

**TOWN OF WILKESON
GRANT No. G1000070**

SHORELINE RESTORATION PLAN
for Town of Wilkeson's Shoreline: Wilkeson Creek

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SHORELINE RESTORATION PLAN

TOWN OF WILKESON

1.0 Introduction

The Town of Wilkeson's Shoreline Master Program applies to activities in the shoreline jurisdiction zone. Activities that have adverse effects on the ecological functions and values of the shoreline must be mitigated. By law, the proponent of that 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 non-regulatory policies and programs that contribute to restoration of ecological functions, and should appropriately consider the direct or indirect effects of other regulatory or non-regulatory 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 town limits,

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.

outside of the shoreline area within the town), assembly of out-of-jurisdiction actions, programs and policies can be essential for understanding how the Town fits into the larger watershed context. The latter is critical when establishing realistic goals and objectives for dynamic and highly inter-connected 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 shoreline modifications, such as bulkhead structures. 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 Town of Wilkeson'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 Town's or other non-governmental organizations' applications for grant funding, and to identify the various entities and their roles working within the Town to enhance the environment.

2.0 Shoreline Inventory Summary

2.1 *Introduction*

The Town recently completed a comprehensive inventory and analysis of its shorelines (April 2011) 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 Wilkeson's shoreline environment to ensure the updated Shoreline Master Program policies and regulations will protect local ecological processes and functions. The inventory describes existing physical and biological conditions in the shoreline jurisdiction within Town limits and includes recommendations for restoration of

ecological functions where they are degraded. The *Shoreline Inventory and Analysis Report for Town of Wilkeson: Wilkeson Creek* (TWC 2011) is summarized below.

2.2 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 Town has been utilizing the Pierce County Shoreline Master Program since its adoption in 1975. The program was updated in 1981. In addition, the Town’s Comprehensive Plan, updated in 2005, includes a goal related to the conservation of the Town’s shorelines.

The Town’s shoreline management area includes the entirety of the Wilkeson Creek shoreline within Town limits. Further, shoreline jurisdiction includes two areas of associated wetlands landward of the standard 200-foot shoreline jurisdiction. A map of the Town’s shoreline jurisdiction is provided in Figure 1, and more information on the Town’s jurisdictional boundary may be found in the *Shoreline Inventory and Analysis Report for Town of Wilkeson: Wilkeson Creek* (TWC 2011).

