Draft

CITY OF SHORELINE
SHORELINE MASTER PROGRAM UPDATE
Recommendations Report

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1.0 INTRODUCTION

The purpose of this report is to provide recommended actions to the City of Shoreline for translating the findings of the *Shoreline Inventory and Characterization* report (ESA Adolfson, 2008) into the Shoreline Master Program (SMP) goals, policies, regulations, shoreline environment designations, and restoration strategies. The City of Shoreline's 1995 SMP (King County Code Title 25 adopted by reference upon City's incorporation) is being updated to comply with the Shoreline Management Act requirements (RCW 90.58) and the state's SMP guidelines (Washington Administrative Code [WAC] 173-26, Part III), which went into effect in 2003.

The report begins with a summary of the main findings of the inventory. Opportunities for water-dependent uses, public access, and restoration are then identified. The report recommends the application of several shoreline environment designations to the City's shoreline. The report concludes with a list of recommendations intended to guide the City in developing appropriate goals, policies and regulations.

2.0 MAIN FINDINGS OF THE INVENTORY

The *Shoreline Inventory and Characterization* (ESA Adolfson, 2008) report was prepared to identify existing conditions and evaluate existing functions and values of shoreline resources. Key findings of the report are summarized below.

2.1 Regional Setting

The city is generally bounded by the City of Lake Forest Park to the east, the City of Seattle to the south, the Puget Sound shoreline to the west, and Snohomish County to the north, which includes the Cities of Edmonds and Mountlake Terrace, and the Town of Woodway. The city is located within the Lake Washington / Cedar / Sammamish Watershed (Water Resource Inventory Area [WRIA] 8).

2.2 Shoreline Jurisdiction

The City's shoreline jurisdiction includes the Puget Sound shore within both the city limits and its potential annexation area (PAA). The portion of Puget Sound seaward from the line of extreme low tide is considered a "shoreline of statewide significance." The remainder of the Puget Sound landward of the extreme low tide is considered a "shoreline of the state." The city therefore includes approximately four miles of Puget Sound coastline. There are no rivers, streams, or lakes in the city meeting the definition of shorelines of the state.

The City's shoreline jurisdiction is composed of a variety of natural and man-made characteristics that include natural beaches, wooded slopes, single-family homes, the Burlington Northern Santa-Fe (BNSF) Railway, and an industrial port in the annexation area of Point Wells.

Point Wells, a 100-acre industrial site located directly north of the City along Puget Sound, is currently under Snohomish County jurisdiction and is the potential annexation area for the City of Shoreline (City of Shoreline, 2005a).

For the purposes of the inventory study, the City's shoreline jurisdiction was organized into five distinct segments (A through E) based broadly on the physical distinction along the shoreline, the level of ecological functions provided by each segment, as well as existing land uses and zoning designations. Shoreline Planning Segments are described in Table 1.

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.
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

2.3 Physical and Ecological Processes

The City of Shoreline beaches are typical of Puget Sound and can be characterized by two distinct foreshore components: a high-tide beach and a low-tide terrace (Downing, 1983). The high-tide beach consists of a relatively steep beachface with coarse sediment and an abrupt break in slope at its waterward extent. Considerable amounts of sand in a mixed sand and gravel beach are typically winnowed from the high-tide beach by waves and deposited on the low-tide terrace (Chu, 1985).

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 prevent recruitment of large woody debris to the shoreline. Shore modifications also preclude net shore-drift along the Puget Sound.

The Washington Department of Natural Resources (WDNR) ShoreZone Inventory (2001) documents shoreline sediment stability as stable, erosional, or accretional, and sediment sources as fluvial, alongshore, and backshore. The City's shoreline is homogeneous in terms of the sediment stability and source because of the BNSF railroad. The railroad results in a stable sediment characterization throughout the shoreline, with the exception of the shoreline adjacent to Innis Arden Reserve. 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.

The Washington Coastal Atlas (Ecology website, 2008) maps net-shore drift direction, or the prominent drift direction, including divergence zones and areas of "no appreciable drift" (which include highly modified, protected harbor shorelines). Based on the wave regime, extensive fetch, and coastal geomorphology the net drift direction of all the shoreline planning segments is south to north (Schwartz, 1991).

