

**TOWN OF SOUTH PRAIRIE**

**GRANT NO. 1000069**

**CUMULATIVE IMPACTS ANALYSIS**

**(ORD. 549 – ATTACHMENT C)**

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**for Town of South Prairie's Shoreline: South Prairie  
Creek**

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This report was funded in part through a grant from the Washington Department of Ecology.

**May 2012**

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Reference Number:  
110110**

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Printed on 30% recycled paper.

**Cite this document as:**

The Watershed Company. May 2012. DRAFT Cumulative Impacts Analysis for the Town of South Prairie's Shoreline: South Prairie Creek. Prepared for the Town of South Prairie, South Prairie, WA.

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# CUMULATIVE IMPACTS ANALYSIS

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## TOWN OF SOUTH PRAIRIE SHORELINE: SOUTH PRAIRIE CREEK

# 1 INTRODUCTION

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## 1.1 Shoreline Management Act Requirements

The Shoreline Management Act guidelines (Guidelines) require local shoreline master programs (SMPs) to regulate new development to “achieve no net loss of ecological function.” The Guidelines (WAC 173-26-186(8)(d)) state that, “To ensure no net loss of ecological functions and protection of other shoreline functions and/or uses, master programs shall contain policies, programs, and regulations that address adverse cumulative impacts and fairly allocate the burden of addressing cumulative impacts.”

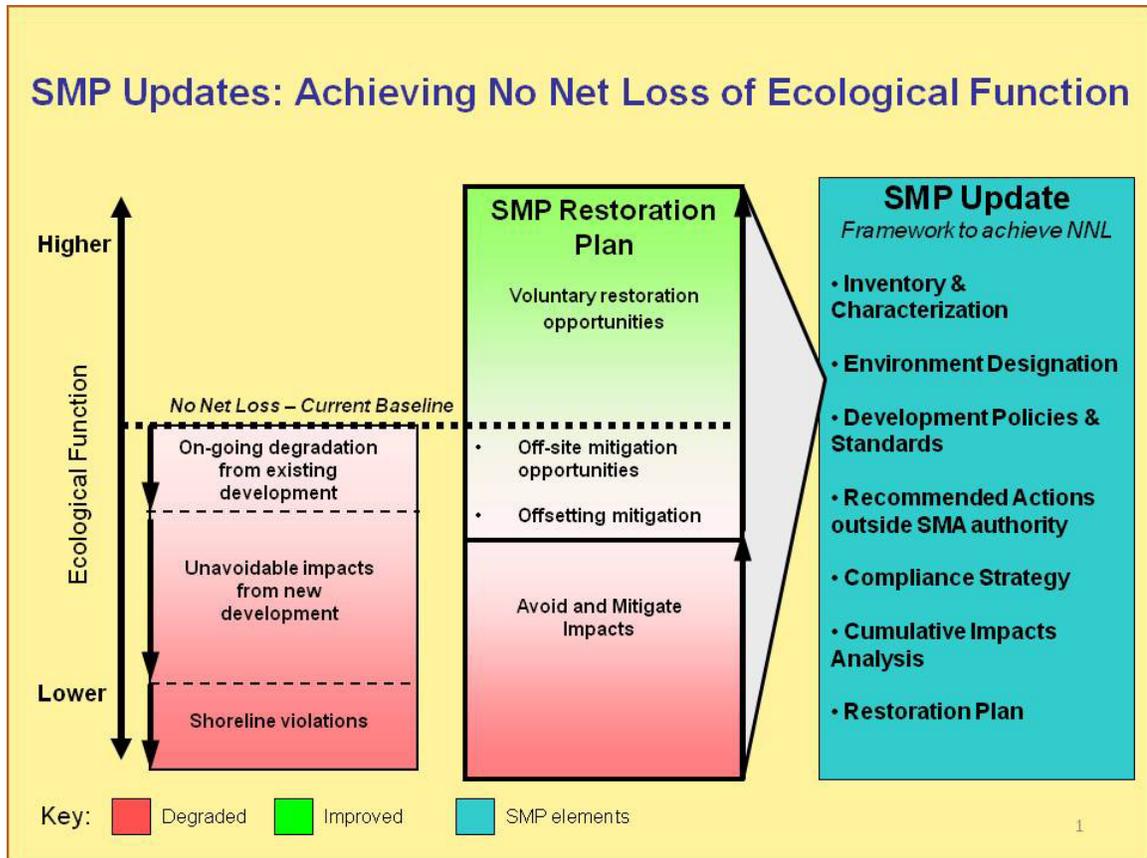
The Guidelines further elaborate on the concept of net loss as follows:

