PLANNING COMMISSION AGENDA ITEM

CITY OF SHORELINE, WASHINGTON

AGENDA TITLE: **Comprehensive Plan Update, Point Wells Subarea Plan**
DEPARTMENT: **Planning & Community Development**
PRESENTED BY: **Steven Szafran, AICP, Associate Planner**
Rachael Markle, AICP, Director P&CD

☐ **Public Hearing** ☒ **Study Session** ☐ **Recommendation Only**
☐ **Discussion** ☐ **Update** ☐ **Other**

INTRODUCTION & BACKGROUND

Planning staff presented the 2012 Comprehensive Plan Amendment Docket to the Planning Commission on January 5, 2012. The proposed docket included 6 amendments with four of the amendments directly related to the Point Wells Subarea Plan. Council ultimately approved two of those requests for inclusion on the docket, which are before you tonight.

The Shoreline City Council adopted Resolution 285 which opposed the Snohomish County designation of Point Wells as an "Urban Center". In response to Snohomish County's actions; The Shoreline City Council adopted The Point Wells Subarea Plan on April 19, 2010. Prior to the Subarea Plan, Point Wells was designated as a Potential Annexation Area (PAA) on Shoreline's Comprehensive Plan Land Use Designation Map. The town of Woodway, and Snohomish County, has previously identified the entire Point Wells unincorporated island as within the Woodway "Municipal Urban Growth Area" (MUGA).

DISCUSSION

The Save Richmond Beach group proposed four Comprehensive Plan Amendments that apply to the Point Wells Subarea Plan. The Council voted to include two of the four Comprehensive Plan Amendments proposed by Save Richmond Beach on this year's docket (**Attachment A**). The first amendment adds language to the Point Wells Subarea Plan concerning alternative access through Woodway, impacts to other roadways throughout Richmond Beach if secondary access is provided, and coordinating with Edmonds and Woodway to improve north-south mobility. The proposed text changes are shown in **Attachment B**.

The second amendment will add Point Wells to the seismic hazards section of the Natural Environment Supporting Analysis. Point Wells is identified as having a high susceptibility to liquefaction on the Snohomish County Liquefaction Susceptibility Map. This amendment will identify Point Wells into the seismic hazard section of the Comprehensive Plan. Proposed language is located in **Attachment C**

Note: the other two amendments that were not docketed proposed to: 1) Implement an annual limit on water connections and require a popular vote for sewer capacity increases; and 2)

Approved By: **Project Manager** _____ **Planning Director** _____

Require a higher Level of Service (LOS) standard for intersections in the Richmond Beach Neighborhood.

Staff does not believe the proposed changes to the Point Wells Subarea Plan will cause any significant impacts. In fact, if north-south access is provided, traffic pressures may be relieved on the primary access point of Richmond Beach Road. When and if a Corridor study is completed and an implementation plan is submitted to the City, staff will evaluate the impacts to the roadway system at that time.

NEXT STEPS

After tonight's discussion, Staff will provide any additional research and make any necessary changes. The Point Wells Subarea Plan will be joined with the rest of the Comprehensive Plan elements that Commission has already reviewed and will be back before the Commission in the fall in its final form.

After all elements have been discussed, staff will continue to incorporate Commissioner and public comments, solicit additional review and revision from internal and external stakeholders, draft narrative for introductions and other background information, perform environmental analysis, create a formatted template, update requisite maps, and compile a Draft Comprehensive Plan document for Commission to discuss. Staff aims to have a functional draft ready by September, but intends to bring forward policies that could potentially be incorporated into various elements for Commission review in August. This will likely be necessary because much of the discussion to date has dealt specifically with introducing each element and staff recommendations on material to be deleted, which allowed for only general direction to be provided regarding policies that should be incorporated.

If you have questions or comments prior to the meeting, please contact Steve Szafran at (206) 801-2512 or by email at sszafran@shorelinewa.gov.

ATTACHMENTS

Attachment A- Council Docketed Save Richmond Beach Amendments
Attachment B - Point Wells Subarea Plan
Attachment C- Comprehensive Plan Natural Environment Supporting Analysis

CITY OF SHORELINE

Planning & Community Development

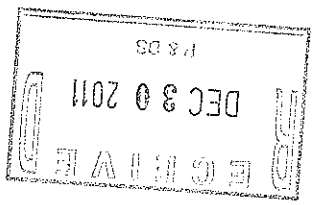
COMPREHENSIVE PLAN—GENERAL AMENDMENT APPLICATION

Amendment proposals may be submitted at any time, however if it is not submitted prior to the deadline for consideration during that annual amendment cycle, ending the last business day in December, the amendment proposal will not be considered until the next annual amendment cycle.

Please attach additional pages to this form, as needed.

A. **Contact Information**

If the proposal is from a group please provide a contact name.



Applicant: Save Richmond Beach (contact Caycee Holt)

Mailing Address: PO Box 60191, Shoreline, WA 98177

Telephone: (206) 356 - 5356 Fax: (___) ___ - ____ E-mail: info@saverichmondbeach.org

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B. **Proposed General Amendment** – This can be either conceptual: a thought or idea; or specific changes to wording in the Comprehensive Plan, but please be as specific as possible so that your proposal can be adequately considered. If specific wording changes are proposed please use underline to indicate proposed additions and ~~strikethrough~~ to indicate proposed deletions. **Please note that each proposed amendment requires a separate application.**

The City of Shoreline has designated Point Wells as a Potential Annexation Area and a Future Service and Annexation Area. Point Wells is identified as having a high susceptabilty to liquefaction on the Snohomish County Liquefaction Susceptability Map, but the City Comprehensive plan does not include Point Wells in the Land Use Element when discussing potential seismic hazards.

See the attached document for the requested changes.

C. **Reference Element of the Shoreline Comprehensive Plan (required) and page number (if applicable)** – (e.g. Land Use, Transportation, Capital Facilities, Housing, etc.)

The suggested change is an amendment to the Shoreline Comprehensive Plan, Land Use Element Supporting Analysis, Natural Environment section, Seismic Hazards subsection on page 101 and Appendix 1, 1998 Shoreline Master Plan Goals and Policies, Residential Development Element, page 358.

D. **Support for the Amendment** – Explain the need for the amendment. Why is it being proposed? How does the amendment address changing circumstances or values in Shoreline? Describe how the amendment is consistent with the current Shoreline Comprehensive Plan, if inconsistent, explain why. How will this amendment benefit the citizens of Shoreline? Include any data, research, or reasoning that supports the proposed amendment. *(A copy of the Shoreline Comprehensive Plan is available for use at the Planning and Development Services Department, Shoreline Neighborhood Police Centers, and the Shoreline and Richmond Beach libraries).*

The proposed amendment is suggested in the event that Point Wells is annexed into the City of Shoreline. This highly sensitive area should be highlighted for special consideration considering its high (the highest) liquefaction rating.

E. **Signature** – An amendment application can not be accepted unless the signature block below has been completed. The applicant certifies that all of the aforementioned statements in this application, any exhibits and/or maps transmitted herewith are true and the applicant acknowledges that any amendment granted based on this application may be revoked if any such statement is false.

Tom Mailhot for Save Richmond Beach 12/30/2011

Applicant Signature Date

PROPOSED AMENDMENTS WITHOUT THE REQUIRED APPLICATION INFORMATION MAY BE REJECTED OR RETURNED FOR ADDITIONAL INFORMATION.