There are several hazard areas mapped along the City's shoreline. In the event of seismic activity, areas along Segments A, B, C, D and a portion of E have a high susceptibility of liquefaction (City of Shoreline, 2002). Landslide hazard areas are also documented at the extreme north and south portions of Segments B and C. Landslide hazard areas exist throughout all of Segments D and E (King County iMAP, 1991). Typically, the areas south of stream mouths and the marine shoreline below the OHWM are indicated as flood hazard areas.

There are six streams that feed into the Puget Sound within the city limits. Barnacle Creek is formed by the confluence of Upper Puget Sound North Creek and Upper Puget Sound South 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 Innis Arden North discharge to Puget Sound in Segment D. Innis Arden South, Boeing Creek, and Highlands Creek discharge to Puget Sound in Segment E. A scrub/shrub wetland is associated with Innis Arden South Creek (WDFW, 2008).

2.4 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 the top of bluffs across the beach and intertidal zone, to the point where light no longer penetrates the Sound's water. 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);
- Streams (fish and wildlife corridors and source of fluvial sediment to nearshore)

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 upland birds.

2.5 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 (King County, 2007).

The remainder of the shoreline is dominated by residential land uses, with few exceptions. Point Wells is the only industrial property located along the Puget Sound shoreline and occupies approximately 20 percent of the total shoreline planning area. The property is currently being used for petroleum products storage, processing and distribution. Soil and groundwater contamination are documented at the Point Wells facility and remediation is anticipated (Snohomish County, 2007).

Residential development in the Puget Sound shoreline planning area is characterized by single-family properties, which occupy approximately 19 percent of the total shoreline planning area. Several neighborhoods are located along the Puget Sound shoreline within the City. Neighborhoods include Richmond Beach, Innis Arden, and the Highlands (City of Shoreline, 2005a).

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. 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 Innis Arden North and Innis Arden South, 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 (City of Shoreline, 2005b).

2.6 Altered Ecosystem Processes and Functions

Similar to other cities along the Puget Sound, existing development and infrastructure has affected the shoreline environment within the City of Shoreline. Ecosystem-wide processes and ecological functions that have been altered in the marine shoreline include sediment processes, large woody and organic debris recruitment and transport, habitat conditions, riparian vegetation and water quality.

Nearshore ecological processes in the City's shoreline planning area have been altered primarily by shoreline modifications. Shoreline modifications refer to structural alterations of the shoreline's natural bank, including riprap, bulkheads, docks, piers or other in-water / overwater structures. These modifications alter natural process dynamics, leading to beach narrowing, lowering, and decreased driftwood abundance (Johannessen and MacLennan, 2007).

Shoreline armoring typically impedes sediment supply to down-drift beaches and nearshore habitats. This sediment starvation can cause or heighten erosion along down-drift shores, and can lead to changes in nearshore substrate composition from sand or mud to coarse sand, gravel, and finally hardpan. This may, in turn, decrease eelgrass, increase kelp abundance and reduce or eliminate forage fish spawning areas. Construction of shoreline armoring may cover or destroy forage fish spawning areas and eelgrass meadows. Overwater structures may deprive eelgrass of light. Shore armoring that infringes on intertidal areas considerably can produce a groin-like effect, by impeding alongshore sediment transport on the up-drift side of the structure, resulting in reduced sediment transport (volume) along the down-drift shore. Bulkheads and piers may also affect fish life by diverting juvenile salmonids away from shallow shorelines into deeper water, thereby increasing their potential for predation (Nightingale et al, 2001).

Approximately 87 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 is limited to several streams that deliver sediment via culverts under the railroad right-of-way. Forage fish spawning still occurs at these limited points of sediment input (Pentilla 2001).

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.

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.

The Point Wells site is listed on the Department of Ecology's Suspected and Confirmed Contaminated Sites List for soil, groundwater and surface water contamination associated with previous petroleum production (Ecology website, 2008).

3.0 OPPORTUNITIES FOR WATER-DEPENDENT USES

Availability for water-oriented development within existing city limits is restricted for three reasons. First, there are a limited number of vacant parcels (2 percent) in the shoreline planning area. Although BNSF Railway has undeveloped ROW, the City has received no indication that they would be willing to sell undeveloped portions of their property. Second, the BNSF Railway limits development potential by restricting vehicular access across the railroad tracks. Third, there are landslide hazard areas in portions of Segments B through E that constrain development within the shoreline.

