



memorandum

date February 22, 2012, revised March 1, 2012

to Miranda Redinger, City of Shoreline

from Reema Shakra and Teresa Vanderburg, ESA

subject **City of Shoreline, Shoreline Master Program Update –Draft Cumulative Impacts Analysis**

The purpose of this memo is to assess the cumulative impacts of reasonably foreseeable future development in the shoreline that would result from development and activities over time under the proposed City of Shoreline SMP required by WAC 173-26-186(8)(d). This memorandum was first prepared in November 2010 based on the October 2010 Draft SMP. In February 2012, the memorandum was updated to reflect the changes since made to the SMP, and is based upon the February 2012 SMP (received by ESA on February 21, 2012). Minor revisions were made on March 1, 2012. This memorandum is intended to support the environmental review of the proposed SMP amendments under the State Environmental Policy Act (SEPA).

For the City of Shoreline, shorelines of the state in the city limits and potential annexation area (PAA) include approximately 5 miles of the Puget Sound shoreline.

The purpose of evaluating cumulative impacts is to insure that, when implemented over time, the proposed SMP goals, policies and regulations will achieve no net loss of shoreline ecological functions from current “baseline” conditions. Baseline conditions are identified and described in the City of Shoreline Inventory and Characterization Report (ESA Adolfson, 2008). The proposed Shoreline SMP provides standards and procedures to evaluate individual uses or developments for their potential to impact shoreline resources on a case-by-case basis through the permitting process. The purpose of this memorandum is to determine if impacts to shoreline ecological functions are likely to result from the aggregate of activities and developments in the shoreline that take place over time under the updated SMP.

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

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

¹ WAC 173-26-286(8)(d)

This cumulative impacts assessment uses these three considerations as a framework for evaluating the potential long-term impacts on shoreline ecological functions and processes that may result from development or activities under the proposed SMP over time.

Current Circumstances

The City prepared the first draft of the shoreline inventory and characterization report in 2004. As part of the City’s current comprehensive SMP update process, the report and map folio were updated in the fall of 2008. The report was revised in December 2008 to address technical review comments and November 2009 and April 2010 to incorporate public review comments. The Shoreline Inventory and Characterization (ESA Adolfson, 2008) identifies existing conditions and evaluates the ecological functions and processes in the City’s shoreline jurisdiction. The inventory included all shoreline areas within the City and its Potential Annexation Area (PAA) and included a characterization of ecosystem processes functioning at a watershed scale. “Shoreline planning area” is a term used in this tech memo to refer to the approximate area within the City’s shoreline jurisdiction, or areas subject to SMP regulations.

For the purposes of the Inventory and Characterization Report, the Puget Sound shoreline was addressed in five shoreline planning segments, as shown on Map 1, and described below in Table 1. Reach breaks were assigned based upon land uses and existing shoreline conditions as described in the inventory report. The most dominant land use in the shoreline is the Burlington Northern Santa Fe (BNSF) right-of-way, which extends in a north-south direction along the entire length of the shoreline area within city limits. The remaining portions of the shoreline planning area are occupied by industrial uses, residential uses, and parks and open space. Approximately 97 percent of the City’s shoreline adjacent to Puget Sound is modified with riprap and bulkheads (WDNR, 2001). The majority of this armoring is associated with the BNSF railroad bed.

Table 1. Shoreline Planning Segments*

Shoreline Segment	Approximate Length (feet)	Approximate Segment Acreage	General Boundaries
A	3,411	15.6	Potential Annexation Area / Point Wells: located directly north of the city limits in unincorporated Snohomish County.
B	4,724	21.7	Richmond Beach residential area: the Snohomish County line south to Richmond Beach Saltwater Park.
C	2,801	11.0	Richmond Beach Saltwater Park south to Storm Creek culvert.
D	1,295	5.7	Innis Arden residential area: south of Richmond Beach Saltwater Park to Innis Arden Reserve Park.
E	9,424	41.6	Innis Arden Reserve / Highlands: Innis Arden Reserve Park south to city limits.

Source: City of Shoreline, 2002

* Shoreline segments were developed in 2004 as part of the first draft inventory and characterization report. The shoreline segments were developed for the sole purpose of describing areas along the shoreline. Segments were created based on physical distinction along the shoreline, the level of ecological functions provided by each segment, as well as existing land uses and zoning. Shoreline segments should not be confused with shoreline environment designations. Shoreline environment designations were developed after the inventory and characterization report was completed. Environment designations are analogous to zoning designations and are incorporated directly into the City’s Draft Shoreline Master Program. In the City’s Draft Shoreline Master Program, there are 6 environment designations and each one has a distinct purpose statement and specific uses and modifications that are permitted, conditionally permitted or prohibited. Regulations specific to each environment designation are included as well.

The following sections further summarize baseline conditions, or current circumstances, with regard to the City’s Puget Sound shoreline.

SHORELINE

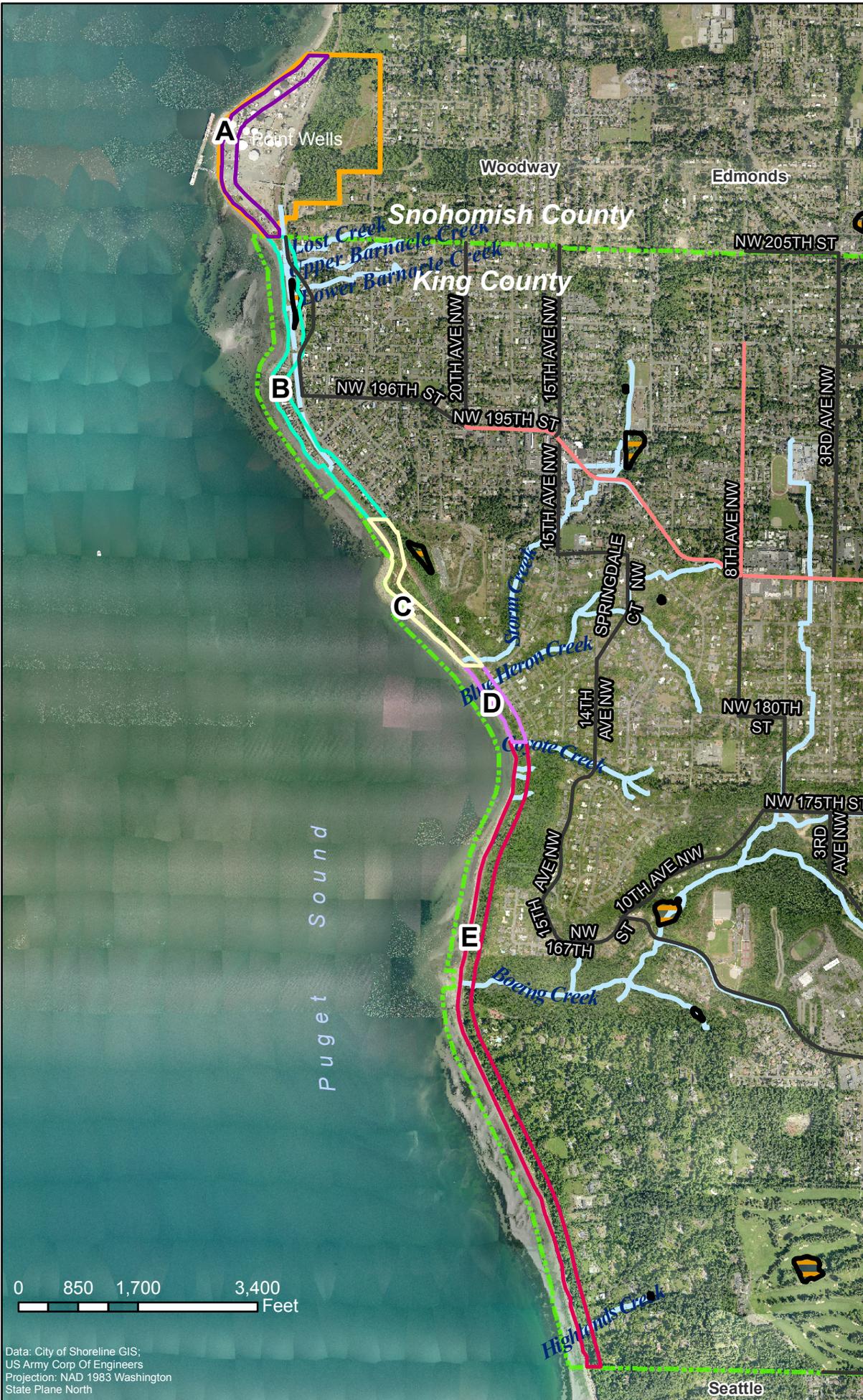
Geographic Information System

2008 City of Shoreline
SMP Update
Map 1

Shoreline Planning Area

Planning Area

- Collector Arterial
- Minor Arterial
- A
- B
- C
- D
- E
- Wetlands
- Stream
- Potential Annexation Area
- City Limits