*“When based on the inventory and analysis requirements and completed consistent with the specific provisions of these guidelines, the master program should ensure that development will be protective of ecological functions necessary to sustain existing shoreline natural resources and meet the standard. The concept of “net” as used herein, recognizes that any development has potential or actual, short-term or long-term impacts and that through application of appropriate development standards and employment of mitigation measures in accordance with the mitigation sequence, those impacts will be addressed in a manner necessary to assure that the end result will not diminish the shoreline resources and values as they currently exist. Where uses or development that impact ecological functions are necessary to achieve other objectives of RCW 90.58.020, master program provisions shall, to the greatest extent feasible, protect existing ecological functions and avoid new impacts to habitat and ecological functions before implementing other measures designed to achieve no net loss of ecological functions.” [WAC 173-206-201(2)(c)]*

In short, updated SMPs shall contain goals, policies and regulations that prevent degradation of ecological functions relative to the existing conditions as documented in that jurisdiction’s characterization and analysis report. For those projects that result in degradation of ecological functions, the required mitigation must return the resultant ecological function back to the baseline. This is illustrated in the figure below. The jurisdiction must be able to demonstrate that it has accomplished the goal of “no net loss” through an analysis of cumulative impacts that might occur through

implementation of the updated SMP. WAC 173-26-186(8)(d) states “[e]valuation of such cumulative impacts should consider:

- (i) current circumstances affecting the shorelines and relevant natural processes;
- (ii) reasonably foreseeable future development and use of the shoreline; and
- (iii) beneficial effects of any established regulatory programs under other local, state, and federal laws.”



Source: Department of Ecology

As outlined in the *Shoreline Restoration Plan* (Appendix C of the SMP) prepared as part of this SMP update, the SMA also seeks to restore ecological functions in degraded shorelines. This cannot be required by the SMP at a project level, but Section 173-26-201(2)(f) of the Guidelines says: “master programs shall include goals and policies that provide for restoration of such impaired ecological functions.” See the *Shoreline Restoration Plan* for additional discussion of SMP policies and other programs and activities in the Town that contribute to the long-term restoration of ecological functions relative to the baseline condition.

## 1.2 Methodology

Using the textual, numerical and graphical information developed and presented in the *Shoreline Inventory and Analysis Report*, this cumulative impacts analysis was prepared consistent with direction provided in the Guidelines as described above. To the extent that existing information was sufficiently detailed and assumptions about possible new or re-development could be made with reasonable certainty, the following analysis is quantitative. However, in many cases information about existing conditions and/or redevelopment potential was not available at a level that could be assessed quantitatively or the analysis would be unnecessarily complex to reach a conclusion that could be derived more simply. Further, ecological function does not have a simple metric. For these reasons, much of the following analysis is more qualitative than quantitative.

# 2 EXISTING CONDITIONS

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The following summary of existing conditions is based on the *Shoreline Inventory and Analysis Report*. Environment designations include Shoreline Residential and Aquatic (see Appendix A of the SMP for a map of environment designations). The *Shoreline Inventory and Analysis Report* includes an in-depth discussion of the topics below, as well as information about transportation, stormwater and wastewater utilities, impervious surfaces, and historical/archaeological sites, among others.

The South Prairie Creek shoreline is primarily dominated by residential uses, although some commercial and public uses are also present. Residential uses consist exclusively of single-family residences. The entirety of the upland shoreline has been given an environment designation of Shoreline Residential.

For the purpose of analysis in the *Shoreline Inventory and Analysis Report*, South Prairie Creek was divided into two assessment units within the Town of South Prairie based on variations in land use and ecological condition. Land use conditions in each assessment unit can be found in Table 5 of the *Shoreline Inventory and Analysis Report*. Some shoreline armoring is present, and forest cover is patchy along the stream. Ecological functions are moderate to high, and floodplain functions are particularly high in the southern assessment unit. Detailed information about existing functions, including a performance rating of individual assessment unit, can be found in the *Shoreline Inventory and Analysis Report*, Section 4.3.

# 3 DEVELOPMENT POTENTIAL

The following table describes likely changes in land use, and these findings were included in Chapter 5 of the *Shoreline Inventory and Analysis Report*.

