



MEMORANDUM

To: Planning Commission

From: Stacy Clauson, Senior Planner
Paul Stewart, Deputy Director of Planning

Date: March 6, 2008

Subject: Kirkland's Shoreline Master Program Update

I. RECOMMENDATION

Staff recommends that the Planning Commission complete the following:

1. Consider the proposed revisions to the objectives being established for the SMP update (see Section II below).
2. Receive a presentation and discuss the concept of no net loss as it will be evaluated in the SMP update (see Section III below).
3. Consider draft policy language for the **Introduction** and **Shoreline Land Use** sections of the new Shoreline Chapter. Background information and draft policies were provided to you in Section V (starting on page 10) and Attachment 7 (starting on page 163) of the February 28, 2008 packet. Based upon initial comments received at the February 28th meeting, staff is drafting changes to this section to articulate a higher benchmark for improvements to the shoreline environment and would like to discuss these revised goals and policies at the March 13th meeting.
4. Consider draft policy language for the **Shoreline Environment** and **Shoreline Parks, Recreation and Open Space** sections of the new Shoreline Chapter. Please see Section IV starting on page 4 for background information on this issue. Attachment 1 provides a copy of the draft policy language for the **Shoreline Environment** section and Attachment 2 provides a copy of the draft policy language for the **Shoreline Parks, Recreation and Open Space** section of the new Shoreline Chapter.

II. OBJECTIVES

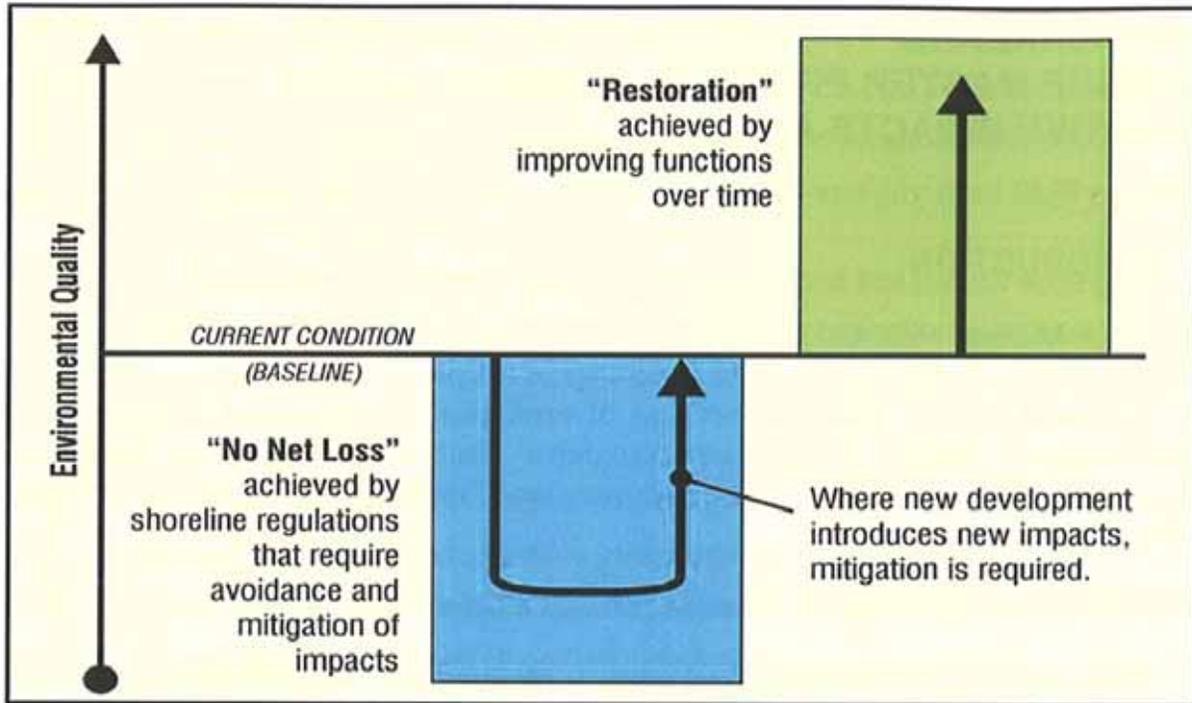
At the February 28, 2008 meeting, we reviewed the objectives that were previously established for the SMP update. Revisions were requested to the first two of the stated objectives to provide better clarity. The following edits are proposed for your review:

1. Enable current and future generations to enjoy an attractive and safe waterfront. ~~Provide a healthy environment along the shoreline to enable current and future generations to enjoy using it.~~
2. Protect the quality of water and shoreline natural resources ~~rovide a healthy environment along the shoreline~~ to preserve fish and wildlife and their habitats.
3. Protect the City's investments as well as those of property owners along and near the shoreline.
4. Produce an updated Shoreline Master Program (SMP) that is supported by Kirkland's elected officials, citizens, property owners and businesses, the State of Washington, and other key interest groups with an interest in the shoreline.
5. Efficiently achieve the SMP mandates of the State.

III. NO NET LOSS

The concept of no net loss was briefly discussed at our last meeting and staff wanted to take this opportunity to review some of the key issues considered during the evaluation of no net loss of ecological functions. Please keep in mind that the Department of Ecology is still formulating its final recommendations to cities on how to approach our analysis of no net loss, but in general, the following provisions apply:

1. The 'no net loss' standard is designed to halt the introduction of new impacts to shoreline ecological functions resulting from planned for and permitted new development. This means that the existing condition of shoreline ecological functions, as evaluated under the Final Shoreline Analysis Report issued in December 2006, should not be further degraded and should be improved, as our updated SMP is implemented over time. The following is a graphic which displays this concept:



Source: Department of Ecology

2. The standard of 'no net loss' should be realized both in the environmental planning process of updating an SMP and over time by appropriately regulating individual developments as the SMP is implemented.
3. The SMP must be designed to assure, at minimum, no net loss of ecological functions necessary to sustain shoreline natural resources and to plan for restoration of ecological functions where they have been impaired. In other words, the resulting impacts of planned for and appropriate shoreline development must be identified and mitigated so that, at minimum, the City maintains the shoreline ecological function as it exists at the time of adoption of the updated SMP. Master programs should also include policies that promote restoration of ecological functions where such functions are found to have been impaired, enabling functions to improve over time.
4. Ecological functions are composed of the physical, chemical, and biological processes that contribute to the maintenance of the aquatic and terrestrial environments that constitute the shoreline's natural ecosystem. Managing shorelines for protection of their natural resources depends on sustaining the functions provided by:
 - i. Ecosystem-wide processes such as those associated with the flow and movement of water, sediment and organic materials; the presence and movement of fish and wildlife and the maintenance of water quality.

- ii. Individual components and localized processes such as those associated with shoreline vegetation, soils, water movement through the soil and across the land surface and the composition and configuration of the beds and banks of water bodies.
- 5. To achieve this standard while accommodating appropriate and necessary shoreline uses and development, master programs are required to establish and apply:
 - i. Environment designations with appropriate use and development standards;
 - ii. Provisions to address the impacts of specific common shoreline uses, development activities and modification actions;
 - iii. Provisions for the protection of critical areas within the shoreline; and
 - iv. Provisions for mitigation measures and methods to address unanticipated impacts.
- 6. Please note that generally all types of shoreline development produce at least some degree of impact to ecological functions. Some preferred uses as set forth in the SMA are among those developments which impact shoreline ecological function (e.g. water dependent uses such as marinas or docks and piers). The 'no net loss' standard means that updating SMPs must contain provisions for mitigating these unavoidable impacts. SMPs are required, to the greatest extent feasible, to protect existing ecological functions and avoid new impacts to habitat and ecological functions before implementing other measures designed to achieve no net loss of ecological functions.
- 7. The process we will need to use to demonstrate that our SMP will result in no net loss is as follows:
 - i. Document existing shoreline ecological functions and baseline conditions in the shoreline inventory and characterization.
 - ii. Project 'reasonably foreseeable future development' over a minimum 20-year planning period in a shoreline use analysis.
 - iii. Assess the ecological impacts resulting from 'reasonably foreseeable development'.
 - iv. Identify management measures that demonstrate how future (both anticipated and unanticipated) development impacts will be mitigated through proposed SMP environment designations, policies, regulations, and restoration activities contained in the shoreline restoration plan.
 - v. Evaluate how incremental impacts, remaining after mitigation is applied, will be mitigated over time in a cumulative impact analysis.

Cumulative impact analysis is typically conducted while drafting SMP provisions, such as shoreline regulations. It is intended to be an iterative land use planning exercise, where different regulations or development scenarios are evaluated based on scientific understanding of shoreline ecological functions. The Watershed Company will be assisting City staff with preparation of a cumulative impact analysis that addresses these issues. Once the general model for how we will evaluate cumulative impacts is prepared, staff will bring this to the Planning Commission for your review and comment.

IV. GOALS AND POLICIES

The following analysis addresses the proposed goals and policies addressing the **Shoreline Environment** and **Shoreline Parks, Recreation and Open Spaces** in the new Shoreline Chapter of the Comprehensive Plan.

1. Introduction and Land Use

Draft policies were provided to you in Attachment 7 (starting on page 163) of the February 28, 2008 packet. Based upon initial comments received at the February 28th meeting, staff is drafting changes to this section to articulate a higher benchmark for improvements to the shoreline environment and would like to discuss these revised goals and policies at the March 13th meeting.

2. Shoreline Environment

This section is concerned with the preservation of natural resources, particularly critical areas and fisheries and wildlife protection. Staff has also included policies addressing shoreline modifications that occur along the shoreline in this section (see Goal 13 and Policies 13.1 through 13.12 of Attachment 1). These can be shifted to the Land Use Section of the Chapter if you feel that this would be a more appropriate place for these issues. The following describes some of the key requirements from the State Guidelines addressing these issues:

A. Shoreline Critical Areas.

“Critical areas” include the following areas and ecosystems: (a) Wetlands; (b) Fish and wildlife habitat conservation areas; (c) Frequently flooded areas; and (d) Geologically hazardous areas.” The following describes some of the key requirements from the State Guidelines addressing critical areas:

- In protecting and restoring critical areas within shoreline jurisdiction, integrate the full spectrum of planning and regulatory measures, including the comprehensive plan, inter-local watershed plans, local development regulations, and state, tribal, and federal programs.
- The planning objectives of shoreline management provisions for critical areas shall be the protection of existing ecological functions and ecosystem-wide processes and restoration of degraded ecological functions and ecosystem-wide processes.
- Promote human uses and values that are compatible with the other objectives of this section, such as public access and aesthetic values, provided they do not significantly adversely impact ecological functions.

Draft policies SMP-8.1 through SMP-8.5 and SMP-9 and SMP-9.1 in Attachment 1 include policies addressing critical area protection in the shoreline. It should be noted that the Natural

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Environment Chapter of the Comprehensive Plan also contains a comprehensive set of policies relating to critical areas (see Goal NE-1, Policies NE-1.1 through NE 1.6, Goal NE-2, Policies NE-2.1 through NE-2.7 and Goal NE-4 in Attachment 5).

Staff Analysis:

The City of Kirkland presently regulates critical areas in our code provisions. As part of this process, we need to ensure that our current regulations, as they would apply within the shoreline jurisdiction, provide a level of protection that is equivalent to that required in the State Guidelines under WAC 173-26-221. We are currently in discussion with the Department of Ecology about the status of our existing regulations and may need to revisit the shoreline critical area policies proposed in Attachment 1 once we have additional information.

During the public forums held in September 2006, attendees articulated the following goal that applies to critical areas:

- *Enhance habitat for fish and wildlife.*

As you review the proposed language, please consider the following questions:

- *Do the policies reinforce and support our objectives for the SMP update?*
- *Are the policies consistent with the State Guidelines?*
- *Are there any other issues that you would like to address through this section?*
- *What revisions would you like to make to the goals, policies, or accompanying language?*

B. Water Quality and Quantity. The following describes some of the key requirements from the State Guidelines addressing water quality and quantity:

- Prevent impacts to water quality and storm water quantity that would result in a net loss of shoreline ecological functions, or a significant impact to aesthetic qualities, or recreational opportunities.
- Ensure mutual consistency between shoreline management provisions and other regulations that address water quality and storm water quantity, including public health, storm water, and water discharge standards. The regulations that are most protective of ecological functions shall apply.

