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CITY OF BUCKLEY
GRANT NO. G1000038

APPENDIX C
SHORELINE RESTORATION PLAN
For Shorelines in the City of Buckley: White River

Prepared for:

City of Buckley
Building and Planning Division
P.O. Box 1960
Buckley, WA 98321

Prepared by:

THE WATERSHED COMPANY

750 Sixth Street South, Kirkland WA 98033

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The Watershed Company Contact Person:
Dan Nickel

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CITY OF BUCKLEY

C1.0 INTRODUCTION

The City of Buckley's Shoreline Master Program applies to activities in the shoreline jurisdiction zone. Compensatory mitigation is required for activities that have adverse affects on the ecological functions and values of the shoreline. By law, the proponent of any such activity is required to return the subject shoreline to a condition equivalent to the baseline level at the time the activity takes place. It is understood that some uses and developments cannot always be mitigated fully, resulting in incremental and unavoidable degradation of the baseline condition. The subsequent challenge is to improve the shoreline over time in areas where the baseline condition is degraded, severely or marginally.

WAC Section 173-26-201(2)(f) of the Shoreline Master Program Guidelines (Guidelines)[1] says:

> *Master programs shall include goals and policies that provide for restoration of such impaired ecological functions. These master program provisions shall identify existing policies and programs that contribute to planned restoration goals and identify any additional policies and programs that local government will implement to achieve its goals. These master program elements regarding restoration should make real and meaningful use of established or funded nonregulatory policies and programs that contribute to restoration of ecological functions, and should appropriately consider the direct or indirect effects of other regulatory or nonregulatory programs under other local, state, and federal laws, as well as any restoration effects that may flow indirectly from shoreline development regulations and mitigation standards.*

Degraded shorelines are not just a result of pre-Shoreline Master Program activities, but also of unregulated activities and exempt development. The new Guidelines also require that "[l]ocal master programs shall include regulations ensuring that exempt development in the aggregate will not cause a net loss of ecological functions of the shoreline." While some actions within shoreline jurisdiction are exempt from a permit, the Shoreline Master Program should clearly state that those actions are not exempt from compliance with the Shoreline Management Act or the local Shoreline Master Program. Because the shoreline environment is also affected by activities taking place outside of a specific local master program's jurisdiction (e.g., outside of city limits, outside of

[1] The Shoreline Master Program Guidelines were prepared by the Washington Department of Ecology and codified as WAC 173-26. The Guidelines translate the broad policies of the Shoreline Management Act (RCW 90.58.020) into standards for regulation of shoreline uses. See http://www.ecy.wa.gov/programs/sea/sma/guidelines/index.html for more background.

the shoreline area within the city), assembly of out-of-jurisdiction actions, programs and policies can be essential for understanding how the City fits into the larger watershed context. The latter is critical when establishing realistic goals and objectives for dynamic and highly interconnected environments.

Restoration of shoreline areas, in relation to shoreline processes and functions, commonly refers to methods such as re-vegetation, removal of invasive species or toxic materials and removal of bulkhead structures, piers, and docks. Consistent with Ecology's definition, use of the word "restore," or any variations, in this document is not intended to encompass actions that reestablish historic conditions. Instead, it encompasses a suite of strategies that can be approximately delineated into four categories:

- Creation (of a new resource)
- Restoration (of a converted or substantially degraded resource)
- Enhancement (of an existing degraded resource)
- Protection (of an existing high-quality resource)

As directed by the Guidelines, the following discussions provide a summary of baseline shoreline conditions, list restoration goals and objectives, and discuss existing or potential programs and projects that positively impact the shoreline environment. In total, implementation of the Shoreline Master Program (with mitigation of project-related impacts) in combination with this Restoration Plan (for restoration of lost ecological functions that occurred prior to a specific project) should result in a net improvement in the City of Buckley's shoreline environment in the long term.

In addition to meeting the requirements of the Guidelines, this Restoration Plan is also intended to support the City's or other non-governmental organizations' applications for grant funding, and to provide the interested public with contact information for the various entities working within the City to enhance the environment.

C2.0 Shoreline Inventory Summary

2.1 Introduction

The City recently completed a comprehensive inventory and analysis of its shorelines (The Watershed Company 2010) as an element of its Shoreline Master Program update. The purpose of the shoreline inventory and analysis was to gain a greater understanding of the existing condition of Buckley's shoreline environment to ensure the updated Shoreline Master Program policies and

regulations are well-suited in protecting ecological processes and functions. The inventory describes existing physical and biological conditions in the shoreline zones within City limits and includes recommendations for restoration of ecological functions where they are degraded. The *Shoreline Analysis Report for the City of Buckley's Shorelines: White River* (The Watershed Company 2010) is summarized below.

C2.2 Shoreline Boundary

As defined by the Shoreline Management Act of 1971, shorelines include certain waters of the state plus their associated "shorelands." At a minimum, the waterbodies designated as shorelines 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. 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 therefrom… Any city or county may also include in its master program land necessary for buffers for critical areas* (RCW 90.58.030).

The City's existing Shoreline Master Program is presently in the process of being updated (The Watershed Company 2010). This SMP consists of the goals and policies in the City's Comprehensive Plan and provisions in the City's Municipal Code.

The White River's mean annual flow within the City of Buckley exceeds 1,000 cfs, and the river therefore is included in a classification of unique shorelines known as Shorelines of Statewide Significance. The river and floodplain have associated with them several wetlands, some of which are contiguous and others that are hydrologically connected to the river. The shoreline jurisdiction expands to include these wetlands. The minimum size limit for lakes to be designated as shoreline is 20 acres. No lakes or other water bodies within the City boundary exceed 20 acres. The entire jurisdiction assessment and determination process can be reviewed in greater detail in Appendix C of the Draft City of Buckley Shoreline Master Program (The Watershed Company 2010).