**Table 1.** Likely changes in land use and implications for shoreline management.

Assessment Unit/Zoning Area	Likely Changes in Land Use
<b>Upstream South Prairie Creek</b>	
<b>Residential</b>	Residential development comprises the majority of the assessment unit and includes approximately 15 residential parcels. Eight of the parcels are developed at low densities, while one of the parcels includes the RV park. Four parcels are undeveloped and could be developed in the future and up to 9 of the 15 parcels could be further subdivided. The largest parcel in this assessment unit and several smaller vacant parcels are encumbered by floodway and wetlands, limiting possible subdivision potential. Furthermore, due to the current sewer moratorium (see 4.5.1), new development and/or subdivision are unlikely until the Town’s sewer facilities are upgraded, and redevelopment of existing structures is the more likely scenario in the near term.
<b>Government/Utilities</b>	This area includes Veteran’s Park. The Town does not presently have any plans for intensification of existing development within the park.
<b>Parks/Trails/Open Space</b>	The Foothills rail-to-trail bisects shoreline jurisdiction on the western side of the creek and includes a former railroad bridge crossing the creek. Pierce County has purchased land on the east side of the creek, and extension of the trail on the east side of the creek may be anticipated in the future.
<b>Areas Waterward of the OHWM</b>	No changes.
<b>Downstream South Prairie Creek</b>	
<b>Residential</b>	Residential development comprises the majority of the assessment unit and includes approximately 16 residential parcels. Most of the parcels are developed. Three parcels are undeveloped and could be developed in the future and up to 8 of the parcels could be further subdivided. However, due to the current sewer moratorium (see 4.5.1), new development and/or subdivision are unlikely in the near term and redevelopment of existing structures is the more likely scenario.
<b>Commercial District</b>	The Commercial District is made up of a single residential parcel and two parcels that consist of an existing gas station. Subdivision of land and/or new development is unlikely. However, redevelopment of existing

Assessment Unit/Zoning Area	Likely Changes in Land Use
	structures could occur.
<b>Parks/Trails/Open Space</b>	The assessment unit includes a right of way adjacent to an undeveloped, privately-owned lot with significant critical areas constraints along the northern Town limits. No new recreational development is anticipated.
<b>Areas Waterward of the OHWM</b>	No changes.

## 4 PROTECTIVE SMP PROVISIONS

### 4.1 Environment Designations

The first level of protection provided by the SMP is the recognition of two different shoreline environment types in South Prairie: Shoreline Residential and Aquatic. The town accommodates a mix of uses and structures, none of which are water-dependent. Overall, the shoreline maintains a moderate amount of ecological function and little growth is expected in the foreseeable future. For these reasons, a single upland environment designation has been given to the entire Town. Table 2 (Table 3.1 in the SMP) below identifies the prohibited and allowed uses and modifications in each of the two shoreline environments.

**Table 2.** Shoreline Use and Modification Matrix (from Table 3.1 of the Shoreline Master Program)

Legend:		
SD = Permitted, may be subject to Shoreline Substantial Development Permit		
CU = Shoreline Conditional Use		
X = Prohibited or Not Applicable; the use is not eligible for a Shoreline Variance or Shoreline Conditional Use Permit		
	Aquatic	Shoreline Residential
Agriculture	X	X
Aquaculture	X	X
Boating Facilities and Private Moorage	X	X
Breakwaters, jetties, rock weirs, groins	X	X
Commercial uses		
Water-dependent uses	X	SD
Water-related	X	SD
Water-enjoyment uses	X	SD <sup>1</sup>
Nonwater-oriented uses	X	X
Dredging and Dredge Material Disposal	CU	CU
Fill <sup>2</sup> and Excavation	CU <sup>3</sup>	SD

Legend:		
SD = Permitted, may be subject to Shoreline Substantial Development Permit		
CU = Shoreline Conditional Use		
X = Prohibited or Not Applicable; the use is not eligible for a Shoreline Variance or Shoreline Conditional Use Permit		
	Aquatic	Shoreline Residential
Structural Flood Hazard Reduction (e.g., levees)	X	X
Forest Practices	X	X
Industrial Uses	X	X
Institutional	X	X
In-Stream Structures	CU	X
Mining	X	X
Parking (primary)	X	X
Recreational Development		
Water-dependent	SD	SD
Water-enjoyment	X	SD
Nonwater-oriented	X	SD <sup>4</sup>
Residential Development	X	SD
Shoreline Habitat and Natural Systems Enhancement Projects	SD	SD
Shoreline Stabilization		
Modification of existing	SD	SD
New	CU	CU
Transportation	CU	SD
Utilities (primary)	CU	SD

<sup>1</sup> Park concessions, such as small food stands, cafes, and restaurants with views and seating oriented to the water, and uses that enhance the opportunity to enjoy publicly accessible shorelines are allowed.

<sup>2</sup> Fill in the floodplain must meet all federal, state, and local flood hazard reduction regulations.