0 850 1,700 3,400
Feet

Data: City of Shoreline GIS;
US Army Corp Of Engineers
Projection: NAD 1983 Washington
State Plane North



No warranties of any sort,
including accuracy,
fitness, or merchantability,
accompany this product.

Physical and Coastal Processes

Puget Sound beach morphology and composition is dependent upon three main influences: wave energy, sediment sources, and relative position of the beach within a littoral cell. Wave energy is controlled by fetch, the open water over which winds blow without any interference from land. Wind-generated wave action gradually erodes beaches and the toe of coastal bluffs, leading to landslides. These coastal bluffs are the primary source of sediment for most Puget Sound beaches. In the city, coastal bluffs are separated from the shoreline by the BNSF Railway, thus completely removing bluff sediment sources. Although riparian vegetation is located along portions of the shoreline, the shore modifications associated with the BNSF Railway and BNSF maintenance activities prevent recruitment of large woody debris to the shoreline. These shore modifications also preclude net shore-drift along the Puget Sound. A small amount of sediment is delivered by fluvial sources (streams) in the city, although this process is also impaired by culvert systems and the BNSF Railway. Construction of the railroad buried much of upper foreshore beach, thereby locking up coarse sand and gravel in the littoral system. This limits or precludes longshore transport of sediment.

Shoreline Modifications

Approximately 97 percent of the City's shoreline adjacent to Puget Sound is modified with riprap and bulkheads (WDNR, 2001). The majority of this armoring is associated with the BNSF railroad bed. As a result, sediment delivery from upslope sources is limited to several streams that deliver sediment via culverts under the railroad ROW. Forage fish spawning still occurs at these limited points of sediment input.

There are no docks, piers, or over-water structures along Puget Sound within the City limits. However, within the PAA, Point Wells contains a large industrial dock used for both import and export of materials to and from the facility. Construction of the King County Wastewater Treatment Brightwater Conveyance pipeline and marine outfall project is currently underway at the Point Wells site.

Clearing of riparian vegetation along the marine shoreline for the BNSF Railway construction and maintenance, residential uses, bulkheads and other shoreline armoring has resulted in a lack of large woody and organic debris available for recruitment to the marine system. The lack of debris in turn affects the stability of the beaches as the presence of beach logs and debris can reduce erosion by dissipating wave energy and trapping sediment. Large woody debris also provides thermoregulation of sediment for spawning forage fish and detritus recruitment.

Habitat and Species

The Puget Sound nearshore environment is a highly productive zone that provides habitat for a variety of aquatic and terrestrial species. The "nearshore" is generally considered to be an area extending from a point underwater where light penetrates to the bottom (the "littoral zone"), across the intertidal zone and beach, up to the top of marine bluffs. Important documented features of the nearshore that provide habitat include:

- Banks, bluffs, beaches and backshore (sediment sources, substrate, and storm berms);
- Tidal flats (intertidal or shallow subtidal areas used by juvenile salmonids, shorebirds, and shellfish);
- Eelgrass meadows and kelp forests (feeding and rearing habitat for wide variety of marine organisms);
and
- Stream mouths and pocket estuaries (fish and wildlife corridors and source of fluvial sediment to nearshore).

Within the City's shoreline planning area, there are seven streams that feed into the Puget Sound. Segment A has an unnamed tributary of Barnacle Creek that is located east of the BNSF railroad and south of Point Wells. It travels south where it connects to Barnacle Creek in Segment B. Lost Creek is located north of the city limits in the Town of Woodway. It flows southwest both in piped and open water sections towards Puget Sound. It appears to connect to Barnacle Creek before discharging into Puget Sound in Segment B. Barnacle Creek is formed by the confluence of Upper Barnacle Creek and Lower Barnacle Creek and discharges to Puget Sound in Segment B. A palustrine forested wetland, less than one acre in size, is associated with Barnacle Creek. Storm Creek and Blue Heron Creek discharge to Puget Sound in Segment D. Coyote Creek, Boeing Creek, and Highlands Creek discharge to Puget Sound in Segment E. A scrub/shrub wetland is associated with Coyote Creek.

Aquatic and terrestrial species found in or near the City of Shoreline that utilize the nearshore or deep waters of Puget Sound include:

- Shellfish (clams, mussels, and crab);
- Salmonids (including listed species such as Chinook and bull trout);
- Forage fish (surf smelt, sand lance, and Pacific herring); and
- Shorebirds and waterbirds.

Land Use and Public Access

The BNSF Railway right-of-way (ROW) extends in a north-south direction along the entire length of the City's shoreline planning area. It is the most dominant land use in the shoreline, occupying 48 percent of the total shoreline planning area. Residential development occupies approximately 19 percent of the total shoreline planning area while Point Wells (in the PAA), the only industrial property located along the Puget Sound shoreline, occupies approximately 20 percent. The remaining land uses are parks and open space (8 percent) and vacant properties (2 percent).

Public access opportunity is provided at Richmond Beach Saltwater Park in Segment C. It is a regional 40-acre park that provides active and passive uses including picnic areas, shelter buildings, a playground area, observation areas, trails, and Puget Sound shoreline access. Kayu Kayu Ac Park, in Segment B, is a 2-acre city park recently opened near Richmond Beach Pump Station; this provides shoreline views. Innis Arden Reserve is a 23-acre natural open space area/greenway passive-use park located in Segment E along the bluffs overlooking Puget Sound. Hiking/walking trails represent the main activity of this passive-use reserve. Although trails eventually lead to the shoreline, the public has to cross the BNSF railroad tracks and riprap to reach the Puget Sound shoreline. Blue Heron Reserve (Segment C) and Coyote Reserve (Segment D) are privately owned tracts that are associated with Blue Heron Creek and Coyote Creek, respectively. No public shoreline access is permitted along these tracts. Boeing Creek Reserve is a private 4-acre natural area associated with Boeing Creek located along the Puget Sound shoreline in Segment E. It is preserved as private open space. No public shoreline access is permitted from this reserve along the bluff.

Reasonably Foreseeable Future Development and Use

Substantial development or redevelopment within the City's shoreline planning area is unlikely. However, limited development may occur on vacant parcels, residential parcels with potential for redevelopment and residential parcels that can be subdivided. Such parcels occupy 16.5 acres (17 percent) of the City's shoreline planning area. A majority of these properties is located in Segments B and E and is discussed in more detail below. Houses on existing single-family lots are also expected to grow larger through additions up to the maximum allowed building envelope under the zoning, SMP and CAO regulations and contingent upon receiving required City permit approvals. However, existing residential development along 27th Avenue NW are constrained by zoning and CAO regulations, making expansion of existing building footprints less likely.

Point Wells is the only commercial property that may have a major redevelopment. It is unknown if the redevelopment would take place under Snohomish County's, Woodway's or Shoreline's jurisdiction.