There is a possibility that Point Wells would redevelop with a different water-dependent or water-oriented use. The property owner of Point Wells has petitioned Snohomish County to change the Snohomish County comprehensive plan designation of Urban Industrial to Urban Center, which allows a mix of uses. This probably indicates the property owner's interest for redevelopment. If Point Wells were to redevelop, it could convert to another type of water-oriented use. However, the City has received no such indications that it would at this time. It is also uncertain that Point Wells would be annexed into the City of Shoreline. In addition to the City of Shoreline, the Town of Woodway has included Point Wells as part of their annexation area. This opens the possibility that the property would be annexed into the Town of Woodway, even though the logical vehicular access points to the property fall within the City of Shoreline's jurisdictional boundaries. Lastly, the level of remediation that would be required to redevelop the petroleum facility could be cost prohibitive for some new land uses.

4.0 OPPORTUNITIES FOR PUBLIC ACCESS

Increasing opportunities for public access has been mentioned as a priority in a number of the City's guiding documents, including the Environmental Sustainability Strategy. The City of Shoreline Parks, Recreation and Open Space Plan (2005b) Chapter 4 Needs Assessment states that Shoreline is deficient in providing community and neighborhood parks, and sites with water access (specifically the Puget Sound and Echo Lake), natural areas, and trails for walking and biking.

There are several limitations to creating such additional opportunities. Purchasing property from BNSF Railroad and single-family homeowners is unlikely because they have historically been uninterested in selling to the City. The Boeing Creek Reserve would also be an ideal candidate for providing additional public access opportunities, however, the property is privately owned. There are few existing street-ends that provide opportunity for viewing the Puget Sound shoreline, further constraining the City's ability to provide additional public access.

Despite these limitations, the City's Parks, Recreation and Cultural Services Department (PRCS) continues to look for opportunities to increase public access, including purchase of land. They will continue to have discussions with the BNSF Railroad to consider the construction of new pedestrian overpasses. PRCS also continues to enhance the public access opportunities at existing parks and open space located in the shoreline planning area. Current activities underway at Richmond Beach Park are designed to enhance opportunities for public access.

The City of Shoreline's Comprehensive Plan (2005a) provides a list of funded and unfunded parks, recreation, open space and city facility capital improvements. Opportunities for enhancing public access to the shoreline currently under consideration include development of a trail system along Puget Sound between Richmond Beach Saltwater Park and Innis Arden Reserve, amenity enhancements and development of overlooks, viewpoints and interpretive signage, habitat and native plant restoration at Innis Arden Reserve, and providing beach access at the Boeing Creek Reserve.

5.0 OPPORTUNITIES FOR RESTORATION

As identified in Section 2.6, ecosystem-wide processes and ecological functions have been altered in the marine shoreline due to existing development and infrastructure. Activities to restore and preserve sediment processes, large woody and organic debris recruitment and transport, habitat conditions, riparian vegetation and water quality include the following:

- Remove bulkheads or replace with soft-shore armoring wherever feasible. This would help restore the natural delivery of sediment to the coastal areas, as well as decrease beach scouring and wave deflection. Removal of bulkheads at Point Wells is especially important since the BNSF Railroad prevents the Puget Sound from receiving sediment and organic inputs from the bluffs elsewhere.

- Culverts conveying surface water flow from streams continue to be an important source of sediment delivery. Restore and improve stream culverts within the City.

- Target local coastal wetland restoration and mitigation so the wetlands provide storage, detention, and water quality functions.

- Restore and reconnect wetlands adjacent to Puget Sound coast such as Barnacle Creek wetlands.

- Protect and restore tributaries to the Puget Sound which provide riparian habitat and deliver woody debris and sediment, such as Boeing Creek.

- Target removal of abandoned man-made structures and dilapidated docks in Richmond Beach and Point Wells areas. Remove creosote pilings and debris at Point Wells, which harm intertidal habitats.

- Improve storm and surface water management and control to minimize toxic material and hazardous particulates.

There are several site-specific City and non-City projects that have been identified in the City's shoreline. The *Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan Volume II* (WRIA, 2005) identifies several potential restoration and protection projects at the Point Wells site and one at Barnacle Creek, east of the BNSF railroad tracks. The *City of Shoreline Stream Inventory* (TT/KCM, 2004) recommends enhancing the lower reach of Boeing Creek.