<sup>3</sup> Fill in aquatic areas for the purposes of shoreline ecological restoration may be allowed as a permitted use if the Shoreline Administrator determines that there will be an increase in desired ecological functions.

<sup>4</sup> Nonwater-oriented uses may be allowed as a permitted use where the Town determines that water-dependent or water-enjoyment use of the shoreline is not feasible due to the configuration of the shoreline and waterbody or due to the underlying land use classification in the comprehensive plan.

## 4.2 General Policies and Regulations

The SMP contains numerous general policies, with supporting regulations (see SMP), intended to protect the ecological functions of the shoreline and prevent adverse cumulative impacts. These policies are summarized below.

- Policy 4.2.1.A: Shoreline use and development should be carried out in a manner that prevents or mitigates adverse impacts, both on site and to the extent that impacts may propagate up- or downstream.

- Policy 4.2.1.C: In assessing the potential for net loss of ecological functions or processes, project-specific and cumulative impacts should be considered.
- Policy 4.5.1.A: Where new developments and/or uses or redevelopments are proposed, native shoreline vegetation should be conserved to maintain shoreline ecological functions and/or processes. Vegetation conservation and restoration should be used to mitigate the direct, indirect and/or cumulative impacts of shoreline development, wherever feasible.
- Regulation 4.5.2.C: Vegetation clearing within shoreline jurisdiction shall be limited to the minimum necessary to accommodate approved shoreline development.
- Policy 5.1.1.A: Development and uses should be designed in a manner that directs land alteration to the least sensitive portions of the site to maximize vegetation conservation; minimize impervious surfaces and runoff; protect riparian, nearshore and wetland habitats; protect wildlife and habitats; protect archaeological, historic and cultural resources; and preserve aesthetic values.
- Policy 5.1.1.C: Development should be located, designed, and managed to minimize impacts on shoreline or upland uses through bulk and scale restrictions, setbacks, buffers, light shielding, noise attenuation, and other measures.

**Table 3.** Shoreline Development Standards (from Table 3.2 of the Shoreline Master Program)

Legend: -- = Not applicable  Note: All dimensions are in feet.	<b>Aquatic</b>	<b>Shoreline Residential</b>
Shoreline Buffer – All Uses	--	50-ft
Shoreline Lot Frontage Minimum – Residential	--	50-ft
Side Yard Setback Minimum – Residential	--	5-ft
Height	---	35-ft

### 4.3 Shoreline Restoration Plan

As discussed above, one of the key objectives that the SMP must address is “no net loss of ecological shoreline functions necessary to sustain shoreline natural resources” (Ecology 2004). However, SMP updates seek not only to maintain conditions, but to improve them:

*“... [shoreline master programs] include planning elements that when implemented, serve to improve the overall condition of habitat and resources within the shoreline area of each city and county (WAC 173-26-201(c)).”*

The guidelines state that “master programs shall include goals, policies and actions for restoration of impaired shoreline ecological functions. These master program provisions should be designed to achieve overall improvements in shoreline ecological functions over time, when compared to the status upon adoption of the master program” (WAC 173-26-201(2)(f)). Pursuant to that direction, the Town has prepared a *Shoreline Restoration Plan*, which is a non-regulatory part of the SMP (Appendix C).

Practically, it is not always feasible for shoreline developments and redevelopments to achieve no net loss at the site scale, particularly for those developments on currently undeveloped properties. The *Shoreline Restoration Plan*, therefore, can be an important component in making up that difference in ecological function that would otherwise result just from implementation of the SMP. The *Shoreline Restoration Plan* represents a long-term vision for restoration that will be implemented over time, resulting in incremental improvement over the existing conditions.

The *Shoreline Restoration Plan* identifies a number of project-specific opportunities for restoration on both public and private properties inside and outside of shoreline jurisdiction, and also identifies ongoing Town programs and activities, non-governmental organization programs and activities, and other recommended actions consistent with a variety of watershed-level efforts. Based on the findings from the *Shoreline Inventory and Analysis Report*, the restoration of riparian vegetation and edge habitat along South Prairie Creek are among the primary restoration objectives for the Town’s shorelines.

## 4.4 General Cumulative Impacts Assessment

The following table (Table 4) summarizes for the existing conditions, anticipated development, relevant Shoreline Master Program (SMP) and other regulatory provisions, and the expected net impact on ecological function. Certain special topics are discussed and analyzed in greater detail in Chapter 5 following the table. The discussion of existing conditions is based on the *Shoreline Inventory and Analysis Report*, and additional analysis needed to perform this assessment.