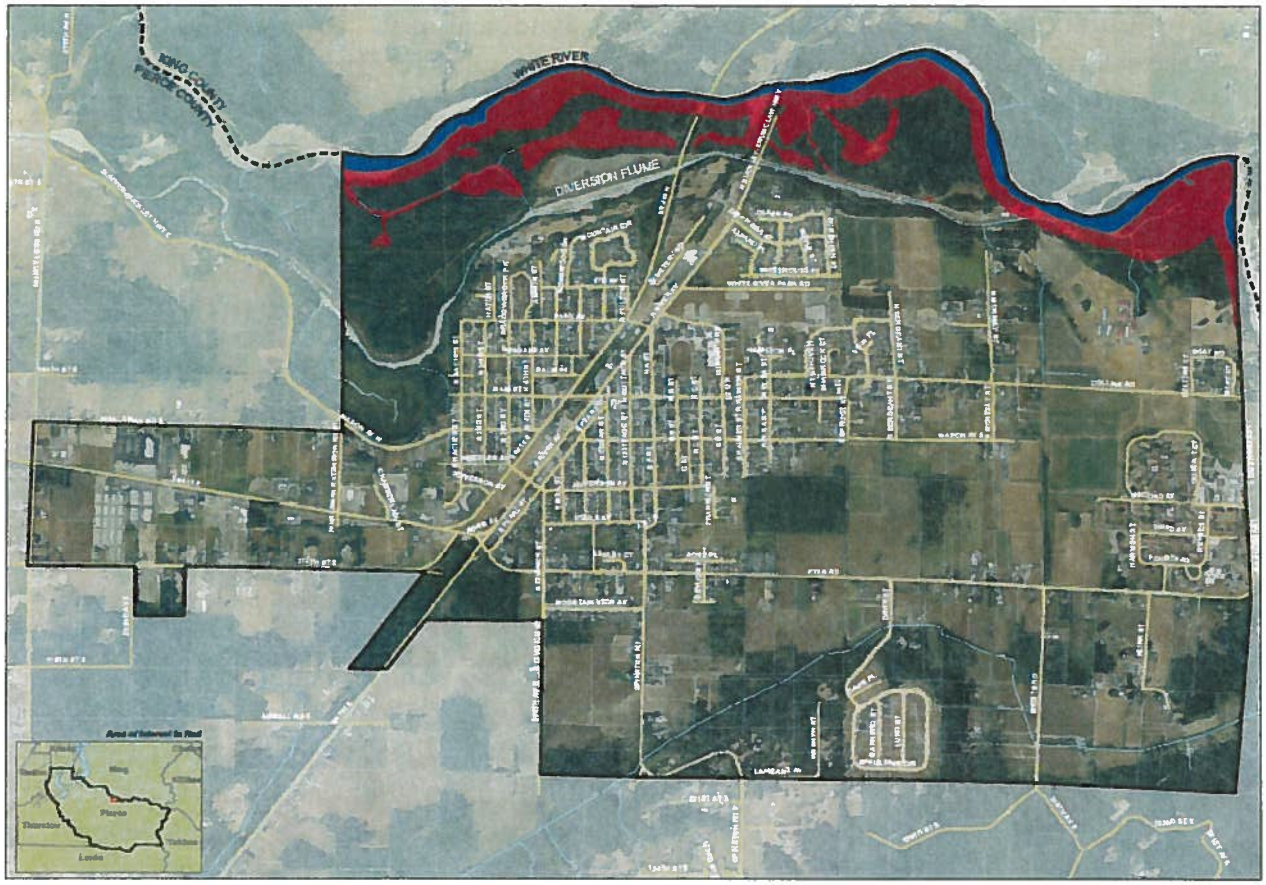

Figure C1. City of Buckley shoreline jurisdiction.

C2.3 Inventory

The City of Buckely's shoreline inventory includes all land within the City's proposed shoreline jurisdiction (see Appendix D, Figure 1 of the Final Draft City of Buckley Shoreline Analysis Report (The Watershed Company 2010)]. Not including aquatic area, the shoreline jurisdiction totals approximately 362 acres (0.57 square miles) in area and encompasses about 9.2 miles of shoreline.

In order to break down the shoreline into manageable units and to help evaluate differences between discrete shoreline areas, the shorelines have been divided into three assessment units based on ecological condition, land use, and projected future conditions (Figure 2). Each unit is a reach of the White River.

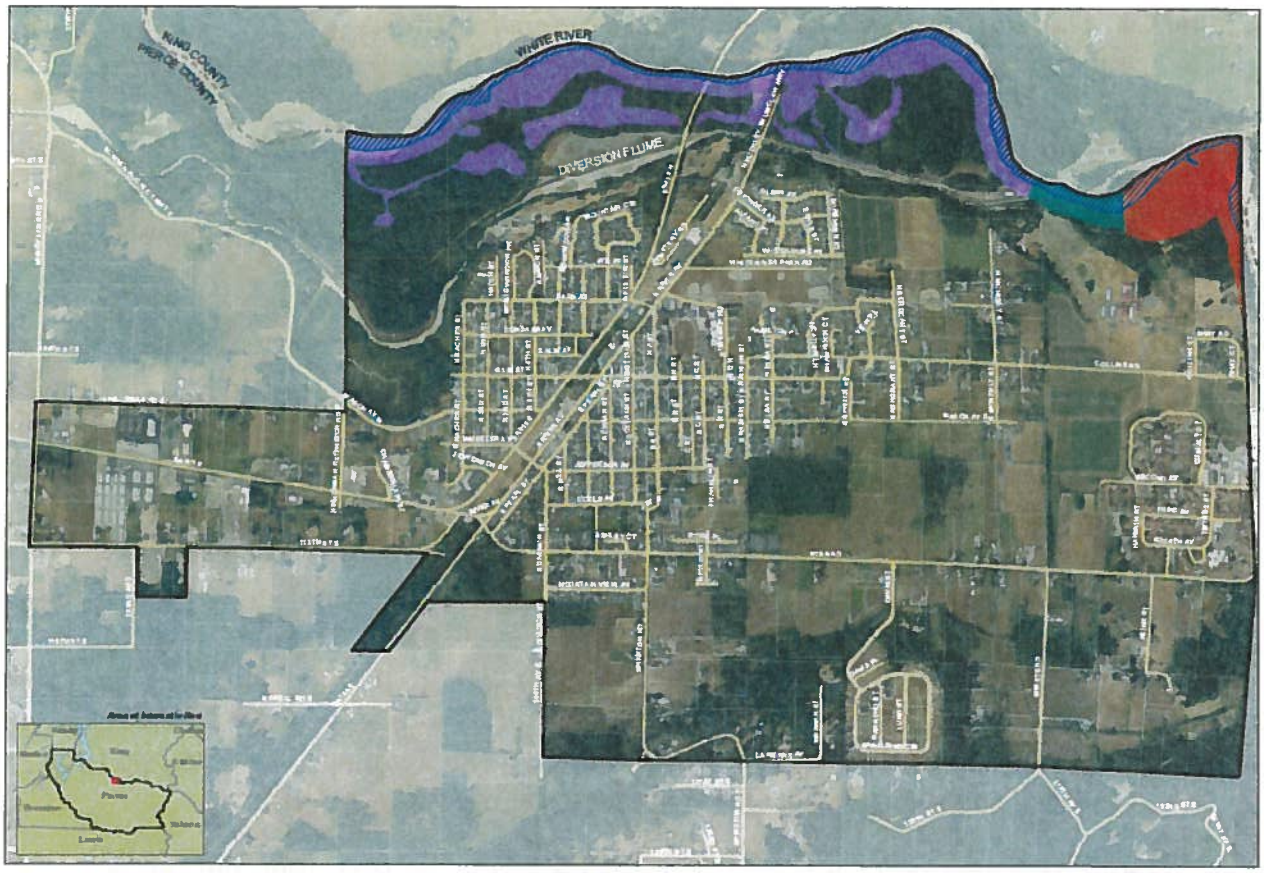

Figure C2. City of Buckley shoreline assessment units.

Table 1 shows the shoreline frontage and acreage of each assessment unit. A summary of inventory and analysis information from the Shoreline Analysis Report (The Watershed Company 2010) is presented in the following sections.

