

**TOWN OF SOUTH PRAIRIE
GRANT No. G1000069**

SHORELINE RESTORATION PLAN

(ORD. 549 – ATTACHMENT A, APPENDIX C)

For Town of South Prairie's Shoreline: South Prairie Creek

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SHORELINE RESTORATION PLAN

TOWN OF SOUTH PRAIRIE

1.0 Introduction

The Town of South Prairie'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

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 a specific local master program's jurisdiction (e.g., outside of town limits, 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 South Prairie'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 South Prairie'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 South Prairie: South Prairie Creek* (TWC 2011) is summarized in Section 2.3.

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)”

South Prairie 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 2007, includes as a goal consideration of the natural environment in development.

The Town’s shoreline management area includes the entirety of the South Prairie Creek shoreline within Town limits. Further, shoreline jurisdiction includes an associated wetland landward of the standard 200-foot shoreline jurisdiction on the north bank, and FEMA flood hazard areas outside of the 200-foot standard on both banks. 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 South Prairie: South Prairie Creek* (TWC 2011).

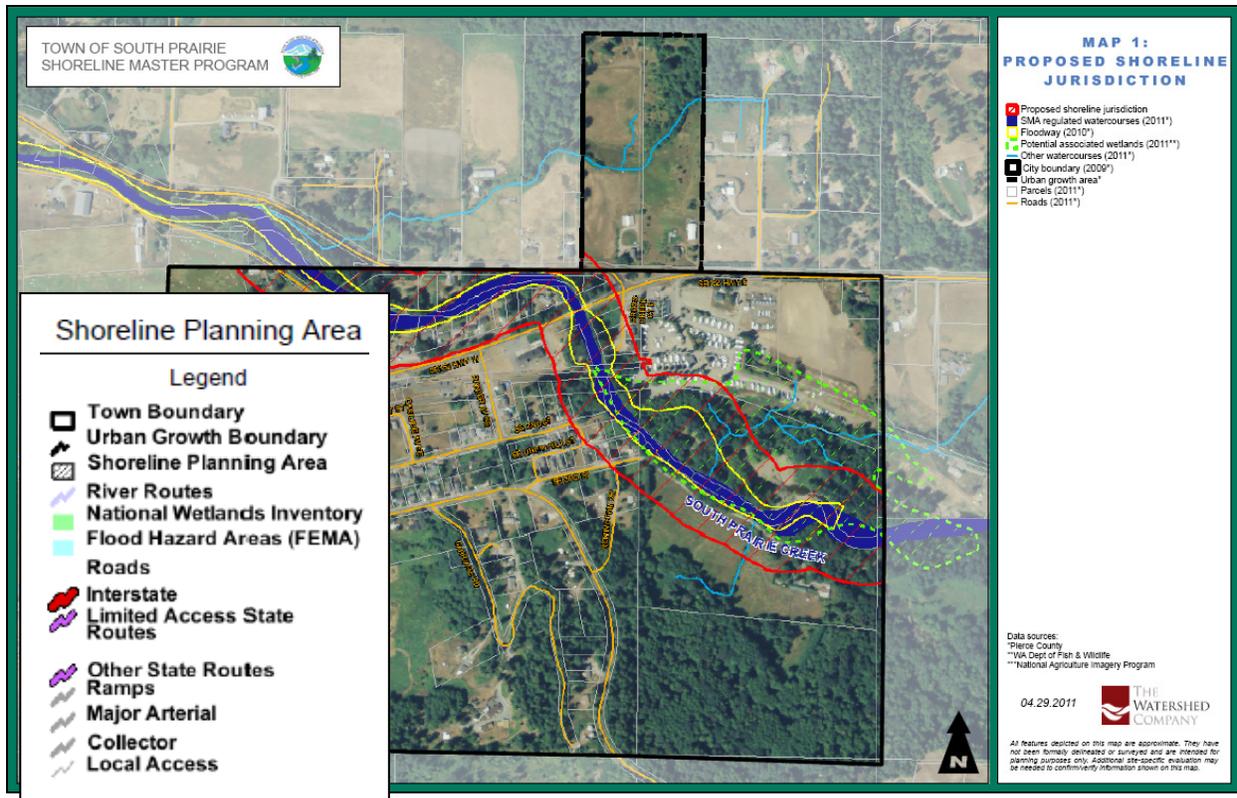


Figure 1. Map of South Prairie shoreline jurisdiction

2.3 Inventory and Analysis

The Town of South Prairie’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 46.6 acres, and encompasses approximately 0.77 mile of shoreline. In order to break down the shoreline into manageable units and to help evaluate differences between discrete shoreline areas, the South Prairie 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 South Prairie: South Prairie Creek*.