Proposed City and County projects, some of which are currently under construction, involve mitigation actions that are designed to help restore degraded ecological functions. These projects include:

- King County Brightwater Treatment Plant in Segment A;
- Richmond Beach Pump Station Park in Segment B;
- Richmond Beach Saltwater Park in Segment C; and
- Boeing Creek Park and Underground Storage Pipe in Segment E.

6.0 RECOMMENDATIONS FOR SHORELINE ENVIRONMENT DESIGNATIONS

6.1 Purpose of Shoreline Environment Designations

The City's Shoreline Master Program (SMP) establishes a system to classify shoreline areas into specific "environment designations." This system of classifying shorelines is established by the Shoreline Management Act (RCW 90.58) and Master Program Guidelines (WAC 173-26-211). The purpose of shoreline environment designations is to provide a uniform basis for applying policies and regulations in distinct shoreline areas having similar characteristics. Generally, shoreline designations should be based on:

1. Ecological functions provided by the shoreline (including biological resources and critical area characteristics);
2. Existing and planned development patterns; and
3. The community's vision or objectives for its future management.

State Master Program Guidelines (WAC 173-26-150 and 176-26-160) give local jurisdictions the option to plan for shorelines in designated Urban Growth Areas (UGA) and Potential Annexation Areas (PAA). Portions of the Puget Sound shoreline are in the City's PAA. The City can "pre-designate" shoreline environments in the PAA as part of this planning process. However, shorelines in the PAA would continue to be regulated under the provisions of the Snohomish County SMP until the City annexes those areas.

6.2 City and State Shoreline Environment Designations

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:

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

The state guidelines identify six basic shoreline environment designations, associated management policies, and designation criteria to assist jurisdictions with their updates. As outlined in WAC 173-26-211, these are:

1. Aquatic,
2. Natural,
3. Rural Conservancy,
4. Urban Conservancy,
5. Shoreline Residential, and
6. High-Intensity.

Table 2 describes the six shoreline environment designations recommended by Ecology's guidelines. A discussion of broad recommendations related to adjusting the City's environment designations follows the table. It is important to note that these recommendations are preliminary and are based on information and findings in the *Shoreline Inventory and Characterization* report without the benefit of public input.

Table 2. Shoreline Environment Designations Recommended by 2003 State Shoreline Guidelines (WAC 173-26-211)

Environment Designation	Purpose	Criteria for Assigning Designations
Aquatic	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.	Assign an "aquatic" environment designation to lands waterward of the ordinary high-water mark.
Natural	The purpose of the "natural" environment is to protect those shoreline areas that are relatively free of human influence or that include intact or minimally degraded shoreline functions intolerant of human use. These systems require that only very low intensity uses be allowed in order to maintain the ecological functions and ecosystem-wide processes. Consistent with the policies of the designation, local government should include planning for restoration of degraded shorelines within this environment.	A "natural" environment designation should be assigned to shoreline areas if any of the following characteristics apply: (A) The shoreline is ecologically intact and therefore currently performing an important, irreplaceable function or ecosystem-wide process that would be damaged by human activity; (B) The shoreline is considered to represent ecosystems and geologic types that are of particular scientific and educational interest; or (C) The shoreline is unable to support new development or uses without significant adverse impacts to ecological functions or risk to human safety.
Rural Conservancy	The purpose of the "rural conservancy" environment is to protect ecological functions, conserve existing natural resources and valuable historic and cultural areas in order to provide for sustained resource use, achieve natural flood plain processes, and provide recreational opportunities. Examples of uses that are appropriate in a "rural conservancy" environment include low-impact outdoor recreation uses, timber harvesting on a sustained-yield basis, agricultural uses, aquaculture, low-intensity residential development and other natural resource-based low-intensity uses.	Assign a "rural conservancy" environment designation to shoreline areas outside incorporated municipalities and outside urban growth areas, as defined by RCW 36.70A.110, if any of the following characteristics apply: (A) The shoreline is currently supporting lesser-intensity resource-based uses, such as agriculture, forestry, or recreational uses, or is designated agricultural or forest lands pursuant to RCW 36.70A.170; (B) The shoreline is currently accommodating residential uses outside urban growth areas and incorporated cities or towns; (C) The shoreline is supporting human uses but subject to environmental limitations, such as properties that include or are adjacent to steep banks, feeder bluffs, or flood plains or other flood-prone areas; (D) The shoreline is of high recreational value or with unique historic or cultural resources; or (E) The shoreline has low-intensity water-dependent uses.