In addition to the Shoreline Residential environment designation, the Aquatic designation will apply to those applicable areas of shoreline jurisdiction:

“Aquatic” Environment - The purpose of the “Aquatic” environment is to protect, restore and manage the unique characteristics and resources of the areas waterward of the ordinary high-water mark, including habitat, ecology, navigation and public enjoyment. An “Aquatic” environment designation will be assigned to shoreline areas waterward of the ordinary high-water mark.



**Table 4.** General Cumulative Impacts Assessment.

Environment Designation	Existing Conditions	Likely Development / Functions or Processes Potentially Impacted	Effect of SMP Provisions	Effect of Other Development and Restoration Activities / Programs	Net Effect
<p><b>Shoreline Residential</b></p>	<p>The Shoreline Residential designation along South Prairie Creek includes the entirety of all upland areas within shoreline jurisdiction. This includes all residential uses, as well as Veteran's Park and the Foothills Trail.</p> <p>Shoreline armoring is present in several locations, but the majority of the shoreline is in a semi-natural state.</p> <p>The average existing setback of primary structures for the entire designation area is 100.2 feet, and the median setback is 75.5 feet.</p>	<p><b>Future Development:</b> There is little likelihood of future changes through these shoreline areas. New development will not be allowed until the sewer moratorium is removed (see 4.5.1). Redevelopment/replacement of existing residences is more likely in the near term.</p> <p><b>Functions/Processes Impacted:</b>  <b>Water Quantity:</b> Slight changes to water quantity related to surface runoff may increase with redevelopment. However, all future development would adhere to stormwater management requirements.</p> <p><b>Water Quality:</b> Redevelopment is expected to have minimal impacts on water quality. If new development occurs in the future, it could result in reduced water quality functioning associated with the increased use of chemicals and nutrients. SMP provisions requiring the use of stormwater management and low impact development techniques would minimize water quality impacts from new development.</p> <p><b>Vegetation and Habitat:</b> Future redevelopment and/or new development could reduce vegetative coverage; however, SMP vegetation standards will require mitigation for any impacts.</p>	<p>Selected SMP policies for the "Shoreline Residential" environment (SMP <b>Section 3.2.2.C</b>) include:</p> <ul style="list-style-type: none"> <li>• Land division and development should be permitted only: <ul style="list-style-type: none"> <li>• when adequate buffers are provided to protect ecological functions; and</li> <li>• where there is adequate access, water, sewage disposal, and utilities systems, and public services available; and</li> <li>• where the environment can support the proposed use in a manner which protects or restores the ecological functions.</li> </ul> </li> <li>• New residential development should be located and designed so that future shoreline stabilization is not required.</li> </ul> <p>General vegetation conservation standards are discussed below in Section 5.1. Development regulations within the Shoreline Residential environment include a 50 foot buffer for all uses. (SMP <b>Table 3.2</b>).</p> <p>If development does occur, SMP provisions would require stormwater management and the use of low impact development techniques (4.6.2). Any new development would be required to be located and designed to avoid the need for future stabilization measures or flood hazard reduction measures (5.10.2.A and 5.8.2.A).</p> <p>Development is further limited in the southeastern area of the Town by the presence of a broad floodway and potential associated wetlands. Proposed SMP provisions would limit new development in the floodway (4.3.2.B). Any new development would need to provide wetland buffers ranging from 35 feet to 300 feet depending on the wetland rating and proposed land use (Appendix B.2.4). Streams present in the southeastern portion of the Town would also require buffers ranging from 25 to 100 feet.</p>	<p>As noted in 4.5.1, the Town's Unified Development Ordinance (UDO) requires that new development connect to the Town's sewer system (15.76.070); however, the Town has a current moratorium on new sewer connections.</p> <p>Work within the floodplain will require compliance with the new FEMA standards.</p> <p>Any in- or over-water proposals would require review not only by the Town of South Prairie, but also by the Washington Department of Fish and Wildlife (WDFW). A project that includes in-water fill would require review and permitting from the U.S. Army Corps of Engineers (Corps), and the Washington Department of Ecology, along with consultation with the National Marine Fisheries Service (NMFS). Each of these agencies is charged with regulating and/or protecting shorelines and would impose certain design or mitigation requirements on applicants.</p> <p>As identified in the <i>Shoreline Restoration Plan</i> (Appendix C of the SMP), several opportunities for improvements to shoreline ecological function exist. These include:</p> <ul style="list-style-type: none"> <li>• Riparian revegetation to address water quality and riparian vegetation issues;</li> <li>• Restoration of flood damaged stream banks, including the use of large woody debris;</li> <li>• Retention of existing shoreline vegetation during future development activities;</li> <li>• Revegetation of shoreline areas during future development activities;</li> <li>• Invasive species removal, including Japanese knotweed;</li> <li>• Improving floodplain connectivity.</li> </ul>	<p>As a result of the sewer moratorium, anticipated development in the Town's shorelines is likely to be limited to redevelopment of existing structures in the near term. Where and when development does occur, SMP provisions, including setbacks, vegetation conservation standards, shoreline critical area standards, and general mitigation sequencing will help ensure that environmental conditions will not be degraded relative to existing baseline over the long term.</p> <p>Given strict adherence to the SMP policies and regulations, no net loss of ecological functions is expected as no detrimental or un-mitigated alterations to the existing conditions are likely to occur along the Shoreline Residential designated shorelines.</p> <p>As restoration actions, including the Town's sewer facility upgrade and TMDL activities within and outside of the Town are implemented, a significant improvement in shoreline water quality functions is anticipated. These improvements will help ensure that no net loss of functions is achieved, and these actions may result in an overall improvement in shoreline functions over time.</p>