Table C1. Dimensions of Buckley shoreline assessment units.

Assessment Unit	Shoreline frontage (lineal feet)	Land Area[1] (acres)
Reach 1	3481	10.8
Reach 2	1332	6.3
Reach 3	11,258	106.9
TOTAL		

[1]Assessment unit area is the landward portion of the shoreline management area.

C2.3.1 Land Use and Physical Conditions

The City of Buckley is located in Pierce County, Washington, along the northern County border and roughly midway between the east and west County boundaries. The White River delineates the northern boundary of the City. The entire area is within Washington State's Water Resource Iventory Area (WRIA) 10. The City encompasses approximately 3.86 square miles (2,470 acres). Lake Tapps is located approximately 5 miles to the west-northwest.

Land use in shoreline jurisdiction is primarily open space, although the White River barrier dam and its associated facilities define much of Reach 2. Reach 1 is zoned 69 percent "public/institutional" and 31 percent "sensitive" and is undeveloped except for a small area cleared as part of a rural developed lot. Land is forested and includes forested wetland. Reach 2 is zoned entirely public/institutional and although it is relatively highly developed with the barrier dam facilities and access, it also contains forest and wetlands. Reach 3 is zoned almost entirely (>99 percent) as sensitive and includes SR 401 and the only City-owned public access and park in the shoreline jurisdiction. The remainder of the reach is undeveloped riparian, wetland upland forest. While all wetlands are hydrologically connected to the White River, one wetland has no above-ground connection and is thus not contiguous with the river.

Ownership of parcels in all three reaches is primarily a mix of PSE and CWA. Reach 1 includes part of a Washington State Department of Social and Health Services parcel, and Reach 3 contains a City of Buckley parcel, in which is located the single public access.

The elements of impervious surface, vegetated cover, overwater cover, shoreline armoring, critical/historic areas, water quality, and Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) and listed species occurrence are shown in Table 2.

Table C2. Summary of shoreline inventory land use analysis by assessment unit.

Inventory Element	Shoreline Assessment Unit		
	Reach 1	Reach 2	Reach 3
Assessment Unit Dimensions	• **3481.4** linear feet of shoreline frontage • **10.8** acres[1]	• **1332.0** linear feet of shoreline frontage • **6.3** acres[1]	• **11,257.7** linear feet of shoreline frontage • **106.9**acres[1]
Impervious Surface	**1.2%**	**14.0%**	**1.6%**
Vegetation	• Bare land - **0%** • Forest – **91%** • Grassland - **0%** • Wetland – **0%** • Pasture/Hay – **4%** • Scrub-shrub - **<1%** • Unconsolidated shore – **0%** • Water - **2%**	• Bare land - **<1%** • Forest – **46%** • Grassland - **0%** • Wetland – **0%** • Pasture/Hay – **<1%** • Scrub-shrub - **<4%** • Unconsolidated shore – **0%** • Water - **13%**	• Bare land - **<1%** • Forest – **81%** • Grassland - **2%** • Wetland – **10%** • Pasture/Hay – **0%** • Scrub-shrub - **3%** • Unconsolidated shore – **<1%** • Water - **<1%**
Overwater Cover	No piers, docks, or other structures	• SR 410 bridge	No piers, docks, or other structures
Shoreline Armoring[4]	• No armoring	• Some armoring adjacent to barrier dam structures	• No armoring
Public Access	<1 acre	No formal public access; access via Cascade Water Alliance facilities	There are no formal public access opportunities.

Inventory Element	Shoreline Assessment Unit		
	Reach 1	**Reach 2**	**Reach 3**
Critical Areas	• Wetlands – **8** ac[3] • Floodplain – **31** ac • Geologically Hazardous Areas - **100**% (seismic 100%; volcanic 79%; landslide <1%)	• Wetlands – **<1** ac[3] • Floodplain – **1.5** ac • Geologically Hazardous Areas - **100**% (seismic 100%; volcanic 61%; landslide <1%)	• Wetlands – **44** ac[3] • Floodplain – **41** ac • Geologically Hazardous Areas - **100**% (seismic 100%; volcanic 99%; landslide <1%; erosion <1%)
Listed Species	• Chinook salmon • Bull trout • Steelhead	• Chinook salmon • Bull trout • Steelhead	• Chinook salmon • Bull trout • Steelhead
Priority Habitat and Species	• Elk damage areas • Priority riparian zones	• Elk damage zones • Priority riparian zones	• Elk damage zones • Priority riparian zones • Priority wetlands
Impaired Waters (303d/305b)	• pH	• Instream flow	• Instream flow • pH • Fecal coliform
Historical and Archeological Sites	None listed	Historic properties associated with barrier dam	White River Bridge[5]

1 Assessment unit area is the landward portion of the shoreline management area.
2 Vacant land pertains only to presently vacant but developable parcels.
3 Wetland coverage based on NWI data; wetland areas shown in the "vegetation" row are from NOAA C-CAP land cover database and are likely lower due to low precision in the methodology for this cover type.
4 Shoreline armoring data are not available; armoring was observed using 2008 aerial photographs.
5 Determined eligible, NPS

C2.3.2 Biological Resources and Critical Areas

The City's shoreline jurisdiciton includes a length of the White River, a designated Shoreline of Statewide Significance based on a mean annual flow in exceeding 1,000 cfs within City boundaries. The river and floodplain have associated with them several wetlands, some of which are contiguous and others that are hydrologically connected to the river. The entire jurisdiction assessment and determination process can be reviewed in greater detail in Appendix C of the Shoreline Analysis Report (The Watershed Company 2010).

The great majority of City development is on the plateaus above the floodplain and outside of shoreline jurisdiction. Within the White River shoreline area, land use is primarily natural open space, with the exception of the barrier dam and related access and facilities. One public access to Riverside Park, a small area with picnic tables near the river, includes the Foothills Trails on the only City-owned property in shoreline jurisdiction. Biological resources of the Buckley shoreline areas perform hydrologic, vegetative, hyperheic and habitat functions, which are used in the Shoreline Analysis Report to evaluate assessment unit performance, summarized in the following paragraphs and Table 3.

Reach 1 includes 3,481 linear feet of White River shoreline and 33.3 acres of total landward jurisdiction. This unit, while not greatly impacted by the barrier dam, is below the Mud Mountain Dam. Flow modifications caused by these two man-made features are considered the most significant habitat factors causing poor Chinook population parameters in the river (Pierce County 2008). Riparian and upland habitat conditions are generally good, with dense vegetation and high potential for LWD recruitment.

Reach 2 contains the lowest proportion of the shoreline, with 6.3 acres of landward area and 1,332 linear feet of shoreline. There is private access to the river via Cascade Water Alliance property, which owns all but a small portion of the land in the reach. Shoreline hardening and an in-water structure are present in the dam vicinity. Total vegetative cover in the reach is approximately 32 percent, with the remainder primarily consisting of impervious surface. Habitat in the adjoining areas lowest functioning of the three assessment units, as supports the least amount of high quality vegetation and contains the highest absolute and proportional measure of impervious surface.

