be degraded by new development since applicants would be required to meet stormwater management standards and develop an erosion and sedimentation control program. |
| | LWD, Organics and Habitat Maintain characteristic plant community and source of large woody debris (LWD) | Vegetation within the riparian corridor of this segment consists of a 25- to 100-foot wide early successional/mixed age stand dominated by cottonwood. There are approximately 20 acres of high quality wetland habitat. No priority species presence is mapped within the segment reach. | | Protection SED specific standard <ul style="list-style-type: none"> A 200-foot minimum riparian management zone for non-water-dependent development, public access and water-related recreational development (Chapter 4, Table 4-6). Vegetation Conservation is the same as for the Shoreline Residential designation. Environmental Impact Mitigation is the same as for the Shoreline Residential designation. Critical Areas Protection is the same as for the Shoreline Residential designation. Dredging and dredge material disposal standards are the same as for the Shoreline Residential designation. Flood control work standards are the same as for the Shoreline Residential designation. Shoreline stabilization standards are the same as for the Shoreline Residential designation. Restoration PLACEHOLDER | No Change, or Potential Improvement Establishing a 200-foot riparian management zone for non-water-dependent uses will result in the protection of existing vegetation and habitat resulting in no change to LWD recruitment. |

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| Lake Tapps | | | | | |
| Tapps Reservoir | <p>Hydrology Flow regime, sediment transport, and floodplain interaction</p> | <p>The Lake Tapps Reservoir is a human made lake that was created in the early 1900s by diverting water from the White River through the Dieringer Flume to four natural lakes connected together by a series of earthen dikes. Prior to 2004, the reservoir levels were controlled by hydropower operations.</p> <p>Hydroelectric operations are the only shoreline modifications.</p> | <p>Vacant parcels: 57 acres (100%).</p> <p>Vacant parcels within the Tapps Reservoir designation are owned by Puget Sound Energy and Cascade Water Alliance. There are about 37 acres of mapped wetland habitat. Cascade Water Alliance has plans for managing Lake Tapps as a municipal water supply which could involve water-dependent utility work in this area. However, development is not expected to be extensive and would be restricted by the presence of wetland habitat.</p> | <p>Protection Boat launch ramp standards are the same as for the Shoreline Residential designation except that they are permitted as a CUP for public use only.</p> <p>Dredging and dredge material disposal standards are the same as for the Shoreline Residential designation except that dredge material disposal requires a CUP.</p> <p>Instream structure standards are the same as for the Shoreline Residential designation.</p> <p>Fill standards are the same as for the Shoreline Residential designation.</p> <p>Flood control work standards are the same as for the Shoreline Residential designation.</p> <p>Shoreline stabilization standards are the same as for the Shoreline Residential designation except that hard armoring is permitted as a CUP.</p> <p>Restoration PLACEHOLDER</p> | <p>No Change, Potential Improvement Since 2004, when hydropower operations ceased, there have been higher flows in the White River between the diversion dam located near Buckley and lower flows in the Dieringer Canal. Lower flows in the canal may be low enough to deter salmonid species from entering the canal. If this occurs, the upstream migration of salmonids will no longer be delayed by fish moving off-course into the canal.</p> <p>Utility-related development in Tapps Reservoir is not expected to impact hydrology.</p> |
| | <p>Water Quality Retention of particulates, nutrient cycling, pathogens, delivery movement, and loss</p> | <p>No portions of the Lake Tapps Reservoir within the study vicinity are listed under the Clean Water Act 303(d) list of polluted waters.</p> | | <p>Protection SED Specific Standard: maximum impervious lot coverage is 20% (Chapter 4, Table 4-6).</p> <p>Water quality standards are the same as for the Shoreline Residential designation.</p> <p>Clearing and grading standards are the same as for the Shoreline Residential designation.</p> <p>Dredging and dredge material disposal standards are the same as for the Shoreline Residential designation.</p> <p>Fill standards are the same as for the Shoreline Residential designation.</p> <p>Park standards are the same as for the Shoreline Residential designation.</p> <p>Restoration PLACEHOLDER</p> | <p>No Change Development is expected to be minimal and related to utility work; therefore, water quality impacts are not anticipated.</p> |
| | <p>LWD, Organics and Habitat Maintain characteristic plant community and source of large woody debris (LWD)</p> | <p>The shoreline of Lake Tapps exhibits minimal disturbance and consists primarily of mature, mixed forest and scrub-shrub wetland.</p> <p>Thirty-seven acres of wetland habitat is located within the shoreline, which accounts for approximately 63% of the total shoreline area.</p> <p>No priority species are mapped.</p> | | <p>Protection SED specific standard</p> <ul style="list-style-type: none"> A 100-foot minimum riparian management zone for non-water-dependent development, public access and water-related recreational development (Chapter 4, Table 4-6). <p>Vegetation Conservation is the same as for the Shoreline Residential designation.</p> <p>Environmental Impact Mitigation is the same as for the Shoreline Residential designation.</p> <p>Critical Areas Protection is the same as for the Shoreline Residential designation.</p> <p>Boat launch ramp standards are the same as for the Shoreline Residential designation.</p> <p>Dredging and dredge material disposal standards are the same as for the Shoreline Residential designation.</p> <p>Flood control work standards are the same as for the Shoreline Residential designation.</p> <p>Shoreline stabilization standards are the same as for the Shoreline Residential designation.</p> <p>Restoration PLACEHOLDER</p> | <p>No Change Vegetation removal is expected to be limited and would have to be mitigated to ensure no net loss of vegetation.</p> |