## **4.5 Other Programs**

### **4.5.1 Effects of Current Town Regulations and Programs**

#### **Critical Areas Regulations**

Critical Areas Regulations prepared under the Growth Management Act apply to designated critical areas outside of shoreline jurisdiction. Wetland buffers range from 35 feet to 300 feet depending on wetland rating and intensity of proposed land use.

#### **Sewer Moratorium**

The Town's Unified Development Ordinance (UDO) requires that new development connect to the Town's sewer system (15.76.070). However, as a result of a citation by the Department of Ecology, the Town passed Ordinance 297, which established a moratorium on any new sewer connections. The moratorium is expected to remain in place until sewer facilities are upgraded. The Town does not presently have funds to pay to upgrade its sewer facilities.

### **4.5.2 State Agencies/Regulations**

Aside from the Shoreline Management Act, State regulations most pertinent to development in the Town's shorelines include the State Hydraulic Code, the Growth Management Act, State Environmental Policy Act, and Salmon Recovery Act. A variety of agencies (e.g., Washington Department of Ecology, Washington Department of Fish and Wildlife, Washington Department of Natural Resources) are involved in implementing these regulations. Depending on the nature of the proposed development, State regulations can play an important role in the design and implementation of a shoreline project, ensuring that impacts to shoreline functions and values are avoided, minimized, and/or mitigated. A summary of some of the key State regulations and/or State agency responsibilities follows.

#### **Washington Department of Ecology**

The Washington Department of Ecology may review and condition a variety of project types, including any project that needs a permit from the U.S. Army Corps of Engineers (see below), any project that requires a Shoreline Conditional Use Permit or Shoreline Variance, and any project that disturbs more than 1 acre of land. Project types that may trigger Ecology involvement include shoreline modification proposals and wetland or stream modification proposals, among others. Ecology's three primary goals are to: 1) prevent pollution, 2) clean up pollution, and 3) support sustainable communities and natural resources (<http://www.ecy.wa.gov/about.html>). Their authority comes from the State Shoreline Management Act, Section 401 of the Federal Clean Water Act, the Water Pollution Control Act, the Federal Coastal Zone Management Act of 1972,

the State Environmental Policy Act, the Growth Management Act, and various RCWs and WACs of the State of Washington.

### **Washington Department of Fish and Wildlife**

Chapter 77.55 RCW (the Hydraulic Code) gives the Washington Department of Fish and Wildlife (WDFW) the authority to review, condition, and approve or deny “any construction activity that will use, divert, obstruct, or change the bed or flow of State waters.” Practically speaking, these activities include, but are not limited to, installation or modification of shoreline stabilization measures, culverts, and bridges. These types of projects must obtain a Hydraulic Project Approval from WDFW, which will contain conditions intended to prevent damage to fish and other aquatic life, and their habitats. In some cases, the project may be denied if significant impacts would occur that could not be adequately mitigated.

### **4.5.3 Federal Agencies/Regulations**

Federal regulations most pertinent to development in the Town’s shorelines include the Endangered Species Act and the Clean Water Act. A variety of agencies (e.g., U.S. Army Corps of Engineers [Corps], National Marine Fisheries Service, U.S. Fish and Wildlife Service) are involved in implementing these regulations, but review by these agencies of shoreline development in most cases would be triggered by in- or over-water work, or discharges of fill or pollutants into the water. Depending on the nature of the proposed development, federal regulations can play an important role in the design and implementation of a shoreline project, ensuring that impacts to shoreline functions and values are avoided, minimized, and/or mitigated. A summary of some of the key federal regulations and/or agency responsibilities follows.