Reach 3, the downstream reach of the City's shoreline area below the barrier dam, consists of 106.9 acres and has 11,257 linear feet of shoreline. As mentioned above, the reach includes one area not contiguous with the floodplain

and a second wetland narrowly connected to the river. This is the largest and least developed reach. Despite lacking a well-defined riffle pool and LWD, habitat function in Reach 3 is high, and riparian and forest vegetation is dense and includes wetlands.

Table C3. Summary of shoreline inventory ecological function ratings by assessment unit.

Shoreline Processes and Functions Occurring within Assessment Unit	**Shoreline Assessment Unit**		
	Reach 1	**Reach 2**	**Reach 3**
Hydrologic			
Storage of water and sediment	Moderate/high	High	High
Transport of water and sediment	Low/moderate	Low/moderate	Moderate/high
Attenuation of flow energy	Moderate/high	Moderate/high	Moderate/high
Developing pools, riffles and gravel bars	Moderate	Moderate	Moderate
Removing excess nutrients and toxic compounds	Moderate/high	Low	High
Recruitment and transport of LWD and other organic materials	Moderate	Low	Moderate/high
Vegetation			
Temperature regulation	Moderate/high	Low/moderate	Moderate/high
Water quality improvement	Moderate/high	Low	High
Slowing riverbank erosion; bank stabilization	Moderate/high	Moderate/high	Moderate/high

Shoreline Processes and Functions Occurring within Assessment Unit	Shoreline Assessment Unit		
	Reach 1	Reach 2	Reach 3
Attenuation of flow energy	Moderate/high	Low/moderate	High
Sediment removal	Moderate/high	Low/moderate	High
Provision of LWD and organic matter	Moderate/high	Low/moderate	Moderate/high
Hyporheic			
Removing excess nutrients and toxic compounds	High	High	High
Water storage and maintenance of base flows	Moderate/high	Low/moderate	Moderate/high
Support of vegetation	High	Low/moderate	High
Sediment storage	High	High	High
Habitat			
Physical space and conditions for life history support	Moderate/high	Low/moderate	Moderate/high
Food production and delivery	Moderate/high	Low/moderate	Moderate/high
Summary	Moderate/high	Moderate	Moderate/high

C3.0 RESTORATION GOALS AND OBJECTIVES

In accordance with statewide provisions (WAC 173-26-201(2)(f)), this restoration plan will "include goals, policies and actions for restoration of impaired shoreline ecological functions. These master program provisions should be designed to achieve overall improvements in shoreline ecological functions over time, when compared to the status upon adoption of the master program." The documents summarized in this section target at various levels the general goal of shoreline ecological function improvement.

C3.1 Buckley Comprehensive Plan

Goals of the Buckley shoreline restoration plan are designed to promote the recovery of degraded areas and impaired ecological function through restoration strategies and policy. The City's Comprehensive Plan (City of Buckley 2005) includes goals and policies that generally refer to the protection of shorelines, critical areas, vegetation, and water resources, all of which occur within shoreline jurisdiction, and subsequently are applicable to this restoration plan. Goals and policies that directly address restoration, enhancement, and/or preservation of the natural environment are listed below, numbered as they are in the Comprehensive Plan. In addition, a number of the policies below are associated with goals that may indirectly or secondarily promote restoration in the shoreline.

From the Land Use Element:

GOAL 1.4

Have critical areas and environmentally senstive areas receive consideration when designating areas for more intensive development. Preserve development potential by allowing clustering of development in areas with environmental constraints.

POLICIES

1.4.1 Develop approaches that allow for clustered development in order to:

- Preserve sensitive (critical) natural features and to provide flexibility to the property owner;
- Encourage the maximization of view opportunities; and

- Preserve contiguos portions of development sites in permanent open space.

1.4.2 identify and preserve an integrated system of open space corridors and/or buffers to provide definition between natural areas and urban land use through cooperation with groups such as land trusts or environmental preservation organizations.

1.4.3 Identify and conserve critical wildlife habitat, including nesting sites, foraging areas, and migration corridors within or adjacent to natural areas, open spaces, and the developed urban areas to capitalize on and capture resource tourism (such as birding).

1.4.4 Site development regulations should be reviewed to ensure that they reduce erosion, promote immediate re-vegetation, and reduce the amount of sediment leaving a construction site to protect waterways and other properties.

GOAL 1.5

Protect, preserve, and enhance endangered fish and wildlife habitat.

POLICIES

1.5.1 Preserve habitats for species that have been identified as endangered, threatened, or sensitive by the federal government or the State of Washington.

1.5.2 Identify and protect wildlife corridors prior to and during land development through development restrictions, public education, and incentives.

1.5.3 Protect native plant communities by encouraging management and control of nonnative exotic and invasive species, including both terrestrial and aquatic plants.

GOAL 1.6

Have a well-maintained, interconnected system of multi-functional parks, recreational facilities, and open spaces that is attractive, safe, and available to all segments of the City's popualtion, and supports the community's established neighborhoods and small-town atmosphere.

POLICIES

1.6.1 Work with WSDOT, Pierce County PUD, Washington State Parks & Recreation Commission, and other appropriate parties to link and extend the Foothills Trail east along the river shoreline to Enumclaw and points west.

1.6.2 Coordinate park activities with economic development activities to develop a coherent plan that links parks and trails to economic development.

1.6.3 Increase parks and open space amenities to attain national recreational and park standards, which specify the area standard of 34.45 acres per 1,000 persons. Strategies for attaining this standard include exactions, impact fees and new development, bond measures, and grants.

1.6.4 Identify and set aside land for future park development, including pocket parks, neighborhood parks, and city parks.

1.6.5 The City should complete joint use agreements with the school district to maximize the availability of these facilities for recreational and other public uses.

1.6.6 In conjunction with the approval of any development project involving more than four new dwellings, the City shall require the onsite (or nearby offsite) development of recreation facilities or appropriate usable park land.

1.6.7 The City should provide development incentives such as density bonuses, purchasable development rights, and transferable development rights to assist in preserving permanent open spaces.

1.6.8 Maximize the use of existing park, school, recreation, and open space resources within the City by connecting them with a coordinated system of trails.

1.6.9 Develop community path and trail plans that promote pedestrian movement within the communiting and neighborhoods for transportation and recreational purposes. New development shall provide a link to community paths and neighborhood trails.

1.6.10 Seek to maximize grants and other external sources of funding, or interagency cooperative arrangements, to develop the City's park resources.

GOAL 1.8

Coordinate the orderly provision of public facilities with public and private development activities in a manner that is compatible with the fiscal resources of the City.

POLICY

1.8.1 Public facilities and utilities should be located in the following priority: first, to maximize the efficiency of services provided; second, to minimize their costs; and third, to minimize their impacts upon the natural environment.