Comprehensive Plan Land Use Supporting Analysis, Natural Environment section, page 101

Seismic Hazards

Seismic hazard areas are those areas subject to severe risk of earthquake damage as a result of settlement or soil liquefaction. These conditions occur in areas underlain by soils with low cohesion and density, usually in association with a shallow groundwater table. When shaken by an earthquake, certain soils lose their ability to support a load. Some soils will actually flow like a fluid; this process is called liquefaction. Loss of soil strength can also result in failure of the ground surface and damage to structures supported in or on the soil. Loose, water-saturated materials are the most susceptible to ground failure due to earthquakes.

One area of identified seismic hazard is located along Puget Sound in Richmond Beach Saltwater Park. In this area, park structures and the Burlington Northern railroad tracks may be at risk. The other seismic hazard area is located along McAleer Creek between NE 196th Street and NE 205th Street. Roads, single-family residences, and other public and private improvements may be affected in this area. A small area near 24th Avenue NE is susceptible to both landslides and seismic hazards.

An additional area of identified seismic hazard is located in a potential annexation area at Point Wells. In this area, which is rated at the highest risk for liquefaction, Burlington Northern railroad tracks, petroleum storage facilities, and the Brightwater sewer outfall facilities may be at risk as well as planned future residential and commercial structures and other public and private improvements. Access to the western portion of the area is via a bridge over the Burlington Northern railroad tracks and a major seismic event could affect the bridge and thus limit emergency response to the area.

Comprehensive Plan Shoreline Master Program Goals and Policies, Residential Development Element, page 358

SM50: Residential development shall ~~should~~ be prohibited in seismic and landslide hazard areas or environmentally unique and fragile areas unless environmental considerations and essential emergency services to ensure public safety are in place concurrent with development.

CITY OF SHORELINE

COMPREHENSIVE PLAN—GENERAL AMENDMENT APPLICATION

Planning & Community Development

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Please attach additional pages to this form, as needed.

A. **Contact Information**

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The Point Wells Subarea plan neglects to consider the likely scenario that a road is opened through Wood way; this would result in a much different set of transportation impacts. We believe the transportation corridor study required by the Subarea plan must include an analysis of the impacts in the event that this should occur. See attached document for the requested changes.

C. **Reference Element of the Shoreline Comprehensive Plan (required) and page number (if applicable)** – (e.g. Land Use, Transportation, Capital Facilities, Housing, etc.)

The suggested changes are an amendment to the Shoreline Comprehensive Plan, Point Wells Subarea Plan pages 264, 265 and 266 in the Transportation Corridor Study and Mitigation section.

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D. **Support for the Amendment** – Explain the need for the amendment. Why is it being proposed? How does the amendment address changing circumstances or values in Shoreline? Describe how the amendment is consistent with the current Shoreline Comprehensive Plan, if inconsistent, explain why. How will this amendment benefit the citizens of Shoreline? Include any data, research, or reasoning that supports the proposed amendment. *(A copy of the Shoreline Comprehensive Plan is available for use at the Planning and Development Services Department, Shoreline Neighborhood Police Centers, and the Shoreline and Richmond Beach libraries).*

We are proposing additional wording in the Corridor Study section and the Implementation Plan section including polices PW-9 and PW-11 to require more detailed study of the impact of possible secondary access to Point Wells through Woodway.

The proposed amendment is suggested because of the likelihood that the Point Wells developer will require secondary access to make their vision a reality. In the event that secondary access is obtained it will likely go through Woodway which would dramatically change the traffic impacts on different neighborhoods in Shoreline.

The development, as per a public records request at City of Shoreline, is likely to generate in excess of 18,000 car trips per day (Joe Tovar email), if half of these cars are funneling into Richmond Beach from 20th or through local roads via 205th, that will have a very different impact on the residential nature of Richmond Beach.

E. **Signature** – An amendment application can not be accepted unless the signature block below has been completed. The applicant certifies that all of the aforementioned statements in this application, any exhibits and/or maps transmitted herewith are true and the applicant acknowledges that any amendment granted based on this application may be revoked if any such statement is false.

Tom MacMillan for Save Richmond Beach 12/29/2011

Applicant Signature Date

PROPOSED AMENDMENTS WITHOUT THE REQUIRED APPLICATION INFORMATION MAY BE REJECTED OR RETURNED FOR ADDITIONAL INFORMATION.

Transportation Corridor Study and Mitigation

A traffic and safety analysis performed by the City in the summer of 2009 evaluated the nature and magnitude of impacts likely to accrue from the development of Point Wells as an "Urban Center" under Snohomish County zoning, as well as development scenarios *Subarea Plan Element* assuming lesser orders of magnitude. This background information provided a basis for the City to conclude that, prior to the approval of any specific development project at Point Wells, the applicant for any development permit at Point Wells should fund, and the City oversee, the preparation of a detailed Transportation Corridor Study.

Corridor Study

The Transportation Corridor Study and Implementation Plan should include an evaluation of projected impacts on vehicular flow and levels of service at every intersection and road segment in the corridor. The Study should also look at potential alternative access scenarios through Woodway in the event a secondary access road is opened. The Study should also evaluate and identify expanded bicycle and pedestrian safety and mobility investments, and identify "context sensitive design" treatments as appropriate for intersections, road segments, block faces, crosswalks and walkways in the study area with emphasis on Richmond Beach Road and Richmond Beach Drive and other routes such as 20th Ave. NW that may be impacted if a secondary road is opened through Woodway.

Implementation Plan

The corridor study would be a step in the development of such a plan. The scope of the implementation plan should include a multimodal approach to mobility and accessibility to and from Point Wells, as well as detailed planning for investments and services to improve multimodal travel for adjacent communities between Point Wells and I-5. This could well include an integrated approach to accessing Point Wells, the Richmond Beach neighborhood, and Richmond Highlands with the Bus Rapid Transit system along Aurora Avenue, the I-5 corridor itself - focusing on the interchanges at N. 205th and N. 175th, as well as the Sound Transit light rail stations serving Shoreline.

While the analysis of vehicle flows is appropriate as part of the study, the solutions should provide alternatives to vehicle travel to and from Point Wells - as well as more transportation choices than those that currently exist today for the Richmond Beach neighborhood and adjacent communities.

Policy PW-9 To enable appropriate traffic mitigation of future development at Point Wells, the developer should fund the preparation of a Transportation Corridor Study as the first phase of a Transportation Implementation Plan, under the direction of the City, with input and participation of Woodway, Edmonds, Snohomish County and WSDOT. The Study and Transportation Implementation Plan should identify, engineer, and provide schematic design and costs for intersection, roadway, walkway and other public investments needed to maintain or improve vehicular, transit, bicycle and pedestrian safety and flow on all road segments and intersections between SR 104, N 175th Street, and I-5 with particular attention focused on Richmond Beach Drive and Richmond Beach Road. Road segments that would be impacted by an alternate secondary access through Woodway should also be analyzed, which would include 20th Ave NW, 23rd Place, and 204th. The Study and Transportation Plan should identify needed investments and services, including design and financing, for multimodal solutions to improving mobility and accessibility

within the Richmond Beach neighborhood and adjacent communities, including but not limited to investments on Richmond Beach Drive and Richmond Beach Road.