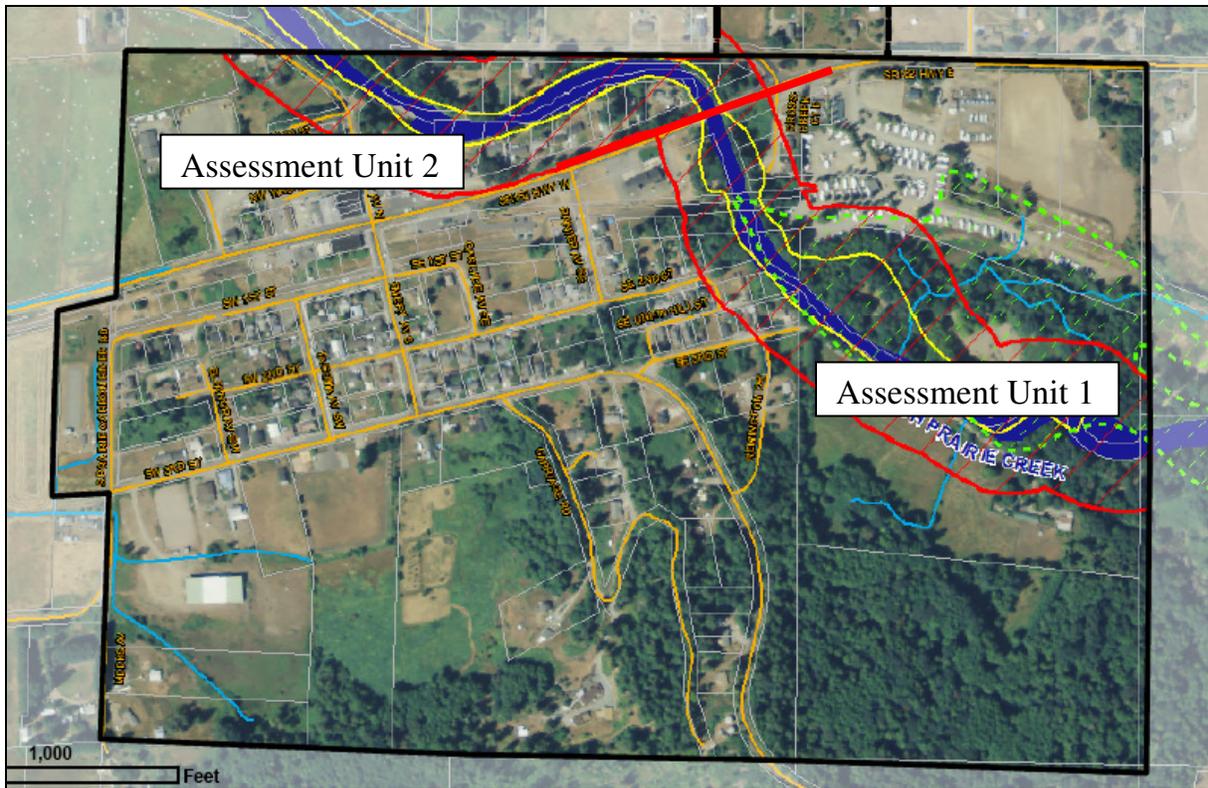


Figure 2. Map of the Town's shoreline assessment units (separated by red line)

2.3.1 Land Use and Physical Conditions

The Town of South Prairie 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.

South Prairie Creek flows from its origin at the confluence of East Fork South Prairie Creek and South Fork South Prairie Creek. Both forks flow from high in the Snoqualmie National Forest near Pitcher Mountain and become shorelines of the state before converging approximately 8.5 miles southeast of the Town. South Prairie Creek then flows in a northwesterly direction toward the Town with numerous tributaries flowing into the creek, including non-shorelines of the state (New Pond Creek, Beaver Creek, Spiketown Ditch) and shorelines of the state (Page Creek, Wilkeson Creek). Within the Town, South Prairie Creek totals approximately 0.77 mile in length. The total shoreline jurisdiction area for the stream and associated wetlands within the Town is 46.6 acres. After leaving the Town limits, the stream flows for approximately 5.5 miles before flowing into the Carbon River, near the City of Orting, then the Puyallup River, before eventually emptying into Commencement Bay in the City of Tacoma.