GOAL 1.9

Have the siting of essential public facilities in the City and its urban growth area be consistent with the Growth Management Act and the following policies:

POLICY

1.9.4 Essential public facilities should not be located in critical areas unless there is a demonstrated need and no alternative site options are reasonable or feasible. Siting of essential public facilities within critical areas must be consistent with the Comprehensive Plan and development regulations.

From the Economic Development Element:

GOAL 3.4

Ensure that regulation balances economic growth with quality of life and the environment.

POLICY

3.1.4 Recognize and consider the economic and environmental impacts upon the community of proposed legislative actions prior to formal adoption.

The following goals and objectives from the Parks and Recreation Element of the City Comprehensive Plan are included here because they address the development of parks and open space and may offer the opportunity and means to promote the conservation and restoration of natural resources:

From the Parks and Recreation Element:

GOAL (1)

The City should promote a diversified system of parks, recreational facilities, and open space areas that furnish quality active and passive recreational experiences for all community residents and preserve, protect, and enhance significant open space.

OBJECTIVES

(1) Adopt a program and level of maintenance for the overall park system that provides a safe, effective, and attractive environment for the public's use of recreational facilities and spaces by ensuring that such things as landscaping, recreational equipment, and other features are maintained in a functional manner.

(2) Promote private and volunteer efforts to provide an economical mix of cooperative effort in maintaining the public park system and/or operating community activities and recreational programs.

(3) Ensure that park and recreational facilities comply with the Americans with Disabilities Act (A.D.A.).

GOAL (3)

The City should pursue and enhance identified undeveloped and underdeveloped spaces for parks, recreational facilities, and open space.

OBJECTIVE

(1) Obtain, by negotiation or voluntary dedication, land parcels for open space and recreation within residential developments or obtain a proportionate share fee contribution from applicants or developers for purchase and/or enhanement of open space and recreational land.

GOAL (4)

The City will maximize funding and construction opportunities for park and recreation faciltities, including joint projects with private or public partners.

OBJECTIVES

(1) The City will identify locations that are suitable for recreation within the abandoned railroad right-of-way land, and establish appropriate facilities.

(2) The current program of proportionate cost-sharing through a mitigation fee for residential developments will be updated regularly.

(3) The City will encourage private donations for the acquisition and development of recreational facilities with the possibility of dedications and naming rights for donations.

GOAL (6)

The City shall strive to increase citizen awareness of the types, extent and location of recreational facilities throughout the community.

OBJECTIVES

(1) The City will identify recreational facilities through a phased program of installing identification signage at each facility as funding allows.

(2) The City will develop maps, brochures or other measures that identify the types, extent and location of recreational facilities throughout the community.

(3) Buckley Comprehensive Plan PR 26.

GOAL (7)

The City should preserve quality park and open space resources and develop a diversified park system which preserves significant environmental opportunity areas and features.

GOAL (8)

The City should develop a high quality system of multi-purpose pedestrian trails and corridors that access significant environmental features, public facilities and developed urban neighborhoods.

OBJECTIVES

(1) Continue efforts to complete the Buckley segment of the Foothills Trail, and the connection to the 112th Street pedestrian corridor.

(2) Continue efforts to complete the Trail crossing of the White River linking the Pierce County section of the Foothills Trail with the King County section of the Trail.

GOAL (9)

The City will promote a system of parks, recreational facilities and open space that are resource-effective and distributed community-wide in a manner to provide multiple benefits to the community.

GOAL (10)

The City will promote a connected and coordinated open space system of linkage to major recreation areas via trails, paths, and other travel corridors that separate vehicular and non-vehicular transportation where feasible.

OBJECTIVE

(1) Adopt Level of Service Standards (LOS) for Trails within the City to ensure that priority is given to linking recreation areas.

GOAL (12)

The City will continue to explore and identify environmentally sound projects that balance the need for expanded operations or services and protection of the environment.

OBJECTIVE

(1) The City should continue efforts to negotiate with DSHS and the State over long-term use of the WSU Dairy facility to construct a bio-solids compost facility and a wastewater reuse system with passive and active recreational facilities.

C3.2 Pierce County Shoreline Master Program Update: Shoreline Restoration Report

The Pierce County SMP update includes five goals in its restoration report component (ESA Adolfson 2009). These goals are intended to fulfil the County-wide restoration vision:

The County will strive to restore, protect and enhance the shoreline resources and ecological processes that contribute to those resources through a combination of public actions and voluntary proviate actions. Restoration efforts, combined with protection of existing shoreline resources, will be targeted to create a net improvement in the shoreline ecosystem over time so as to benefit native fish and wildlife, and maintain public amenities for the people of Pierce County, Washington.

The Pierce County restoration goals are as follows:

(1) To improve shoreline processes, functions, and values over time through regulatory and voluntary and incentive-based public and private programs and actions that are consistent with the SMP and other agency/locally adopted restoration plans.

(2) To increase the availability, viability and sustainability of shoreline habitats for salmon, shellfish, forage fish, shorebirds and marine seabirds, and other species; improve habitat quality for sensitive and/or locally important species; and support the biological recovery goals for federally protected species.

(3) To integrate restoration efforts with capital projects and other resource management efforts including, but not limited to, shellfish closure response plans and water cleanup plans.

(4) To encourage cooperative restoration actions involving local, state, and federal public agencies, tribes, non-government organizations, and private landowners.

(5) To participate in the Puget Sound Partnership and commit energy and resources to implementation of the Puget Sound Action Agenda.

C4.0 EXISTING AND ONGOING PROJECTS AND PROGRAMS

The following series of existing projects and programs are generally organized from the larger watershed scale to City-scale, including government-led and non-profit/private organizations active in the Buckley area.

C4.1 Washington State Conservation Commission

Ccompletion of the 1999 Salmonid Habitat Limiting Factors Report for the Puyallup River Watershed Area (WRIA) 10) identifies areas in the Puyallup watershed, including the White River, in need of protection, as well as data gaps.

C4.2 Washington State Department of Ecology

The Puyallup-White Watershed Assessment Summary was completed by Ecology in 1995. This document describes existing data on water rights, stream flows, precipitation, geology, hydrology, water quality, fisheries resources, and land use patterns.

WRIA 10 is currently not working under the Watershed Planning Act (Ecology is the lead agency for this legislation).

C4.3 Pierce County

C4.3.1 Pierce County Public Works and Utilities: Surface Water Management Division

The Pierce County Public Works and Utilities Department's Surface Water Management Division completed the White River Basin Plan Characterization Report in 2007. The document includes an analysis of basin conditions, including impervious surface, land use, water quality, habitat, floodplain, and stream characteristics. The County intends to present recommendations for solutions to identified problems regarding water quality, habitat, and floodplains in the next phase of study.

C4.3.2 Pierce County Parks and Recreation

The Pierce County Park, Recreation and Open Space Plan was completed in 2008 and updated in 2009 (Pierce County 2009). The City of Buckley has participated as a jurisdictional partner in the development of this parks and recreation program. One of the core values put forth in the plan is the conservation of natural and open spaces, wildlife habitat, shoreline environments, and ecological resources. Goals of the plan include providing parks and open spaces that conserve and enhance environmental features, link open space and significant environmental features, and incorporate natural areas to protect and conserve threatened species, habitat, and migration corridors.