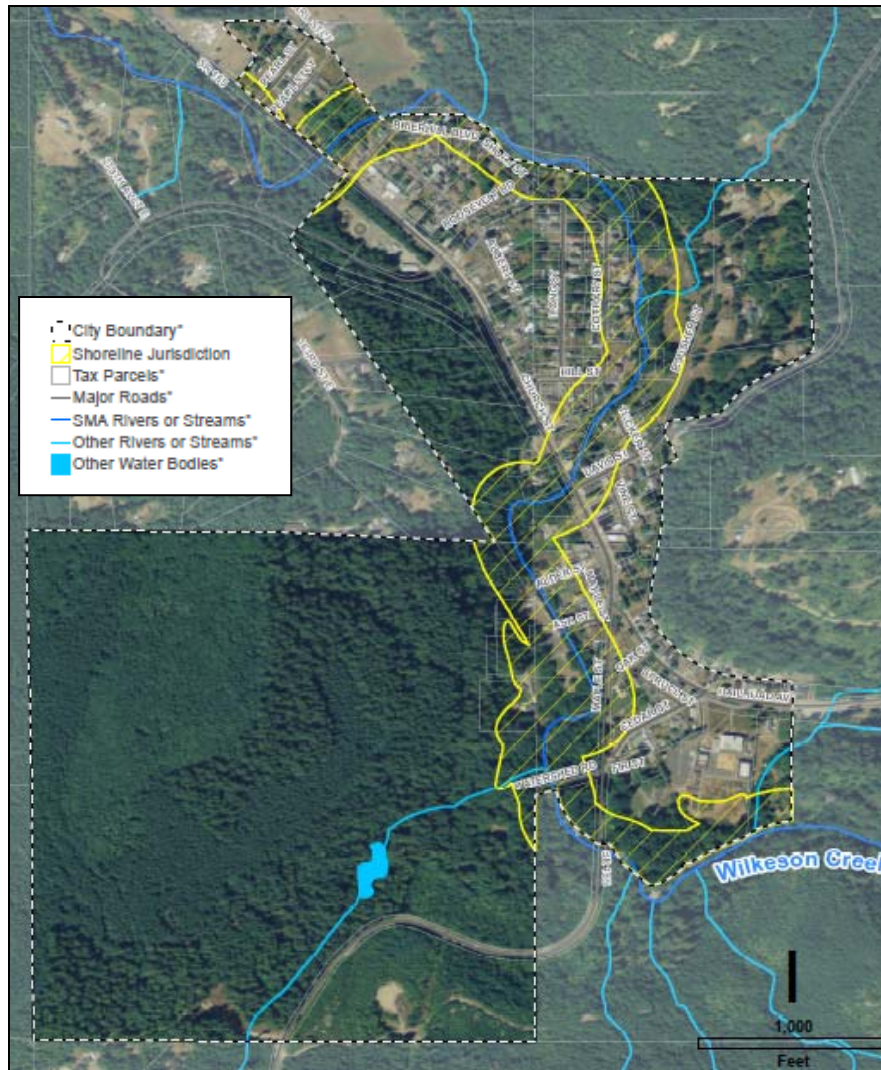


Figure 1. Map of Wilkeson shoreline jurisdiction (outlined in yellow)

2.3 *Inventory and Analysis*

The Town of Wilkeson’s shoreline inventory includes all land currently within the Town’s proposed shoreline jurisdiction. The total area subject to the Town’s updated SMP, not including aquatic area, is approximately 51.9 acres, and encompasses approximately 1.56 miles of shoreline.

In order to break down the shoreline into manageable units and to help evaluate differences between discrete shoreline areas, the Wilkeson Creek shoreline has been divided into two assessment units based on land use patterns and ecological condition and as illustrated on Figure 2.

The following inventory and analysis information is summarized from detailed information presented in the *Shoreline Inventory and Analysis Report for the Town of Wilkeson: Wilkeson Creek*.