Policy PW-10 The needed mitigation improvements identified in the Transportation Corridor Study and Implementation Plan should be built and operational concurrent with the occupancy of the phases of development at Point Wells.

Richmond Beach Road and Richmond Beach Drive provide the only vehicular access to Point Wells at the time of this update. Therefore, it is critical that identified impacts be effectively mitigated as a *Subarea Plan Element* condition of development approval. It is also vital that the traffic generated from Point Wells be limited to preserve safety and the quality of residential neighborhoods along this road corridor. In the event that secondary vehicular access is obtained through Woodway to the Point Wells site, the mitigation and improvements of the impacts to those additional road segments must also occur concurrent with the phased development.

Historically, mobility and accessibility in Richmond Beach and adjacent communities has been dominated by the single occupancy vehicle. Provision of bicycle and pedestrian facilities has been limited because retrofitting an existing road network with these facilities is an expensive undertaking. The Richmond Beach Road corridor is served by limited Metro bus service and is beyond a reasonable walking distance from potential development within Point Wells. Though rail service to a station in Richmond Beach was evaluated by Sound Transit, no service is envisioned in the transit agency's adopted 20 year plan. Improved transit, bicycle and pedestrian mobility is a long-term policy objective, but the majority of trips in the area will likely continue to be by automobiles utilizing the road network. The City's traffic study completed in 2009 shows that if more than 8,250 vehicle trips a day enter the City's road network from Point Wells, it would result in a level of service "F" or worse at a number of City intersections. This would be an unacceptable impact.

Policy PW-11 The City should address opportunities to improve mobility, accessibility, and multimodal east-west movement in the Richmond Beach Road Corridor between Puget Sound and I-5 as part of the update of the city-wide Transportation Management Plan. The City should also work with neighboring jurisdictions Woodway and Edmonds to improve North-South mobility. These opportunities should be pursued in a manner that reduces existing single occupancy vehicle trips in the corridor.

Policy PW-12 In view of the fact that Richmond Beach Drive between NW 199th St. and NW 205th St. is a local road with no opportunities for alternative access to dozens of homes in Shoreline and Woodway, the City designates this as a local street with a maximum capacity of 4,000 vehicle trips per day. Unless and until 1) Snohomish County and/or the owner of the Point Wells Urban Center can provide to the City the Transportation Corridor Study and Mitigation Plan called for in Policy PW-9, and 2) sources of financing for necessary mitigation are committed, the City should not consider reclassifying this road segment.

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Note: This attachments contains the Point Wells Subarea Plan in its entirety. The sections proposed for amendment are denoted as underlined text.

Point Wells Subarea Plan

Geographic and Historical Context

Point Wells is an unincorporated island of approximately 100 acres in the southwesternmost corner of Snohomish County. It is bordered on the west by Puget Sound, on the east by the Town of Woodway, and on the south by the town of Woodway and the City of Shoreline (see Fig. 1). It is an "island" of unincorporated Snohomish County because this land is not contiguous with any other portion of unincorporated Snohomish County. The island is bisected roughly north-south by the Burlington Northern Railroad (B.N.R.R.) right-of-way.

Figure 1 – Point Wells unincorporated island

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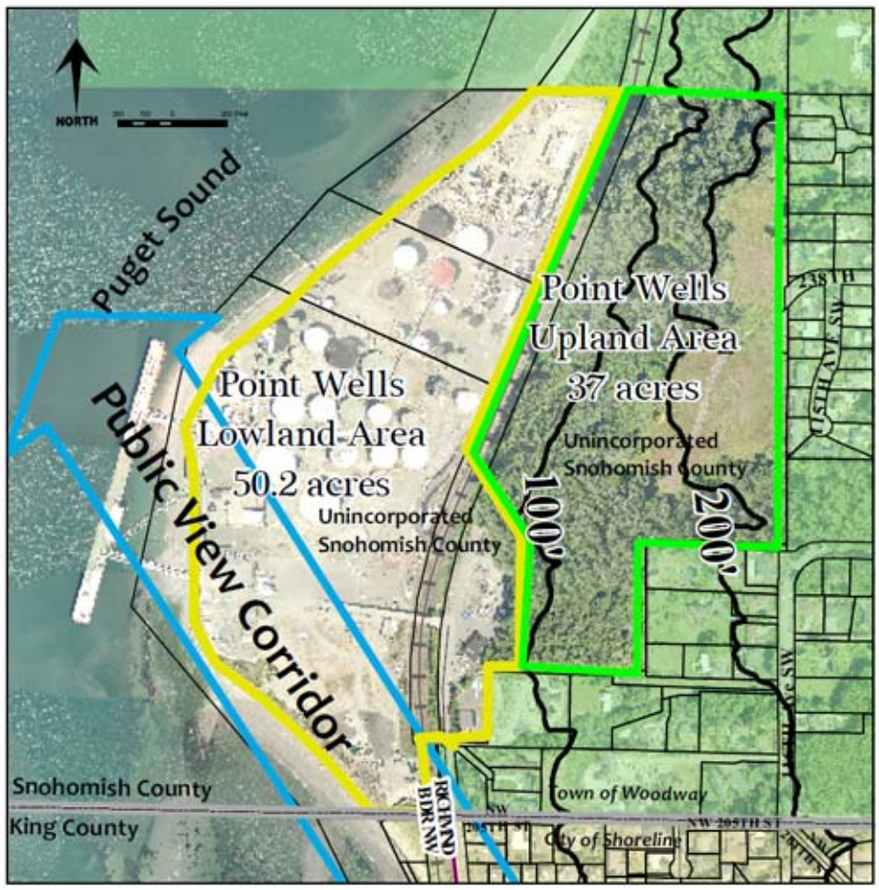
The lowland area of this unincorporated island (see Fig. 2) is approximately 50 acres in size. The



only vehicular access to the lowland portion is to Richmond Beach Road and the regional road network via the City of Shoreline.

Figure 2 – Upland and Lowland Areas at Point Wells

The upland area of the Point Wells Island (see Fig. 2) is approximately 37 acres in size. The upland does not have access to Richmond Beach Drive due to very steep environmentally sensitive slopes that separate the upland portion from the lowland portion. However, the upland portion does have potential easterly access through the Town of Woodway via 238th St. SW.

All of the Point Wells Island was previously designated by the City of Shoreline as a "Potential Annexation Area" (PAA). The Town of Woodway, and Snohomish County, have previously identified all of the Point Wells unincorporated island as within the Woodway "Municipal Urban Growth Area" (MUGA). The Washington State Court of Appeals, in a 2004 decision, determined that the overlap of Shoreline's PAA and Woodway's MUGA does not violate the provisions of the Growth Management Act.

Note: This attachments contains the Point Wells Subarea Plan in its entirety. The sections proposed for amendment are denoted as underlined text.

Snohomish County's designation of Point Wells as an "Urban Center"

In April of 2009, the Shoreline City Council adopted Resolution 285 which opposed the pending Snohomish County designation of Point Wells as an "Urban Center." The resolution cited the likely excessive impacts of up to 3,500 dwelling units on Shoreline streets, parks, schools, and libraries. The City submitted several comment letters to the County Council detailing the reasons for the City's opposition, reiterating the City's support for a mixed use development of a more reasonable scale at Point Wells, and pointed out that an "Urban Center" designation would be inconsistent with provisions of the County's plan as well as the Growth Management Act.