C4.3.3 Pierce County Lead Entity

Pierce County serves as the lead entity for the Puyallup/White watershed. The lead entity is charged with gathering information so a "Citizen's Advisory Committee" (CAC) of stakeholders can rank projects for funding consideration by the Salmon Recovery Funding Board (SRFB). The CAC's mission is "to support the recovery of self-sustaining, harvestable salmon populations in Puget Sound by restoring and protecting the habitat in WRIAs 10 and 12."

The Salmon Habitat Protection and Restoration Strategy for WRIAs 10 and 12 was completed in March 2008 (Pierce County Lead Entity 2008). The goal of the document is "to provide guidance to the CAC and TAG [Techinal Advisory Group], the SRF Board, and project sponsors to identify and prioritize salmon habitat recovery projects in WRIAs 10 and 12." No projects within Buckley shoreline jurisdiction are identified in the strategy, although the lower White River is prioritized for acquisition and restoration. The May 2009 3-Year Watershed Implementation Priorities Project List (Pierce County 2009a) includes improvements at the Buckley fishtrap and adds White River restoration assessment as a non-capital program.

C4.4 Pierce Conservation District

The Conservation District's mission is "to protect the natural resources and sustainable agriculture of Pierce County by empowering local individuals and communities." To this end, the District provides guidance to Pierce County landowners on practices that reduce non-point pollution, and in some cases the Conservation District provides funding for landowners to assist them in implementing best management practices. The District's 5-Year Plan (2010 to 2015) summarizes the agency's priorities: to enhance and protect soil, water, biodiversity, salmon, shellfish, and native plant resources; to assist landowners in protecting water quality, improving habitat, and conserving natural resources, while sustaining the agricultural community; and to involve and educate the local community through volunteer projects that improve stream quality in the County for the benefit of fish, wildlife and people.

The Stream Team began as a one-year Conservation District project and continues to work county-wide with volunteers to complete habitat and water quality improvement projects.

C4.5 City of Buckley

C4.5.1 Buckley Comprehensive Plan

The Buckley Comprehensive Plan (City of Buckley 2005) goals and policies pertaining to shoreline area protection and restoration are listed in Section 3.1. The Comprehensive Plan also fully incorporates the City's Park and Recreation Plan goals. Policies center on avoiding and reducing impacts to natural areas, and protecting and enhancing sensitive and critical areas and habitat.

C4.5.2 City of Buckley Critical Areas Regulations

The City of Buckley critical areas regulations are located in the Buckley Municipal Code Title 12. The City completed its last critical areas regulations update in 2005. The updated regulations are based on best available science, and

provide protection to critical areas in the City, including wetlands, frequently flooded areas, critical aquifer recharge areas, geologically hazardous areas, and fish and wildlife conservation areas (including lakes, ponds and streams). Some of the basic components of the critical areas regulations are a five-tiered watercourse typing system with standard buffers ranging between 25 and 150 feet, and a four-tiered wetland rating system with standard buffers ranging from 10 to 300 feet, based on the wetland's score using Ecology's rating system and the proposed land use adjacent to the wetland. Management of the City's critical areas using these regulations should help insure that ecological functions and values are not degraded, and impacts to critical areas are mitigated. These critical areas regulations are one important tool that will help the City meet its restoration goals.

C4.5.3 City of Buckley Comprehensive Stormwater Management Plan

The plan includes ordinances and programs in fulfillment of local, State and federal stormwater requirements, as well as identifying water quality and quantity problems that may impact the environment and making recommendations for improvements. Although the City adopted the Ecology 1992 Stormwater Management Manual for the Puget Sound Basin, 1992, it is required that the City adopt the 2005 Ecology Stormwater Management Manual for Western Washington as part of this plan and as required by the NPDES Phase II permit.

The overall goal of the Comprehensive Stormwater Management Plan is to preserve and protect water quality and the hydraulic regime within the City's drainage basins, including the White River and the diversion flume. Provisions, recommendations and requirements in the plan include best management practices, public outreach regarding environmental stewardship and low-impact development, outreach to the Adopt-a-Stream program, restoration in conjunction with construction and maintenance, and mitigation.

C4.5.4 City of Buckley Park and Recreation Plan

The City's 2004 Park and Recreation Plan's mission to "ensure the retention of open space and the continued development of active and passive recreational opportunities to benefit the citizens of the growing community of Buckley and its surroundings" is supported by several goals that directly or indirectly address environmental restoration, preservation or enhancement. These have been incorporated into the Buckley Conprehensive Plan (City of Buckley 2005) and are listed in Section 3.1 of this report.

C5.0 INVOLVEMENT OF OTHER AGENCIES AND ENTITIES

C5.1 Shared Strategy for Puget Sound

Shared Strategy for Puget Sound is a collaborate effort supported by state and federal agencies, local governments and non-government organizations, and legislators, aimed at encouraging recovery plans to protect and restore salmon runs in Puget Sound. The stated goal for the White River is taken from the White River recovery plan (WDFW et al. 1996) and is: "to restore the native population of White River spring Chinook stock in the White River watershed to a healthy, productive condition... The escapement goal should reflect the watershed carrying capacity and should be met with a full compliment of directed and incidental harvest in sport, commercial, and tribal fisheries."

The Puyallup/White River Watershed Profile of the Puget Sound Salmon Recovery Plan (SSPS 2007) identifies as limiting factors in salmon recovery access, sedimentation, lack of nearshore habitat, point and non-point source pollution, degraded and lacking riparian conditions, and lost floodplain processes. The Plan includes a number of recommendations for salmon recovery in the White River Basin. These include but are not limited to restoration of floodplain connectivity in the lower White River and increased protection and restoration of tributaries that presently support high salmon productivity.

C5.2 Puget Sound Partnership

The Puget Sound Partnership consists of representatives from a variety of interests from the Puget Sound region including business, agriculture, the shellfish industry, environmental organizations, local governments, tribal governments, and the Washington SDtate Legislature. Some of the Partnership's key tasks are as follows:

- Develop a set of recommendations for the Governor, the Legislature and Congress to preserve the health of Puget Sound by 2020 and ensure that marine and freshwaters support healthy populations of native species as well as water quality and quantity to support both human needs and ecosystem functions.

- Engage citizens, watershed groups, local governments, tribes, state and federal agencies, businesses and the environmental community in the development of recommendations.

- Review current and potential funding sources for protection and restoration of the ecosystem and, where possible, make recommendations for the priority of expenditures to achieve the desired 2020 outcomes.

The Partnership through the Leadership Council released an Action Agenda in December 2008. Implementation of this Action Agenda has resulted in State and Federal funding of restoration and protection initiatives and projects. This includes integrating the work of the Puget Sound Nearshore Restoration Project to increase focus on completing work necessary to request Puget Sound restoration funds under the Water Resources Development Act slated for 2012.