Environment Designation	Purpose	Criteria for Assigning Designations
Urban Conservancy	The purpose of the "urban conservancy" environment is to protect and restore ecological functions of open space, flood plain and other sensitive lands where they exist in urban and developed settings, while allowing a variety of compatible uses.	Assign an "urban conservancy" environment designation to shoreline areas appropriate and planned for development that is compatible with maintaining or restoring of the ecological functions of the area, that are not generally suitable for water-dependent uses and that lie in incorporated municipalities, urban growth areas, or commercial or industrial "rural areas of more intense development" if any of the following characteristics apply: (A) They are suitable for water-related or water-enjoyment uses; (B) They are open space, flood plain or other sensitive areas that should not be more intensively developed; (C) They have potential for ecological restoration; (D) They retain important ecological functions, even though partially developed; or (E) They have the potential for development that is compatible with ecological restoration.
Shoreline Residential	The purpose of the "shoreline residential" environment is to accommodate residential development and appurtenant structures that are consistent with this chapter.	Assign a "shoreline residential" environment designation to shoreline areas inside urban growth areas, as defined in RCW 36.70A.110, incorporated municipalities, "rural areas of more intense development," or "master planned resorts," as described in RCW 36.70A.360, if they are predominantly single-family or multifamily residential development or are planned and platted for residential development.
High-Intensity	The purpose of the "high-intensity" environment is to provide for high-intensity water-oriented commercial, transportation, and industrial uses while protecting existing ecological functions and restoring ecological functions in areas that have been previously degraded.	Assign a "high-intensity" environment designation to shoreline areas within incorporated municipalities, urban growth areas, and industrial or commercial "rural areas of more intense development," as described by RCW 36.70A.070, if they currently support high-intensity uses related to commerce, transportation or navigation; or are suitable and planned for high-intensity water-oriented uses.

6.3 Broad Recommendations – Environment Designation Types

The Ecology 2003 guidelines provide that local jurisdictions may retain their current environment designations, or create their own designations, as long as the environment designation system is consistent with the purposes and policies in the state guidelines (WAC 173-26-211). However, if a local jurisdiction determines a need to depart from Ecology's recommended menu of designations to address special or unique circumstances, then coordination with Ecology staff may be necessary to demonstrate how the designation system meets the overall purposes and policies in the guidelines.

In the context of findings in the *Shoreline Inventory and Characterization* report, we reviewed the City's existing shoreline environments, the suggested designation system in the Ecology guidelines (173-26-211(5)), and existing uses and functions along the Puget Sound. Since Snohomish County is also undergoing a SMP update, we reviewed their draft shoreline environment designations. The Point Wells site has been assigned an "Aquatic" and "Urban" environment designation. The "Aquatic" designation would apply waterward of the ordinary high water mark, while the "Urban" designation would apply landward of the ordinary high water mark (Snohomish PDS, 2008a). Discussions between Snohomish County and the City of Shoreline would ensure that the designations are coordinated to ease future transition.

We suggest the City consider the following general recommendations for replacing and updating the environment designation system in the City's SMP.

Utilize four of Ecology's recommended designations.

- **"Aquatic"** – There are no uses or activities that are wholly contained below the OHWM in the Puget Sound. The only use that extends beyond the OHWM is Point Wells, with potential for new overwater structures at Richmond Beach and Richmond Beach Saltwater Park. Structures that extend waterward below the OHWM simultaneously affect areas both below and above OHWM (e.g. docks, piers, habitat restoration). Administering multiple environment designations for these actions may lead to confusion. However, the City may wish to be consistent with Snohomish County's draft shoreline environmental designations. If so, "Aquatic" should be applied to the area waterward of the OHWM along the entire length of the City's shoreline.

- **"Natural"** – This designation would be applied to those areas that are ecologically intact, are unable to support new development or uses without impacts to ecological functions or risk to human safety, and have important natural resources and critical areas associated with them. This designation is well represented by Innis Arden and Boeing Creek Reserve where landslide hazard areas pose risks to human safety and should be protected.