Designation of a Future Service and Annexation Area (FSAA) at Point Wells

After a review of the topography and access options for Point Wells, the City of Shoreline no longer wishes to include the upland portion of this unincorporated island within its designated urban growth area. Because of the upland portion's geographic proximity and potential for direct vehicular access to the Town of Woodway, the City of Shoreline concludes that the upland portion should be exclusively within the Town of Woodway's future urban growth area. Any people living in future developments in the upland portion of the Point Wells Island would feel a part of the Woodway community because they would share parks, schools, and other associations facilitated by a shared street grid.

Applying the same rationale to the lowland portion of the Point Wells Island, the City of Shoreline wishes to reiterate and clarify its policies. These lands all presently connect to the regional road network only via Richmond Beach Drive and Richmond Beach Road in the City of Shoreline. Therefore future re-development of the lowland area would be most efficiently, effectively, and equitably provided by the City of Shoreline and its public safety partners, the Shoreline Fire Department and Shoreline Police Department.

At such future time that the lowland portion of the Point Wells Island annexes to the City of Shoreline, the urban services and facilities necessary to support mixed use urban development would be provided in an efficient and equitable manner. These would include police from the Shoreline police department and emergency medical services and fire protection from the Shoreline Fire Department. In addition, the City would be responsible for development permit processing, code enforcement, parks, recreation and cultural services, and public works roads maintenance.

Future residents of the lowland portion of Point Wells would become a part of the Richmond Beach community by virtue of the shared parks, schools, libraries, shopping districts and road grid. As citizens of the City of Shoreline, they would be able to participate in the civic life of this "community of shared interests," including the City's Parks Board, Library Board, Planning Commission, or other advisory committees, and City Council.

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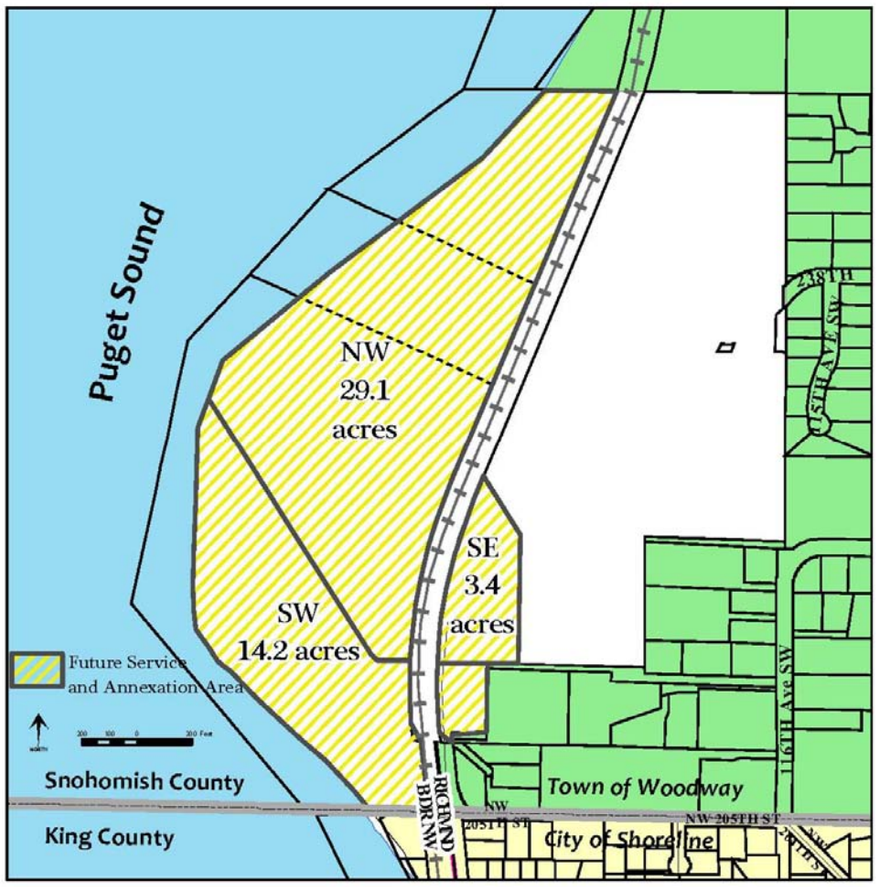
<u>Policy PW-1</u> The Lowland Portion of the Point Wells Island, as shown on Figure 3, is designated



*as the City of Shoreline's proposed future service and annexation area (**FSAA**)*

Fig. 3 – City of Shoreline Future Service and Annexation Area

A Future Vision for Point Wells

The Subarea Plan, intended to be a 20-year plan document, envisions a Point Wells development that could take longer than 20 years to become fully realized. Because of the time horizon of the plan and future development, the City, in its decision-making, should consider the long-term costs of near-term actions and make choices that reflect a long-term perspective.

The City's vision for Point Wells is a world class environmentally sustainable community, both in site development and architecture. The redevelopment of the site should be predicated on remediation of the contaminated soil, and the restoration of streams and native plant regimes appropriate to the shoreline setting. New site design and improvements should incorporate low impact and climate friendly practices such as alternative energy sources, vegetated roofs, rainwater harvesting, rain gardens, bioswales, solar and wind technologies. Development at Point Wells should exhibit the highest quality of sustainable architecture, striving for gold or platinum LEED (Leadership in Energy and Environmental Design) certification.

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> *Policy PW-2 The Vision for Point Wells is an environmentally sustainable mixed-use community that is a model of environmental restoration, low-impact and climate-friendly sustainable development practices, and which provides extensive public access to the Puget Sound with a variety of trails, parks, public and semi-public spaces.*

Point Wells also represents a major opportunity to create a new subarea consistent with City objectives for economic development, housing choice, and waterfront public access and recreation. With almost 3,000 linear feet of waterfront, and sweeping 180 degree public views from Admiralty Inlet off Whidbey Island to Rolling Bay on Bainbridge Island, this site has unparalleled opportunity for public access, environmental restoration, education, and recreation oriented to Puget Sound.

The City's vision for Point Wells includes a mix of land uses, including residential, commercial, and recreational. The City recognizes that the site may be suited to a wide range of residential uses (e.g., market rate housing, senior housing, special needs housing, hotels, extended stay, etc.) as well as a range of commercial uses (e.g., office, retail, restaurant). Rather than proscribe the number or type of residential units, or the floor area of various types of commercial uses, the City prefers that flexibility be left to the developer to respond to market realities. However, whatever use mix is proposed must demonstrate that it conforms to adopted parking requirements, site design and building form policies cited below.

There are at least three distinct sub-areas within the FSAA, identified on Fig. 3 with the notations NW, SW, and SE. Because of their proximity to the single family neighborhoods to the east and south, maximum building heights in the SW and SE areas should be lower than in the NW subarea. Because of the large difference in elevation between the NW subarea and lands east of the railroad tracks, much taller buildings could be placed in this area without significantly impairing public views. Building placement in this area should avoid obstruction of the public view corridor shown on Fig. 2. The appropriate number, placement and size of taller buildings in NW subarea should be determined through the development permit and environmental review process.