South Prairie Creek supports Chinook, Coho, and steelhead, and is presumed to support bull trout from its confluence with the Carbon River upstream and through its convergence with the South Fork South Prairie Creek. South Prairie Creek is considered one of the most productive streams in the Puyallup/White River Watershed (Marks et al. 2005), produces almost half of all the wild steelhead in the Puyallup River system, has the only significant run of pink salmon in the Puyallup River, and also has healthy returns of Chinook, Coho and chum salmon, and sea-run cutthroat trout (Kerwin 1999).

Within South Prairie town limits, the creek runs through natural areas, residentially developed properties, limited commercial properties, and an expansive channel migration zone that includes wetlands and floodplain. The upstream assessment unit (Unit 1) consists of the greater extent of natural area, including a large wetland and steep slopes, as well as residential uses, Veteran’s Park and an RV park. Veteran’s Park includes direct public access to the shoreline. The south (left) bank of the downstream assessment unit (Unit 2) is almost exclusively developed with residential use with a small area of commercial (gas station) development. The north (right) bank is zoned for residential use but largely undeveloped. Unit 2 also contains the Town’s wastewater outfall at the northmost end of Town limits. There is presently no public access in this unit. South Prairie Road East confines the right bank where it runs nearby and comes within approximately 10 feet of the creek.

Shoreline processes and functions are moderate to high on South Prairie Creek within Unit 1. The reach is generally well-vegetated, has an extensive floodplain, braided channels, large woody debris (LWD) and high opportunity for LWD recruitment, and coarse-grained soils. Ecological function in Unit 2 rates moderately; bank vegetation is substantially less abundant in this reach, LWD is less abundant, some bank armoring is present, and constriction limits function in the South Prairie Road East vicinity.

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

Table 1. Summary of assessment unit shoreline modifications

Physical Conditions	Assessment Unit 1	Assessment Unit 2
Reach Length (feet)	2,340	1,732
Reach Area	30.2 acres	16.4 acres
Shoreline Armoring	NA	NA
Overwater Cover	Two bridge crossings.	None

The level of expected change in land use patterns along all both assessment units is related mainly to the proportion of undeveloped residential parcels. Approximately one quarter of the residential parcels in Unit 1 could be developed in the future, and

redevelopment of existing structures is likely as well. Approximately two-thirds of the residential properties in the unit could be further subdivided. In Unit 2, land use change is most likely to consist of redevelopment of existing structures, as the residential and commercial districts are largely developed and existing open space is not likely to see new development because of its proximity to the creek. Some subdivision of parcels is possible.

The Town is currently under a Department Ecology sewer moratorium. The moratorium results from the Town's wastewater treatment plant reaching full capacity. Until the plant is expanded (which is not expected in the next 20 years), Ecology will not grant any additional sewer hookups. Therefore, development within the Town would only occur if an existing residence (with an approved hookup) is rebuilt or if a property owner can obtain a septic system permit from the Tacoma-Pierce County Health Department.

2.3.2 Biological Resources and Critical Areas

The Washington State Department of Fish and Wildlife Priority Habitats and Species (PHS) database identifies Chinook, Coho, pink, and chum salmon, bull trout, and steelhead within South Prairie Creek inside the Town limits. No additional species or habitats were identified in shoreline jurisdiction.

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 fish and wildlife 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 Town's Comprehensive Plan (Town of South Prairie 2007a) lists as an essential goal:

The Town should respect the natural environment in any future development. Development on slopes in excess of 30 percent, the South Prairie Creek Shoreline, other wetlands, and critical areas should be discouraged. Development on or near other natural resource lands should be regulated so as not to endanger the development of the continued use of the natural resource lands."

The Shorelines chapter of the Town's Comprehensive Plan includes goals related to the natural environment and specific to shorelines as follows:

Goal: to promote healthy, orderly economic growth by encouraging economic activities that will be an asset to the local economy and which result in the least possible adverse effect on the quality of the shorelines and surrounding environment.