There are several factors which will inhibit major new development along the Puget Sound shoreline. One is the BNSF Railway which occupies 48 percent of the city's shoreline planning area, extending in a north-south direction along the entire length of the shoreline. This limits development potential because vehicular access across the BNSF tracks is limited. The City has received no indication that BNSF would sell their ROW property or provide new road crossings of the tracks. A second factor that contributes to limiting development is steep slopes and landslide hazard areas located throughout portions of Segments B - E.

Vacant Parcels

In order to evaluate the potential for shoreline development in the reasonably foreseeable future, King County Assessor records (2007) were examined to identify parcels classified as "vacant" that are located within the shoreline jurisdiction. While the term "vacant" may not always accurately reflect current conditions (such as protected open space, steep slopes, wetlands, or other lands with development restrictions), the classification generally indicates that no structural improvements have been made or assessed for taxes on the property. Depending on the land use and zoning designations, these areas may be subject to new development in the future.

Vacant parcels occupy only 2 percent of the City's shoreline planning area (including the PAA) and account for a total of 1.5 acres. The vacant properties are located in Segments B and E. This percentage value does not include BNSF property or City-owned right-of-way. Development of vacant lands is therefore not anticipated to cause a significant change in the existing condition of the City's shorelines.

Redevelopment Potential

In addition to the potential for development on vacant parcels, there is potential for underutilized lots along the Puget Sound to redevelop. For the purposes of this Cumulative Impacts Assessment, we based redevelopment potential on the assumption that parcels in a single-family zone (R-4 and R-6) with a land value assessed by King County at 50% or higher than building value are likely to redevelop some time in the future. Based on this assumption, 22 parcels of the City's shoreline planning area have the potential to redevelop. All 22 parcels are located in Segment B and account for a total of 3 acres or 3 percent of the City's shoreline planning area.

The only major commercial property that is likely to redevelop is Point Wells. Snohomish County, in response to a petition from the Point Wells property owner, changed the Comprehensive Plan designation and zoning designation of Point Wells from Urban Industrial to Urban Center. Urban Center allows for a mix of high-density residential, office and retail uses. The City of Shoreline has a Comprehensive Plan designation of Mixed Use, which is intended to encourage the development of pedestrian oriented places, with architectural interest, that integrate a wide variety of retail, office and service uses with residential uses. It seems likely that the property

would redevelop based on the recent changes to the County’s designations. However, the property would need to be remediated to address soil and groundwater contamination. Vehicular access to the property is severely limited and poses considerable challenges to developing high-intensity land uses.

Subdivision Potential

A third approach to determining potential development along the Puget Sound was to determine whether there are residential parcels that have the potential for subdividing. We based subdivision potential on the assumption that parcels in single-family zone (R-4 and R-6) that are at least 2 times larger than the minimum lot size allowed in the zone are likely to subdivide some time in the future. Fifty-three parcels have the potential to subdivide, 9 of which are located in Segment B, 5 in Segment C, 12 in Segment D, and 27 in Segment E. The total acreage amount within the City’s shoreline planning area is 12 acres or 12 percent of the City’s shoreline planning area.

Changes to Shoreline Environment Designations

SMPs establish a system of “shoreline environment designations” that provide a uniform basis for applying policies and use regulations within distinctly different shoreline areas. Shoreline environment designations function like zoning overlays. That is, they do not replace the underlying zoning regulations for density, setbacks, etc., but they may impose additional development standards or regulations for portions of property within the shoreline jurisdiction. Generally, environment designations are based on existing and planned development patterns, biological and physical capabilities and limitations of the shoreline, and a community’s vision or objectives for its future development.

When the City of Shoreline incorporated in 1995, it adopted regulations outlined in Title 25 (Shoreline Management Plan) of the King County Code as the interim shoreline management code (Shoreline Municipal Code [SMC] 16.10). Three shoreline environment designations are established in the King County Shoreline Management Master Program and were applied to the City’s shorelines:

1. Urban,
2. Rural, and
3. Conservancy

Since the City’s Potential Annexation Area is located in Snohomish County, the shoreline environment designation that currently applies to Point Wells is Urban.

The proposed SMP environment designations per the October 2010 Draft SMP include the following:

- “Point Wells Urban” environment to accommodate higher density uses while protecting existing ecological functions and restoring ecological functions that have been degraded.
- “Point Wells Urban Conservancy” environment to provide a specific designation unique to an industrial use or mix of uses that can be developed.
- “Urban Conservancy” environment to protect and restore relatively undeveloped or unaltered shorelines to maintain open space, floodplains or habitat, while allowing a variety of compatible uses.
- “Waterfront Residential” environment to distinguish between the residential portions of the coastline where natural and manmade features preclude building within the shoreline jurisdiction and the section along 27th Avenue NW where residential structures lie westerly of the BNSF railroad ROW and directly abut the Puget Sound.

- “Shoreline Residential” environment to accommodate residential development and accessory structures that are consistent with the City’s Shoreline Master Program.
- “Aquatic” environment to protect, restore, and manage the unique characteristics and resources of the areas waterward of the ordinary high-water mark.

The proposed environment designations are consistent with both the existing land use pattern and Comprehensive Plan future land use designations.

Changes to Development Standards and Use Regulations

The proposed SMP offers several changes to the development regulations that encourage shoreline conservation and prohibit activities that would cause adverse impact to shoreline functions and processes. Many of these changes deal with shoreline modification such as bulkheads and riprap revetments along much of the City’s shoreline. These shoreline modifications have significantly altered the natural net-shore drift direction and the availability and local distribution of beach sediment. Other changes related to specific uses in the shoreline are also designed to protect shoreline ecological functions and processes, while continuing to allow legal uses, public access, and appropriate development.

This section describes in general terms how the proposed SMP protects shoreline functions and processes to achieve no net loss. Appendix A cites specific provisions in the proposed SMP (City of Shoreline, 2010) and Draft Restoration Plan (ESA Adolfson, 2009) that serve to protect and enhance shoreline ecological functions. For each proposed shoreline environment designation, Appendix A provides the current conditions, likely future changes, potentially impacted shoreline processes and functions, effects of proposed SMP provisions, existing regulatory controls, and an assessment of expected future performance.

The proposed SMP offers several changes to the development regulations that encourage shoreline conservation and prohibit activities that would cause adverse impact to shoreline functions and processes. One of the most significant changes is the application of a vegetation conservation area on the Puget Sound and accompanying requirements for vegetation enhancement. Most of the City’s Puget Sound shoreline was developed under King County development standards prior to city incorporation. Puget Sound is not considered a critical area under the City’s Critical Areas Ordinance (Shoreline Municipal Code Chapter 20.80) and did not have buffer standards or requirements. Current King County standards require a 25-foot setback from the ordinary high water mark (OHWM) for single-family development in Urban and Rural environments and a 50-foot setback from the OHWM in the Conservancy environment. The proposed SMP standards and regulations would establish a 20-150 foot vegetation conservation area. Only 9 percent of the total linear length of the City’s Puget Sound shoreline would be regulated with a 20-foot vegetation conservation area. The northern portion of the PAA would be regulated with a 50-foot vegetation conservation area (with accompanying restoration). The remainder of the City’s shoreline will be classified as Shoreline Residential and Urban Conservancy with a 115 to 150 foot vegetation conservation area. Extensive land disturbing activities that require a permit are required to implement a plan that involves revegetation (See 20.230.200.B.4 of Draft SMP).

Regulation of shoreline modifications, such as bulkheads and riprap revetments, will be updated as well. New development and land divisions would be required to be located and designed to avoid the need for shoreline stabilization measures. Further, the conservation of shoreline vegetation has been emphasized in the new shoreline regulations for the City to further stabilize shorelands and increase habitat functions. Updated policies and development standards establish a preference for alternative “soft-shore” erosion control or stabilization designs. In most cases, project applicants would be required to demonstrate why a “soft-shore” design would not

provide adequate protection of existing development. Over time these changes will likely have a net beneficial effect on shoreline ecological processes as properties are redeveloped.