C5.2 South Puget Sound Salmon Enhancement Group (SPSSEG)

This 501 (c)(3) organization's mission is to work in cooperation with other groups to locate funding and plan, implement, and monitor fish and habitat enhancement and restoration projects, focusing on salmon and aquatic habitats. The SPSSEG takes an ecosystem appoach and utilizes volunteers and public education in the region, which includes the entirety of WRIA 10.

C5.3 Puyallup Tribe

The Tribe's Natural/Environmental Resources Program's mission is:

> *To protect, enhance, manage and restore the Natural Resources of the Puyallup Tribe of Indians. Key department entities include Water Quality, Air Quality, Wildlife, Fisheries, GIS and Environmental. This department continues to build relationships and establishes cooperation with local, state and federal jurisdictions to protect human health and the environment of Tribal members.*

The Tribe participates in the TMDL (total maximum daily load) studies on the White River, and goals of the Tribe include addressing habitat mitigation associated with PSE/CWA water right issues; continuing water quality sampling, monitoring, and analysis; and continuing watershed analysis for habitat enhancement and restoration opportunities.

C5.4 National Fish and Wildlife Foundation (NFWF) Community Salmon Fund

The NFWF and Pierce County formed the Pierce County Community Salmon Fund in 2002 as a funding program for restoration projects that involved landowners and raised local support for salmon recovery. The goals of the Fund are:

- To fund salmon protection and restoration projects that have a substantial benefit to the watershed and that are consistent with Pierce County's Ecosystem and Diagnosis Treatment (EDT).
- To enlist landowners and community groups in project implementation and monitoring.

- To foster creativity and leadership in the community to address conservation needs.
- To focus on community members and groups that can be of particular help in salmon recovery.

C5.5 Other Environmental Organizations

Several environmental groups maintain offices and/or programs in Pierce County. While these groups have not historically worked in the shoreline jurisdiction of Buckley, this does not preclude involvement in restoration activities in the future. Potentially active groups include:

- Cascade Land Conservancy
- The Washington Wildlife and Recreation Coalition
- Trout Unlimited

C6.0 Strategies to Achieve Local Restoration Goals

This section discusses programmatic measures for the City of Buckely designed to foster shoreline restoration and achieve a net improvement in shoreline ecological processes, functions, and habitats. With projected budget and staff limitations, the City of Buckley does not anticipate leading most restoration projects or programs. However, the City's SMP represents an important vehicle for facilitating and encouraging restoration projects and programs that could be led by private and/or non-profit entities. The discussion of restoration mechanisms and strategies below highlights programmatic measures that the City may potentially implement as part of the proposed SMP, as well as parallel activities that would be led by other governmental and non-governmental organizations.

C6.1 Pierce County White River Basin Plan

The 2007 White River Basin Plan Characterization Report (Pierce County Public Works and Utilities 2007) represents Phase 1 of White River watershed planning. The document includes a comprehensive description of the watershed, including land use, climate, and all natural features and conditions. Phase II is in progress and will consist of project identification, rating and ranking. Protecting habitat and water quality and reducing flooding will be the primary focus of the projects investigated as part of Phase II. While the plan itself will consider only projects in unincorporated Pierce County, the processes by which projects are identified and ranked will provide guidance to the City for characterizing and prioritizing potential restoration projects in Buckley's shoreline jurisdiction.

C6.2 Capital Facilities Plans

The City could develop and incorporate a shoreline restoration goal in capital facilities plans and improvement projects. Future improvements to wastewater treatment and effluent systems are included in the City's Capital Facilities Element of the Comprehensive Plan (City of Buckley 2005). Outfalls and discharge to the White River make many of these potential projects candidates for restoration components.

C6.3 Development Opportunities/Incentives

Non-recreational development opportunities are limited in Buckley's shoreline jurisdiction. If, however, development is proposed in the future, the City should consider looking for opportunities to conduct restoration in addition to minimum mitigation requirements as part of the SMP. Development may present timing opportunities for restoration that would not otherwise occur and may not be available in the future. Mitigation may also allow for "banking" and off-site, in-lieu opportunities.

In the future the City may provide development incentives for restoration, including the waiving of some or all of the development application fees, infrastructure improvement fees, or stormwater fees. This may serve to encourage innovation in development design to include more access and preservation.

C6.4 Shoreline Restoration Fund

A chief limitation to implementing restoration is local funding, which is often required as a match for State and federal grant sources. To foster ecological restoration of the City's shorelines, the City may establish an account that may serve as a source of local match monies for non-profit organizations implementing restoration of the City's shorelines. This fund may be administered by the City shoreline administrator and be supported by a levy on new shoreline development proportional to the size or cost of the new development project. Monies drawn from the fund would be used as a local match for restoration grant funds, such as the SRFB, Aquatic Lands Enhancement Account (ALEA), or another source.

C6.5 Resource Directory

Development of a resource list would be helpful in aiding both property owners and City departments who want to be involved in restoration. For example, PSE/CWA and/or the City might be directed toward SRFB. SRFB administers two grant programs for protection and/or restoration of salmon habitat. Eligible applicants can include municipal subdivisions (cities, towns, and counties, or

port, conservation districts, utility, park and recreation, and school districts), tribal governments, state agencies, nonprofit organizations, and private landowners.

C6.6 Volunteer Coordination

The City will continue to emphasize and accomplish restoration projects by using community volunteers, as is called for in the Parks and Recreation Element of the Comprehensive Plan (Section 3.1, Goal (1), Objective (2)). The City can also coordinate with the groups listed in Section 5.0, many of which already have volunteer programs in place.

C6.7 Regional Coordination

The City should look for opportunities to coordinate restoration efforts with Pierce County and the Pierce Conservation District for involvement in regional restoration planning and implementation.

C7.0 Proposed Implementation Targets and Monitoring Methods

C7.1 Project Evaluation

When a restoration project is proposed for implementation by the City, other agency, or by a private party, the project should be evaluated to ensure that the project's objectives are consistent with those of this Restoration Plan of the SMP and, if applicable, that the project warrants implementation above other candidate projects. (It is recognized that, due to funding sources or other constraints, the range of any individual project may be narrow.) It is also expected that the list of potential projects may change over time, that new projects will be identified and existing opportunities will become less relevant as restoration occurs and as other environmental conditions, or our knowledge of them, change.

When evaluating potential projects, priority should be given to projects most meeting the following criteria:

- Restoration meets the goals and objectives for shoreline restoration.
- Restoration of processes is generally of greater importance than restoration of functions.
- Restoration avoids residual impacts to other functions or processes.
- Projects address a known degraded condition.
- Conditions that are progressively worsening are of greater priority.

- Restoration has a high benefit to cost ratio.
- Restoration has a high probability of success.
- Restoration is feasible, such as being located on and accessed by public property or private property that is cooperatively available for restoration. Restoration should avoid conflicts with adjacent property owners.
- There is public support for the project.
- The project is supported by and consistent with other restoration plans.

The City should consider developing a project "score card" as a tool to evaluate projects consistent with these criteria.