Draft policies SMP-10.1 through SMP-10.3 in Attachment 1 include policies addressing water quality and quantity. It should be noted that the Natural Environment Chapter contains a set of policies relating to water systems and addressing water quality and quantity, including Goal NE-2, together with related policies NE-2.1 through NE-2.7 (see Attachment 3). The Utilities Chapter also contains policies addressing storm water, including Goal U-4, together with related policies U-4.1 through U-4.11 (see Attachment 4).

Staff Analysis: It is important to note that most of the storm water entering lake does not come from the shoreline jurisdiction. Shoreline regulations that will be contained in the Shoreline Master Program will focus specifically on surface water management activities within the shoreline jurisdiction. Within the Restoration Plan that will be developed as a component of the final Shoreline Master Program, the City will have an opportunity to identify those activities and programs that the City is pursuing within the larger watershed basin that contribute to the lake conditions as part of our Surface Water Utility, Surface Water Master Plan, and as part of our implementation of the NPDES Phase II Municipal Stormwater permit requirements.

In general, surface water programs, projects and behaviors that apply to the City as a whole will also be used within the shoreline management area to protect the quantity and quality of stormwater runoff. It should be noted that most properties within the shoreline environment area discharge runoff directly to Lake Washington via pipes. The quality of this runoff can have a direct impact on the quality of water in Lake Washington. As a result, it will important for us to consider how to extend and emphasize existing programs to engage the community in behaviors that prevent discharges and protect water quality in the shoreline management area. Such programs include the following:

- *Education and incentives for use of natural yard care techniques that reduce the use of fertilizers and pesticides, and prevent soil erosion*
- *Encourage the use of Low Impact Development techniques that reduce or prevent creation of impervious surfaces, that protect and increase the cover of vegetation ,and that reduce the amount of existing impervious area that is directly connected to pipes and/or Lake Washington*
- *Require use of best management practices for property maintenance. For example, sweeping parking areas rather than hosing them down, stenciling drains with the message “dump no waste, drains to lake”, and covering and containing stored materials such as swimming pool chemicals, topsoil or fuels.*
- *Investigate and resolve water quality complaints promptly and thoroughly with an emphasis on prevention of future discharges.*

Surface water and impacts from storm water have been consistently raised as important issues to consider by interested participants. During the public forums held in September 2006, attendees articulated several interests and goals that apply to storm water, including the following:

- *Address stormwater impacts on water quality and shorelines, particularly turbidity following storms and the impacts of vehicular oil and other pollution that drains untreated effluents into Lake Washington.*
- *Encourage “low impact” development practices to decrease adverse impacts in areas that are outside the SMP but impact it.*
- *Address the impacts of construction activities on water quality and the shoreline.*

We have also received additional public comments on this issue, as follows:

- *Advocated expanding the Shoreline Master Plan study area to include additional sources of non-point pollution for Lake Washington.*
- *Referred the City to a recent study concerning efforts by the Denny Park Neighborhood Assoc. to address storm water run-off.*
- *City needs to consider impact of surface runoff from upland development on water quality and fish life.*

Please see Attachment 8 for a summary of public comments.

As you review the proposed language, please consider the following questions:

- *Do the policies reinforce and support our objectives for the SMP update?*
- *Are the policies consistent with the State Guidelines?*
- *Are there any other issues that you would like to address through this section?*
- *What revisions would you like to make to the goals, policies, or accompanying language?*

C. **Vegetation Management.** The following describes some of the key requirements from the State Guidelines addressing shoreline vegetation conservation:

- The intent of vegetation conservation is to protect and restore the ecological functions and ecosystem-wide processes performed by vegetation along shorelines. Vegetation conservation should also be undertaken to protect human safety and property, to increase the stability of river banks and coastal bluffs, to reduce the need for structural shoreline stabilization measures, to improve the visual and aesthetic qualities of the shoreline, to protect plant and animal species and their habitats, and to enhance shoreline uses.
- Local governments may implement these objectives through a variety of measures, where consistent with Shoreline Management Act policy, including clearing and grading regulations, setback and buffer standards, critical area regulations, conditional use requirements for specific uses or areas, mitigation requirements, incentives and non-regulatory programs.
- Sustaining different individual functions requires different widths, compositions and densities of vegetation. The importance of the different functions, in turn, varies with the type of shoreline setting.

Draft goals SMP-10 and 11 in Attachment 1 include policies addressing vegetation management in the shoreline. It should be noted that the Natural Environment Chapter contains policies relating to vegetation. These goals and policies, Goal NE-3, together with related policies NE-3.1 through NE-3.3 are contained in Attachment 6. The Natural Resources Management Plan also addresses issues relating to vegetation management in Section C, Land and Vegetation (see Attachment 7).

Staff Analysis: A key concept to consider with regard to vegetation management is how best to achieve the overall objective to maintain and restore shoreline vegetation. What measures do you

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want to explore to address this issue (regulations, incentives, etc.) and how should those be addressed in the policy and supporting language?

Aquatic invasive species management has been a topic that has been raised by participants in earlier meetings (see summary table contained in Attachment 8).

As you review the proposed language, please consider the following questions:

- *Do the policies reinforce and support our objectives for the SMP update?*
- *Are the policies consistent with the State Guidelines?*
- *What initial policy direction would you suggest for how best to retain and establish new shoreline plantings?*
- *Are there any other issues that you would like to address through this section?*
- *What revisions would you like to make to the goals or accompanying language?*

D. Managing Shoreline Modifications

Staff has included policies addressing shoreline modifications that occur along the shoreline in this section (see Goal 13 and Policies 13.1 through 13.12 of Attachment 1). These can be shifted to the Land Use Section of the Chapter if you feel that this would be a more appropriate place for these issues.

1. General Provisions. The following describes some of the key requirements from the State Guidelines addressing all shoreline modifications:
 - Allow structural shoreline modifications only where they are demonstrated to be necessary to support or protect an allowed primary structure or a legally existing shoreline use that is in danger of loss or substantial damage or are necessary for reconfiguration of the shoreline for mitigation or enhancement purposes.
 - Reduce the adverse effects of shoreline modifications and, as much as possible, limit shoreline modifications in number and extent.
 - Allow only shoreline modifications that are appropriate to the specific type of shoreline and environmental conditions for which they are proposed.
 - Assure that shoreline modifications individually and cumulatively do not result in a net loss of ecological functions.
 - Plan for the enhancement of impaired ecological functions where feasible and appropriate while accommodating permitted uses. As shoreline modifications occur, incorporate all feasible measures to protect ecological shoreline functions and ecosystem-wide processes.

- Avoid and reduce significant ecological impacts according to the mitigation sequence (avoidance, minimization, and mitigation).

These concepts are contained throughout the Shoreline Modification provisions contained in draft policies under SMP-13 in Attachment 1.

2. Fill. The following describes some of the key requirements from the State Guidelines addressing fill:

- Fills shall be located, designed, and constructed to protect shoreline ecological functions and ecosystem-wide processes, including channel migration.
- Fills waterward of the ordinary high-water mark shall be allowed only when necessary to support: water-dependent use, public access, cleanup and disposal of contaminated sediments as part of an interagency environmental clean-up plan, disposal of dredged material considered suitable under, and conducted in accordance with the Dredged Material Management Program of the Department of Natural Resources, expansion or alteration of transportation facilities of statewide significance currently located on the shoreline and then only upon a demonstration that alternatives to fill are not feasible, mitigation action, environmental restoration, beach nourishment or enhancement project. Fills waterward of the ordinary high-water mark for any use except ecological restoration should require a conditional use permit.

Draft Policy SMP-13.2 in Attachment 1 addresses fill.

Staff Analysis: One of the potential barriers to replacement of bulkheads and other structural shoreline protection features that currently exists in our Shoreline Master Program is an existing policy addressing fill, which limits the use of fill for use by a public agency to improve navigability, public recreation, or public safety; or to create a public use or recreation area.

As part of new shoreline protection alternatives, new fill material (gravel and sand mix) is sometimes added in front of existing bulkheads or in replace of the bulkhead in order to establish a low gradient shoreline. The fill provisions in our SMP should recognize this potential application for fill activity.

It also should be noted that fill located waterward of the ordinary high water mark is not necessarily the preferred approach by the federal agencies, but is an option that can be considered, based on site circumstances. The US Army Corps of Engineers is currently drafting a new Regional General Permit that would provide three alternative methods for bulkhead replacement that could be used to fulfill the federal permitting requirements under an expedited process. Staff will be consulting with the Army Corps of Engineers as

we draft our local regulations on this topic to ensure that the local regulations are consistent with the preferred designs being drafted under this Regional General Permit.

It should be noted that property owners have raised this concern about our current fill regulations in previous meetings, commenting that property owners pursuing bulkhead replacement should be able to push shoreline portion of their property farther into the Lake as an incentive to remove bulkheads (see summary table contained in Attachment 8).

3. Dredging. The following describes some of the key requirements from the State Guidelines addressing dredging:
 - Dredging and dredge material disposal shall be done in a manner which avoids or minimizes significant ecological impacts and impacts which cannot be avoided should be mitigated in a manner that assures no net loss of shoreline ecological functions.
 - New development should be sited and designed to avoid or, if that is not possible, to minimize the need for new and maintenance dredging.
 - Dredging for the purpose of establishing, expanding, or relocating or reconfiguring navigation channels and basins should be allowed where necessary for assuring safe and efficient accommodation of existing navigational uses and then only when significant ecological impacts are minimized and when mitigation is provided. Maintenance dredging of established navigation channels and basins should be restricted to maintaining previously dredged and/or existing authorized location, depth, and width.
 - Dredging waterward of the ordinary high-water mark for the primary purpose of obtaining fill material shall not be allowed, except when the material is necessary for the restoration of ecological functions.

Draft Policy SMP-13.4 and 13.5 in Attachment 1 addresses dredging activities.

4. Shoreline Protection Structures. (Note: This section of the state guidelines is very detailed and the following is intended as a summary only. The full guidelines on shoreline protection structures can be found in WAC 173-26-231(3) of Attachment 1 in your February 28, 2008 packet). The following describes some of the key requirements from the State Guidelines addressing shoreline protection standards:
 - New development should be located and designed to avoid the need for future shoreline stabilization to the extent feasible.

- New structural stabilization measures shall not be allowed except when necessity is demonstrated in the following manner:
 - To protect existing primary structures, when there is conclusive evidence, documented by a geotechnical analysis, that the structure is in danger from shoreline erosion caused by tidal action, currents, or waves.
 - In support of new nonwater-dependent development, including single-family residences, when the erosion is not being caused by upland conditions and nonstructural measures, such as placing the development further from the shoreline, planting vegetation, or installing on-site drainage improvements, are not feasible or not sufficient.
 - In support of water-dependent development, when the erosion is not being caused by upland conditions and nonstructural measures, such as placing the development further from the shoreline, planting vegetation, or installing on-site drainage improvements, are not feasible or not sufficient.
 - To protect projects for the restoration of ecological functions or hazardous substance remediation projects.
- An existing shoreline stabilization structure may be replaced with a similar structure if there is a demonstrated need to protect principal uses or structures from erosion caused by currents, tidal action, or waves. Note: Additions to or increases in size of existing shoreline stabilization measures are considered new structures.

Draft Policies SMP-13.6 through and 13.10 in Attachment 1 address shoreline stabilization.

Staff Analysis: Except for the City's natural park areas, the City's shorelines are heavily armored which adversely impacts the performance of many ecological functions. Under the City's existing permitting system, existing structural shoreline protective features can be repaired under an administrative approval process (referred to as a Shoreline Exemption).

A new bulkhead or other shoreline protective structure may be constructed only if:
(1) It is needed to prevent significant erosion of the shoreline; and
(2) The use of vegetation will not sufficiently stabilize the shoreline to prevent significant erosion.

The intent of these policies is to require that alternative shoreline protection mechanisms be evaluated and exhausted before use of a structural design. As noted above, the US Army Corps of Engineers is currently drafting a new Regional General Permit that would

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provide three alternative methods for bulkhead replacement that could be used to fulfill the federal permitting requirements under an expedited process. Staff will be consulting with the Army Corps of Engineers as we draft our local regulations on this topic to ensure that the local regulations are consistent with the preferred designs being drafted under this Regional General Permit.