Goal: to encourage diverse water-oriented recreational opportunities in shorelines areas that can reasonably tolerate such uses during peak use periods without destroying the integrity and character of the shoreline.

Goal: to develop efficient and economical transportation systems that assures the safe movement of people, while minimizing disturbances to the shoreline environment as well as conflicts among different users of the shoreline.

Goal: to establish and implement policies and regulations for land uses that are consistent with the requirements of the Shoreline Management Act and the Growth Management Act, and which promote shoreline use patterns that are compatible with the ecological functions and values of the shoreline environment.

Goal: to preserve scenic and non-renewable natural resources and to encourage the preservation of renewable natural resources for the benefit of present and future generations.

Goal: to identify, protect, preserve, and restore significant archaeological, historic, and cultural sites located in shorelines for educational and scientific purposes, as well the enjoyment of the general public.

Policies to achieve the above goals are directed toward allowing and encouraging economic development, public access, recreation, infrastructure development, and cultural/historic preservation while regulating shoreline use and requiring attention to the natural environment during implementation of projects designed to fulfill the stated goals. The natural shoreline environment is further addressed through goals of specific restrictions and protections in areas that are relatively free of human influence, are degraded but have the potential to be restored, are of high scientific or educational value, are considered critical wildlife habitat, and/or possess environmentally hazardous areas.

The Town of South Prairie participated in the advisory committee for the South Prairie Creek Bacteria and Temperature Total Maximum Daily Load (TMDL) Detailed Implementation Plan (Ecology 2006). The reach of South Prairie Creek within Town limits contains no 303(d) listings. However, restoration goals within the Town are directed toward both water quality and habitat restoration and protection and include:

Goal: to manage and maintain the Town's sewage collection system in compliance with current NPDES permit requirements.

Goal: to participate in TMDL adaptive management meetings.

Goal: to manage stormwater facilities and discharge to South Prairie Creek in compliance with current stormwater regulations and Ecology's Western Washington Stormwater Manual.

Goal: to update Critical Areas Ordinances (CAO) every seven years.

Goal: to upgrade the Town's sewage treatment plant to improve plant function and prevent water quality impacts.

Goal: to comply with other NPDES permit conditions.

Beyond existing goals, the Town will implement the following:

Goal: assist residents with efforts to plant and enhance native vegetation in shoreline areas by providing resources on private land management and restoration.

Goal: 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.

Goal: 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.

Goal: enforce monitoring and maintenance of restoration actions that are required under permitting regulations.

Goal: 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 measurable net increase in ecological function results.

Goal: continue to meet water quality standards in South Prairie Creek within Town limits and to contribute to efforts that result in the lower reaches of the Creek meeting and maintaining water quality standards in the future.

Goal: inform and educate landholders on agriculture and livestock impacts to stormwater.

These goals 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 South Prairie implements elements of the Growth Management Act through the Town's Comprehensive Plan, the Critical Areas Code, and the Unified Development Ordinance.

4.1 Comprehensive Plan

The South Prairie Comprehensive Plan (Kask Consulting, Inc. 2007) defines goals addressing the environment in its Visions and Goals element and Shorelines chapter (see Section 3.0, above).

4.2 Critical Areas Code

The Town of South Prairie's critical areas code (Kask Consulting, Inc. 2007a) is based on best available science and provides protection to critical areas in the Town, including wetlands, geologically hazardous 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 into one of four categories. 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 (South Prairie Creek) is 200 feet. The Town requires critical areas reports, protective measures, and potentially mitigation when actions are proposed in or adjacent to critical areas. Management of South Prairie'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

The Town's Unified Development Ordinance (Town of South Prairie 2007a) sets standards for development in critical areas, including geologically hazardous areas, aquifer recharge areas, fish and wildlife habitat areas, agricultural lands, forest lands, property adjacent to designated resource lands, mineral resource lands, and wetlands.

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 South Prairie. 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 South Prairie 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 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 the South Prairie Creek sub-basin. 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.

The Town's stormwater regulations refer to the Pierce County Stormwater Management and Site Development Manual for stormwater standards.

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.

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 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." The Lead Entity's 2010 3-Year Work Program Watershed Implementation Template includes a number of basin-wide restoration projects, and several specific to South Prairie Creek, including riparian restoration, armor removal, invasive species eradication, revegetation, and riparian habitat protection.