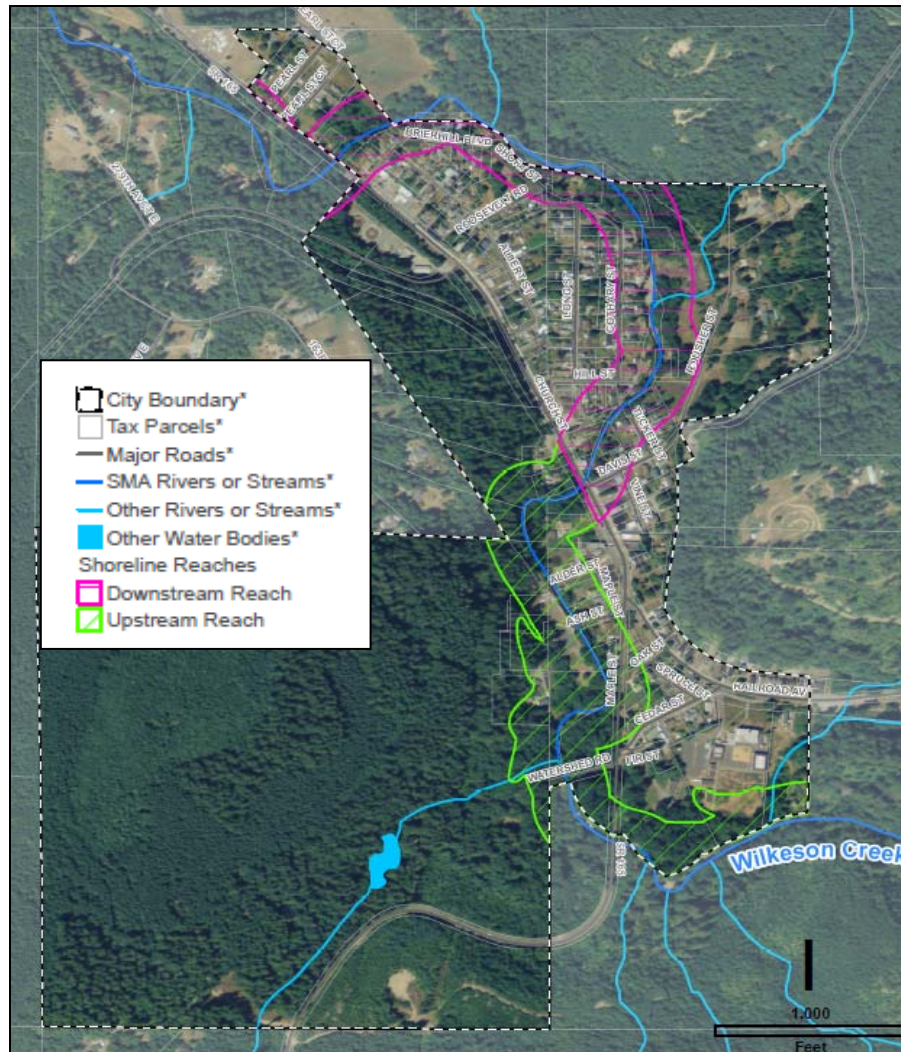


Figure 2. Map of Town's shoreline assessment units

2.3.1 Land Use and Physical Conditions

The Town of Wilkeson is located in Pierce County in the Puget Sound Region and contains freshwater shorelines associated with Washington State's Water Resource Inventory Area (WRIA) 10, Puyallup- White River. The Town's shorelines are more specifically located in the South Prairie Creek Watershed, which covers 146 square miles, and the Wilkeson Creek sub-basin, which covers 28 square miles.

Wilkeson Creek flows from its headwaters north of Burnt Mountain in a north-northwesterly direction to its confluence with South Prairie Creek. Approximately 3.5

miles from its headwaters, Wilkeson Creek becomes a shoreline of the state, as it is in this location that the 20 cfs threshold is passed. Approximately 1.3 miles downstream of this location, Gale Creek flows into Wilkeson Creek. Wilkeson Creek then flows for another two miles before entering the Town of Wilkeson. Within the Town, Wilkeson Creek totals approximately 1.56 miles in length. The total shoreline jurisdiction area for the stream and associated wetlands within the Town is 51.9 acres. After leaving the Town limits, the stream flows for approximately four miles before flowing into South Prairie Creek. South Prairie Creek then flows in a westerly direction, joining the Carbon River, then the Puyallup River, before eventually emptying into Commencement Bay in the City of Tacoma.

Within the Town of Wilkeson, the stream in many locations has been channelized with rip-rap or generally confined with armoring (although mapping of shoreline armoring has not been completed). The channel armoring precludes stream occupation of significant portions of historical floodplain (Kerwin 1999). In many cases, armoring is necessary to protect existing developed properties, many of which are located extremely close to the stream, from further erosion. Therefore, restoration of the stream banks is unlikely. The constricted channels experience increased water velocities and lack adequate pool-riffle composition which reduce salmonid rearing potential. The loss of ability for the stream to dissipate energy with overflow creates a scouring effect which reduces the stream’s capacity to store and properly distribute spawning gravels, retain wood in the channel and maintain and create functional pool/riffle sequences. However, some spawning and rearing conditions persist despite the adverse effects of flood control structures (Kerwin 1999).

A summary of physical shoreline modifications by shoreline assessment unit is provided below in Table 1.

Table 1. Summary of assessment unit shoreline modifications

Physical Conditions	Assessment Unit 1	Assessment Unit 2
Reach Length (feet)	3,832	4,403
Reach Area	24.4 acres	27.5 acres
Shoreline Armoring	N/A	N/A
Overwater Cover	Three bridge crossings.	None

The level of expected change in land use patterns along both assessment units is low because both areas are relatively built out (65% for Unit 1 and 67% for Unit 2). However, further subdivision of land could occur on 63% of the lots within Unit 1 and 25% of the lots within Unit 2.

2.3.2 Biological Resources and Critical Areas

The Washington State Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) database identifies Chinook, coho, and steelhead within Wilkeson Creek inside the Town limits. No additional species or habitats were identified.

The Town's critical areas regulations include wetlands, geologically hazardous areas (areas susceptible to erosion, landslides, seismic events, liquefaction, and other geologic events), critical aquifer recharge areas, floodplains, and habitat conservation areas. The inventory mapping of critical areas, provided as a part of this Shoreline Master Program update, was based on a wide range of information sources, including County GIS, critical area inventories, Washington Department of Fish and Wildlife databases, and other relevant maps and literature obtained from the Washington Department of Natural Resources (DNR), Ecology, National Marine Fisheries Service, and U.S. Fish and Wildlife Service.

3.0 Restoration Goals and Objectives

The following goal relating to the shoreline and other natural features of the Town is presented in the Visions and Goals Element of the Town's Comprehensive Plan.