The proposed changes to development standards and use regulations are, in general, more protective than the existing SMP. New development would be required to meet standards contained in the CAO and meet the policy intent and development standards of the SMP. As redevelopment occurs, the policies and regulations in the SMP require that development be located and designed in a manner that avoids impacts to ecological functions and/or enhances functions where they have been degraded. For example, the vegetation conservation measures may require that, as part of a redevelopment proposal, non-native or invasive species be replaced with native vegetation.

Changes to the Treatment of Non-conforming Uses

Much of the development in the City of Shoreline along the Puget Sound predates incorporation of the City in 1995. Several properties and developments in the City's shoreline do not conform to current zoning or SMP regulations. The proposed SMP includes regulations that are designed to increase protection of shoreline resources over time by prohibiting redevelopment that would result in a greater degree of non-conformity for existing development.

Under the proposed SMP the following standards apply:

- Structures that were legally established and are used for a conforming use, but which now do not conform with regard to setbacks, buffers or yards, area, bulk, height, or density may continue as long as they do not increase the extent of non-conformity by further encroaching upon or extending into areas where construction or use would not be allowed for new development or uses.
- Uses and developments that were legally established and are nonconforming with regard to the use regulations of the SMP may continue as legal nonconforming uses. Such uses cannot be enlarged or expanded without an approved conditional use permit, except that nonconforming single-family residences that are located landward of the OHWM may be enlarged or expanded in conformance with applicable bulk and dimensional standards by the addition of space to the main structure or by the addition of normal appurtenances.
- Structures that are or have been used for non-conforming uses may be used for a different non-conforming use but only upon the approval of a Shoreline Conditional Use permit.
- If a non-conforming use is abandoned for twelve (12) consecutive months the non-conforming rights expire and any subsequent use must comply with the SMP.

Restoration Planning

The draft SMP Restoration Plan (ESA Adolfson, 2009) represents the shoreline restoration element of the SMP. The plan identifies opportunities for restoration activities or efforts that include programmatic opportunities (e.g., investigate a beach nourishment program; reduce overwater structures; protect remaining riparian marine vegetation), site-specific opportunities (such as replacing Boeing Creek culvert with a larger box culvert), regional plans and policies for Puget Sound restoration, and potential funding and partnership opportunities. The SMP's restoration planning is focused on areas where shoreline functions have been degraded by past development activities. The areas with impaired functions were identified in the City's Shoreline Inventory and Characterization. Recognizing that much impairment to shoreline processes and functions are the result of the railroad tracks along the coast and armoring associated with single-family residences along 27th Avenue NW

(both of which are assumed to remain), the implementation of the Restoration Plan will improve shoreline ecological functions incrementally over time.

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

A variety of other regulatory programs, plans, and policies work in concert with the City's SMP to manage shoreline resources and regulate development near the shoreline. The City's Comprehensive Plan establishes the general land use pattern and vision of growth and development the City has adopted for areas both inside and outside the shoreline jurisdiction. Various sections of the Shoreline Municipal Code (SMC) are relevant to shoreline management, such as zoning (SMC Chapter 20.40), stormwater management (SMC Chapter 13.10), and flood damage prevention (SMC 16.12). The City's development standards and use regulations for environmentally critical areas (SMC Chapter 20.80) are particularly relevant to the City's SMP. Designated environmentally critical areas are found throughout the City's shoreline jurisdiction, including geologic hazard areas, wetlands, flood hazard areas, and streams areas. Standards and regulations in the critical areas regulations have been adopted by reference in the proposed SMP.

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

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

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

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

National Pollutant Discharge Elimination System (NPDES): Ecology regulates activities that result in wastewater discharges to surface water from industrial facilities or municipal wastewater treatment plants. NPDES permits are also required for stormwater discharges from industrial facilities, construction sites of one or more acres, and

municipal stormwater systems that serve census-defined Urbanized Areas, which include any urbanized areas with more than 50,000 people and densities greater than 1,000 people per square mile.

Conclusion

This draft cumulative impacts analysis is based upon the Draft Shoreline SMP dated February 2012 (received by ESA on February 21, 2012). The City of Shoreline's Puget Sound coastline is largely developed. There are nearly no major opportunities for new development within the shoreline jurisdiction in the City limits. Therefore, change within the shoreline will primarily be the result of redevelopment activities with the Point Wells site expected to be the most extensive. The system of shoreline environment designations and use regulations in the proposed SMP is consistent with the established land use pattern, as well as the land use vision planned for in the City's comprehensive plan, zoning, and other long-range planning documents. Based on this consistency, it is unlikely that substantial changes in shoreline land uses will occur within the City limits in the future. However, should the Point Wells site be annexed into the City of Shoreline, substantial changes in shoreline land use could occur on this specific site.

The proposed SMP provides a new system of shoreline environment designations that establishes more uniform management of the City's shoreline. The updated development standards and regulation of shoreline modifications provides more protection for shoreline processes. The updated standards and regulations are more restrictive of activities that would result in adverse impacts to the shoreline environment. The restoration planning effort outlined in the proposed SMP provides the City with opportunities to improve or restore ecological functions that have been impaired as a result of past development activities. In addition, the proposed SMP is meant to compliment several city, state and federal efforts to protect shoreline functions and values.

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

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

Changes in subsequent drafts of the SMP may result in a need for revisions to the cumulative impact analysis.

References

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City of Shoreline. 2012. Shoreline Master Program. February 2012 Draft.