Since the shoreline area is so heavily armored, a key issue will be how to address existing shoreline armoring when significant upland redevelopment occurs or when repair activities occur to the shoreline protection structure. A draft policy is contained in SMP-13.9 addressing this issue, and staff would suggest discussion on this topic to address to what extent the policies should require retrofits to existing shoreline armoring to restore ecological functions impacted by past shoreline armoring.

The policies also touch upon facilitating the use of shoreline protection alternatives, either by education or incentives. It should be noted that the City of Seattle is currently designing an information pamphlet that can be distributed to shoreline property owners explaining and providing guidance on the different shoreline protection alternatives. The City will be a recipient of this pamphlet and hope to use this as part of our outreach efforts.

During the shoreline tours, there was great interest in the shoreline protection alternatives that were highlighted. During the public forums held in September 2006, attendees articulated several interests and goals that apply to residential development, including the following:

- *Encourage restoration and coordinate ecological enhancement/restoration of City-owned properties with that on adjacent private waterfront properties.*
- *The City should proactively take actions to facilitate substantial changes for ecological improvement along the Kirkland waterfront, rather than wait for a few owners to voluntarily make improvements in a piecemeal fashion. Consider working with a group of owners of contiguous properties to facilitate efforts to ecologically improve a section of shoreline.*
- *Offer flexibility in design or design options for achieving the mandates of the SMP; e.g., when bulkheads are removed, allow for some of the new slope to be land, rather than requiring that it all become lake. Also consider reducing setbacks from the street to increase the setback from the lake.*
- *Simplify processes or ensure City permitting rules, regulations and requirements do not make it more difficult to achieve the goals and objectives of the SMP. Explore the possibility of the City providing sample plans for preferred dock designs. Also look to streamline the permitting process to encourage preferred activities.*
- *Recognize differences in the shoreline to ensure that solutions are tailored to individual and unique circumstances and conditions.*

The City has received additional public comments concerning bulkheads (see summary table contained in Attachment 2).

As you review the proposed language, please consider the following questions:

- *Do the policies reinforce and support our objectives for the SMP update?*
- *Do the proposed policies effectively respond to the public input that we have received?*
- *Under what circumstances should existing shoreline armoring be retrofitted?*
- *Are there any other issues that you would like to address through this section?*
- *What revisions would you like to make to the goals or accompanying language?*

5. In-Stream Features. The following describes some of the key requirements from the State Guidelines addressing in-stream features:

- In-stream structures shall provide for the protection and preservation, of ecosystem-wide processes, ecological functions, and cultural resources, including, but not limited to, fish and fish passage, wildlife and water resources, shoreline critical areas, hydrogeological processes, and natural scenic vistas. The location and planning of in-stream structures shall give due consideration to the full range of public interests, watershed functions and processes, and environmental concerns, with special emphasis on protecting and restoring priority habitats and species.

Draft Policy SMP-13.11 in Attachment 1 addresses in-stream features.

6. Breakwaters. The following describes some of the key requirements from the State Guidelines addressing breakwaters:

- Breakwaters, jetties, groins, and weirs located waterward of the ordinary high-water mark shall be allowed only where necessary to support water-dependent uses, public access, shoreline stabilization, or other specific public purpose. Breakwaters, jetties, groins, weirs, and similar structures should require a conditional use permit, except for those structures installed to protect or restore ecological functions, such as woody debris installed in streams.

Draft Policy SMP-13.12 in Attachment 1 addresses breakwaters.

7. Enhancement Projects. The State Guidelines note that the SMP should include provisions fostering habitat and natural system enhancement projects.

Draft Policy SMP-14.1 in Attachment 1 address enhancement projects.

3. Shoreline Parks, Recreation and Open Space

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This section is concerned with the preservation and enlargement of recreational opportunities. Staff has also included policies addressing private shoreline recreation uses (e.g. marinas and docks and piers) that occur along the shoreline in this section (see Goals 21 through 23 and related policies of Attachment 2). These can be shifted to the Land Use Section of the Chapter if you feel that this would be a more appropriate place for these issues. The following describes some of the key requirements from the State Guidelines addressing these issues:

A. Public Parks. The following describes some of the key requirements from the State Guidelines addressing recreation uses:

- Master programs should assure that shoreline recreational development is given priority and is primarily related to access to, enjoyment and use of the water and shorelines of the state.
- Provisions related to public recreational development shall assure that the facilities are located, designed and operated in a manner consistent with the purpose of the environment designation in which they are located and such that no net loss of shoreline ecological functions or ecosystem-wide processes results.
- Master program recreation policies shall be consistent with growth projections and level-of-service standards established by the applicable comprehensive plan.

Draft Goals and Policies in SMP-15 through 18 in Attachment 2 address City parks and open spaces.

Staff Analysis: Staff plans to present draft policies addressing City parks to the Parks Board in April, 2008 and will share any feedback with you from that meeting.

As you review the proposed language, please consider the following questions:

- *Do the policies reinforce and support our objectives for the SMP update?*
- *Are the policies consistent with the State Guidelines?*
- *Are there any other issues that you would like to address through this section? The following are some ideas to consider:*
 - *Should we have any particular policies addressing park planning projects (e.g. Juanita Beach Park, Lakeshore Plaza, etc.)?*
 - *Should we include policies addressing non-native species control efforts by our Parks Department (nutria and waterfowl control)?*
 - *The Parks Department has mentioned that there may be some conflicts between some of the expressed goals (e.g. public safety and clear sightlines v. desire for shoreline vegetation and land area v. desire to create soft shorelines). How would you recommend addressing these issues?*
- *What revisions would you like to make to the goals or accompanying language?*

B. Other Shoreline Recreational Uses. Staff has included policies addressing other shoreline recreational uses that occur along the shoreline in this section (see Goals 19 through 21 and related policies of Attachment 2). These can be shifted to the Land Use Section of the Chapter if you feel that this would be a more appropriate place for these issues.

1. Boating facilities. The following describes some of the key requirements from the State Guidelines addressing boating facilities:
 - Assure no net loss of ecological functions as a result of development of boating facilities while providing the boating public recreational opportunities on waters of the state.
 - Ensure that boating facilities are located only at sites with suitable environmental conditions, shoreline configuration, access, and neighboring uses.
 - Ensure that facilities meet health, safety, and welfare requirements. Master programs may reference other regulations to accomplish this requirement.
 - Provide public access in new marinas, particularly where water-enjoyment uses are associated with the marina, in accordance with WAC [173-26-221\(4\)](#).

Draft Goals and Policies in SMP-19 and 20 in Attachment 2 address boating facilities.

Staff Analysis: Staff plans to present draft policies addressing City parks to the Parks Board in April, 2008 and will share any feedback with you from that meeting.

As you review the proposed language, please consider the following questions:

- *Do the policies reinforce and support our objectives for the SMP update?*
 - *Are the policies consistent with the State Guidelines?*
 - *Are there any other issues that you would like to address through this section? Some potential issues to consider:*
 - *Do you want to note any limitation on the size of boats moored?*
 - *Do you want to address use of jetskis?*
 - *What revisions would you like to make to the goals or accompanying language?*
2. Piers and Docks. The following describes some of the key requirements from the State Guidelines addressing piers and docks:
 - New piers and docks shall be allowed only for water-dependent uses or public access. As used here, a dock associated with a single-family residence is a water-dependent use provided that it is designed and intended as a facility for access to watercraft and otherwise complies with the provisions of this section.

- Pier and dock construction shall be restricted to the minimum size necessary to meet the needs of the proposed water-dependent use. Water-related and water-enjoyment uses may be allowed as part of mixed-use development on over-water structures where they are clearly auxiliary to and in support of water-dependent uses, provided the minimum size requirement needed to meet the water-dependent use is not violated.
- New pier or dock construction, excluding docks accessory to single-family residences, should be permitted only when the applicant has demonstrated that a specific need exists to support the intended water-dependent uses.
- Where new piers or docks are allowed, master programs should contain provisions to require new residential development of two or more dwellings to provide joint use or community dock facilities, when feasible, rather than allow individual docks for each residence.
- Piers and docks, including those accessory to single-family residences, shall be designed and constructed to avoid or, if that is not possible, to minimize and mitigate the impacts to ecological functions, critical areas resources such as eelgrass beds and fish habitats and processes such as currents and littoral drift.
- Master programs should require that structures be made of materials that have been approved by applicable state agencies.

Draft Goals and Policies in SMP-21 in Attachment 2 address piers and docks.

Staff Analysis: Pier and docks are going to be a key topic area with the SMP Update.

As you review the proposed language, please consider the following questions:

- *Do the policies reinforce and support our objectives for the SMP update?*
- *Are the policies consistent with the State Guidelines?*
- *Are there any other issues that you would like to address through this section?*
- *What revisions would you like to make to the goals or accompanying language?*

V. ATTACHMENTS

1. Draft SMP Goal and Policy Language for the Shoreline Environment Section
2. Draft SMP Goal and Policy Language for the Shoreline Parks, Recreation and Open Space Section
3. Goal NE-2, together with related policies NE-2.1 through NE-2.7
4. Goal U-4, together with related policies U-4.1 through U-4.11
5. Goal NE-1, Policies NE-1.1 through NE 1.6, Goal NE-2, Policies NE-2.1 through NE-2.7 and Goal NE-4
6. Goal NE-3, together with related policies NE-3.1 through NE-3.3
7. Section C, Land and Vegetation, The Natural Resources Management Plan

Shoreline Master Program Update
 Planning Commission Study Session
 March 13, 2008

8. Table Summarizing Public Comments

cc: File No. ZON06-00017, Sub-file #1

Shoreline Environment

Goal SMP-8: Preserve, protect, and restore the shoreline environment.

Kirkland is enriched with valued natural features within the shoreline area that enhance the quality of life for the community. Natural systems serve many essential functions that can provide significant benefits to fish and wildlife, public and private property, and enjoyment of the shoreline area.

Shoreline Critical Areas

Note: The Natural Environment Chapter of the Comprehensive Plan contains a set of policies relating to critical areas, including Goals NE –1, together with related Policies NE-1.1 through NE-1.6, Goal NE-2, together with related policies NE-2.1 through NE-2.7, and Goal NE–4.

Critical areas found within the shoreline area include geologically hazardous areas, frequently flooded areas, wetlands, and fish and wildlife habitat conservation areas. Floodplains, while not a designated critical area, are also addressed in this section due to the relationship with frequently flooded areas within the City. No critical aquifer recharge areas are mapped within the City.

Policy SMP-8.1: Conserve and protect critical areas within the shoreline area from loss or degradation.

Environmentally critical areas within the shoreline area are important contributor's to Kirkland's shoreline environment and high quality of life. Some natural features are critical to protect, either because of the hazards they present to public health and safety or the important ecological functions they provide. This policy is intended to ensure that the ecological functions and ecosystem-wide processes of these natural systems are maintained and improved.

Policy SMP-8.2: Locate and design public access within and adjacent to critical areas to ensure that ecological functions are not impacted.

While public access for educational and public access purposes is an important objective, the location and design of public access must be carefully considered to avoid impacts to critical areas.

Geologically Hazardous Areas

Policy SMP-8.3: Manage development to avoid risk and damage to property and loss of life from geological conditions.

Geologically hazardous areas include landslide hazard areas, erosion hazard areas and seismic hazard areas. These areas, as a result of their slope, hydrology, or underlying soils, are potentially susceptible to erosion, sliding, damage from earthquakes or other geological events. These areas can pose a threat to health and safety, if development is not appropriately managed and the area studied as a condition of permitting construction.

Wetlands

Policy SMP-8.4: Protect and manage shoreline-associated wetlands.

Wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soils conditions. The wetlands located within the shoreline area perform many ecological functions, including habitat for fish and wildlife, flood control, and groundwater recharge, as well as surface and groundwater transport, storage and filtration. Additionally, wetlands provide opportunities for research and scientific study, outdoor education, and passive recreation.

Kirkland's shoreline contains two extensive high-quality wetland systems: the wetlands located contiguous with the shoreline at Juanita Bay Park and extending up through the Forbes Valley (Forbes 1) and the Yarrow Bay wetlands (Yarrow 1). It is estimated that these wetlands combined are over 156 acres in size. The Forbes 1 wetland has several different vegetation classes, including forested, scrub-shrub, emergent, open water, and aquatic bed. The wetland contains a variety of plant species and types, including native red alder, willow, cottonwood, salmonberry, spiraea, red-osier dogwood, skunk cabbage, buttercup, small-fruited bulrush, lady fern, soft rush, horsetail, cattail, and non-native Himalayan blackberry, reed canarygrass and purple loosestrife. Within the *Final Kirkland Shoreline Analysis Report* (2006), this system has been rated "high quality" for several functions, including habitat, water and sediment storage, water quality improvement, wave energy attenuation and bank stabilization, and nutrient and toxic compound removal.