The Town should respect the natural environment in any future development. Slopes in excess of 40 percent, wetlands, Wilkeson/Gale Creek, other rivers and streams, and other critical resource areas should be conserved.

Several specific objectives were also developed based on objectives in the existing SMP and the Town's Comprehensive Plan. Objectives refer to specific actions, ideally measurable, that can be taken to achieve the stated goals. Many goals are interrelated, thus one objective may contribute to achieving multiple goals. Objectives are identified below, and not listed in any prioritized order.

1. Ensure continuous sound management in the preservation of unique, fragile, and scenic elements, and of non-renewable natural resources.
2. Encourage the best management practices for the continued utilization of renewable resources of the shorelines.
3. Protect shoreline natural resources including the land, its vegetation, wildlife, and the waters of the state and their aquatic life.
4. Protect and retain significant trees and vegetation in public and privately dedicated areas.

5. Utilize the process and provisions of the Shoreline Management Act to prevent the inherent harm in an uncoordinated and piecemeal development of shoreline within the Town of Wilkeson.
6. Encourage the management practices described by the WDFW in their Recommendations for Priority Habitat and Species.

The Town is committed to further specific goals, guided by the above broader SMP goals and the South Prairie Creek Bacteria and Temperature Total Maximum Daily Load (TMDL) Detailed Implementation Plan (Ecology 2006). Wilkeson Creek within Town limits was listed as a 303(d) water for copper based on estimates; subsequent reevaluation in 2001 showed compliance with water quality standards during critical conditions and resulted in Ecology not conducting a copper TMDL for the creek. The Town owns and operates a wastewater treatment plant that discharges to Wilkeson Creek. The creek met the fecal quality coliform standard and no reduction in wasteload allocation was recommended (Ecology 2006). The wastewater treatment plant permit does not have an effluent limit for temperature. The creek met the temperature standard near the discharge but exceeded the standard at the mouth. Thus, restoration goals for Wilkeson Creek are aimed at both water quality and habitat.

1. Maintain and manage the Town's sewage treatment plant and stormwater system in compliance with current NPDES permit requirements.
2. Manage stormwater discharges to Wilkeson Creek in compliance with current regulations and Ecology's Western Washington Stormwater Manual.
3. Participate in TMDL adaptive management meetings.
4. Upgrade the Town CAO every seven years.
5. Assist residents with efforts to plant and enhance native vegetation in shoreline areas by providing resources on private land management and restoration.
6. Inform residents of agency and governmental resources, including the Pierce Conservation District and the Washington State Department of Natural Resources, for help with implementing best management practices and complying with regulations under jurisdictions in addition to the Town.
7. Include shoreline restoration as a component in redevelopment plans on any Town-owned property in shoreline jurisdiction, including establishing and enhancing vegetated buffers where they do not presently exist.
8. Enforce monitoring and maintenance of restoration actions that are required under permitting regulations.

9. Include restoration requirements in CAO and land practices regulations that target lost watershed functions. Requirements may address shorelines even if impacts are not planned, and any unavoidable impact will be mitigated so that a measureable net increase in ecological function results.
10. Continue to meet water quality standards in Wilkeson Creek within Town limits and to contribute to efforts that result in the mouth of the Creek meeting and maintaining water quality standards in the future.

These goals and objectives provide direction and guidance for developing and focusing the restoration plan. Objectives help define projects and programs needed to protect and restore natural processes and ecological functions. Measurable performance standards may be developed in the future based on the goals and objectives to quantify ecological change. These performance standards go beyond the scope of this document, but may be developed and monitored as individual projects and programs are implemented.

4.0 Ongoing Town Plans and Programs

The Town of Wilkeson implements elements of the Growth Management Act through the adoption of the Town's Comprehensive Plan, the Unified Development Ordinance, and the Critical Areas Code.

4.1 *Comprehensive Plan*

The Town of Wilkeson Comprehensive Plan (Town of Wilkeson 2005) defines goals addressing the environment in its Visions and Goals element. As previously noted, the section includes a singular goal related to the Town's shoreline.