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DRAFT

**City of Shoreline, Shoreline Master Program Update
Draft Cumulative Impacts Memo**

**Appendix A:
General Cumulative Impacts Analysis**

**Cumulative Impacts Appendix A
General Cumulative Impact Analysis**

Shoreline Segment & Existing Condition	Likely Future Development	Functions or Processes Potentially Impacted	Effects of SMP Provisions	Effect of Other Development and Restoration Activities / Programs	Net Effect
Point Wells Urban					
<p>Includes the northern portion of Segment A</p> <p>This area is in the City's Potential Annexation Area (PAA) and includes the Point Wells industrial port, a petroleum products storage, processing and distribution site.</p>	<p>Snohomish County, in response to a petition from the Point Wells property owner, changed the Comprehensive Plan designation and zoning designation of Point Wells from Urban Industrial to Urban Center. Urban Center allows for a mix of high-density residential, office and retail uses. The City of Shoreline has a Comprehensive Plan designation of Mixed Use, which is intended to encourage the development of pedestrian oriented places, with architectural interest, that integrate a wide variety of retail, office and service uses with residential uses. It seems likely that the property would redevelop based on the recent changes to designations.</p>	<p>Segment A: The portion of Segment A located within Point Well Urban is completely developed. All shoreline functions are considered low, except that eelgrass is mapped off-shore which provides spawning habitat for forage fish. The shoreline is modified with overwater structures and hard armoring. Shoreline functions would remain at low performance levels and would continue to be impaired unless redevelopment occurs. Soil and groundwater contamination would be remediated and the nearshore habitat would be restored as mitigation for the redevelopment.</p>	<p>20.230.080: The purpose of the "Point Wells Urban" environment is to accommodate higher density uses while protecting existing ecological functions and restoring ecological functions that have been degraded.</p> <p style="text-align: center;">SMP regulations and standards include:</p> <p>Table 20.230.082: A 50-foot vegetation conservation area with restoration is required for development in the Point Wells Urban environment. The term "Native Conservation Area" (NVCA) applies to areas where the shoreline is not armored, such as the PWUC environment designation, and Richmond Beach Saltwater Park. NVCAs should be maintained in a predominantly natural, undisturbed, undeveloped, and vegetated condition, except where necessary to accommodate appurtenances to a permitted water-dependent use. The term "Building Setback" applies in areas where the railroad or bulkheads prohibit natural sediment transfer. In those areas, it is necessary to maintain hard-armored conditions, but further encroachment or vegetative clearing are not permitted.</p> <p>20.230.020.A: Development must:</p> <ul style="list-style-type: none"> • apply the mitigation sequence in WAC 173-26-201(2)(e) • ensure no net loss of shoreline ecological functions by being consistent with SMC 20.80 Critical Areas, avoiding or minimizing the need for shoreline stabilization, substantial land disturbance and dredging, and minimizing interference with natural shorelines processes <p>20.230.020.B: Development that alters topography may be approved if:</p> <ul style="list-style-type: none"> • Flood events will not increase in frequency or severity • Alteration would not impact natural habitat forming processes and would not reduce ecological functions <p>20.230.020.C: Alternatives to the use of chemical fertilizers, herbicide and pesticides is the preferred BMP.</p> <p>Vehicle refueling and vehicle maintenance must occur outside of regulated shoreline areas. The bulk storage of oil, fuel, chemicals or other hazardous materials is prohibited except for uses allowed by the zoning classification.</p> <p>20.230.040.B: Public access on or over the water must be constructed as far landward as possible to avoid interference with views.</p> <p>Physical public access must be designed to prevent significant impacts to natural systems employing LID techniques.</p> <p>Table 20.230.081: Boating facilities including boat launch ramps open to the public are permitted uses. Marinas are prohibited uses. Breakwaters, jetties, groins and weirs are conditionally permitted provided they are limited to water-dependent, public access or shoreline stabilization activities. Existing piers and docks associated with industrial use and public piers and docks are permitted. Expansion of existing piers and docks associated with water-oriented industrial use is conditionally permitted.</p> <p>20.230.090B: Boating facilities are allowed only if they do not adversely impact fish or wildlife habitat areas and associated wetlands and there is adequate mitigation to ensure no net loss.</p> <p>20.230.090C: Boat launch ramps must be located on stable shorelines where water depth is adequate to eliminate/minimize need for channel maintenance activities.</p> <p>Boat launch ramps are allowed on stable non-eroding banks where need for shore stabilization structures is minimized.</p> <p>Ramp structures must be placed near flush with foreshore slope to minimize interruption of geohydraulic processes.</p> <p>20.230.090D: Dry boat storage must comply with the required setback except that water-dependent components are allowed within the setback.</p> <p>20.230.095: Groins are permitted in conjunction with a professionally designed public beach management program. Jetties and breakwaters are permitted as an integral component of a professionally designed harbor or port. Floating, portable or submerged breakwater structures, or smaller discontinuous structures are preferred where physical conditions make such alternatives with</p>	<p>City's Surface Water Management Program: Shoreline development must be designed in conformance with the current DOE Storm Water Management Manual (urban environments only) and Chapter 20.60, subchapter 3 of the SMC and the City of Shoreline</p> <p>Surface Water Design Code</p> <p>Critical Areas Regulations:</p> <p>Chapter 20.80 of the Shoreline Municipal Code (Critical Areas) establishes development standards, construction techniques, and permitted uses in critical areas and their buffers (i.e., geologic hazard areas, fish and wildlife habitat conservation areas, wetlands, flood hazard areas, aquifer recharge areas, and stream areas) to protect these areas from adverse impacts. Designated critical areas are found throughout the City's shoreline planning area, particularly wetlands and streams, flood hazard areas, and geologic hazard areas</p> <p>Clean Water Act (CWA): The federal CWA requires states to set standards for the protection of water quality for various parameters, and it regulates excavation and dredging in waters of the U.S., including wetlands. Certain activities affecting wetlands in the City's shoreline jurisdiction or work in the Puget Sound waters may require a permit from the U.S. Army Corps of Engineers and/or Washington State Department of Ecology under Section 404 and Section 401 of the CWA, respectively.</p> <p>Hydraulic Project Approval (HPA): The Washington Department of Fish and Wildlife (WDFW) regulates activities that use, divert, obstruct, or change the natural flow of the beds or banks of waters of the state and may affect fish habitat. Projects in the shoreline jurisdiction requiring construction below the ordinary high water mark of Puget Sound or stream mouths in the city could require an HPA from WDFW. Projects creating new impervious surface that could substantially increase stormwater runoff to waters of the state may also require approval.</p> <p>Over-water structures: Any in- or over-water (including wetlands) proposals would require review not only by the City, but also by the Washington Department of Fish and Wildlife (WDFW), the U.S. Army Corps of Engineers (Corps), and/or the Washington Department of Ecology. Each of these agencies is charged with regulating and/or protecting streams and wetlands, and would impose certain design or mitigation requirements on applicants. A project that includes stream or wetland fill would require Corps review and permitting.</p>	<p>No Change</p> <p>Native Vegetation Conservation Areas are limited to areas that are not currently armored. Therefore, Building Setback applies to most areas within the city. Given the extent of armoring associated with the railroad, most impacts to existing vegetation are expected to be limited to railroad-related activities. However, such activities must comply with policies in the SMP that conserve vegetation in a manner that ensures no net loss.</p>

Shoreline Segment & Existing Condition	Likely Future Development	Functions or Processes Potentially Impacted	Effects of SMP Provisions	Effect of Other Development and Restoration Activities / Programs	Net Effect
			<p>less impact feasible.</p> <p>Table 20.230.081: Nonresidential development is permitted. Existing industrial development is permitted while expansion is conditionally permitted.</p> <p>20.230.100: Over-water construction of nonresidential uses is prohibited, with the exception of boat facilities. Water-dependent, nonresidential development must maintain a shoreline setback of either 25 feet from the OHWM or 10 feet from the edge of the base flood elevation, whichever is greater. If public access is provided to the shoreline, the setback may be reduced to 10 feet from the OHWM or the edge of the base flood elevation, whichever is greater. Nonwater-dependent, nonresidential development shall maintain a minimum setback from the OHWM consistent with Table 20.230.082.</p> <p>Table 20.230.081: In-stream structures are permitted as part of fish habitat enhancement or a watershed restoration project.</p> <p>20.230.110 B: Existing natural in-stream features are to remain in place. New structures must allow for normal ground water movement and surface runoff.</p> <p>Table 20.230.081: Recreational facilities are a permitted use.</p> <p>20.230.130: No recreational buildings or structures can be built waterward of the OHWM, except water-dependent and/or water-enjoyment public structures such as bridges and viewing platforms. Such uses may be permitted as a Shoreline Conditional Use.</p> <p>Table 20.230.081: Residential development is a permitted use.</p> <p>20.230.160B: Residential development is prohibited waterward of the OHWM and within setbacks defined for each shoreline environment designation.</p> <p>Residential development must assure no net loss of shoreline ecological functions.</p> <p>Residential development will not be approved if a geotechnical analysis indicates that flood control or shoreline protection measures are necessary to create a residential lot or site area. Development must be located to avoid the need for structural shore defense and flood protection works.</p> <p>Residential units must be clustered in order to avoid impacts to wetlands or other critical areas.</p> <p>One accessory structure is allowed in the vegetation conservation area provided that structures cover no more than 200 square feet.</p> <p>Table 20.230.081: Dredging is permitted for activities associated with shoreline/aquatic restoration, remediation, and navigation. Dredge spoil disposal is permitted for shoreline habitat and natural systems enhancement, fish habitat enhancement, and watershed restoration projects.</p> <p>20.230.160.B: Dredging/disposal allowed only when actions will not result in significant damage to water quality, biological elements, circulation patterns, floodwater capacity, and properly functioning conditions for threatened / endangered species.</p> <p>Depositing dredge spoil material in the Puget Sound allowed as a CUP for wildlife habitat improvements and correcting problems of material distribution that affect fish resources.</p> <p>Table 20.230.081: Existing piers and docks associated with industrial use and public piers or docks are permitted. Expansion of existing piers or docks associated with water-oriented industrial use are conditionally permitted.</p> <p>20.230.170: Piers and docks must include mitigation to ensure no net loss to critical saltwater habitat.</p> <p>Width of docks, piers, floats and lifts must be no wider than 6 feet unless authorized by WDFW and USACE. The length of docks and piers must be the minimum necessary to prevent grounding of floats and boats on the substrate during low tide. Decking shall have a minimum open space of 40% and after installation at least 60% ambient light beneath the structure shall be maintained.</p> <p>20.230.175: Repair or replacement of 50% or more of an existing over-water deck structure must include the replacement of the entire decking with grated material to achieve a minimum open space of 40% and must result in at least 60% ambient light beneath the structure. Repair or replacement of less than 50% of the over-water deck structure must use grated decking in the area to be replaced.</p>	<p>Restoration Plan (2009): The restoration plans identifies a restoration opportunity in Point Wells that would completely remove the sea wall, riprap dike, and fill, regrade the site and reconnect local freshwater sources to re-create a tidal lagoon system with an opening at the north end of the point, and reestablish native riparian and backshore vegetation. Such actions would improve sediment transport and deposition, nearshore habitat forming processes, beach erosion and accretion of sediments and mineral particulate material, and intertidal fish and wildlife habitat.</p>	