- **"Urban Conservancy"** – Ecology's "Urban Conservancy" allows for a variety of uses while recognizing the need to manage natural resources and critical areas and to promote restoration of ecological functions in urban areas. This designation would be applied to developed shoreline areas, regardless of use, that also have designated critical areas, intact shoreline ecological functions, or areas with potential for restoration, such as the

southern portion of Point Wells, Barnacle Creek, Richmond Beach Saltwater Park, Innis Arden Reserve and Boeing Creek Reserve.

- **"Shoreline Residential"** – This designation would be applied to areas that are predominately single-family residential. This designation could be applied to residentially developed areas, such as Richmond Beach and Innis Arden.

Do not utilize two of Ecology's recommended designations.

Based on the 2003 guidelines and the results of the 2008 *Shoreline Inventory and Characterization Report*, we do not believe the following Ecology designations would be appropriate for use in the city of Shoreline:

- **"High Intensity"** – The only property in the City's shoreline that has not been developed as an institutional or residential use is Point Wells, located in the City's PAA. Point Wells is currently being used as an industrial property utilizing ships to distribute petroleum products. However, the majority of the on-site structures and infrastructure was developed over 60 years ago (City of Shoreline, 1998). Critical saltwater habitats are documented along this shoreline. Eelgrass is documented along the entire length of Point Wells. Kelp, barnacles, and dune grass are also documented along its shoreline. Thirty-one species of shellfish have been identified along this shoreline. There are several indications that the property would be redeveloped as a mix of residential, office and/or commercial uses. One indication is that City's Comprehensive Plan designates the property as Mixed Use. The second indication is that the property owner has petitioned Snohomish County to change the property's zoning designation from Heavy Industrial to Urban Center. For these reasons, we feel that High Intensity is not an appropriate designation. Instead, a newly created environment designation that applies to the northern portion of Point Wells could be considered (see "Point Wells Urban" below). This would be consistent with Snohomish County's draft shoreline environmental designation of "Urban".
- **"Rural Conservancy" –** These areas are intended for shorelines outside of incorporated cities and designated Potential Annexation Areas.

Create two new environment designations.

- **"Point Wells Urban"** – This designation could be applied to the north portion of Segment A in the City's PAA. A "Point Wells Urban" designation would accommodate higher density uses while protecting existing ecological functions and restoring ecological functions that have been degraded. The "Urban" designation is currently being proposed by Snohomish County as part of its SMP update. Consistency with the County SMP would be beneficial for City, County, and Ecology staff in administering the shoreline programs.
- **"Waterfront Residential"-** This designation is meant 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 Ave. NW where residences directly abut the Puget Sound. Unique circumstances and considerations will warrant different regulations for each area.

6.4 Preliminary Specific Recommendations

This section describes preliminary recommendations for specific shoreline segments in the city and it's PAA. At this point in the SMP update process these recommendations are intended to generate discussion and consideration by City staff and the Planning Commission and provide information to the citizens of the city. Some segments include more than one potential designation for consideration.

Table 3 shows the existing shoreline environment designations from the City and Snohomish County's SMP and the preliminary recommendation for environment designations.

Table 3. Existing and Proposed Shoreline Environment Designations by Planning Segment

Planning Segment	Existing Shoreline Environment Designations[1]	Preliminary Recommended Environment Designations[2]
Entire length of shoreline waterward of the OHWM	Marine, only in the PAA (Snohomish County)	Aquatic or None
Rationale: The City has the option to designate the area waterward of the OHWM along the entire length of the City's shoreline as Aquatic. If the City does not choose to create this designation, policies and regulations for in-water work should be included which apply to development in all shoreline environment designations.		
Segment A – North half of Potential Annexation Area	Urban (Snohomish County)	Point Wells Urban
Rationale: Since the northern half of the PAA is characterized by more upland development and shoreline modifications than the southern half, the Point Wells Urban designation could be considered.		
Segment A – South half of Potential Annexation Area	Urban (Snohomish County)	Point Wells Urban Conservancy
Rationale: The southern half of the PAA retains important ecological functions. The shoreline contains eelgrass meadows and kelp forests, forage fish spawning area, 31 species of shellfish, sand and gravel flat, and receives sediment input from an unarmored shoreline. An Urban Conservancy designation specifically tied to Point Wells may be appropriate so that policies and regulations unique to an industrial use or a future mix of uses can be developed. Existing and planned uses in the other Urban Conservancy environment designations are residential and recreation which would require a different set of policies and regulations.		
Segment B – North portion near Barnacle Creek	Urban (City of Shoreline)	Urban Conservancy
Rationale: The northern half of Segment B retains important ecological functions. The shoreline contains eelgrass meadows and kelp forests, a sand flat, forage fish spawning area, and a forested wetland. Also, Barnacle Creek discharges into the Puget Sound in two places; both serving as restoration opportunities.		