#### **Clean Water Act, Section 404**

Section 404 of the federal Clean Water Act provides the Corps, under the oversight of the U.S. Environmental Protection Agency, with authority to regulate “discharge of dredged or fill material into waters of the United States, including wetlands” ([http://www.epa.gov/owow/wetlands/pdf/reg\\_authority\\_pr.pdf](http://www.epa.gov/owow/wetlands/pdf/reg_authority_pr.pdf)). The extent of the Corps’ authority and the definition of fill have been the subject of considerable legal activity. However, it generally means that the Corps must review and approve many activities in shoreline waterbodies, and other streams and wetlands. These activities may include wetland fills, stream and wetland restoration, and culvert installation or replacement, among others. Similar to Washington State Environmental Policy Act (SEPA) requirements, the Corps is interested in avoidance, minimization, restoration, and compensation of impacts.

Section 303(d) of the Clean Water Act requires the state to develop a list of waters that do not meet water quality standards. A Total Maximum Daily Load, or TMDL, must be developed for impaired waters. Ecology is working with Pierce County and other partners to implement water quality improvement projects as a part of TMDLs for fecal coliform bacteria and temperature in South Prairie Creek.

### **Federal Endangered Species Act (ESA)**

Section 9 of the ESA prohibits “take” of listed species. Take has been defined in Section 3 as: “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The take prohibitions of the ESA apply to everyone, so any action of the Town that results in a take of listed fish or wildlife would be a violation of the ESA and exposes the Town to risk of lawsuit. Per Section 7 of the ESA, the Corps must consult with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service on any projects that fall within Corps jurisdiction (e.g., Section 404 or Section 10 permits) that could affect species listed under the Federal Endangered Species Act. These agencies ensure that the project includes impact minimization and compensation measures for protection of listed species and their habitats.

## **5 DEVELOPMENT IMPLICATIONS**

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In addition to the general cumulative impacts analysis presented in Table 4 of Section 4, this section will expand on several key areas of functions and impacts associated with development and redevelopment of the South Prairie Creek shoreline.

### **5.1 Vegetation Conservation**

Changes in vegetation are a significant consideration when evaluating the net effects of development on shoreline ecological function. The conservation and replanting of riparian vegetation is amongst the highest priorities for salmonid conservation in South Prairie Creek.

Vegetation conservation regulations in Chapter 4.5.2.B of the SMP prohibit the removal of significant vegetation in the first 50 feet from the OHWM. Also, consistent with the Town’s Critical Areas regulations and Chapter 4.5.1.A of the SMP, the SMP requires that vegetation clearing throughout shoreline jurisdiction be limited to the minimum necessary to accommodate approved development (4.5.2.C). Where impacts to vegetation are unavoidable, compensatory mitigation is required (4.5.2.D). This policy will allow for revegetation along

shorelines where vegetation is presently sparse, and could provide for a net gain in vegetative functions along the Town's shorelines.

## 5.2 Residential Setbacks

A sewer moratorium currently exists (see 4.5.1), and therefore, new residential development along South Prairie Creek is not anticipated until the Town's sewer facilities are upgraded. Where and when development does occur, the development of vacant lots into residential uses would likely result in replacement of pervious, vegetated areas with impervious surfaces and a landscape management regime that often includes chemical treatments of lawn and landscaping. These actions can have multiple effects on shoreline ecological functions, including:

- Increase in surface water runoff due to reduced infiltration area and increased impervious surfaces, which can lead to excessive soil erosion and subsequent in-water sediment deposition.
- Reduction in the ability of a site to improve quality of waters through natural vegetation filtration processes.
- Potential contamination of surface water from chemical and nutrient applications.
- Elimination of upland habitat occupied by wildlife that uses riparian areas.

Under the proposed SMP (SMP **Section 4.5.2.B**), the minimum standard residential shoreline buffer will be 50 feet. On average, the proposed buffer would allow for a reduction in the existing setback width along South Prairie Creek, where the mean setback is 100 feet and the median setback is 75 feet. Although the buffer standard is less than the width of existing setbacks, vacant lands in the Town have distinct characteristics that limit the extent of potential development and associated impacts. As noted in table 4.4, development on the southeast side of town (particularly on the north side of the river) will be constrained the presence of a broad floodway, potential associated wetlands, and non-shoreline stream buffers. Of those parcels that are either vacant or subdividable within the Town, only six have shrub or forested vegetation that extends beyond 50 feet from the shoreline. If development occurs on these parcels, the SMP provisions will require that mitigation sequencing is employed to avoid, minimize, and mitigate for vegetative impacts (4.5.2.D). Development on other parcels would not result in significant impacts to vegetative functions, and water quality and quantity impacts would be limited through the use of Low Impact Development and other stormwater management approaches (4.6.2).