Shoreline Segment & Existing Condition	Likely Future Development	Functions or Processes Potentially Impacted	Effects of SMP Provisions	Effect of Other Development and Restoration Activities / Programs	Net Effect
			<p>Table 20.230.081: New hard shoreline armoring is conditionally permitted. Soft-shore stabilization and maintenance of existing is permitted.</p> <p>20.230.180B: New bulkheads allowed when there is serious erosion threatening an established use or existing primary use or when they are necessary for the operation and location of a water-oriented use. A new bulkhead can be constructed to retain landfill in conjunction with a water-dependent use, bridge/navigational structure, or for a wildlife/fish enhancement project.</p> <p>Bulkheads must use stable, nonerodable, homogeneous materials such as concrete, wood, and rock that are consistent with the preservation and protection of ecological habitat.</p> <p>Table 20.230.081: Land Disturbing activities and landfill are permitted for activities associated with restoration or remediation, public access improvement, and allowed shoreline development. Landfilling waterward of the OHWM is conditionally permitted for activities associated with shoreline/aquatic restoration or remediation.</p> <p>20.230.200.B: Land disturbing activities limited to minimum necessary for intended development. Tree and vegetation removal in required Native Vegetation Conservation Areas is prohibited. All significant trees in the Native Vegetation Conservation Areas shall be designated as protected trees consistent with existing development code standards (SMC 20.50.340) and removal of hazard trees is regulated pursuant to SMC 20.50.310(A)(1).</p> <p>Extensive land clearing that requires a permit must revegetate, irrigate, and establish erosion and sedimentation control.</p> <p>20.230.210.B: Landfill is allowed as a CUP for:</p> <ul style="list-style-type: none"> • Water-dependent use • Bridge/utility/navigational structure <p>Landfill perimeters must be designed with silt curtains, vegetation retaining walls or other methods to prevent material movement.</p>		
Point Wells Urban Conservancy					
<p>Includes the southern portion of Segment A</p> <p>This area is in the City's Potential Annexation Area (PAA) and includes the Point Wells industrial port, a petroleum products storage, processing and distribution site.</p>	<p>As described under Point Wells Urban, the Point Wells property owner has indicated interest in redevelopment by petitioning a change to the Snohomish County Comprehensive Plan and zoning designations. However, this portion of segment A retains its Urban Industrial designation.</p>	<p>Similar to conditions described under Point Wells Urban, this property has been extensively modified. However, due to the lack of overwater structures, the presence of Lost Creek, and no hard armoring, some shoreline functions are present. The shoreline contains eelgrass meadows and kelp forests, forage fish spawning area, 31 species of shellfish, a sand and gravel flat, and habitat for shorebirds. Lost Creek provides for pocket estuary habitat.</p> <p>No change in shoreline functions is expected unless redevelopment occurs. Soil and groundwater contamination would be remediated and the nearshore habitat would be restored as mitigation for the redevelopment. A change to a higher land-use intensity and increased public access would likely disrupt wildlife and shore bird habitat.</p>	<p>20.230.080: The purpose of the "Point Wells Urban Conservancy" environment is to distinguish between differing levels of potential and existing ecological function within the Point Wells environment, and regulate uses and public access requirements appropriately.</p> <p style="text-align: center;">SMP regulations and standards include:</p> <p>Table 20.230.082: A 115-foot vegetation conservation area is required for development in the Point Wells Urban Conservancy environment. The term "Native Conservation Area" (NVCA) applies to areas where the shoreline is not armored, such as the PWUC environment designation, and Richmond Beach Saltwater Park. NVCAs should be maintained in a predominantly natural, undisturbed, undeveloped, and vegetated condition, except where necessary to accommodate appurtenances to a permitted water-dependent use. The term "Building Setback" applies in areas where the railroad or bulkheads prohibit natural sediment transfer. In those areas, it is necessary to maintain hard-armored conditions, but further encroachment or vegetative clearing are not permitted.</p> <p>The same regulations under 20.230.020, 20.230.030, and 20.230.040 for Point Wells Urban apply to Point Wells Urban Conservancy as well.</p> <p>Table 20.230.081: In addition to uses and modifications prohibited in Point Wells Urban, boating facilities, breakwaters, jetties, groins and weirs, piers and docks, and new hard shoreline armoring, are also prohibited.</p> <p>20.230.090-20.230.270:</p> <p>The regulations for nonresidential development, in-stream structures, recreational facilities, residential development, dredging, dredge material disposal, land disturbing activities, and landfilling for Point Wells Urban apply to Point Wells Urban Conservancy as well with the exception that recreational facilities are limited to low-intensity uses and passive uses and soft-shore stabilization is limited to those associated with utilities .</p>	<p>Same as items above in Point Wells Urban.</p> <p>Restoration Plan (2009): The restoration plans identifies a restoration opportunity in Point Wells that would enhance the shoreline by removing riprap dike, eliminate invasive plants, reestablish native riparian and backshore vegetation, and create a three acre intertidal lagoon. Similar to the restoration opportunity for Point Wells Urban, such actions would improve sediment transport and deposition, nearshore habitat forming processes, beach erosion and accretion of sediments and mineral particulate material, and intertidal fish and wildlife habitat.</p>	<p>No Change</p> <p>Native Vegetation Conservation Areas are limited to areas that are not currently armored. Therefore, Building Setback applies to most areas within the city. Given the extent of armoring associated with the railroad, most impacts to existing vegetation are expected to be limited to railroad-related activities. However, such activities must comply with policies in the SMP that conserve vegetation in a manner that ensures no net loss.</p>