4.2 *Critical Areas Code*

The Town of Wilkeson's critical areas code, which applies outside of shoreline jurisdiction, is based on best available science and provides protection to critical areas in the Town, including wetlands, geologically hazard areas, critical aquifer recharge areas, floodplains and habitat conservation areas. The Town uses Ecology's *2004 Washington State Wetland Rating System for Western Washington* to rate wetlands. The code requires avoidance and minimization steps, particularly on high-quality wetlands, before impacts are permitted. Regulatory buffers depend on the intended land use action proposed and range from 35 to 200 feet for low-impact land uses and from 50 to 300 feet for high-impact land uses. The standard buffer for a Type S stream (Wilkeson Creek) is 100 feet. The Town requires critical areas reports, protective measures, and potentially mitigation when actions are proposed in or adjacent to critical areas. Management of Wilkeson's critical areas using these regulations should help ensure that ecological functions and values are not degraded and impacts to critical areas are mitigated.

4.3 Unified Development Ordinance

Wilkeson's Unified Development Ordinance (Kask Consulting, Inc. 1998) details regulatory protections for wetlands and wetland buffers. The rating system described in the Ordinance included only 2 possible wetland categories and has been replaced by the new rating methods in the CAO. The Ordinance designates a creek buffer of 35 feet.

The Ordinance requires regulated wetland and wetland buffer activities to be permitted and standards applied to regulated activities in wetlands and buffers.

5.0 Partnerships

Federal, state, regional, and local agencies and organizations are actively involved in shoreline restoration, conservation, and protection in and around the Town of Wilkeson. These partners and their local roles in shoreline protection and/or restoration are identified below and generally organized in order by the scope of the organization, from the larger state and watershed scale to the Town-scale in the Wilkeson area.

5.1 Pierce County

5.1.1 Pierce County Public Works and Utilities: Surface Water Management Division

The Pierce County Public Works and Utilities Department's Surface Water Management Division is planning the Carbon River and Upper Puyallup Basin Plan, which will be an update of the 1991 Storm Water Drainage and Surface Water Management Plan. The 1991 plan focuses on management of stormwater runoff management in unincorporated Pierce County and identifies projects to control the adverse impacts of stormwater runoff on aquatic habitat. No projects within the Wilkeson shoreline area were identified in the 1991 plan.

The 2007 Carbon River and Upper Puyallup River Basin Characterization is part of the watershed planning effort and includes an analysis of existing conditions; fish use information; and habitat, erosion, flooding/drainage, water quality problems in the basin, including problems specific to Wilkeson Creek sub-basin. Identified next steps by the County include identifying solutions to watershed needs and drafting the basin plan.

The 2001 Watershed Analysis for the Development of Salmonid Conservation and Recovery Plans within Pierce County (Motrand Biometrics, Inc. 2001) included the Puyallup-White basin and three other basins and had as its objectives:

1. To assess current and historic population performance relative to habitat conditions and prioritize protection and restoration actions for focus species, and

2. To develop and prioritize strategic candidate actions and analyze their potential benefits.

5.1.2 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). 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.

The plan includes in its project list developing the Wilkeson Creek portion of the Foothills Trail for creek access.

5.1.3 Pierce County Lead Entity

Pierce County serves as the Lead Entity for the WRIA 10. The lead entity is charged with gathering information so that the “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 [Technical Advisory Group], the SRF Board, and Project Sponsors to identify and prioritize salmon habitat recovery projects in WRIAs 10 and 12.” No projects within Wilkeson shoreline jurisdiction are identified in the strategy, although Lead Entity’s 2010 3-Year Work Program Watershed Implementation Template include a number of basin-wide restoration projects.

5.2 *Washington State Department of Ecology*

The Town of Wilkeson utilizes Ecology staff as a resource for technical support and regulatory assistance when needed. The Town’s stormwater regulations refer to Ecology’s 2005 Stormwater Management Manual for Western Washington for minimum stormwater standards. The Town also works with Ecology in fulfilling monitoring requirements for National Pollution Discharge Elimination Permit (NPDES) permitting at the Wilkseeon Wastewater Treatment Plant.

5.3 *Washington State Conservation Commission*

The completion of the Salmonid Habitat Limiting Factors Analysis for WRIA 10 (Kerwin 1999) was a collaborative effort of the Washington State Conservation Commission and the Watershed Lead Entities, with input from many individuals from WDFW, the Puyallup Tribe, Pierce County Conservation District, the Muckleshoot Indian Tribe, Ecology, and other agencies and entities. The analysis summarizes the chronology of historic impacts in the Puyallup River Basin and identifies habitat limiting factors for Wilkeson Creek.