C7.2 Monitoring and Adaptive Management

In addition to project monitoring required for individual restoration and mitigation projects, the City should conduct system-wide monitoring of shoreline conditions and development activity, to the degree practical, recognizing that individual project monitoring does not provide an assessment of overall shoreline ecological health. The following three-prong approach is suggested:

1. Track information using the City's permit system as activities occur (development, conservation, restoration and mitigation), such as those listed below (note that some of the activities on this list are unlikely to occur in Buckley shoreline jurisdiction; they are included here as examples of application situations in which information should be tracked):

    a. New shoreline development.

    b. Shoreline variances and the nature of the variance.

    c. Compliance issues.

    d. New impervious surface areas.

    e. Number of pilings.

    f. Removal of fill.

    g. Vegetation retention/loss.

    h. Bulkheads/armoring.

    The City may require project proponents to monitor as part of project mitigation, which may be incorporated into this process. Regardless, as development and restoration activities occur in the shoreline area, the City

should seek to monitor shoreline conditions to determine whether both project specific and SMP overall goals are being achieved.

2. Re-review status of environmental processes and functions at the time of periodic SMP updates to, at a minimum, validate the effectiveness of the SMP. Re-review should consider what restoration activities actually occurred compared to stated goals, objectives and priorities, and whether restoration projects resulted in a net improvement of shoreline resources.

   Under the Shoreline Management Act, the SMP is required to result in no net loss of shoreline ecological functions. If this standard is found to not be met at the time of review, the City will be required to take corrective actions. The goal for restoration is to achieve a net improvement. The cumulative effect of restoration over time between reviews should be evaluated along with an assessment of impacts of development that is not fully mitigated to determine effectiveness at achieving a net improvement to shoreline ecological functions.

   Evaluation of shoreline conditions, permit activity, policy, and regulatory effectiveness should occur at varying levels of detail consistent with the Comprehensive Plan update cycle. A complete reassessment of conditions, policies and regulations should be considered every seven years. To conduct a valid reassessment of the shoreline conditions every seven years, it is necessary to monitor, record and maintain key environmental metrics to allow a comparison with baseline conditions. As monitoring occurs, the City should reassess environmental conditions and restoration objectives. Those ecological processes and functions that are found to be worsening may need to become elevated in priority to prevent loss of critical resources. Alternatively, successful restoration may reduce the importance of some restoration objectives in the future.

C7.3 Reporting

The restoration opportunities presented in this document are based upon a detailed inventory and analysis of shoreline conditions by many sources. Nonetheless, exhaustive scientific information about shoreline conditions and restoration options is cost prohibitive at this stage. Additionally, restoration is at times experimental. Monitoring must be an aspect of all restoration projects. Information from monitoring studies will help demonstrate what restoration is most successful. Generally, conservation of existing natural areas is the least likely to result in failure. Alternatively, enhancement (as opposed to complete restoration of functions), has the highest degree of uncertainty.

This Restoration Plan does not provide a comprehensive scientific index of restoration opportunities that allows the City to objectively compare opportunities against each other. If funding was available, restoration opportunities could be ranked by which opportunities are expected to have the highest rates of success, which address the most pressing needs, and other factors. Funding could also support a long-term monitoring program that evaluates restoration over the life of the SMP (as opposed to independent monitoring for each project). However, the following table (Table 5) outlines a possible schedule and funding sources for implementation of a variety of efforts that could improve shoreline ecological function, and are described in previous sections of this report.

Table C5. Implementation Schedule and Funding for Restoration Projects, Programs and Plans.

Restoration Project/Program	Schedule	Funding Source or Commitment
Washington State Conservation Commission	Ongoing	The City will refer to the Salmonid Habitat Limiting Factors Report for guidance regarding habitat limiting factors and data gaps as restoration projects are considered.
Washington Department of Ecology	Ongoing	The Puyallup-White Watershed Assessment was completed in 1995. The City is no longer working under the Watershed Planning Act.
Pierce County Public Works: Surface Water Management Division	Ongoing	The City does not participate in the County's Surface Water Management; as part of Phase II NPDES permit requirements, and City adopted the 2005 Ecology Stormwater Management Manual for Western Washington.
Pierce County Park, Recreation and Open Space Plan	Ongoing	The City will continue to participate as a jurisdictional partner as opportunities arise.

Restoration Project/Program	Schedule	Funding Source or Commitment
Pierce County Lead Entity	Ongoing	The Lead Entity's Salmon Habitat Protection and Restoration Strategy does not include any projects within Buckley shoreline jurisdiction. This does not preclude involvement of the City as new projects are proposed and considered, however. The 2009 WRIA 10/12 3-Year Watershed Implementation Priorities Project List includes improvements at the Buckley fish trap and adds White River Restoration Assessment to the 2009 priorities list. This may afford opportunities for the City to receive and provide guidance and support for restoration projects.
Pierce Conservation District	Ongoing	The City will pursue partnership opportunities as time and budget permit.
Buckley Comprehensive Plan	Ongoing	The City makes a substantial commitment of staff time in the course of project and program reviews to determine consistency and compliance with the recently updated Comprehensive Plan.
Buckley Critical Areas Regulations	Revised in 2005	The City makes a substantial commitment of staff time in the course of project and program reviews to determine consistency and compliance with their recently updated Critical Areas Regulations.
Buckley Comprehensive Stormwater Management Plan	Completed in February 2008	The City adopted the Ecology 1992 Stormwater Management Manual for Puget Sound Basin. Adoption of the 2005 Ecology Stormwater Management Manual for Western Washington is included in the 2008 Phase II NPDES Stormwater Management Program (Gray and Osborne, Inc. 2008). The SWMP commits the City to education and outreach, public involvement, detection and enforcement, stormwater control, and pollution prevention.

Restoration Project/Program	Schedule	Funding Source or Commitment
Buckley Park and Recreation Plan	Completed in May 2004	Some projects are complete or in planning; the City continues to commit staff to pursue the goals laid out in the plan, included also as part of the City's Comprehensive Plan.

Although substantial changes in land use in the shoreline jurisdiction are not expected, particularly in Reaches 1 and 3, City planning staff is encouraged to track all land use and development activity, including exemptions, within shoreline jurisdiction, and may incorporate actions and programs of the other departments as well. A report may be assembled that provides basic project information, including location, permit type issued, project description, impacts, mitigation (if any), and monitoring outcomes as appropriate. Examples of data categories might include square feet of non-native vegetation removed, square feet of native vegetation planted or maintained, reductions in chemical usage to maintain turf, linear feet of eroding stream bank stabilized through plantings, or linear feet of shoreline armoring removed. The report would also outline implementation of various programs and restoration actions (by the City or other groups) that relate to watershed health.

The staff report may be assembled to coincide with Comprehensive Plan updates and may be used, in light of the goals and objectives of the Shoreline Master Program, to determine whether implementation of the SMP is meeting the basic goal of no net loss of ecological functions relative to the baseline condition established in the Inventory and Analysis Report. In the long term, the City should be able to demonstrate a net improvement in the City of Buckley's shoreline environment.

C8.0 REFERENCES

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