Shoreline Segment & Existing Condition	Likely Future Development	Functions or Processes Potentially Impacted	Effects of SMP Provisions	Effect of Other Development and Restoration Activities / Programs	Net Effect
Urban Conservancy					
<p>Includes the northern portion of Segment B, portion of Segment C that is Richmond Beach Saltwater Park, and Segment E.</p> <p>This area is characterized by several parks, public and private greenways, the Highlands residential neighborhood, and the Burlington Northern Santa Fe (BNSF) railroad right-of-way (ROW).</p>	<p>Future development would likely be limited to redevelopment of existing single-family homes, few new residences, and park development. Development is inhibited by the presence of the BNSF ROW, landslide hazard areas, and streams and their associated greenways.</p>	<p>Shoreline functions within this area are low to moderate, with the following functions moderately intact:</p> <ul style="list-style-type: none"> ▪ Northern portion of Segment B has eelgrass meadows and kelp forests, a sand flat, forage fish spawning area, and a forested wetland at Barnacle Creek. The wetland provides some filtering of pollutants; however, it is narrow and east of the railroad grade. ▪ Richmond Beach Saltwater Park in Segment C provides some sediment transport function, attenuates wave energy although it is limited due to its length (alongshore) and narrow width, has some potential for large woody debris recruitment, and some vegetation, although it does not overhang the intertidal zone. Eelgrass meadows and kelp forests, forage fish spawning area, and 37 species of shellfish are present. ▪ Segment E contains eelgrass meadows and kelp forests, a sand flat, and the Boeing Creek outlet which serves as an important area for feeding, migration, spawning, and rearing of forage fish. Although the shoreline is modified by the BNSF railroad tracks, riparian vegetation is prevalent upslope of the tracks throughout the entire length of Segment E. This segment is also characterized by landslide hazard areas and has recently seen numerous slide activities. <p>Because no significant new development is anticipated, new impacts are anticipated to be limited.</p>	<p>20.230.080: The purpose of the “Urban Conservancy” environment is to protect, restore and manage relatively undeveloped or unaltered shorelines to maintain open space, floodplains or habitat, while allowing a variety of compatible uses.</p> <p>SMP regulations and standards include:</p> <p>Table 20.230.082: A 150-foot or 50-foot from the top of a landslide hazard area, whichever is greater, vegetation conservation area is required for development in the Urban Conservancy environment. The term “Native Conservation Area” (NVCA) applies to areas where the shoreline is not armored, such as the PWUC environment designation, and Richmond Beach Saltwater Park. NVCAs should be maintained in a predominantly natural, undisturbed, undeveloped, and vegetated condition, except where necessary to accommodate appurtenances to a permitted water-dependent use. The term “Building Setback” applies in areas where the railroad or bulkheads prohibit natural sediment transfer. In those areas, it is necessary to maintain hard-armored conditions, but further encroachment or vegetative clearing are not permitted.</p> <p>The same regulations under 20.230.020, 20.230.030 and 20.230.040 for Point Wells Urban apply to Urban Conservancy as well.</p> <p>In addition, 20.230.020D requires properties located in the UC designation to retain trees that are 12 inches or more in diameter. Trees determined by a certified arborist to be hazardous or diseased may be removed. When healthy or non-hazardous trees are removed, each removed tree must be replaced with at least three (3) six-foot tall trees, one (1) 18-foot tall tree, or one (1) 12-foot plus one (1) six-foot tall tree. Trees must be of the same species removed, or equivalent native tree species.</p> <p>Table 20.230.081: In addition to uses and modifications prohibited in Point Wells Urban, breakwaters, jetties, groins and weirs, nonresidential development, and industrial development are also prohibited.</p> <p>20.230.090-20.230.270:</p> <p>The regulations for boat launching ramps, in-stream structures, recreational facilities, residential development, dredging, dredge material disposal, piers and docks, bulkheads, land disturbing activities, and landfilling for Point Wells Urban apply to Urban Conservancy as well, with the exception that only public piers and docks are allowed in Urban Conservancy.</p>	<p>Same as items above in Point Wells Urban.</p> <p>Restoration Plan (2009): The restoration plan identifies a restoration opportunity that would replace all stream culverts with larger box culverts or other fish-friendly structures to allow fish access during low flows and allow opportunity for more sediment to reach the nearshore. Such actions would improve nearshore habitat forming processes and intertidal fish and wildlife habitat.</p> <p>A second restoration opportunity would be to create tidally influenced wetland or restore wetland habitat on the east side of the BNSF railroad tracks NW of the pump station. Such actions would improve nearshore habitat forming processes, intertidal fish and wildlife habitat, and hydrologic, hyporheic and water quality functions.</p> <p>A third restoration opportunity would be to implement the Richmond Beach Saltwater Park Vegetation Management Plan to remove non-native invasive plants and reestablish native plant communities within wetlands east of railroad and on beach area west of railroad. Such actions would improve freshwater wetland and intertidal wildlife habitat and stabilize beach substrates.</p> <p>A fourth restoration opportunity would be to protect intact wetlands and their associated uplands adjacent to Puget Sound and develop and implement a vegetation management plan for the Innis Arden Reserve. Such actions would improve nearshore habitat forming processes, hydrologic, hyporheic and water quality functions, riparian habitat structure and function, and fish and wildlife habitat.</p> <p>A fifth restoration opportunity would be to reduce stormwater flow down steep slopes along Boeing Creek to stabilize banks and control sediment loading of the stream and extend recommendations of Vegetation Management Plan for Boeing Creek Park to include entire stream corridor downslope to Puget Sound. Such actions would improve exchange of aquatic organisms, sediment delivery to nearshore from fluvial sources, source of detritus and particulate organic matter, riparian habitat structure and function, freshwater input, and fish and wildlife habitat.</p> <p>A sixth restoration opportunity would be to protect intact uplands and native vegetation communities adjacent to Puget Sound along Boeing Creek Reserve. Such actions would improve source of detritus and particulate organic matter, riparian habitat structure and function, and fish and wildlife habitat.</p>	<p>No Change</p> <p>Native Vegetation Conservation Areas are limited to areas that are not currently armored. Therefore, Building Setback applies to most areas within the city. Given the extent of armoring associated with the railroad, most impacts to existing vegetation are expected to be limited to railroad-related activities. However, such activities must comply with policies in the SMP that conserve vegetation in a manner that ensures no net loss.</p>