The WRIA 10 report recognized the potential for habitat restoration, as well as the significance of habitat protection in the watershed; however, specific action items were not identified.

5.4 *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 state 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, scheduled to be updated in 2011. The Action Agenda adopts ecosystem recovery targets to address in the coming years. Targets under consideration for inclusion in the 2011 update are several objectives for restoration in streams in the Partnership's Action Areas, which includes Wilkeson.

The Puget Sound Partnership, in coordination with local governments and non-profits, is also sponsoring the 'Puget Sound Starts Here' campaign to educate the public in the region about non-point source stormwater impacts on water quality. The campaign is focused on simple, clear messaging and marketing to raise awareness and effect behavior change.

5.5 *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 approach and utilizes volunteers and public education in the region, which includes the entirety of WRIA 10.

5.6 *Muckleshoot Tribe*

The Tribe's Natural Resources Department works to protect salmon runs, elk, and other natural resources. The Tribe serves on the Pierce County Lead Entity TAG, providing expertise to the Lead Entity on basin-wide restoration.

5.7 *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 to raise 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.

5.8 *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; 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.

5.9 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 Wilkeson, this does not preclude involvement in restoration activities in the future. Potentially active groups include:

- Cascade Land Conservancy
- Audubon Society
- The Washington Wildlife and Recreation Coalition
- People for Puget Sound

6.0 Potential Projects

Potential restoration projects for the Wilkeson shoreline have been identified in existing watershed planning and analysis documents. A 2001 Pierce County Watershed Analysis (Motrand Biometrics, Inc. 2001) included as potential protection/restoration sites Wilkeson Creek. The creek scored relatively high for its potential benefit to Chinook and Coho salmon.

Although it did not define specific projects, the Carbon River and Upper Puyallup River Basin Characterization (Pierce County 2007) identified 20 problem sites in the Wilkeson Creek sub-basin that suffer from environmental problems (habitat, erosion, flooding/drainage, and water quality).

The Pierce County Draft Shoreline Restoration Plan (Pierce County 2009a) recommends addressing Wilkeson Creek water quality and riparian vegetation issues by revegetating riparian areas. It ranks this as a high priority restoration opportunity.

Pierce County Park and Recreation 2010 Capital Improvements Status Report (Pierce County 2010) mentions significant bank erosion that occurred on an approximately 400-foot section of the left bank of Wilkeson Creek in 2009 and notes that environmental issues pertaining to repair have not been resolved. The Town has initiated development of a comprehensive restoration plan for the area. The plan has not reached the implementation stage and is presently limited by lack a funding.

The SMP Cumulative Impacts Analysis (The Watershed Company 2012) identifies key features that are part of the SMP update process and that protect and enhance shoreline ecological functions. While they do not specify location, they do indicate the general categories of restoration that would be valuable in restoring ecological process in shoreline jurisdiction. Retention and revegetation of the shoreline as part of future development and water quality and quantity standards for construction and post-construction periods are recommended as potential means of enhancing the Wilkeson shoreline.

The Wilkeson Shoreline Inventory and Analysis Report (The Watershed Company 2011) identifies opportunities for restoration in the upstream and downstream units of Wilkeson Creek. The two units of the creek vary most noticeably in degree of existing development and occurrence of critical areas, with the upstream unit generally containing more critical area and less development. The primary restoration opportunity for the upstream unit lies in riparian revegetation. Planting of native coniferous species to increase riparian function and promote future recruitment of large woody debris is the general restoration recommendation for this unit.

Restoration opportunities listed in the Inventory and Analysis report are somewhat more specific for the Wilkeson Creek downstream unit than for the upstream unit. They are as follows:

- Remove Japanese knotweed and other invasive riparian vegetation.
- Enhance shoreline vegetation by planting native trees and shrubs.
- Encourage the installation of large woody debris in flood control projects.
- Where possible on residential properties, reduce or remove bank armoring, increase native riparian vegetation cover, and reduce impervious surface in the shoreline.
- Investigate and pursue opportunities to expand floodplain capacity and enhance habitat through actions such as creation of off-channel rearing areas.