The portion of the Puget Sound shoreline in the SW subarea is the most environmentally sensitive area and a candidate for habitat restoration. This area has sandy substrate, supports some beach grass and other herbaceous vegetation, and contains a fair amount of driftwood. This area should be a priority for open space and restoration including elimination of invasive plants, re-establishing native riparian and backshore vegetation.

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Policy PW-3 Use and development of and near the Puget Sound shoreline and aquatic lands at Point Wells should be carefully designed and implemented to minimize impacts and achieve long-term sustainable systems. New bulkheads or over-water structures should not be permitted and the detrimental effects of existing bulkheads should be reduced through removal of bulkheads or alternative, more natural stabilization techniques.

Any improvements in the westernmost 200 feet (within the jurisdiction of the Shoreline Management Act) of the NW and SW subareas should be limited to walkways and public use or park areas. Outside that shoreline area, buildings should be located and configured to maintain as much openness and public views across the site as possible, with taller structures limited to the central and easterly portions.

Policy PW-4 A public access trail should be provided and appropriate signage installed along the entire Puget Sound shoreline of the NW and SW subareas and secured with an appropriate public access easement document.

The relatively lowland area west of the tracks (between 10 and 20 feet above sea level) is abutted east of the tracks by a heavily forested slope. See Fig. 1. The slope rises steeply (15% to 25% grades) from the railroad tracks to the top of the slope, which is at approximately elevation 200. See Figure 2. The tree line at the top of the slope consists of mature trees from 50 to 100 feet in height, which further obscure public views of Point Wells from the portions of Woodway above elevation 200.

Policy PW-5 New structures in the NW subarea should rise no higher than elevation 200.

New buildings east of the railroad tracks would be much closer to existing single family homes in Woodway and Richmond Beach. To reflect this proximity, buildings of a smaller scale are appropriate.

Policy PW-6 New structures in the SE Subarea should rise no higher than six stories.

In order to promote maximum openness on the site and prevent bulky buildings, the City should consider innovative regulations such as design standards and guidelines, building floor plate maxima, requiring a minimum separation between taller structures and the protection of public view corridors. Public views from city rights-of-way in the Richmond Beach neighborhood are a major part of the area's character, and provide a sense of place, openness, beauty and orientation. A prominent public view corridor across the lowland area, shown in Fig. 2, affords a public view from Richmond Beach Drive northwest to Admiralty Inlet and Whidbey Island. Placement and size of structures at Point Wells should be located and configured so as not obstruct this important public view corridor.

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Policy PW-7 The public view from Richmond Beach Drive in Shoreline to Admiralty Inlet should be protected by a public view corridor across the southwest portion of the NW and SW subareas.

Policy PW-8 New structures in the NW subarea should be developed in a series of slender towers separated by public view corridors.

Transportation Corridor Study and Mitigation

A traffic and safety analysis performed by the City in the summer of 2009 evaluated the nature and magnitude of impacts likely to accrue from the development of Point Wells as an "Urban Center" under Snohomish County zoning, as well as development scenarios assuming lesser orders of magnitude. This background information provided a basis for the City to conclude that, prior to the approval of any specific development project at Point Wells, the applicant for any development permit at Point Wells should fund, and the City oversee, the preparation of a detailed Transportation Corridor Study.

Corridor Study

The Transportation Corridor Study and Implementation Plan should include an evaluation of projected impacts on vehicular flow and levels of service at every intersection and road segment in the corridor. The Study should also look at potential alternative access scenarios through Woodway in the event a secondary access road is opened. The Study should also evaluate and identify expanded bicycle and pedestrian safety and mobility investments, and identify "context sensitive design" treatments as appropriate for intersections, road segments, block faces, crosswalks and walkways in the study area with emphasis on Richmond Beach Road and Richmond Beach Drive and other routes such as 20th Avenue NW that may be impacted is a secondary road is opened through Woodway.

Implementation Plan

The corridor study would be a step in the development of such a plan. The scope of the implementation plan should include a multimodal approach to mobility and accessibility to and from Point Wells, as well as detailed planning for investments and services to improve multimodal travel for adjacent communities between Point Wells and I-5. This could well include an integrated approach to accessing Point Wells, the Richmond Beach neighborhood, and Richmond Highlands with the Bus Rapid Transit system along Aurora Avenue, the I-5 corridor itself - focusing on the interchanges at N. 205th and N. 175th, as well as the Sound Transit light rail stations serving Shoreline.

While the analysis of vehicle flows is appropriate as part of the study, the solutions should provide alternatives to vehicle travel to and from Point Wells - as well as more transportation choices than those that currently exist today for the Richmond Beach neighborhood and adjacent communities.

Policy PW-9 To enable appropriate traffic mitigation of future development at Point Wells, the developer should fund the preparation of a Transportation *Corridor Study as the first phase of a Transportation Implementation Plan, under the direction of the City, with input and participation of Woodway, Edmonds, Snohomish County and WSDOT.*

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The Study and Transportation Implementation Plan should identify, engineer, and provide schematic design and costs for intersection, roadway, walkway and other public investments needed to maintain or improve vehicular, transit, bicycle and pedestrian safety and flow on all road segments and intersections between SR 104, N 175th Street, and I-5 with particular attention focused on Richmond Beach Drive and Richmond Beach Road. Road segments that would be impacted by an alternate secondary access through Woodway should also be analyzed, which would include 20th Avenue NW, 23rd Place, and NW 204th Street. The Study and Transportation Plan should identify needed investments and services, including design and financing, for multimodal solutions to improving mobility and accessibility within the Richmond Beach neighborhood and adjacent communities, including but not limited to investments on Richmond Beach Drive and Richmond Beach Road.

Note: This attachments contains the Point Wells Subarea Plan in its entirety. The sections proposed for amendment are denoted as underlined text.

Policy PW-10 The needed mitigation improvements identified in the Transportation Corridor Study and Implementation Plan should be built and operational concurrent with the occupancy of the phases of development at Point Wells.

Richmond Beach Road and Richmond Beach Drive provide the only vehicular access to Point Wells at this time. Therefore, it is critical that identified impacts be effectively mitigated as a condition of development approval. It is also vital that the scale of traffic generated from Point Wells be limited to preserve safety and the quality of residential neighborhoods along this road corridor. In the event that secondary vehicular access is obtained through Woodway to the Point Wells site, the mitigation and improvements of the impacts to those additional road segments must also occur concurrent with the phased development.

Historically, mobility and accessibility in Richmond Beach and adjacent communities has been dominated by the single occupancy vehicle. Provision of bicycle and pedestrian facilities has been limited because retrofitting an existing road network with these facilities is an expensive undertaking. The Richmond Beach Road corridor is served by a single Metro route and, though rail service to a station in Richmond Beach was evaluated by Sound Transit, no service is envisioned in the transit agency's adopted 20 year plan. Though improved transit, bicycle and pedestrian mobility is a long-term policy objective, the majority of trips in the area will likely continue to be by automobiles utilizing the road network. The City's traffic study completed in 2009 shows that if more than 8,250 vehicle trips a day enter the City's road network from Point Wells, it would result in a level of service "F" or worse at a number of City intersections. This would be an unacceptable impact.

Policy PW-11 The City should address opportunities to improve mobility, accessibility, and multimodal east-west movement in the Richmond Beach Road Corridor between Puget Sound and I-5 as part of the update of the citywide Transportation Management Plan. The City should also work with neighboring jurisdictions Woodway and Edmonds to improve North-South mobility. These opportunities should be pursued in a manner that reduces existing single occupancy vehicle trips in the corridor.