The Yarrow Bay wetland complex similarly contains a number of wetland classes, including forested, scrub-shrub, emergent, open water, and aquatic bed. The Yarrow Bay complex also contains a mixture of plant species and types, including native red alder, willow, cottonwood, salmonberry, spiraea, red-osier dogwood, and cattail and non-native Himalayan blackberry and reed canarygrass. The *Final Kirkland Shoreline Analysis Report* (2006) also rates this system "high quality" for numerous functions.

The Forbes 1 and Yarrow 1 wetlands are also mapped as priority wetlands by Washington Department of Fish and Wildlife (WDFW) (2006). Priority wetlands are those wetlands that have "[c]omparatively high fish and wildlife density, high fish and wildlife species diversity, important fish and wildlife breeding habitat, important fish and wildlife seasonal ranges, limited availability, [and] high vulnerability to habitat alteration."

This policy is intended to ensure that the City achieves no net loss of wetlands through retention of wetland area, functions and values. Mitigation sequencing is used to ensure impacts to wetlands are avoided, where possible, and mitigated, when necessary.

Wetlands are protected in part by buffers, which are upland areas adjacent to wetlands. Wetland buffers serve to moderate runoff volume and flow rates; reduce sediment loads; remove waterborne contaminants such as excess nutrients, synthetic organic chemicals (e.g., pesticides, oils, and greases), and metals; provide shade for surface water temperature moderation; provide wildlife habitat; and deter harmful intrusion into wetlands.

Fish and Wildlife Habitat Conservation Areas

Policy SMP-8.5: Protect and restore critical freshwater habitat.

Fish and wildlife habitat conservation areas provides food, protective cover, nesting, breeding, or movement for threatened, endangered, sensitive, monitor, or priority species of plants, fish, or wildlife. Within the City, there are several areas that fall within this classification.

Lake Washington is known to support a diversity of salmonids, including chinook salmon, steelhead trout, bull trout (listed as threatened under the Endangered Species Act), coho salmon, sockeye salmon, and kokanee salmon.

Several streams pass through the City of Kirkland, discharging into Lake Washington. Several of these streams are known to support fish use, including chinook (juvenile use of the mouths of several streams), coho, sockeye salmon, and steelhead and cutthroat trout. Some of the most prominent fish-bearing streams include Yarrow Creek, Forbes Creek, and Juanita Creek, which are protected within City parks at their outlet to Lake Washington. Salmonid and other fish species are also known to inhabit other Lake Washington tributaries such as Carillon Creek.

The Forbes Creek corridor is designated by WDFW as a priority “riparian zone” because it has been determined to meet these criteria: “[h]igh fish and wildlife density, high fish and wildlife species diversity, important fish and wildlife breeding habitat, important wildlife seasonal ranges, important fish and wildlife movement corridors, high vulnerability to habitat alteration, unique or dependent species.”

Both the Yarrow Bay wetlands and Juanita Bay Park extending up the Forbes Creek corridor provide excellent habitat for birds (including songbirds, raptors, waterfowl), amphibians, mammals and even reptiles. Bald eagles and ospreys regularly perch in trees adjacent to Juanita and Yarrow Bays, and forage in the Bays. Pileated woodpeckers (a State Candidate species) also reportedly nest in the Juanita Bay wetlands, and according to the East Lake Washington Audubon Society, purple martins (a State Candidate species) used nesting gourds installed in early 2006 around the Juanita Bay. Although a bald eagle nest is mapped in the Yarrow Bay wetlands, it was last active in 1999 and the nesting pair relocated to Hunts Point. However, the mapped great blue heron nesting colony is still active.

This policy is intended to ensure that the ecological functions and ecosystem-wide processes associated with critical freshwater habitats are protected to assure no net loss, and that improvements are made through restoration activities. The City has worked to protect these valuable habitat areas through acquisition and management of public areas, as well as development controls, including protection of streams and wetlands and their associated buffers and coordination with federal and state agencies on protection issues associated with listed species.

Frequently Flooded Areas and Floodplains

Goal SMP-9: Limit new development in floodplains.

Policy SMP-9.1: Regulate development within the 100-year floodplain to avoid risk and damage to property and loss of life.

Frequently flooded areas help to store and convey storm and flood water; recharge ground water; provide important riparian habitat for fish and wildlife; and serve as areas for recreation, education, and scientific study. Development within these areas can be hazardous to those inhabiting such development, and to those living

upstream and downstream. Flooding also can cause substantial damage to public and private property that result in significant costs to the public as well as to private individuals.

The primary purpose of frequently flooded areas regulations is to regulate development in the 100-year floodplain to avoid substantial risk and damage to public and private property and loss of life. Lake Washington does not have a floodplain due to its lake elevation control by the Corps. However, floodplains are designated for both Yarrow Creek wetlands in association with Yarrow Creek and the low-gradient riparian area associated with Forbes Creek.

In both cases, the potential channel migration zone is protected as wetlands associated with Lake Washington. This protection limits development and modifications in those areas where the creeks have the potential to migrate. This protection limits the potential for migration to affect existing or future structures.

Water Quality and Quantity

Note: The Natural Environment Chapter of the Comprehensive Plan contains a set of policies relating to water systems and addressing water quality and quantity, including Goal NE-2, together with related policies NE-2.1 through NE-2.7. The Utilities Chapter also contains policies addressing storm water, including Goal U-4, together with related policies U-4.1 through U-4.11.

Goal SMP-10: Manage activities that may adversely impact surface and ground water quality or quantity.

While most of the storm water entering streams and the lake do not come from the shoreline jurisdiction, surface water management is still a key component of the shoreline environment, due to the potential of activities in the larger watershed basin to contribute to water quantity and quality conditions in streams and the lake.

As part of the Kirkland's Surface Water Utility, Surface Water Master Plan, and implementation of the NPDES Phase II Municipal Stormwater permit requirements, the City is pursuing activities and programs within the larger watershed basin to address flood protection, water quality improvement, and habitat protection and restoration.

Within the shoreline jurisdiction, the City can regulate development and provide education and incentives to minimize impacts to water quality and limit the amount of surface water runoff entering the lake.

Policy SMP-10.1: Manage storm water quantity to ensure protection of natural hydrology patterns and avoid or minimize impacts to streams.

Native forest communities with healthy soil structure and organic contact help to manage the amount and timing of runoff water that reaches streams and lakes by intercepting, storing, and slowly conveying precipitation. As these systems are impacted and forests are replaced by impervious surfaces like roads, parking areas, and rooftops, larger quantities of water leave the developed watershed more quickly. Impervious surfaces affect the amount of water that seeps into the ground and washes into streams; they also affect how quickly the water gets there. When land is covered with pavement or buildings, the area available for rainwater and snowmelt to seep into the ground and replenish the groundwater is drastically reduced; in many urban areas it is virtually eliminated. The natural movement of water through the ground to usual discharge points such as springs and

streams is altered. Instead, the natural flow is replaced by storm sewers or by more concentrated entrance points of water into the ground and surface drainages.

Changing the timing and amount of water run-off can lead to too much water going directly into streams in the rainy months of winter instead of soaking into the ground. Consequently, there is not enough water in the ground to slowly release into streams in the dry months of summer. Too much water in the winter causes unnaturally swift currents that can erode stream banks and scour and simplify the stream channels, damaging fragile fish habitat. In contrast, not enough water in streams in the summer leads to water temperatures too high to support fish and isolation of fish in small pools. These fundamental changes to hydrology alter watersheds in several ways, including the following:

- The size, shape, and layout of stream channels change to accommodate the new flow regime, thus changing physical habitat conditions for aquatic species.
- Erosion increases suspended solid concentrations and turbidity in receiving properties which can impair survival of aquatic species, including salmon.
- Opportunities for soils and vegetation to filter pollutants from stormwater are reduced, leading to water quality degradation. Stormwater can also carry heavy metals, household wastes, excess nutrients, and other pollutants to the shoreline area.
- Reduced streamside vegetation can lead to increased water temperatures that reduce survival of aquatic species, including salmon. Fine sediment smothers fish eggs, impacting future populations.

Discharges into the tributary streams, such as Forbes Creek, can have a significant impact on in-stream habitat complexity, peak flow magnitude and duration, bank stability, substrate composition, and a number of other parameters.

Policy SMP-10.2: Prevent impacts to water quality.

This policy is intended to prevent impacts that would result in a net loss of shoreline ecological functions, or a significant impact to aesthetic qualities or recreational opportunities.

Water is essential to human life and to the health of the environment. Water quality is commonly defined by its physical, chemical, biological and aesthetic (appearance and smell) characteristics. A healthy environment is one in which the water quality supports a rich and varied community of organisms and protects public health. Water quality influences the way in which Kirkland uses water for activities such as recreation and scientific study and education, and it also impacts our ability to protect aquatic ecosystems and wildlife habitats.

The degradation of water quality adversely impacts wildlife habitat and public health. This is particularly relevant to the shoreline, since all of the regulated surface waters, both natural and piped, are discharged ultimately to Lake Washington. The water quality impact of stormwater inputs is also significant. Stormwater runoff carries pesticides, herbicides and fertilizers applied to lawns and sports fields; hydrocarbons and metals from vehicles; and sediments from construction sites, among other things. All of these things can harm fish and wildlife, their habitats, and humans.

Presently, Lake Washington is considered at risk for chemical contamination from hydrocarbon input from the urbanized watershed. The lake has also exhibited problems with levels of fecal coliform, ammonia, and PCBs present (Final Kirkland Shoreline Analysis Report, 2006).

The City has various programs to control stormwater pollution through maintenance of public facilities, inspection of private facilities, water quality treatment requirements for new development, source control work with businesses and residents, and spill control and response. These programs are managed under the Surface Water Utility, whose goals are:

- Flood protection
- Water quality improvement, and
- Habitat protection and restoration.

Kirkland has also adopted a *Surface Water Master Plan* (2005) that sets goals and recommends actions for flood reduction, water quality improvement, and aquatic habitat restoration. This plan contains plans and programs to address water quality and high flow impacts from creeks and shoreline development through a number of mechanisms, including the following:

- Participation in WRIA 8 activities.
- Adoption of regulations and best management practices consistent with the NPDES Phase II permit requirements.
- Increased public education and outreach.
- Construction of projects that address existing flooding problems.
- Increased inspection and rehabilitation of the existing stormwater system.
- Identifying pollution “hot spots” for possible water quality treatment.
- Examining City practices and facilities to identify where water quality improvements can be made.
- Combining flow controls with in-stream habitat improvement projects in Juanita and Forbes creek watersheds.

Policy SMP-10.3: Support public education efforts to protect and improve water quality.

Many residential yards within the shoreline area are dominated by lawn and landscaping, which can contribute water quality contaminants such as fertilizers, herbicides, and pesticides. Fertilizers and herbicides can affect the aquatic vegetation community, stimulating overgrowth of some species which can have a multitude of deleterious effects and suppress growth of other species. Pesticides also directly affect fish. Fish use their olfactory sense to find their way home. Garden chemicals that get into our lakes and streams may mask the smell fish use for homing. Scientists have found that pesticides also interfere with the ability of salmon to reproduce and avoid predators. Presently, nutrient levels in Lake Washington do not represent a problem for salmonids (Final Kirkland Shoreline Analysis Report, 2006). Encouraging natural yard care practices and salmon-friendly landscape design can help to reduce the contaminant load into Lake Washington. Should nutrient levels continue to increase and represent a more significant problem, regulations limiting the use of pesticides, fertilizers and herbicides in the shoreline environment may become necessary.

Boat maintenance can also impact the aquatic environment with hydrocarbons, oils and other chemicals, and solvents. Providing information on boating practices, including operation and maintenance practices that can help prevent harmful substances from entering the water such as gasoline, two-stroke engine fuel, paint, and

wood conditioner and other boat related substances, can also improve water quality. The City should also assist property owners by providing information on environmentally friendly methods of maintaining docks and decks.

Finally, the City should continue its efforts to increase the public's awareness of potential impacts of certain practices on water bodies and water quality, including improper disposal of hazardous materials.