Planning Segment	Existing Shoreline Environment Designations[1]	Preliminary Recommended Environment Designations[2]
Segment B – South portion near Richmond Beach Residential Area	Urban (City of Shoreline)	Shoreline Residential
Rationale: Existing land use in this segment is mainly residential. City Comprehensive Plan and zoning designations for this segment are residential except that the BNSF ROW is designated as Public Facilities.		
Segment C – Richmond Beach Saltwater Park	Urban (City of Shoreline)	Urban Conservancy
Rationale: This segment retains important ecological functions. The shoreline contains eelgrass meadows and kelp forests, forage fish spawning area, 37 species of shellfish, and receives sediment input from an unarmored shoreline.		
Segment D – Innis Arden residential area	Rural (City of Shoreline)	Shoreline Residential
Rationale: Existing land use in this segment is mainly residential. City Comprehensive Plan and zoning designations for this segment are residential except that the BNSF ROW is designated as Public Facilities.		
Segment E – Innis Arden Reserve / Highlands	Rural/Conservancy (City of Shoreline)	Urban Conservancy or Natural
Rationale: This segment retains important ecological functions. The shoreline contains eelgrass meadows and kelp forests, sand flat, and the Boeing Creek outlet 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 the segment. This segment is also characterized by landslide hazard areas and has recently seen numerous slide activities. Development in this segment may cause a risk to human safety, prompting our recommendation to consider designating it as Natural. Urban Conservancy can also be considered appropriate since the shoreline is not entirely intact, separated from feeder bluffs by the BNSF railroad.		

1. Shoreline SMP (King County, 1978; SMC 16.10); Snohomish County website (Snohomish County PDS, 2008b)
2. Potential designations for discussion and consideration.

7.0 RECOMMENDED GOAL AND POLICY CHANGES

The following recommendations are intended to assist the City in updating its shoreline master program by translating the inventory and characterization findings into goals and policies. The focus of the recommendations is on ecological conservation and restoration and policy issues related to future shoreline use and development.

- The development of the Shoreline Master Program and shoreline environment designations should be consistent with both the 2003 state shoreline guidelines (WAC 173-26) and the 2005 Comprehensive Plan. The draft goals and policies included as an appendix in the

Comprehensive Plan will need to be updated once the SMP update process has been completed.

- The City could explore developing a community education and incentive program to identify and develop restoration opportunities on private property which support the overall goals of shoreline management. The program could include educating landowners on restoring native vegetation, alternative shoreline stabilization techniques, and effective stormwater management techniques. The program would provide opportunities for the community members of Shoreline to take part in, and learn about, the restoration of the city's shoreline. Example events could include: clean-up days, invasive species removal, native plantings, monitoring projects, and low impact development training.

- Riparian areas along tributary streams beyond shoreline jurisdiction should be protected and managed through the City's other regulatory mechanisms, including SMC Chapter 20.80 (Critical Areas). Protection of these areas could help control erosion and sedimentation and maintain a more natural flow regime.

- Important habitat, including kelp forests, eelgrass meadows, spawning and holding areas for forage fish, sand and gravel flats, and areas with which priority species have a primary association should be preserved and protected as critical saltwater habitats.

- Wetlands should be protected and preserved to achieve no net loss of wetland area and wetland functions.

- The City should consider restricting developments or creation of new lots in shoreline areas that are identified as environmentally or geologically hazardous or pose a foreseeable risk to people and property.

- For new shoreline stabilization projects, demonstration of the need for engineering approaches to shoreline stabilization could be required before approval. The use of bioengineering, alternative bank stabilization, and/or soft-shore armoring techniques could be encouraged in the City's shoreline master program.

- For existing shoreline stabilization structures, incentive programs could be put in place to encourage property owners to supplement hard armoring with habitat-friendly erosion control structures.

- Water quality is critical for shellfish, eelgrass meadows, kelp forests, forage fish, and salmonids. Therefore, goals and policies requiring adequate stormwater management and limiting erosion and sedimentation should be developed.