In summary, significant development of new residences and the subdivision of existing lots into residential parcels are not expected in the Town's shoreline jurisdiction over the next 20 years. However, if new development occurs, the existing site conditions, combined with the setbacks and other measures in the SMP, including a requirement for the conservation of shoreline vegetation, will maintain or improve ecological functions of the shoreline over the long term, thereby resulting in no net loss of shoreline ecological function within the environment.

## 6 NET EFFECT ON ECOLOGICAL FUNCTION

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On its own, the proposed SMP, which includes the Shoreline Restoration Plan, is expected to maintain shoreline functions within the Town of South Prairie while accommodating reasonably foreseeable future shoreline development. Federal, state, and other local regulations, acting in concert with this SMP, will provide further assurances of maintaining shoreline ecological functions over time.

As discussed above, major elements of the SMP that ensure no net loss of ecological functions fall into generally five categories: 1) environment designations (Chapter 3), 2) general provisions (Chapter 4), 3) shoreline modification provisions (Chapter 5), 4) shoreline use provisions (Chapter 5), and 5) Shoreline Restoration Planning Element (Appendix C).

Environment Designation Provisions: The *Shoreline Inventory and Analysis Report* provided the information necessary to assess the current condition and the potential for development along the Town's shorelines. Shoreline uses and modifications were then individually determined to be either permitted (as substantial developments or conditional uses) or prohibited in each of those environment designations. Environment designations and allowable uses and modifications were developed as a means to achieve both Town planning goals and the conservation of shoreline functions.

General provisions: **Chapter 4** contains a number of regulations on topics that contribute to protection and restoration of ecological functions. In addition to general SMP policies, these provisions address ecological protection and critical area (Section 4.2), mitigation sequencing (Section 4.2.2), flood hazard reduction (Section 4.3), and vegetation conservation (Section 4.5).

Shoreline modification provisions: **Chapter 5** contains a number of regulations on a variety of topics that contribute to protection and restoration of ecological

functions, including Section 5.10 (Shoreline Stabilization) and Section 5.9 (Shoreline Habitat and Natural Systems Enhancement). All of these shoreline modification regulations emphasize the use of designs that do not degrade and may enhance shoreline functions.

Shoreline use provisions: Regulations in **Chapter 5** focus on exclusion of uses that are incompatible with the existing land use and ecological conditions, and they emphasize appropriate location and design of the various uses. These regulations also emphasize avoidance and minimization of ecological impacts via appropriate setbacks, protection and enhancement of vegetation, reduction of impervious surfaces, and use of innovative designs such as low impact development (LID) techniques that do not degrade and may even enhance shoreline functions. These factors are balanced with uses that are important to the Town's shoreline use and development. While allowing water-dependent uses and developments to continue along the shoreline, the proposed SMP emphasizes protection and enhancement of shoreline resources such that no net loss of ecological functions will be achieved over time.

Shoreline Restoration Plan: The Town follows a set of restoration goals and policies set forth in the Visions and Goals element of the Shoreline chapter of the Town's Comprehensive Plan.

Both regulatory and non-regulatory approaches to shoreline conservation are supported in the Comprehensive Plan. A number of restoration projects and programs already in place nearby are outlined in the *Shoreline Restoration Plan* (**Appendix C**). Specific opportunities and/or implementation strategies for restoration on both public and private properties inside and outside of shoreline jurisdiction are proposed by various groups; these efforts are summarized in the Restoration Plan and include Pierce County Parks and Recreation, Pierce Conservation District, as well as ongoing Town programs and activities, as well as ongoing Town programs and activities. All of these programs and organizations share restoration goals of protecting and restoring ecological function and value within the watershed.

Summary: The following are some of the key features identified in the proposed SMP and this evaluation that protect and enhance shoreline ecological functions.

- Retention of existing vegetation and/or mitigation for unavoidable impacts to shoreline vegetation as part of future development.
- Water quality and quantity standards for construction and post-construction periods.

- Emphasis on achieving no net loss of shoreline ecological functions throughout shoreline jurisdiction, including development of water-dependent uses.

Given the above provisions of the SMP, including the *Shoreline Restoration Plan* and the key features listed above, implementation of the proposed SMP is anticipated to achieve **no net loss of ecological functions in the Town of South Prairie's shorelines.**

## 7 REFERENCES

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The Watershed Company. April 2011. Shoreline Inventory and Analysis Report for the Town of South Prairie's Shoreline: South Prairie Creek. Prepared for the Town of South Prairie, South Prairie, WA.

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