Vegetation Management

Note: The Natural Environment Chapter of the Comprehensive Plan contains policies relating to vegetation, including Goal NE-3, together with related policies NE-3.1 through NE-3.3. The Natural Resources Management Plan also addresses issues relating to vegetation management in Section C, Land and Vegetation.

Goal SMP-11: Protect, conserve and establish vegetation along the shoreline edge.

Vegetation along the Lake Washington shoreline has been significantly altered over time, as bulrush and willow have been affected first by the Corps's lowering of the Lake's natural elevation by 9 feet and subsequently by shoreline development with accompanying landscaping. Presently, vegetation within Kirkland's shoreline is dominated by residential and urban landscaping, except for the high-quality wetland areas of Yarrow Bay and Juanita Bay. The loss of natural shoreline vegetation has reduced complex shoreline features such as overhanging and emergent vegetation, woody debris, and indirectly gravel and cobble beaches.

Vegetation within the shoreline environment is essential for fish and wildlife habitat, providing habitat complexity and, in the case of native lakeshore vegetation, such as rushes, willow, dogwoods and cottonwoods, supporting the insects that provide an important food source for salmon. Shoreline vegetation is also important in helping to camouflage young salmon as they hide amidst stumps, root wads, beneath overhanging vegetation, or within branches that have fallen into the water. Vegetation also helps to support soil stability, reduce erosion, moderate temperature, produce oxygen, and absorb significant amounts of water, thereby reducing runoff and flooding.

Presently, shoreline vegetation and riparian structure are not properly functioning within Lake Washington (Final Kirkland Shoreline Analysis Report, 2006). The intent of this policy is to protect existing shoreline vegetation, in particular existing trees, and establish new vegetation along the shoreline edge to improve shoreline vegetation and riparian structure and the ecological functions that these shoreline conditions affect.

Policy SMP-11.1: Provide outreach and education materials to lakeside property owners about the importance and role of shoreline vegetation.

A native plant buffer can also provide homeowners with an attractive landscape that offers variety and seasonal color; reduced maintenance; more privacy without sacrificing views; increased property values, improved water quality; reduced use by geese and other waterfowl; and a yard that is safer for families, pets and fish and wildlife. Proper plant selection and design can ensure that views are not diminished.

Goal SMP-12: Design aquatic vegetation management efforts to use a mix of various control methods with emphasis on the most environmentally sensitive methods.

Noxious weeds of Washington State are non-native, invasive plants defined by law as a plant that when

established is highly destructive, competitive or difficult to control by cultural or chemical practices. These plants have been introduced intentionally and unintentionally by human actions. Most of these species have no natural enemies, such as insects or diseases, to help keep their population in check. As a result, these plants can often multiply rapidly. The two most common invasive species that are impacting Lake Washington's and Kikland's marinas, residential waterfront owners and wildlife are Eurasian watermilfoil and white water lily. Eurasian watermilfoil, an aquatic plant found in lakes and slow-moving streams, can lower dissolved oxygen and increase pH, displace native aquatic plants, and increase water temperature.

Some aquatic weeds are controlled because they interfere with human needs such as boating and swimming in the lakes. Others pose a threat to the environment. The introduction of any non-native species has an effect on native species and habitats, although it is often difficult to predict those effects. However, there is a growing number of non-native aquatic plant and animal species whose current or potential impacts on native species and habitats are known to be significant. Potential threats may be evidenced by the degree of negative impact these species have upon the environment, human health, industry and the economy (WDFW 2001). Potential negative impacts relevant to the Lake Washington environment include:

- loss of biodiversity;
- threaten ESA-listed species such as salmon;
- alterations in nutrient cycling pathways;
- decreased habitat value of infested waters;
- decreased water quality;
- decreased recreational opportunities;
- increased safety concerns for swimmers; and
- decrease in property values.

Non-native species can be controlled through a variety of mechanisms, including mechanical and physical means (hand pulling, hand tools, bottom barrier, weed roller, mechanical cutters, and harvesters) and herbicides. In general, chemical treatment should be pursued as a last resort. Depending on the method of control chosen, there could be disturbance of the substrate, reduction in benthic invertebrates (which are an important food source), and increased risk of spread of the invasive species to other areas. Depending on the condition of the sediments, substrate disturbance can result in acute, although temporary, increases in turbidity and may re-introduce pollutants bound to the sediments back into the water column. In addition, reductions in aquatic vegetation, whether native or non-native, reduce primary productivity, which is the foundation of the lake food chain. This could result in reduced fish production at the top of the food chain.

However, control of invasive aquatic vegetation may be biologically justifiable where the plants are so dense that dissolved oxygen (DO) levels fall to suboptimal or even lethal levels (2-4 mg/L). DO levels drop below dense surface mats because light is blocked to the submerged aquatic vegetation which produces the majority of the oxygen to the water column. Much of the oxygen produced by the surface mats of vegetation is lost to the atmosphere. Decomposition of submerged dead material also depletes the water column of oxygen. In addition, dense vegetation can reduce wave action at the surface, which would otherwise help oxygenate the water. Reduced wave action can also contribute to increased water temperature, as the cooler water from deep areas does not flush the warmer, vegetated shallow areas. Warmer water holds less oxygen than cold water.

Presently, habitat elements within the lake are not properly functioning due, in part, to the prevalence of invasive species which out compete native species and reduce the overall structural complexity (Final Kirkland Shoreline Analysis Report, 2006).

Aquatic vegetation management will likely take coordination on a larger-scale to effectively manage. As a result, the City should work with landowners and neighboring jurisdictions to develop aquatic vegetation management plans on a large-scale basis.

Managing Shoreline Modifications

Goal SMP-13: Manage shoreline modifications to avoid, minimize, or mitigate significant adverse impacts.

Significant adverse impacts caused from shoreline modifications should be avoided, minimized, or compensated for in the following sequential order of preference:

- Avoiding the impact altogether by not taking a certain action or part of an action.
- Minimizing the impact(s) by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;
- Minimizing or eliminating the impact by restoring or stabilizing the area through engineered or other methods;
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment to the historical conditions or the conditions existing at the time of the initiation of the project;
- Reducing or eliminating the impact or hazard over time by preservation and maintenance operations during the life of the action;
- Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and
- Monitoring the hazard or other required mitigation and taking remedial action when necessary.

Policy SMP-13.1: Assure that shoreline modifications individually and cumulatively do not result in a net loss of ecological functions.

Shoreline modifications are man-made alterations to the natural lake edge and nearshore environment and primarily include a variety of armoring types (some associated with fill), piers, and other in-water structures. These modifications alter the function of the lake edge, change erosion and sediment movement patterns, affect the distribution of aquatic vegetation and are often accompanied by upland vegetation loss. Impacts from these shoreline modifications can be minimized by giving preference to those types of shoreline modifications that have a lesser impact on ecological functions and requiring mitigation of identified impacts resulting from shoreline modifications.

Fill

Policy SMP-13.2: Limit fill waterward of the ordinary high water mark to support ecological restoration or to facilitate water-dependent or public access uses.

Fill allows for the creation of dry upland areas by the deposition of sand, silt, gravel or other materials onto areas waterward of the ordinary high water mark. Fill has traditionally been used in the shoreline area to level or expand residential yards and, in many cases, has been associated with armoring of the shoreline. This use of fill has resulted in an alteration of the natural functions of the lake edge and has often been accompanied by a loss of upland vegetation. As a result, this use of fill should be discouraged.

Alternatively, fill can also be used for ecological restoration, such as beach nourishment, when materials are placed on the lake bottom waterward of the ordinary high water mark. This type of fill activity should be encouraged, provided that it is designed, located and constructed to improve shoreline ecological functions.

Clearing and Grading

Policy SMP-13.3: Limit clearing and grading activities in the shoreline area.

Clearing and grading activities are typically associated with upland development. These activities have the potential to cause erosion, siltation, increase runoff and flood volumes, reduce flood storage capacity and damage habitat and therefore should be carefully considered to ensure that any potential adverse impacts are avoided or minimized. Impacts from clearing and grading activities can be avoided through proper site planning, construction timing practices, and use of erosion and drainage control methods. Generally, these activities should be limited to the maximum extent necessary to accommodate the proposed use, and should be designed and located to protect shoreline ecological functions and ecosystem-wide processes.

Dredging

Policy SMP-13.4: Design and locate new shoreline development to avoid the need for dredging.

Policy SMP-13.5: Discourage dredging operations, including disposal of dredge materials.

Dredging is typically associated with a reconfiguration of the lake bed or stream channel to remove sediments, expand a channel, or relocate or reconfigure a channel. For instance, dredging can be used to excavate moorage slips that have been filled in with sediments or are located in shallow water. In other cases, dredging can be used to remove accumulated sediment that has disrupted water flow and, as a result, water quality, as is the case at Juanita Beach Park.

Dredging activities can have a number of adverse impacts, such as an increase in turbidity and disturbance to or loss of animal and plant species. Dredging activities can also release nutrients in sediments, and may temporarily result in increased growth of nuisance macrophytes such as milfoil after construction is completed. Dredging can also release toxic materials into the water column. As a result, dredging activities should be limited except when necessary for habitat or water quality restoration, or to restore access, and where impacts to habitat are minimized and mitigated.

Shoreline Stabilization

Policy SMP-13.6: Limit use of structural solutions to reduce shoreline damage.

Kirkland's shoreline has been highly modified by the presence of shoreline protective structures (e.g. bulkheads, rip rap, revetments). Approximately 60 percent of the shoreline is armored by either a vertical bulkhead (concrete or timber) or a boulder bulkhead. Shoreline armoring is pursued for many reasons, including:

- Protecting shoreline property by reducing wave impacts and decreasing erosion;
- Increasing or maintaining lawn areas, and/or
- Coordinating style of neighboring shoreline properties.

Historically, stabilization of the shoreline has been accomplished by structural means, including the use of concrete walls, large boulders and wood timbers. These types of structures have impacted the natural processes along the shoreline. Shoreline protective structures such as bulkheads create deeper water with steeper gradient and a coarser bottom substrate. Waves no longer are able to dissipate energy over distance as they hit shallower bottom, rocks, or shoreline vegetation. Rather, the wave reflects off a vertical wall, causing scouring of sediment at the base of the wall. The finer sands are removed as the gravel is eroded away and the bottom substrate becomes coarser. The result is a much deeper and steeper nearshore environment, and often elimination of a beach. This impacts the habitat for juvenile salmon, which need shallow beaches with a gentle gradient to hide from predators that hunt in deeper waters. The scouring action can also cause failure of the bulkhead as the base erodes away or acceleration of erosion on neighboring properties as wave action is deflected onto adjoining properties.

Despite these potential ecological impacts, there are some areas along the City's shoreline, especially on shallow lots with steep banks, which may need some form of shoreline armoring in order to protect existing structures and land uses. Due to the potential for adverse impacts, it is the intent of this policy to require that shoreline stabilization, if needed, be accomplished through the use of nonstructural measures, such as bioengineering or on-site drainage improvement, unless these methods are determined to be infeasible, based on a scientific or geotechnical analysis.

Policy SMP-13.7: Design, locate, size and construct new or replacement structural shoreline protection structures to minimize and mitigate the impact of these activities on the Lake Washington shoreline.

Shoreline protective structures should only be allowed as necessary to protect a legally established structure or use that is in danger of loss or substantial damage. The potential for damage must be conclusively shown, as documented by a geotechnical analysis, to be caused by shoreline erosion associated with wave action. Shoreline protective structures may also be allowed for reconfiguring the shoreline for mitigation or enhancement purposes.

Where allowed, shoreline protection structures should minimize impacts on shoreline hydrology, navigation, habitat, and public access. Shoreline protective structures should be designed for the minimum height, bulk and extent necessary to address an identified hazard to an existing structure. As noted above, vegetation and nonstructural solutions should be used rather than structural bank reinforcement, unless these methods are determined to be infeasible, as documented by a geotechnical analysis.

Policy SMP-13.8: Locate and design new development to eliminate the need for new shoreline modification or stabilization.

New development should be located and designed so that new structural shoreline protection features are not needed.

Policy SMP-13.9: Require restoration of existing shoreline armoring when substantial new upland development or repair to the shoreline protective structure is planned.

The extent of existing shoreline armoring has adversely impacted the ecological functions of Kirkland's shoreline, affecting shoreline upwelling and downwelling, structural complexity, substrate composition, and shoreline gradient. As a result, when substantial new upland development occurs or where substantial repair activities to an existing shoreline protective structure are undertaken, efforts should be made to improve these functions. Measures that should be evaluated include removal of the shoreline armoring and replacement with nonstructural measures, beach nourishment, and installation of overhanging vegetation.