5.2 *Washington State Department of Ecology*

The Town of South Prairie utilizes Ecology staff as a resource for technical support and regulatory assistance when needed. The Town requires compliance with Washington Department of Ecology National Pollution Discharge Elimination Permit (NPDES) permitting regulations for projects that disturb more than one acre.

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 South Prairie 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 South Prairie.

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 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 fish population research and reporting, habitat modeling, and protection and restoration in WRIA 10, including South Prairie Creek. Some of this work stems from the Tribe's role in Pierce County Lead Entity work (see Section 5.1.3).

5.8 *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.

5.9 *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.

5.10 *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 South

Prairie, 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 Mitigation Opportunities

6.1 *Pierce County Efforts*

Potential restoration projects for the South Prairie Creek 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 Lower South Prairie mainstem, Middle South Prairie mainstem, Upper South Prairie mainstem, Top South Prairie mainstem, and miscellaneous Middle South Prairie tributaries. The Lower and Middle South Prairie mainstem areas in particular scored very high in relative importance for protection measures.

Although it did not define specific projects, the Carbon River and Upper Puyallup River Basin Characterization (Pierce County 2007) identified 36 problem sites in the South Prairie Creek sub-basin that suffer from environmental problems (habitat, erosion, flooding/drainage, and water quality).

The Pierce County Draft Shoreline Master Program Restoration Plan (Pierce County 2009a) lists the following programmatic opportunities for restoration in South Prairie Creek, appropriate for all reaches:

- Revegetation of riparian areas.
- Support of ongoing restoration programs.
- Restoration of wetland and floodplain connectivity to the channel.
- Augmenting LWD, channel structure, and sinuosity.

The restoration opportunity of acquiring 60-120 acres of instream and riparian habitat to protect important salmonid spawning areas is specified for the lower 8 miles of South Prairie Creek.

All of these actions were ranked as high priority restoration opportunities.

6.2 Town Efforts

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. Restoration and conservation of riparian vegetation and edge habitat as part of future development, retention and revegetation of shorelines, and water quality and quantity standards for construction and post-construction periods are recommended as potential means of enhancing the South Prairie shoreline.

The South Prairie Shoreline Inventory and Analysis Report (TWC 2011) identifies opportunities for restoration in the upstream and downstream units of South Prairie Creek. The two units of the creek vary most noticeably in degree of existing development and occurrence of natural areas, with the upstream unit generally containing more natural area and less development. The upstream unit is largely forested but includes some impacted areas, particularly on the RV park property. The forested areas consist of a mix of deciduous and coniferous trees. The main restoration opportunities in this unit are projects consisting of planting native coniferous species to increase riparian density, shading, and future recruitment of large wood to the stream.

In addition to the opportunities identified for the upstream portion of South Prairie Creek, examples of restoration opportunities for the downstream portion of South Prairie Creek may include, but are not limited to, the following:

- Invasive species removal
- Shoreline planting with native trees and shrubs
- Installation of large woody debris
- Reduction and/or modification of bank armoring
- Floodplain expansion

7.0 Strategies to Achieve Local Restoration Goals

This section discusses programmatic measures for the Town of South Prairie 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 various elements of previously adopted and yet-to-be-adopted plans (parks and recreation, comprehensive plan) 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 ports, conservation districts, utilities, park and recreation districts, 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, Puyallup Tribe, Pierce County Conservation District, Stewardship Partners, local churches, 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 presents a proposed 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
South Prairie Sewage Treatment Plant upgrades	2015	The Town will commit staff time to review and monitoring and will pursue funding for upgrades
Sewage Plant maintenance and management	Yearly	The Town will commit staff time to oversight of plant maintenance and management
South Prairie stormwater management	Yearly	The Town will monitor for compliance with current stormwater regulations and Ecology's Western Washington Stormwater Manual
Stormwater drainage maintenance	2013	Work with Pierce County to assess and maintain roadway stormwater drainage above SR 162
Agriculture/livestock landowners information	2013	Refer landowners to the Pierce Conservation District for technical assistance regarding agriculture and livestock impacts on stormwater
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
South Prairie Comprehensive Plan	Ongoing	The Town will continue to make project and program reviews to determine consistency with the Comprehensive Plan.
South Prairie Critical Areas Regulations	Every 7 years	The Town makes a 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	2019	South Prairie 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
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8.4 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 South Prairie’s shoreline environment.

9.0 References

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