Shoreline Segment & Existing Condition	Likely Future Development	Functions or Processes Potentially Impacted	Effects of SMP Provisions	Effect of Other Development and Restoration Activities / Programs	Net Effect
Waterfront Residential					
Includes the southern portion of Segment B, where the Richmond Beach residential neighborhood is located waterward of the BNSF ROW.	Future development would likely be limited to redevelopment of existing single-family homes and one or two new residences. Development is inhibited by shallow lots and limited vehicular access. Bulkheads likely to be maintained and replaced due to severe weather storms.	<p>Shoreline functions are low in this portion of the Segment B. The bulkheads, some of which are below the mean high tide level, interrupt longshore transport of sediment, increase wave energy, and preclude the use of nearshore habitat for resting and foraging. Vegetation is limited to ornamental landscaping, including lawn areas.</p> <p>Because no significant new development is anticipated, new impacts are anticipated to be limited.</p>	<p>20.230.080: The purpose of the “Waterfront Residential” environment is to distinguish between the residential portions of the coastline where natural and manmade features preclude building within the shoreline jurisdiction and the section along 27th Avenue NW where residential properties directly abut the Puget Sound.</p> <p style="text-align: center;">SMP regulations and standards include:</p> <p>Table 20.230.082: A <u>20-foot</u> vegetation conservation area is required for development in the Waterfront Residential environment. The term “Native Conservation Area” (NVCA) applies to areas where the shoreline is not armored, such as the PWUC environment designation, and Richmond Beach Saltwater Park. NVCAs should be maintained in a predominantly natural, undisturbed, undeveloped, and vegetated condition, except where necessary to accommodate appurtenances to a permitted water-dependent use. The term “Building Setback” applies in areas where the railroad or bulkheads prohibit natural sediment transfer. In those areas, it is necessary to maintain hard-armored conditions, but further encroachment or vegetative clearing are not permitted.</p> <p>The same regulations under 20.230.020, 20.230.030 and 20.230.040 for Point Wells Urban apply to Waterfront Residential as well.</p> <p>Table 20.230.081: In addition to uses and modifications prohibited in Point Wells Urban, nonresidential development, industrial development, and breakwaters, jetties, groins and weirs are prohibited.</p> <p>20.230.090-20.230.270:</p> <p>The regulations for boat launching ramps, in-stream structures, recreational facilities, residential development, dredging, dredge material disposal, piers and docks, bulkheads, land disturbing activities, and landfilling for Point Wells Urban apply to Waterfront Residential as well, with the following exceptions:</p> <ul style="list-style-type: none"> • only joint-use boat launching ramps and joint-use piers and docks are allowed in Waterfront Residential; and • landfill in Waterfront Residential does not have to be limited to activities associated with restoration or remediation or public access improvement, but must still be associated with allowed shoreline development per 20.230.210B. 	<p>Same as items above in Point Wells Urban.</p> <p>Restoration Plan (2009): The restoration plans identifies restoration opportunities that while residences are present, would protect intertidal area by limiting additional traditional bulkheads or overwater structures and reduce impact of shore armoring through replacement of existing traditional bulkheads with soft-shore alternatives, except where they are necessary to protect property from high energy systems. Such actions would improve sediment transport and deposition, nearshore habitat forming processes, beach erosion and accretion of sediments and mineral particulate material, and intertidal fish and wildlife habitat.</p>	<p>No Change</p> <p>Native Vegetation Conservation Areas are limited to areas that are not currently armored. Therefore, Building Setback applies to most areas within the city. Given the extent of armoring associated with the railroad, most impacts to existing vegetation are expected to be limited to railroad-related activities. However, such activities must comply with policies in the SMP that conserve vegetation in a manner that ensures no net loss.</p>
Shoreline Residential					
Includes the southern portion of Segment B, where the Richmond Beach residential neighborhood is located landward of the BNSF ROW.	Future development would likely be limited to redevelopment of existing single-family homes and few new residences. Development is inhibited by the presence of the BNSF ROW.	<p>Shoreline functions are low in this portion of the segment due to the presence of the BNSF ROW and limited upland vegetation.</p> <p>Because no significant new development is anticipated, new impacts are anticipated to be limited.</p>	<p>20.230.080: The purpose of the “Shoreline Residential” environment is to accommodate residential development and accessory structures that are consistent with this Shoreline Master Program.</p> <p>SMP regulations and standards include:</p> <p>Table 20.230.082: A <u>115-foot</u> vegetation conservation area is required for development in the Shoreline Residential environment. The term “Native Conservation Area” (NVCA) applies to areas where the shoreline is not armored, such as the PWUC environment designation, and Richmond Beach Saltwater Park. NVCAs should be maintained in a predominantly natural, undisturbed, undeveloped, and vegetated condition, except where necessary to accommodate appurtenances to a permitted water-dependent use. The term “Building Setback” applies in areas where the railroad or bulkheads prohibit natural sediment transfer. In those areas, it is necessary to maintain hard-armored conditions, but further encroachment or vegetative clearing are not permitted.</p> <p>The same regulations under 20.230.020, 20.230.030 and 20.230.040 for Point Wells Urban apply to Shoreline Residential as well.</p> <p>Table 20.230.081: In addition to uses and modifications prohibited in Point Wells Urban, nonresidential development, industrial development, and breakwaters, jetties, groins and weirs are prohibited.</p> <p>20.230.090-20.230.270:</p> <p>The regulations for boat launching ramps, in-stream structures, recreational facilities, residential development, dredging, dredge material disposal, piers and docks, bulkheads, land disturbing activities, and landfilling for Point Wells Urban apply to Shoreline Residential as well, with the following exceptions:</p> <ul style="list-style-type: none"> • only joint-use launching ramps and joint-use piers and docks are allowed in Waterfront Residential; and • landfill in Shoreline Residential does not have to be limited to activities associated with restoration or remediation or but must still be associated with allowed shoreline development per 20.230.210B. 	<p>Same as items above in Point Wells Urban.</p> <p>Restoration Plan (2009): The restoration plan identifies restoration opportunities that would replace all stream culverts with larger box culverts or other fish-friendly structures to allow fish access during low flows and allow opportunity for more sediment to reach the nearshore. Such actions would improve nearshore habitat forming processes and intertidal fish and wildlife habitat.</p>	<p>No Change</p> <p>Native Vegetation Conservation Areas are limited to areas that are not currently armored. Therefore, Building Setback applies to most areas within the city. Given the extent of armoring associated with the railroad, most impacts to existing vegetation are expected to be limited to railroad-related activities. However, such activities must comply with policies in the SMP that conserve vegetation in a manner that ensures no net loss.</p>

Shoreline Segment & Existing Condition	Likely Future Development	Functions or Processes Potentially Impacted	Effects of SMP Provisions	Effect of Other Development and Restoration Activities / Programs	Net Effect
Aquatic					
<p>Includes all lands waterward of the marine ordinary high-water mark in the City of Shoreline.</p> <p>Areas designated Aquatic in the City of Shoreline are all areas within the tidal waters and open waters of the Puget Sound. The only area that has overwater structures is in Segment A, associated with the Point Wells development.</p>	<p>Hard armoring is expected to be maintained for the BNSF railroad ROW and the residential bulkheads located along Richmond Beach. New hard armoring could occur in Segment A although soft-shore stabilization methods would likely be utilized as mitigation for redevelopment.</p> <p>New overwater structures may occur at publicly owned properties, such as Richmond Beach Saltwater Park or in Segment A as part of redevelopment.</p> <p>Dredging may occur in Segment A but only as part of shoreline or aquatic restoration or remediation.</p>	<p>Existing functions and processes have been characterized above.</p> <p>Impacts are anticipated to be limited since no new significant development is anticipated. Any impacts would have to be mitigated.</p>	<p>20.230.080: 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.</p> <p style="text-align: center;">SMP regulations and standards include:</p> <p>The same provisions under 20.230.020, 20.230.030 and 20.230.040 for Point Wells Urban apply to Aquatic as well.</p> <p>Table 20.230.081: Most allowed uses and modifications in this environment must meet the use and permit limitations of the upland designation. In addition to uses and modifications prohibited in Point Wells Urban, nonresidential development, industrial development, residential development, hard shoreline armoring, and land disturbing activities are prohibited.</p> <p>20.230.090-20.230.270:</p> <p>The regulations for boating facilities, breakwaters, jetties, groins and weirs, in-stream structures, recreational facilities, dredging, dredge material disposal, piers and docks and landfilling for Point Wells Urban apply to Aquatic as well, with the following exceptions:</p> <ul style="list-style-type: none"> • recreational facilities are limited to water-dependent and water-enjoyment and are conditionally permitted; • landfilling is limited to activities associated with shoreline or aquatic restoration or remediation and is conditionally permitted; and • piers and docks are only limited to the extent of the use and permit requirements of the upland designation. <p>Table 20.230.081: Transportation facilities (railroads) are allowed.</p> <p>20.230.250: Bridge abutments and necessary approach fills must be located landward of the OHWM, except bridge piers may be permitted in a water body as a Shoreline Conditional Use. Landfilling activities for transportation facilities are prohibited in wetlands and on accretion beaches, except when all structural and upland alternatives have proven infeasible. Shoreline transportation facilities shall be located and designed to avoid steep or unstable areas and fit the existing topography in order to minimize cuts and fills.</p> <p>Table 20.230.081: Aquaculture is a conditionally permitted use.</p> <p>20.230.115: Aquaculture is limited to geoduck harvesting within DNR tracts or for recovery of native aquatic population in accordance with a government and/or tribal approved plan.</p>	<p>Same as items above in Point Wells Urban.</p> <p>Restoration Plan (2009): The restoration plans identifies a restoration opportunity in Point Wells (Segment A) that would remove creosote pilings and in-water debris. Such actions would improve water and sediment quality and intertidal fish and wildlife habitat.</p> <p>A second restoration opportunity would be to protect forage fish spawning, rearing, migration, and feeding areas and protect eelgrass beds and kelp beds. Such actions would improve food web support and intertidal fish and wildlife habitat.</p> <p>A third restoration opportunity would be to explore the potential to restore the connection between feeder bluffs and nearshore areas. Such actions would improve sediment delivery to the nearshore.</p>	<p>No Change or Potential Improvement</p> <p>Substantial development is currently limited to Segment A in the aquatic environment. Any future in-water work would likely be associated with the Richmond Beach Saltwater Park and Point Wells. Any of these developments would have to mitigate impacts to ecological functions and achieve project-specific no net loss.</p> <p>Redevelopment would require replacement with improved materials, and compliance with Critical Areas and Stormwater Regulations, HPA, and federal CWA.</p> <p>Improved stormwater management and bulkhead removal / improvement projects would also improve functions overtime.</p>