Policy PW-12 The maximum daily traffic that the City should permit emanating from or entering into Point Wells may not exceed 8,250 vehicle trips per day, *nor reduce the City's adopted level of service standards for the Corridor at the time of application for development permits at Point Wells.*

Note: This attachments contains the Point Wells Subarea Plan in its entirety. The sections proposed for amendment are denoted as underlined text.

Interjurisdictional Coordination

The City should work with the Town of Woodway and Edmonds to identify ways in which potential future development in the lowland portion of Point Wells could be configured or mitigated to reduce potential impacts on Woodway. There is no practical primary vehicular access to the lowland part of Point Wells other than via Richmond Beach Road. However, the City should work with property owners and Woodway to provide a bicycle and pedestrian route between Woodway and Point Wells.

The Growth Management Act states that cities, rather than county governments, are the preferred providers of urban governmental services. Because urban governmental services and facilities in Shoreline are much closer to Point Wells than are similar services and facilities located in Snohomish County, it is most efficient for the City to provide those services.

Working with its public safety partners, Shoreline Fire Department and Shoreline Police Department, the City should invite Snohomish County to discuss an interlocal agreement to address the timing and methods to transition local governmental responsibilities for Point Wells from the County to the City. Included in these discussions should be responsibilities for permitting and inspection of future development at Point Wells, and possible sharing of permitting or other local government revenues to provide an orderly transition.

> *Policy PW-13 The City should work with the Town of Woodway, City of Edmonds and Snohomish County toward adoption of interlocal agreements to address the issues of land use, construction management of, urban service delivery to, and local governance of Point Wells. A joint SEPA lead-agency or other interlocal agreement with the County could assign to the City the responsibility for determining the scope, parameters, and technical review for the transportation component of the County's Environmental Impact Statement prepared for a future project at Point Wells. Under such agreement, this environmental analysis, funded by the permit applicant, could satisfy the policy objectives of the Transportation Corridor Study and Implementation Plan referenced at PW-10.*
>
> *Policy PW-14 In the event that development permit applications are processed by Snohomish County, the City should use the policies in this Subarea Plan as guidance for identifying required mitigations through the SEPA process and for recommending changes or additional permit conditions to achieve greater consistency with the City's adopted policies.*

Note: This attachments contains the Natural Environment Supporting Analysis in its entirety. The sections proposed for amendment are denoted as underlined text.

Natural Environment Element Supporting Analysis

Background and Context

Shoreline's environment is comprised of both natural and built features. Puget Sound vistas, mature trees, natural vegetation, streams, wetlands, lakes, and tidelands are just some of the aspects of the natural environment that Shoreline citizens value. The relationships between these features, development, and natural processes, and the quality of the resulting environment, have profound impacts on the quality of life in Shoreline. Shoreline is not a pristine landscape, but the very name of the City reflects the importance of the natural environment to the community identity. Preserving the quality of the environment depends on government, business, and individual decisions, and coordinated actions to minimize the adverse environmental impacts that can occur during development or redevelopment and daily life.

Environmental Conditions

Shoreline is a community that developed mostly as a suburban residential area with an associated mix of commercial centers, parks, schools, and natural areas. Natural areas are comprised of the Puget Sound shoreline, bluffs, steep slopes, ravines, natural reserves, wetlands, streams, lakes, native growth easements, and stands of mature trees. These areas are found on both private property and public property, such as larger single family residential lots and City parks.

Portions of Shoreline contain the following environmentally critical areas: geological hazard areas, flood hazard areas, streams, wetlands, and fish and wildlife habitat conservation areas. The City does not contain any known critical aquifer recharge areas that supply potable water. Drinking water comes from surface systems that originate in the Cascade Mountains and are operated by the Shoreline Water District and the City of Seattle, predominantly from the Tolt River.

Shoreline has adopted regulations to protect environmentally critical areas in the City. These regulations are referred to as the Critical Areas Regulations and are located in Chapter 20.80 of the Shoreline Municipal Code. These regulations are periodically reviewed and updated in accordance with state mandates.

The City has a current Hazard Mitigation Plan as required by the Federal Administration Management Agency (FEMA). An analysis of the environmental hazards that may impact the City of Shoreline are addressed in detail in that plan. Some of that analysis is referred to in the appropriate hazard areas below.

Geologic Hazards and Frequently Flooded Areas

Continental glaciers extended many times into central Puget Sound over the past two million years depositing layers of silt-clay, gravel and till in a rolling plateau known as the Seattle drift plain. The City is located on this plateau which drops irregularly to Puget Sound and Lake Washington through a series of basins formed by small streams that flow through the area. A number of steep bluffs are located along the shores of Puget Sound within The Highlands and Innis Arden neighborhoods. The size of these bluffs diminishes in the Richmond Beach neighborhood. Hazards, including landslides and mudslides, have occurred along these steep bluffs**.** Steep bluffs are also found along the eastern edges of the City. The majority of the remaining areas of the City are located on a rolling plateau with a north/south topographical orientation. Development on or adjacent to severe slopes and highly erodable soils can have a negative impact on slope stability.

Soil type, vegetative cover, presence of ground water, and degree of slope affect the suitability of a site for development. The City is predominately covered with the Alderwood series of soils (U.S. Geological Survey Maps)**.** Alderwood soils have drainage problems during periods of heavy seasonal rainfall. Erosion can be severe and accelerated if vegetation (including trees) and forest litter, which protects the soils from rain, are removed for development. The City of Shoreline contains geologic hazard areas prone to landslide, seismic, and erosion hazards. Most of these hazard areas are located on the bluffs along Puget Sound or adjacent to streams**.**

Landslide Hazards

Many of the bluffs along Puget Sound consist of severe slopes and isolated glacial deposits that are susceptible to landslides. These unstable slopes are a major hazard to people, structures, and other land uses and improvements (such as railroad tracks). The identification of areas susceptible to landslides is necessary to effectively regulate grading, building, foundation design, housing density, drainage and to implement other regulations to reduce or eliminate the risk of property damage and personal injury.

The City contains areas that are susceptible to landslides. Within the City these areas include the bluffs and stream ravines along Puget Sound, the Boeing Creek ravine and the hillsides along McAleer Creek.

Seismic Hazards

Seismic hazard areas are those areas subject to severe risk of earthquake damage as a result of settlement or soil liquefaction. These conditions occur in areas underlain by soils with low cohesion and density, usually in association with a shallow groundwater table. When shaken by an earthquake, certain soils lose their ability to support a load. Some soils will actually flow like a fluid; this process is called liquefaction. Loss of soil strength can also result in failure of the ground surface and damage to structures supported in or on the soil. Loose, water-saturated materials are the most susceptible to ground failure due to earthquakes.

One area of identified seismic hazard is located along Puget Sound in Richmond Beach Saltwater Park. In this area, park structures and the Burlington Northern railroad tracks may be at risk. The other seismic hazard area is located along McAleer Creek between NE 196th Street and NE 205th Street. Roads, single-family residences, and other public and private

improvements may be affected in this area. A small area near 24th Avenue NE is susceptible to both landslides and seismic hazards.