Policy SMP-13.9: Encourage salmon friendly shoreline design during new construction and redevelopment by offering incentives and regulatory flexibility to improve the design of shoreline protective structures and revegetate shorelines.

In recent years, many bioengineered techniques have been developed to provide alternative shoreline protection methods. These features may employ the use of gravel substrate material, terraces, large flat rocks, shallow pools, logs, and vegetation to prevent erosion and provide an attractive, usable shoreline. The aim of these designs is to reduce bank hardening, restore overhanging riparian vegetation, and replace bulkheads with sand beaches and gentle slopes. These techniques can provide many ecological benefits, including:

- Less turbulence.
- Shallower grade.
- Protection from predators.
- Finer sandy bottom.
- Increased food source.

Generally, these measures are implemented at and landward of the ordinary high water mark. In some cases, the depth of the lot can impact the ability to effectively incorporate soft shoreline stabilization measures. In those cases, the harder elements of soft shoreline stabilization measures that provide restoration of shoreline ecological functions may be permitted waterward of the ordinary high-water mark.

Policy SMP-13.10: Expand outreach to lakeside property owners about shoreline landscape design, maintenance, and armoring alternatives.

These designs can also offer the following benefits to landowners:

- Easier access to beach and water, especially if you have a kayak or other human-powered craft.
- Shallow gradient shore and water can be safer, especially if you have small children.
- More usable shoreline with beach and cove.
- Reduced maintenance.
- Potential for increased property values.

In-stream Structures

Policy SMP-13.11: Limit the use of in-stream structures.

"In-stream structure" means a structure placed by humans within a stream waterward of the ordinary high water mark that either causes or has the potential to cause water impoundment or the diversion, obstruction, or modification of water flow. Within Kirkland, these features typically include those for flood control, transportation, utility service transmission, and fish habitat enhancement.

In-stream structures should only be used in those circumstances where it is demonstrated to provide for the protection and preservation of ecosystem-wide processes, ecological functions, and cultural resources, including, but not limited to, fish and fish passage, wildlife and water resources, shoreline critical areas, hydrogeological processes, and natural scenic vistas. The location and planning of in-stream structures should be determined with due consideration to the full range of public interests, watershed functions and processes, and environmental concerns, with special emphasis on protecting and restoring priority habitats and species.

Breakwaters and similar features

Policy SMP-13.12: Limit the use of breakwaters and other similar structures..

A breakwater typically refers to an off-shore structure designed to absorb and/or reflect wave energy back into the water body. Breakwaters can be floating or fixed in location and may or may not be connected to the shore. These modifications are limited within the City, but can be found at Kirkland Yacht Club as well as at Juanita Beach Park, where a breakwater has been installed around the overwater boardwalk to shelter the swimming area. Breakwaters have the potential to adversely impact the shoreline environment, including impacts to sediment transport, deflection of wave energy, a decrease in water flushing and water exchange, to name a few. As a result, the installation of new breakwaters should be limited to those circumstances when it is shown to be necessary to support water-dependent uses, public access, shoreline stabilization, or other specific public purpose. In these circumstances, the feature should be carefully designed to avoid, minimize, and then mitigate any adverse ecological impacts.

Shoreline Habitat and Natural Systems Enhancement Projects

Goal SMP-14: Restore shoreline areas that have been degraded or diminished in ecological value and function as a result of past activities.

Policy SMP-14.1: Include provisions for shoreline vegetation restoration, fish and wildlife habitat enhancement, and low impact development techniques in projects located within the shoreline, where feasible.

Shoreline habitat and natural systems enhancement projects include those activities proposed and conducted specifically for the purpose of establishing, restoring, or enhancing habitat for priority species in shorelines. Such projects may include shoreline modification actions such as modification of vegetation, removal of nonnative or invasive plants, shoreline stabilization, dredging, and filling, provided that the primary purpose of such actions is clearly restoration of the natural character and ecological functions of the shoreline.

The City's shoreline has been impacted by past actions and, as a result, there are many opportunities available for restoration activities that would improve ecological functions. For example, enhancement of riparian

vegetation, reductions or modifications to shoreline hardening, and improvements to fish passage would improve the ecological function of the City's shoreline. Many of these restoration opportunities exist throughout the City on private property, as well as on City property, including parks, open spaces, and street-ends. Both public and private efforts are needed to restore habitat areas. Opportunities include public-private partnerships, partnerships with other agencies and tribes, capital improvement projects, and incentives for private development to restore and enhance fish and wildlife habitat.

Shoreline Parks, Recreation, and Open Space

Public Parks

Note: The 2001 Comprehensive Park, Open Space and Recreation Plan provides policies and planning for parks, open space and recreating within the City of Kirkland, including waterfront parks.

Goal SMP-15: Provide substantial recreational opportunities for the public in the shoreline area.

With miles of shoreline, the City has preserved significant portions of its waterfront in public ownership as parks. Kirkland's waterfront parks are the heart and soul of the City's park system. They bring identity and character to the park system and contribute significantly to Kirkland's charm and quality of life. The 13 waterfront parks stretch from the Yarrow Bay wetlands to the south to Juanita Bay and Juanita Beach Parks to the north, providing Kirkland residents year-round waterfront access. Kirkland's waterfront parks are unique because they provide citizens a diversity of waterfront experiences for different tastes and preferences. Park activities and facilities include public docks and fishing access, boat moorage, boat launches, swimming, interpretative trails, and picnicking. Citizens can enjoy the passive and natural surroundings of Juanita Bay and Kiwanis Parks and the more active swimming and sunbathing areas of Houghton and Waverly Beach Parks.

Policy SMP-15.1: Acquire, develop, and renovate shoreline parks, recreational facilities, and open spaces that are attractive, safe, functional, and respect or enhance the integrity and character of the shoreline.

While Kirkland is blessed with extraordinary waterfront parks, we should never lose sight of capturing opportunities if additional waterfront property on Lake Washington becomes available. If privately held lakefront parcels adjacent to existing beach parks or at other appropriate locations become available, effort should be made to acquire these pieces. As new shoreline parks are acquired and developed, the ecological functions of the shoreline should be protected and enhanced.

Policy SMP-15.2: Encourage water-oriented activities and programs within shoreline parks.

Kirkland's recreational programs provide opportunities for small craft programs such as canoeing/kayaking, sailing, rowing, and sail-boating. Programs oriented around non-motorized boating activities provide excellent opportunities to teach recreation skills emphasizing water and boating safety and should be expanded, where appropriate.

In addition, the City awards contracts to parties interested in occupying dock space in the Kirkland Marina and Second Avenue South Dock for commercial use. The City may also expand concession facilities within its parks. These types of commercial recreational uses, which expand opportunities for the public to enjoy the shoreline, should be encouraged within the City's shoreline parks.

Policy SMP-15.3: Continue use of opened waterfront street ends for public access.

Street ends are also wonderful opportunities to expand the public's access to the waterfront. The City has developed three street ends for the public's use and enjoyment. They are located along Lake Washington

Boulevard at 10th Avenue South and 5th Avenue South and located at Second Street West. The City has investigated the potential to open 4th Street West and 5th Street West, but has determined that this is not feasible due to problems with existing access to the shoreline area. These street ends should be retained in public ownership for open space purposes.

Policy SMP-15.4: Ensure that development of recreation uses do not adversely impact shoreline ecological functions.

The development of recreational facilities has the potential to adversely impact shoreline ecological functions, for instance by increasing the amount of physical access and activity as well as overwater coverage and motorized watercraft access. As a result, recreational uses shall be appropriately sited and planned to minimize any resultant impacts.

Goal SMP-16: Protect and restore publicly owned natural resource areas located within the shoreline area.

Policy SMP-16.1: Manage natural areas within the shoreline parks to protect and restore ecological functions, values and features.

Kirkland is fortunate to have two of Lake Washington's largest and most important wetland and wildlife resources in its public park system: Juanita Bay Park and the Yarrow Bay wetlands, both of which have been mapped as priority wetlands by the Washington Department of Fish and Wildlife (WDFW). Both the Yarrow Bay wetlands and Juanita Bay Park extending up Forbes Creek corridor provide excellent habitat for birds, amphibians, mammals and reptiles. The outlets for three of the most prominent streams within the City, Juanita Creek, Forbes Creek and Yarrow Creek, are also located within the City's shoreline parks. These streams are known to support anadromous fish. In addition, the Forbes Creek corridor has been designated by WDFW as a priority "riparian zone" due to its high fish and wildlife density, species diversity, important fish and wildlife breeding habitat, important wildlife seasonal ranges, high vulnerability to habitat alteration, and presence of unique or dependent species.

Preserving wildlife habitat, water quality, and forested areas is an important aspect of good park resource management. The existence of these natural areas also offers a variety of opportunities for aesthetic enjoyment, and passive and low-impact recreational and educational activities.

Policy SMP-16.2: Promote habitat and natural resource conservation through acquisition, preservation, and rehabilitation of important natural areas, and continuing development of interpretive education programs.

The City parks also present an opportunity to implement restoration activities to improve degraded wetlands and habitat, control the spread of noxious plants, and improve the water quality of streams. As noted in the Final Kirkland Shoreline Analysis Report (December 2006), the City has initiated several studies to address restoration opportunities within Juanita Beach Park and Juanita Bay Park. In addition, the City has adopted a 20-Year Forest Restoration Plan to restore Kirkland's urban forests by removal of invasive plants and planting native species for the sustainability of the forest and its habitat. The City has acquired properties within the shoreline area near the Yarrow Bay wetlands impacted by critical areas and will continue to explore similar acquisition opportunities. The

Parks Department has also established an interpretative program in Juanita Bay Park and will evaluate appropriate opportunities to expand this type of educational resource within natural areas.

Goal SMP-17: Use a system of best management practices and best available technologies in the construction, maintenance and renovation of recreational facilities located in the shoreline environment.

The high visibility and use of Kirkland's waterfront parks require high levels of maintenance, periodic renovation, and security. Swimming beaches, docks, recreational moorage facilities, boat ramps, and shoreline walkways must be kept safe and in good condition for the public's enjoyment and use. Maintenance of these recreational facilities should be done in a way that minimizes any adverse effects to aquatic organisms and their habitats. Renovation of these areas also provides an opportunity to restore areas impacted by historical shoreline modifications such as alteration of shoreline vegetation, construction of bulkheads, and piers and docks.

Policy SMP-17.1: Incorporate salmon friendly dock design for new or renovated docks and environmentally friendly methods of maintaining docks in its shoreline parks.

Overwater coverage and in-water structures can adversely impact ecological functions and ecosystem-wide processes. As the City renovates or constructs new overwater structures, it should incorporate impact minimization measures, such as minimizing widths of piers and floats, increasing light transmission through any over-water structures, enhancing the shoreline with native vegetation, improving shallow-water habitat, and reducing the overall number and size of pier piles, in order to minimize the impacts of these structures. Opportunities exist to reduce overwater coverage and in-water structures in a number of shoreline parks, including Juanita Beach Park, Waverly Beach Park, the Lake Avenue West street end park, Marina Park, David E. Brink Park, Marsh Park, and Houghton Beach Park.

Kirkland contains a number of docks and piers within its shoreline parks, including at Houghton Beach Park, Marsh Park, David E. Brink Park, Marina Park, Waverly Beach Park, Juanita Beach Park, Juanita Bay Park, Settler's Landing, and the Second Avenue Right-of-Way in the Downtown. To maintain these docks and piers, replacement of the decking is needed on a routine basis. The City has obtained a Hydraulic Project Approval from the Washington Department of Fish and Wildlife to cover this maintenance activity and, as part of this permit, grating will be installed in lieu of existing solid boards when the boards are replaced, allowing for greater light transmission through these overwater structures.

Policy SMP-17.2: Minimize impacts to the natural environment and neighboring uses from boat launch facilities to the greatest extent feasible.

Kirkland's public boat launch at Marina Park contains a one-lane facility for trailerable boats. This facility provides important access to Lake Washington, but has experienced several problems including poor traffic circulation and congestion. The City employs use regulations for this facility in order to minimize impact; these regulations are monitored under the Dock Masters program. Recently, the trailer parking was improved in Waverly Park. Continued management of the facility should be completed in order to minimize these impacts to the greatest extent feasible.