- Stormwater runoff should be managed and treated consistent with NPDES permit requirements, the Surface Water Master Plan, and applicable City regulations (King County Code Title 9, *Surface Water Management* adopted by reference in SMC 13.10).

- Consider creating incentives for development in the shoreline to implement low impact development techniques. Use of pervious surface materials is preferred.

- Incorporate applicable policies from the Puget Sound Partnership Action Agenda.

- Redevelopment of the Point Wells site would provide an opportunity to restore degraded shoreline ecological functions. The redeveloped site could also provide opportunity for public access. Goals and policies should be developed to guide redevelopment at Point Wells provided the area is annexed into the City of Shoreline. If redevelopment occurs prior to annexation to the City, then the City should coordinate with the agency that has jurisdiction (i.e. Snohomish County or Town of Woodway).

- The City should establish regulations that preserve and prevent the destruction of or damage to any site having historic, cultural, scientific, or educational value as identified by the City, affected Indian tribes, the Department of Archaeology and Historic Preservation, and other appropriate authorities. Special consideration should be taken when redeveloping Point Wells since there is potential for archaeological deposits associated with the former sand spit and lagoon beneath existing fill in the western half of the site (LAAS, 2001).

- For increasing opportunities for public access, the City should continue to consider land purchases, construction of new pedestrian overpasses by working with BNSF Railroad, and enhancement of public access opportunities at existing parks and open spaces.

- The City could consider developing an incentive program to encourage activities in shorelines and critical areas that restore the ecological functions and ecosystem-wide processes of the City's shoreline. Incentives could include a streamlined permitting process, reduced permit fees, and technical assistance.

- The City should consider coordinating with the BNSF Railroad, Corps of Engineers, Puget Sound Partnership, and other interested parties to restore the natural input of sediment and organics to Puget Sound. A possible measure that could be considered is to move the debris from landslides upslope of the BNSF Railroad tracks to the down-slope side, provided the appropriate permits are obtained. Another option is to allow for culvert replacement by larger box culverts or other fish friendly structures.

- The City should consider incorporating habitat enhancement and public access elements into the design and implementation of public infrastructure improvement projects.

- In order to improve fish passage and sediment and organic input, existing stream culverts below the railroad tracks need to be upgraded to meet current Washington State Department of Fish and Wildlife guidelines. The City should consider coordinating with the BNSF Railroad to implement such improvements.

8.0 PRELIMINARY RECOMMENDATIONS FOR REGULATORY CHANGES

The following recommendations are intended to assist the City in updating its shoreline master program by translating the inventory and characterization findings into regulations.

- Regulations should be established to protect critical saltwater habitat. In the event that avoidance is unachievable then regulations should require appropriate and effective standards for mitigating impacts.

- Vegetated buffers or building setbacks should be established to protect critical saltwater habitat, geologic hazard areas, and fish and wildlife conservation areas. These would be in addition to SMC 20.80 Critical Areas. Limitations on lot coverage and minimum native landscaping standards would be required to conserve native vegetation and minimize stormwater runoff impacts.

- When vegetation restoration of a shoreline area that has been disturbed or degraded is proposed, regulations should be established that require native plant materials to be used. The plants should have a diversity and type similar to that which would naturally occur on-site.

- Standards should be put into place allowing structural shoreline stabilization measures only when more natural, flexible, non-structural methods such as vegetative stabilization or other bioengineering methods have been determined ineffective.

- If overwater structures are permitted, regulations should be put into place that only allow such structures when migrating fish are not impeded and sites that are important for salmonids, including spawning, feeding or rearing areas, are avoided. Standards to increase light penetration could help reduce impacts to eelgrass meadows and kelp forests. Options may include increasing structure height over the water, changing structure orientation, reducing structure size, using grating as a surface material, placing floating docks in deeper water to avoid grounding during low tides, and considering the potential for carefully placed community docks, if applicable.

- All shoreline uses and activities should be required to employ best management practices (BMPs) to control treatment and release of surface water runoff so that the receiving water quality and shore properties and features are not adversely affected.

- For lawns and other vegetation maintained within shoreline jurisdiction, the use of chemical fertilizers, pesticides or other similar chemical treatments should be discouraged and alternative practices should be employed.

- Regulations requiring public access should be put into place. The public access area and/or the facility required should be commensurate with the scale and character of the development and should be reasonable, effective and fair to all affected parties including the landowner and the public.

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