7.0 Strategies to Achieve Local Restoration Goals

This section discusses programmatic measures for the Town of Wilkeson designed to foster shoreline restoration and achieve a net improvement in shoreline ecological processes, functions, and habitats. With projected budget and staff limitations, the Town is limited in implementing restoration projects or programs on its own. However, the Town's SMP represents an important vehicle for facilitating and guiding restoration projects and programs that can be partnerships with private and/or non-profit entities. The Town can provide direction and leadership to assure that restoration designs meet

the identified goals of the various plans. The discussion of restoration mechanisms and strategies below highlights programmatic measures that the Town may potentially implement as part of the proposed SMP, as well as parallel activities that would be managed by other governmental and non-governmental organizations.

7.1 *Town Planning*

The Town could incorporate shoreline restoration goals and projects into the Town's 2010 Parks and Recreation Plan. The Town could also review the various elements of previously adopted and yet-to-be-adopted plans that apply to shoreline areas and develop a prioritized list of projects.

7.2 *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 Town's shorelines, the Town may establish an account that may serve as a source of local match monies for non-profit organizations implementing restoration of the Town's shorelines. This fund may be administered by the Town and be supported by a levy on new 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 Salmon Recovery Funding Board (SRFB), Aquatic Lands Enhancement Account (ALEA), Pierce County Conservation District grants, or another source.

7.3 *Resource Directory*

Development of a resource list would be helpful in aiding both the Town and property owners who want to be involved in restoration. For example, landowners and/or the Town 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.

7.4 *Volunteer Coordination*

The Town could emphasize and accomplish restoration projects by using community volunteers and coordinating with organizations such as the Muckleshoot Tribe, Pierce County Conservation District, Stewardship Partners, local churches, Booster Club, Fraternal Order of Eagles, Rotary International, Chamber of Commerce, or White River School District. Probably the most important volunteer is the landowner that acts as the steward of the land following the completion of a project. The Town may have to provide ongoing assistance and resources to landowners that need additional plantings, equipment use or other materials to maintain their restoration project.

7.5 *Regional Coordination*

The Town will continue to pursue associations and involvement with the Washington State Department of Ecology, Puget Sound Partnership, and Pierce County. The Town may also look for other time sensitive opportunities for involvement in regional restoration planning and implementation.

8.0 Proposed Implementation Targets and Monitoring Methods

8.1 *Project Evaluation*

When a restoration project is proposed for implementation by the Town, 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 or protection 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 or limiting factor for salmon recovery.
- Conditions that are progressively worsening are of greater priority.
- Restoration projects that address multiple functions or processes.
- 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 project design should consider impacts to adjacent property owners.
- There is public support for the project.
- The project is supported by and consistent with other restoration plans.

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

8.2 Monitoring and Adaptive Management

In addition to project monitoring required for individual restoration and mitigation projects, the Town 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 approach is suggested:

1. Track information using the Town's permit system as activities occur (development, conservation, restoration and mitigation), such as:
 - a. New shoreline development
 - b. Shoreline variances and the nature of the variance
 - c. Compliance issues
 - d. New impervious surface areas
 - e. New and existing critical area protection easements
 - f. Removal of fill or armoring
 - g. Addition of fill or armoring
 - h. Vegetation retention/loss

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

2. Review status of environmental processes and functions at the time of periodic SMP updates to, at a minimum, validate the effectiveness of the SMP. 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 Town 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 Town 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.

8.3 *Implementation Schedule*

Section 6 describes project opportunities to restore shoreline conditions. The restoration opportunities included 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, and results from monitoring studies will help inform future restoration practices. Generally, conservation of existing natural areas is the approach least likely to result in failure. Alternatively, local shoreline enhancement (as opposed to restoration of processes and associated functions), has a higher degree of uncertainty.

This Restoration Plan does not provide a comprehensive scientific index of restoration opportunities that allows the Town 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). Regardless of gaps in our understanding of prioritization and future funding, Table 2 outlines a possible schedule and potential funding sources for implementation of a variety of efforts that could improve shoreline ecological function.

Table 2. Implementation Schedule and Funding for Restoration Projects, Programs and Plans.