If, in the future, the boat launch at Marina Park were to relocate, the City should cooperate with other jurisdictions to assure that this regional need is addressed with regional participation and resources.

Policy SMP-17.3: Incorporate salmon-friendly landscape design practices in shoreline parks.

The City's parks and natural areas are a reflection of the values of the Kirkland community. The Parks Department strives to ensure that the public landscape remains attractive, while meeting the expectations of our users and preserving our parks and natural spaces for generations to come.

Opportunities exist to improve nearshore native vegetation in a number of shoreline parks, including Juanita Beach Park, Waverly Beach Park, the Lake Avenue West street end park, Marina Park, David E. Brink Park, Settler's Landing, Marsh Park, and Houghton Beach Park. Restoration activities could include such practices as native plant buffers at the shoreline edge, control of noxious and invasive species, implementation of sound horticultural practices, use of Integrated Pest Management (IPM) techniques, organic fertilizers, and natural lawn care practices.

Since 1998, the Kirkland Parks Department has been following an Integrated Pest Management (IPM) program. IPM is a sustainable approach to managing pests by combining cultural, mechanical, biological and chemical methods in a way that provides effective and efficient maintenance of the City's park system.

The objectives of the IPM policy are:

- Protect the health, safety and welfare of the environment and community.
- Provide efficient, cost effective maintenance of the City's park system using non-chemical controls whenever possible.
- Design new and renovate existing landscape areas that suit site conditions with sustainable maintenance practices.
- Restore, create and protect environmentally valuable areas such as wetlands, riparian areas, forests, meadows, and wildlife habitat.

The IPM decision making process brings into play multiple strategies that are utilized as tools to help implement the program, including (but not limited to):

- The use of sound horticultural practices to optimize plant health and suppress insects, disease and weed growth
- Site appropriate design with the use of disease and drought tolerant native plants.
- The use of natural control agents that act as predators or parasites of pest species.
- The use of beneficial organisms that improve plant health by enhancing the soil quality.
- The use of a variety of tools, equipment and, most importantly, people to assist with pest control.

The long-range goal of this program is for the parks and open spaces to be pesticide-free.

The Kirkland Parks Department is undertaking efforts to control invasive vegetation, including eradication and replanting with native vegetation, within Juanita Bay Park, under the recommendations contained within the *Juanita Bay Park Vegetation Management Plan* prepared in 2004 by Sheldon & Associates Inc. It divides the park into 10 management areas by habitat type that are distributed among three landscape zones based on location and historic use. Goals and objectives were established for each landscape zone, and then treatments were suggested for each management area within the landscape zones. The primary objective for the less developed

landscape zones is removal of invasive species and replacement with native species, as well as supplementation of existing native vegetation to increase species and habitat diversity.

The Kirkland Parks Department has also initiated a program to install water intakes in Lake Washington for use as irrigation of Kirkland Parks. The water withdrawn from Lake Washington by Parks would be used to irrigate eight parks, which are currently provided with irrigation water from the City's potable water system. The hookups to the City's water system would be maintained in the event that lake waters become temporarily contaminated by spills or herbicide treatments of aquatic vegetation in the Yarrow Point or Hunts Point areas and are temporarily unsuitable for application to City parks. In conjunction with this project, the Parks Department plans to install vegetation along the shoreline edge.

Policy SMP-17.4 Minimize impacts from publicly initiated aquatic vegetation management efforts.

The Kirkland Parks Department undertakes mechanical aquatic vegetation management efforts at both Houghton and Waverly Beach Parks to control milfoil. After attempts to use biological and mechanical means to control aquatic invasive species at Juanita Bay Park, the Kirkland Parks Department has initiated an herbicide application. Aquatic vegetation management efforts can have potential negative impacts relevant to the Lake Washington environment and therefore control efforts should be designed to use a mix of various methods with emphasis on the most environmentally sensitive methods.

Policy SMP-17.5: Implement Low Impact Development techniques, where feasible, in development of or renovations to recreational facilities along City shorelines.

Low impact development strives to mimic nature by minimizing impervious surface, infiltrating surface water through biofiltration and bio-retention facilities, retaining contiguous forested areas, and maintaining the character of the natural hydrologic cycle. Utilizing these practices can have many benefits, including improvement of water quality and reduction of stream and fish habitat impacts. The Parks Department has successfully incorporated low-impact development techniques with park development efforts, such as Waverly Park and Watershed Park. These techniques should also be considered for any improvements within shoreline parks.

Opportunities exist to reduce impervious surface coverage in a number of shoreline parks, including, Waverly Beach Park, Street End Park, and Marsh Park and LID should be explored as a means to reduce this coverage.

Policy SMP-17.6: Reduce or modify existing shoreline armoring within Kirkland's shoreline parks to improve and restore the aquatic environment.

Bulkheads or other types of shoreline armoring can adversely impact ecological functions and ecosystem-wide processes. Kirkland contains a number of structural shoreline stabilization measures, such as concrete or rip-rap bulkheads, within its shoreline parks. Opportunities exist to reduce shoreline armoring in a number of shoreline parks, including Waverly Beach Park, Marina Park, David E. Brink Park, Settler's Landing, Marsh Park, and Houghton Beach Park. If repair or replacement is needed to these existing structures, the Parks Department should explore the use of nonstructural measures. Further, new development within the City's parks should be located and designed to eliminate the need for new shoreline modification or stabilization.

Goal SMP-18: Undertake restoration opportunities to improve shoreline ecological functions and ecosystem-wide processes where feasible.

The City's shoreline parks present opportunities for restoration that would improve ecological functions, including reduction of shoreline armoring, reduction of over-water cover and in-water structures, improvement of nearshore native vegetation cover, reduction of impervious surface coverage, control of invasive vegetation, and improvement of fish passage where possible.

In addition, many projects planned under the Surface Water Management Utility would provide wetland enhancement, fish passage improvement, bioengineered streambank erosion, restoration of armored streambanks, flood abatement, and water quality improvement. While many of these projects are planned 'upstream' of shoreline jurisdiction, they can still have positive effects on the shoreline environment.

Other Shoreline Recreational Uses

Boating facilities

Goal SMP-19: Manage boating facilities to avoid or minimize adverse impacts.

Policy SMP-19.1: Locate new boating facilities and allow expansion of existing facilities at sites with suitable environmental conditions, shoreline configuration, and access.

One public marina and several private marinas are located on the lake within Kirkland. The Kirkland Public Dock is located downtown at Marina Park. Large private marinas include Carillon Point Marina, Yarrow Bay Marina and Kirkland Yacht Club. Other private marinas providing moorage for multifamily developments are also located along the shoreline.

As new boating facilities are established or existing ones expanded, the facility should be designed to:

- Meet health, safety, and welfare requirements, including provisions for pump-out facilities;
- Mitigate aesthetic impacts;
- Minimize impacts to neighboring uses;
- Provide public access;
- Assure no net loss of shoreline ecological functions and prevent other significant adverse impacts; and
- Protect the rights of navigation and access to recreational areas.

Policy SMP-19.2: Require restoration activities when substantial improvements or repair to existing boating facilities is planned.

The Kirkland waterfront has been extensively modified with piers and other overwater structures. These overwater structures impact the nearshore aquatic habitat, blocking sunlight and creating large areas of overhead cover. These impacts, where they exist, should be mitigated when substantial improvements or repair to existing boating facilities are planned.

Restoration activities could include reducing or eliminating the number of boathouses and solid moorage covers, minimizing widths of piers and floats, increasing light transmission through over-water structures, enhancing the shoreline with native vegetation, improving shallow-water habitat, reducing the overall number and size of pier piles, and improving the quality of stormwater runoff.

Goal SMP-20: Promote use of best management practices to control pollutants from boat use, maintenance and repair, as well as proper sewage disposal for boats and potential invasive vegetation transfer.

Marinas and the operation, maintenance and cleaning of boats can be significant sources of pollutants in water and sediments, as well as in animal and plant tissues. Toxic pollutants enter marina waters through discharges from boats or other sources, spills or stormwater runoff. These pollutants can elevate the level of metals and hydrocarbons in the water and decrease the level of dissolved oxygen required by fish and other aquatic organisms for survival. Moreover, metals and hydrocarbons may accumulate in higher concentrations in sediments than in the overlying water, and in turn affect the organisms attached to or burrowing in the sediment.

Untreated sewage from boats is one of several nonpoint sources of pathogens that pose a threat to human health. As indicated by the presence of fecal coliform bacteria, these pathogens may reside in the water column, and in sediments. Discharges of treated and untreated sewage from boats may be a problem in smaller bays with poor water circulation near swimming areas and marinas. Boat operations, including anchoring, can destroy habitat, resuspend bottom sediments and increase turbidity, thereby affecting the photosynthetic activity of algae and vegetation.

Significant steps have been taken at all levels of government and in the private sector to reduce the impacts of marinas and boating on the aquatic environment. The federal Clean Water Act provides the federal government with the authority to regulate the discharge of boat sewage. In addition, the Department of Ecology has developed environmentally protective guidelines for the design and siting of marinas and sewage disposal facilities. The State Parks and Recreation Commission's boater education program provides technical assistance and signage and other materials to marinas. At the local level, governments and private businesses participate in boater programs as well, educating their moorage clients and provide them with the means to dispose of their wastes properly.

Piers and Docks

Goal SMP-21: Minimize impacts to the natural environment and neighboring uses from new or renovated piers and docks.

Policy SMP-21.1: Design and locate private piers and docks so that they do not interfere with shoreline recreational uses, navigation, or the public's safe use of the Lake and shoreline.

Private piers and docks should be located and designed to provide adequate separation from public parks, other adjoining moorage facilities and adjacent properties in order to limit any adverse impacts to safe navigation or recreational uses.

Policy SMP-21.2: Design and construct new or expanded piers and docks and their accessory components, such as boatlifts and canopies, to minimize impacts on native fish and wildlife and their habitat.

The Kirkland waterfront has been extensively modified with piers and other overwater structures. These overwater structures impact the nearshore aquatic habitat, blocking sunlight and creating large areas of overhead cover. Piers and other overwater structures also shade the lake bottom and inhibit the growth of aquatic

vegetation. These types of structural modifications to shorelines are now known to benefit non-native predators (like largemouth and smallmouth bass), while reducing the amount of complex aquatic habitat formerly available to salmonids rearing and migrating through Lake Washington. This can impact juvenile salmonids, in particular, due to their affinity to nearshore, shallow-water habitats. Chemical treatments of pier components, such as creosote pilings, installed prior to today's standards, have also impacted water and sediment quality in the lake.

The combined effect of an overwater structure and a dramatic change in aquatic vegetation results in a behavior modification in juvenile salmonids, which will often change course to circumvent large piers or other overwater structures rather than swimming beneath them. These behavior modifications disrupt natural patterns of migration and can expose juvenile salmonids to increased levels of predation.

Minimizing overwater coverage and associated support structures can benefit salmon. Studies related to shading effects from varying types of pier decking indicate that grated decking provides significantly more light to the water surface than traditional decking methods and may lead to improved migratory conditions for juvenile chinook salmon.

Impact minimization measures, which have been identified by state and federal agencies, include, but are not limited to:

- Shared use of piers;
- Reducing or eliminating the number of boathouses and solid moorage covers (e.g. use of clear, translucent materials proven to allow light transmission for new canopies);
- Minimizing the size and widths of piers and floats;
- Increasing light transmission through any over-water structures (e.g. use of grated decking);
- Maximizing the height of piers above the water surface;
- Enhancing the shoreline with native vegetation;
- Improving shallow-water habitat;
- Reducing the overall number and size of pier piles; and
- Improving the quality of stormwater runoff.

Policy SMP-21.3: Minimize aesthetic impacts of piers and docks and their accessory components.

In order to minimize aesthetic impacts, piers and docks should make use of non-reflective materials, minimize lighting facilities to that necessary to locate the dock at night, and focus illumination downward to minimize glare.

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NATURAL WATER SYSTEMS

Goal NE-2: Manage the natural and built environments to achieve no net loss of the functions and values of each drainage basin; and, where possible, to enhance and restore functions, values, and features. Retain lakes, ponds, wetlands, and streams and their corridors substantially in their natural condition.

Policy NE-2.1: Using a watershed-based approach, apply best available science in formulating regulations, incentives, and programs to maintain and, to the degree possible, improve the quality of Kirkland's water resources.