An additional area of identified seismic hazard is located in a potential annexation area at Point Wells. This area is rated at high risk for liquefaction susceptibility on the Snohomish County Liquefaction Susceptibility Map. The area contains the Burlington Northern railroad tracks, petroleum storage facilities, and the Brightwater sewer outfall facilities may be at risk as well as future residential and commercial structures and other public and private improvements. Access to the western portion of the area is via a bridge over the Burlington Northern railroad tracks and a major seismic event could affect the bridge and thus limit emergency response to the area.

Erosion Hazards/Sedimentation

Erosion is a natural process where rain, running water, and wind loosen and eliminate or reduce soil coverage and deposit it elsewhere. Of these natural forces, erosion by rain and running water is by far the most common within the Puget Sound region. The susceptibility of any soil type to erosion depends upon the physical and chemical characteristics of the soil, its protective vegetative cover, slope length and gradient, intensity of rainfall, and the velocity of water runoff. During storms, water runoff saturates the upper layers of till and sand-gravel. When the water migrates to the less permeable layer of silt-clay below the layer of sand-gravel it begins to flow laterally toward Puget Sound or Lake Washington. Erosion and slides occur as the sand-gravel layer washes away or slides on top of the slippery silt-clay layer. Runoff also erodes topsoil, which contributes to the erosion and landslide hazards.

The City contains areas that are prone to erosion activity. These areas include the bluffs along Puget Sound, the Boeing Creek ravine, and the hillsides along McAleer Creek, near the eastern boundary of the City. Erosion hazards also include hillsides in the Richmond Beach neighborhood, the vicinity of Paramount Park, east of Holyrood Cemetery, and the vicinity of Hamlin Park and Shorecrest High School. A large portion of the Boeing Creek Basin, which includes Shoreview Park, is both an erosion hazard area and a landslide area. Other small erosion hazard areas are variously located within the City**.**

Potential geologic hazard areas are shown on Figure LU-2 at the end of this section.

Flood Hazard Areas

Flood hazard areas are those areas within the regulatory floodplain which include the floodway, channel migration zones, riparian habitat zones, and special flood hazard areas. Floodplains have been mapped on Flood Insurance Rate Maps (FIRM) prepared by FEMA. Within Shoreline, only limited areas adjacent to Thornton and Boeing creeks, Ronald Bog and the Puget Sound Shoreline have been designated as potential floodplains. In addition to floodplains, unmapped spot flooding occurs during storm events in various areas in the City that lack adequate drainage.

Vegetation Protection

Residents characterize the City of Shoreline as a wooded community; this is often cited as a key reason for locating in the area. Large evergreen trees can be seen rising above residential neighborhoods, on hilltops, and even on the periphery of Aurora Avenue. As the

City has become more urbanized, the area covered by native ground cover and/or shaded by native trees has been vastly reduced.

Forested open space, wetlands, and native vegetation found on steep slopes and larger residential lots are important resources that should be preserved. Trees help stabilize soils on steep slopes and act as barriers to wind and sound. Plants replenish the soil with nutrients and generate oxygen and clean pollutants from the air. Native vegetation provides habitat for wildlife; the native vegetation found near creeks, lakes, and saltwater areas offer habitats for many migrating and resident birds and other wildlife. Less developed wooded areas and City parks also provide habitats for many birds and mammals. Wetlands and riparian vegetation provide surface water storage and help clean surface water of pollutants and sediment.

Aerial photos show that the community is a mosaic of various types of vegetation. The largest, most contiguous areas of native vegetation in Shoreline are primarily found in City parks, publicly owned open space, privately owned open space (such as the Boeing Creek area of The Highlands and the reserves in Innis Arden) and designated critical areas (such as steep slopes along the Puget Sound shoreline). These areas include the highest quality wildlife habitat found in the City. However, areas of less intensive residential development also contain mature trees and other native vegetation which provide secondary wildlife habitat and substantially contribute to the quality of life in our City. Native vegetation in residential areas that may be subdivided or otherwise more intensely developed is at the greatest risk of being lost.

Habitat Protection

The process of urbanization can result in the conversion of wildlife habitat to other uses. The loss of certain types of habitat can have significant, adverse effects on the health of certain species. Fish and wildlife habitat conservation areas are those that are necessary for maintaining species within their natural geographic distribution so that isolated subpopulations are not created. Designated habitats include those areas associated with species that state or federal agencies have designated as endangered, threatened, sensitive, or candidate species, anadromous fish habitat, waterfowl and raptor nests, heron rookeries and designated habitats of local importance.

Currently in the Puget Sound, the bald eagle and Chinook salmon are listed as threatened species by the federal government under the Endangered Species Act. The Washington Department of Fish and Wildlife indicates bald eagle territory in the Richmond Beach and Point Wells areas. WDFW maps and the City's stream inventory indicate the presence of Chinook salmon in portions (including sections outside of the City) of McAleer Creek, Thornton Creek and Boeing Creek. Other sources have indicated the presence of fish in other streams within the City, although the full extent of fish habitat has not been confirmed. To help restore healthy salmon runs, local governments and the State government must work proactively to address salmon habitat protection and restoration.

The Washington Department of Fish and Wildlife (WDFW) has developed the Priority Habitats and Species (PHS) Program to help preserve the best and most important habitats and provide for the life requirements of fish and wildlife. Priority species are fish and wildlife species that require protective measures and/or management guidelines to ensure their perpetuation. Priority habitats are habitat types with unique or significant value to many species. The WDFW has documented the locations of priority habitats and species within

the City. These PHS areas include wetlands, anadromous fish habitat, riparian areas, bald eagle territory, urban natural open space, habitat for a priority bird species, and the point location of a priority bird species siting. These areas combined comprise less than 5% of the total land area of the City and are often found within existing City parks, public open space, and designated private open space

The City has developed a geographic information system (GIS) that includes detailed maps of PHS areas based on data provided by the WDFW and other mapping resources. WDFW provides management recommendations for priority species and habitats that are intended to assist landowners, users, and managers in conducting land-use activities in a manner that incorporates the needs of fish and wildlife. Management recommendations are developed through a comprehensive review and synthesis of the best scientific information available. The City has reviewed the PHS management recommendations developed by WDFW for species identified in Shoreline and used them to guide the development of critical areas regulations that fit the existing conditions and limitations of our relatively urbanized environment.

Streams and Water Resources

Wetlands

Wetlands perform valuable functions that include surface and flood water storage, water quality improvement, groundwater exchange, stream base flow augmentation, and biological habitat support. A review of background information, including aerial photos from 1992, identified 17 individual wetlands within the City. These wetlands range from the large estuarine system (a mixture of salt and fresh waters) adjacent to Puget Sound, to lakes and small excavated ponds. With the exception of the Puget Sound estuarine system, all wetlands in the City are palustrine systems (freshwater). The largest palustrine system is Echo Lake located in the north-central portion of the City. Other large wetlands include ponds within Ronald Bog Park, Twin Ponds Park, Paramount Park, and the Seattle Country Club, as well as numerous undocumented wetlands of .5 acres or less. Most wetlands in the City are relatively isolated systems and are surrounded by development.

Under the Shoreline Municipal Code, wetlands are designated using a tiered classification system (from Type I to Type IV) based on size, vegetative complexity, and the presence of threatened or endangered species. No wetlands in the City have received a Class I rating. All wetlands, regardless of size, are regulated under the Shoreline Municipal Code. When a development is proposed on a site with known or suspected wetlands, a wetland evaluation is required to verify and classify wetlands and delineate boundaries and buffer areas.