Restoration Project/Program	Schedule	Funding Source or Commitment
TMDL adaptive management	2013 and beyond	The Town will participate in meetings
Sewage treatment plant maintenance and management	Yearly	The Town will commit staff time to oversight of plant maintenance and management
Stormwater discharge management	2013	The Town will manage stormwater quality in discharges to Wilkeson Creek in compliance with current stormwater regulations and Ecology's Western Washington Stormwater Manual
Wilkeson stormwater management facilities	Yearly	The Town will monitor for compliance with current stormwater regulations and Ecology's Western Washington Stormwater Manual
Residential shoreline restoration and enhancement program	Implement by 2015	The Town will commit staff time and resources to encourage private landowners to restore and protect shorelines
Town properties shoreline enhancement	Implement by 2015	The Town will commit staff time to ensuring that restoration is included as a component of all development and redevelopment on Town shoreline properties
Town permitting conditions enforcement	Implement by 2013	The Town will commit staff time to increased enforcement of compliance with shoreline restoration conditions in local permitting
Washington Department of Ecology	Ongoing	The Puyallup-White Watershed Assessment was completed in 1995. The Town is no longer working under the Watershed Planning Act.
Carbon River and Upper Puyallup River Basin Watershed Planning	Ongoing	Grants from Salmon Recovery Funding Board, Pierce County Public Works
Wilkeson Comprehensive Plan	Ongoing	The Town will continue to make project and program reviews to determine consistency with the Comprehensive Plan.
Wilkeson Critical Areas Regulations	Ongoing	The Town makes a substantial commitment of staff time in the course of project and program reviews to determine consistency and compliance with their updated Critical Areas Regulations.
SMP – overall plan effectiveness	7-year review	Wilkeson General Fund and Ecology grant
Washington State Conservation Commission WRIA 10 Watershed Planning	Ongoing	The Town will refer to the Salmonid Habitat Limiting Factors Report for guidance regarding habitat limiting factors and data gaps as restoration projects are considered.
Local and regional non-profit organizations	Ongoing	The Town will pursue partnership opportunities as time and budget permit.
Private funded projects	Ongoing	Private or grant funding
Pierce County Public Works: Surface Water Management Division	Ongoing	The Town has adopted the 2005 Ecology Stormwater Management Manual for Western Washington.
Stakeholder partnerships	Ongoing	Grant funds or volunteer monitoring

8.3 Reporting

Town staff is encouraged to track all land use and development activity, including exemptions, within shoreline jurisdiction. 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 Town 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 Town should be able to demonstrate a net improvement in the Town of Wilkeson's shoreline environment.

9.0 References

- Kask Consulting. 1998. Unified Development Ordinance, Town of Wilkeson: Zoning, Subdivision, Environment, Development Standards. July 1998. 312pp.
- Kerwin, J. 1999. Salmon Habitat Limiting Factors Report for the Puyallup River Basin - WRIA 10. Washington Conservation Commission, Olympia, WA. July 1999.
- Motrand Biometrics, Inc. 2001. Watershed Analysis for the Development of Salmonid Conservation and Recovery Plans within Pierce County. June 2001.
- Pierce County. 2008. Salmon Habitat Protection and Restoration Strategy: WRIA-10 Puyallup Watershed and WRIA -12 Chambers/Clover Creek Watershed. March 2008.
- Pierce County. 2009. Park, Recreation and Open Space Plan. Prepared by MIG.
- Pierce County. 2009a. Pierce County SMP Update Shoreline Restoration Plan. June 2009.
- Pierce County Public Works and Utilities Water Programs. 2007. Draft Carbon River and Upper Puyallup River Basin Characterization.
<http://www.co.pierce.wa.us/xml/services/home/envIRON/water/ps/basinplans/carbon/DraftCharacterization.pdf>
- The Watershed Company. 2012. Cumulative Impacts Analysis. Town of Wilkeson. June 2012.

The Watershed Company. 2011. Shoreline Inventory and Analysis for the Town of Wilkeson: Wilkeson Creek. April 2011.

The Watershed Company. 2012. Shoreline Master Program: Wilkeson Creek. June 2012.

Town of Wilkeson. 1998. Town of Wilkeson Unified Development Ordinance.

Town of Wilkeson. 2005. Town of Wilkeson Comprehensive Plan.

Town of Wilkeson. 2005. Town of Wilkeson Critical Areas Code.

Town of Wilkeson. 2010. Town of Wilkeson Parks and Recreation Plan.

Washington State Department of Ecology (Ecology). 2006. South Prairie Creek Bacteria and Temperature Total Maximum Daily Load (Water Clean Up Plan): Detailed Implementation Plan. Ecology Publ. No. 06-10-018. 44pp.

Williams, R.W., R.M. Laramie, and J.J. Ames. 1975. A Catalog of Washington Streams and Salmon Utilization, Vol. 1, Puget Sound Region. Washington Department of Fisheries.