All of the documented wetlands within the City have experienced some level of disturbance as a result of development and human activity. Disturbances have included major alterations such as wetland excavation, fill or water impoundment. Some wetland areas occur within parks that receive constant use by people, threatening the wetlands with impacts of human activity, such as trash and trampling of vegetation.

Lakes

There are four lakes in the City of Shoreline: Echo Lake, Ronald Bog, Hidden Lake and Twin Ponds. Like most small urban lakes, Shoreline's lakes contain pollutants and contaminated runoff, including fertilizers and pesticides from lawns and gardens; oils, greases, and heavy metals from vehicles; and fecal coliform bacteria. The quality of the water in the lakes is a

concern to many residents and City staff. Ronald Bog and Twin Ponds were historically bogs that were dredged. As urban development in the City has occurred, the process by which the nutrient level and vegetation in these lakes increases has accelerated. Ronald Bog and Twin Ponds will eventually revert to bogs.

Hidden Lake is currently used as a sediment storage facility and has been significantly altered to accommodate this function. King County completely reconstructed this feature by removing the sediment eroded from sites further upstream in the basin. Hidden Lake has served as a sink for this sediment and has protected the water quality and potential fish habitat in the lower reaches of Boeing Creek. Sedimentation will continue to impact Hidden Lake unless action is taken to stabilize the upper reaches of Boeing Creek and/or reduce run-off rates in the upper reaches of the basin. If future stabilization of Boeing Creek includes changes to the channel, the habitat values associated with the upper reaches of the Creek could be reduced. Some community members would like to see Hidden Lake restored to a more natural condition. However, this could limit the ability of the City to continue to use this feature for and could increase sedimentation and habitat degradation in the lower reaches of Boeing Creek.

The City anticipates preparing a master plan for Shoreview Park. This plan will guide the City as it acts to close and rehabilitate user created trails and access points to Hidden Lake and establish public access in a suitable location(s). This will reduce erosion and sedimentation in and around this location. The City is also working with King County in an effort to remove barriers to fish passage along the lower reaches of Boeing Creek. The restoration of viable fish habitat may make the protection of the lower reaches of the Creek from sedimentation (a role played by Hidden Lake) a higher priority.

Streams and Creeks

Numerous small stream and creeks are found within or adjacent to the City of Shoreline. Many of these streams have been placed in culverts, channels, or otherwise altered and degraded. Boeing Creek flows to the Puget Sound and drains an area which includes Shoreview Park. Thornton Creek originates in Ronald Bog, near the geographic center of the City, flows to Twin Ponds, crosses the City limits, and emerges as an open channel in the City of Seattle's Jackson Park Golf Course. McAleer Creek flows in the southeasterly direction and passes through the northeast corner of the City and into Lake Forest Park. Lyon Creek flows in a similar direction just outside of the City. Other features include small and unnamed creeks which flow into the Puget Sound in the Richmond Beach, Innis Arden, and Highlands neighborhoods**.**

Large portions of the watersheds drained by creeks in the City have been paved or otherwise developed. This development dramatically increases the volume of water in the creeks during storm surges and reduces in-stream flows during drier periods of the year. This combination of more intense storm surges and overall lower flows causes numerous environmental problems, including: increased bank erosion, scouring and deepening of the stream channel, reduced water quality, sedimentation of gravels, damage to stream-side vegetation, and reduction or elimination of habitat for wildlife, fish, and the insects that fish feed on.

McAleer Creek and Thornton Creek and an area of Puget Sound adjacent to Richmond Beach are currently on the Washington State list of water features that do not meet water quality standards due to high levels of fecal coliform, and in some locations for dissolved

oxygen and temperature. It is believed that Boeing Creek does not meet State standards for sediment. Creeks continue to be damaged as a result of large quantities of stormwater as well as by pollutants it may contain.

Groundwater

Groundwater aquifers are used for supplying water to lakes, wetlands, and streams during the dry season and for a few private wells that supply water for irrigation and possibly drinking water in a few isolated instances. Wetlands and lakes are thought to be the main groundwater recharge areas in the City.

Water Quality and Drainage

Drainage in the City consists of nine separate drainage basins: Lyons Creek, McAleer Creek, Thornton Creek, Boeing Creek, West Lake Washington, Bitter Lake, Seattle Golf Club and two separate areas of the Middle Puget Sound Basin (north and south). Along the west half of the City, the Boeing Creek Basin empties directly into Puget Sound. The Middle Puget Sound basins drain into Puget Sound via small creeks and surface water systems. The McAleer Creek Basin in the northeastern portion of the City drains into Echo Lake and Lake Ballinger and eventually into Lake Washington. The approximate eastern half of the City from Interstate 5 drains to Lake Washington via Thornton Creek. The Ballinger area drains to Lake Washington via Lyon Creek. Small portions of the City at the north and northeastern edges drain into Lake Washington through small creeks and surface water systems.

Drainage facilities in the City consist of a combination of conveyance pipes, ditches, and stream channels. Much of the development in the City took place in the 1940s and 1950s, prior to the implementation of stormwater mitigation regulations in the 1970s.

Many natural creek systems have been stabilized or reconstructed to repair and prevent slope erosion or bank failures. However, water quality mitigation measures have not been adequate to protect natural waterways. Consequently, the water quality of the lakes and streams in the City has been negatively impacted by the large volumes of polluted runoff that they regularly receive. Although open vegetated drainage ways are generally the preferred option from a water quality standpoint, the construction of curbs, gutters, and sidewalks may be appropriate in areas with urban densities, high vehicular traffic, schools, parks, bus stops, shopping or employment concentrations.

Surface water and wetland areas are shown on Figure LU-3 at the end of this section.

Air Quality

One of the basic characteristics of a livable city is clean air. Numerous federal, state, regional, and local agencies enact and enforce legislation to protect air quality. Good air quality in Shoreline, and in the region, requires controlling emissions from all sources, including: internal combustion engines, industrial operations, indoor and outdoor burning, and wind-borne particles from land clearing and development. In the Puget Sound region, vehicle emissions are the primary source of air pollution. Local and regional components must be integrated in a comprehensive strategy designed to improve air quality through transportation system improvements, vehicle emissions reductions, and demand management strategies.

Air quality is measured by the concentration of chemical compounds and particulate matter in the air outside of buildings. Air that contains carbon monoxide, ozone, and particulate matter can degrade the health of humans, animals, and plants. Human health risks from poor air quality range in severity from headaches and dizziness to cancer, respiratory disease, and other serious illnesses, to premature death. Potential ecological impacts include damage to trees and other types of vegetation. Quality of life concerns include degradation of visibility and deposition of soot and other particulate matter on homes and other property.

The City seeks long-term strategies to address air quality problems, not only on the local level, but in the context of the entire Puget Sound Basin with coordination and major direction from the Puget Sound Clean Air Agency.

Sustainability
What other information should we include for sustainability? We probably don't want to overload with background information, but it is appropriate to discuss our recent and upcoming efforts, such as:

- Cleanscapes programs
- Indicator Tracking website
- City Hall
- Backyard Habitat certification
- Uses of funds from EECBG
- Tree canopy study