Kirkland's Streams, Wetlands, and Wildlife Study (July, 1998) is a natural resource inventory of wetlands, streams, fish, wildlife, and habitat areas within Kirkland. A drainage basin or watershed approach was used to identify Kirkland's drainage systems, to determine Primary and Secondary Basins, and to evaluate and record the primary functions, existing problems and future opportunities for each drainage basin. This data and analysis forms a scientific basis for system-wide resource management that addresses the distinct characteristics of each basin. The inventory was updated in 2003, with the production of the Natural Resource Management Plan. Figure NE-1 indicates general locations of known sensitive areas and drainage basin boundaries. This study will be supplemented by technical information from the Water Resource Inventory Area (WRIA) 8 salmon conservation planning effort and the City's updated Surface Water Master Plan, which is scheduled to be completed in 2005.

Policy NE-2.2: Protect surface water functions by preserving and enhancing natural drainage systems wherever possible.

Urban development, through addition of impervious surface and removal of vegetation, increases the volume and rate and decreases the quality of stormwater runoff. This often results in flooding that threatens safety and property, and results in damage to the

aquatic environment. Water quality is reduced when flooding causes erosion, and when water is not filtered through soils and vegetation prior to entering streams and lakes. Steps to limit this damage include:

- ◆ Minimize creation of new impervious surfaces;
- ◆ Maximize use of soils and vegetation in slowing and filtering runoff;
- ◆ Install structural flow control facilities at new or redeveloping sites where appropriate to mimic the predevelopment hydrologic regime;
- ◆ Prohibit nonessential development activity in and around watercourses. Preserve the natural drainage system to the greatest extent feasible and prohibit nonessential structures, land modifications, or impervious surfaces in the drainage system to assist in ensuring unimpeded flow, maximal stream storage capacity, and optimal natural functioning within the drainage area; and
- ◆ Implement programs and projects to remedy flooding and habitat destruction caused by uncontrolled flows from past development. Using a basin planning process and a watershed perspective, identify projects and programs to reduce flood frequency, address/prevent erosion problems, and restore/enhance fish habitat.

Specific information on the technical and programmatic aspects of surface water management will be contained in the City's Surface Water Master Plan, which is scheduled to be completed in 2005.

Policy NE-2.3: Comprehensively manage activities that may adversely impact surface and ground water quality or quantity.

Increases in impervious surface resulting from development result in decreases in ground water recharge. This, in turn, results in a decline in baseflows and subsequent loss of habitat that impacts fish and wildlife populations.

Urban runoff often contains pollutants such as gasoline, oil, sediment, heavy metals, herbicides, and other contaminants. These materials degrade the qual-

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ity of water in our streams and lakes. Steps to limit contamination include:

- ◆ Prohibit the dumping of refuse or pollutants in or next to any open watercourse or wetlands or into the storm drainage system. Dumped refuse and pollutants can contaminate surface and subsurface water and can physically block stream flows;
- ◆ Provide education to businesses and residents about the role that each individual plays in maintaining and improving water quality. It is much easier and cheaper to control pollution at its source than it is to clean polluted stormwater. Demonstrate ways that each person can control pollution at its source;
- ◆ Require projects to provide water quality treatment facilities if they propose to alter or increase significant quantities of impervious surface that generate pollution; and
- ◆ Preserve and enhance sensitive area buffers to maximize natural filtration of contaminants. Pursue opportunities to improve buffer viability by improving maintenance of buffer vegetation.

Policy NE-2.4: Improve management of stormwater runoff from impervious surfaces by employing low impact development practices where feasible through City projects, incentive programs, and development standards.

As land is developed, the loss of vegetation, the compaction of soils, and the transformation of land to impervious surface all combine to cause stormwater runoff to degrade many streams, wetlands and associated habitat; to increase flooding, and to make many properties wetter. Low impact development practices minimize impervious surfaces, and use vegetated and/or pervious areas to treat and infiltrate stormwater. Such practices can include incentives or standards for landscaped rain gardens, permeable pavement, narrower roads, vegetated rooftops, rain barrels, impervious surface restrictions, downspout disconnection programs, “green” buildings, street edge alternatives and good soil management.

Policy NE-2.5: Preserve the natural flood storage function of 100-year floodplains. emphasize nonstructural methods in planning for flood prevention and damage reduction.

Floodplains are lands adjacent to lakes, rivers, and streams that are subject to periodic flooding. Floodplains naturally store flood water, protect water quality, and provide recreation and wildlife habitat. New development or land modification in 100-year floodplains should be designed to maintain natural flood storage functions and minimize hazards to life and property (see Figure NE-1).

Policy NE-2.6: Regulate development of land along the shoreline of Lake Washington to:

- ◆ ***Preserve the resources and ecology of the water and shorelines;***
- ◆ ***Avoid natural hazards;***
- ◆ ***Promote visual and physical access to the water;***
- ◆ ***Preserve navigation rights; and***
- ◆ ***Minimize the creation of armored shorelines, and explore incentives and opportunities to restore natural shoreline features and habitat.***

The Lake Washington shoreline plays a vital role in the ecology of our watershed (which includes land that drains into Lake Washington, the Cedar River, and Lake Sammamish). All species of anadromous salmonids in our watershed migrate through and rear in Lake Washington. The decline of salmonid populations in Lake Washington has been linked to the following factors: loss of native shoreline vegetation, altered hydrology, invasive exotic plants, poor water quality, and poor sediment quality. Finding and acting on opportunities to restore properly functioning shoreline conditions where possible will substantially aid salmon recovery efforts in our watershed.

Kirkland’s Shoreline Master Program (SMP), adopted pursuant to the Washington State Shoreline Management Act of 1971, designates all parcels along Lake Washington as Shoreline Environments. The

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detailed regulations in Kirkland's SMP implement this policy. Pursuant to Washington State requirements, Kirkland's Shoreline Master Program will be updated by December 1, 2009.

Policy NE-2.7: Support regional watershed conservation efforts.

The federal listing of Puget Sound wild Chinook salmon as a threatened species in 1999 has focused attention on salmon. In addition to the economic, recreational, and cultural value of salmon, they are also a widely accepted indicator of the level of our region's environmental health, because their survival requires that they migrate throughout the watershed – from freshwater headwaters to the marine environment and back again. The decline of salmon points to the need to improve the quality of habitat in the watersheds that drain to Puget Sound.

In the Lake Washington/Cedar River/Lake Sammamish Watershed, Kirkland has joined with 26 other local jurisdictions to sign an interlocal agreement to fund a joint effort to conserve salmon habitat in the shared watershed. It is anticipated that the resulting watershed conservation plan, developed through a multi-jurisdictional, multi-stakeholder process with a scientific basis, will be implemented by the participating local governments in the watershed as they update their policies, regulations, and programs (e.g., capital facilities and road management practices) for critical areas, shorelines, drainage, and clearing/grading to be consistent with the conservation plan.

Completion of the Lake Washington/Cedar River/Lake Sammamish watershed conservation plan is scheduled for June 2005. Once finished, that plan will be joined with the conservation plans of several neighboring watersheds in 2005 to form a Puget Sound-wide conservation plan for a coordinated approach to restoring the wild Chinook salmon of Puget Sound.

VEGETATION

Goal NE-3: Manage the natural and built environments to protect and, where possible, to enhance and restore vegetation.

Policy NE-3.1: Work toward increasing Kirkland's tree cover to 40 percent.

In 2003, Kirkland's overall tree cover was estimated to be 32 percent (see Figure NE-4: Tree Canopy). Significant improvements in storm water management and air quality could be realized if the average tree cover were to be increased to 40 percent¹. To approach measurable economic and ecologic benefits, Kirkland's regulations, programs, and public outreach should aim toward increasing the City's tree canopy long term, to the extent feasible when balancing other City goals. In order to track progress, it will be important to complete, then monitor and maintain the inventory of public trees, as well as to periodically assess the canopy Citywide. As land develops, care should be taken to preserve and protect trees and other natural resources of value whenever feasible.

Policy NE-3.2: Preserve healthy mature native vegetation whenever feasible.

Healthy mature native vegetation contributes numerous ecological benefits to the community, including oxygen production, provision of fish and wildlife habitat, filtration of stormwater runoff, erosion reduction, hillside and stream bank stabilization, moderation of temperature, interception of rainfall that would otherwise become surface runoff, and scenic beauty. Of special importance are significant stands of native evergreen trees and sensitive area buffers appropriately vegetated with native plants. Needless removal or destruction of such vegetation should not be allowed. In cases where development necessitates plant removal, every effort should be made to expeditiously replant equivalent and appropriate vegetation.

1. Regional Ecosystem Analysis: Puget Sound Metropolitan Area – Calculating the Value of Nature, 1998, by American Forests, www.americanforests.org.

XI. UTILITIES

Policy U-3.3: Connect areas that are on septic systems to sanitary sewer.

Some older, less urbanized areas of the City are served only by septic systems. As these systems age and fail, they present health and environmental risks. The City should facilitate sewer extensions to these areas by prioritizing City-funded extensions and facilitating innovative privately funded solutions such as Local Improvement Districts and latecomer agreements.

Policy U-3.4: Correct deficiencies and increase system efficiency. Emphasis should be placed on correcting deficiencies that present sewage overflow risks.

The greatest system deficiencies in Kirkland's sanitary sewer system are related to the age and reliability of parts of the system. Infiltration and inflow of stormwater into the older pipes decreases system capacity and exfiltration of effluent from older pipes presents environmental and health risks. The focus should continue to be on updating older portions of the systems, with an emphasis on areas where overflows could occur near water bodies.

Surface Water

Goal U-4: Provide surface water management facilities programs and services that provide adequate drainage and minimize flooding while protecting and enhancing the water quality and habitat value of streams, lakes, and wetlands.

Policy U-4.1: Adopt surface water design standards for new development and redevelopment that incorporate best available research and technology in protecting water resources in an economical and feasible manner.

The goal of surface water design for new development and redevelopment projects is to provide adequate drainage and to provide post-construction controls that mimic predevelopment hydrologic pat-

terns and protect water quality to the degree that is economically feasible. Such facilities may include low impact development techniques and/or structural controls such as detention vaults or ponds, infiltration facilities, biofiltration swales, or wetvaults.

Policy U-4.2: Adopt and implement standards for control of runoff and erosion from construction sites.

In order to reduce erosion from construction, use of erosion control techniques should be required at all sites where significant clearing and grading will take place.

Policy U-4.3: Minimize the surface water impacts of development through the use of environmentally "low impact development" techniques.

Low impact development techniques include the following:

- ◆ Minimize creation of impervious surfaces;
- ◆ Use site soils and vegetation to soak up and filter stormwater runoff;
- ◆ Use green roofs to minimize runoff from impervious surfaces; and
- ◆ Collect and store water for landscaping or other nonpotable water uses.

The City should respond to new low impact technologies and evaluate techniques that may be feasible in Kirkland, and to evaluate possible incentives for use of such techniques.

Policy U-4.4: Minimize environmental damage from spilling and/or dumping of pollutants into the storm drainage system.

The City should respond to instances of spilling and dumping of materials into the storm drainage system through activities such as the following:

- ◆ Identify and where appropriate take enforcement action against those responsible for nonstormwa-

XI. UTILITIES

ter discharges, including requiring cleanup or conducting abatement;

- ◆ Maintain and periodically update inter-City and intraagency spill coordination and response procedures; and
- ◆ Conduct surveys to identify and eliminate illicit connections to the storm drainage system.

Policy U-4.5: Require businesses and residents to take steps to prevent stormwater pollution.

It is much easier to prevent pollution than to clean up polluted waters. Businesses and residents should be required to use both nonstructural and structural “best management practices” (BMPs) to prevent discharge of pollutants from everyday activities. BMPs range from covering materials stored outdoors, sweeping rather than using water to clean parking lots, and installation of oil/water separators to connecting car washing areas to sanitary sewers.

Policy U-4.6: Assess the quality of water and habitat in local streams and lakes to evaluate the effectiveness of utility standards and programs and to focus future efforts.

Identification of specific water quality and habitat concerns and the tracking of changes over time should help to improve the efficiency and cost-effectiveness of programs and projects. Such assessment is a recommended element of several State and federal programs.

Policy U-4.7: Ensure that privately owned stormwater facilities are operated and maintained in a manner that maximizes their quantity and quality control benefits.

When well-maintained detention and water quality facilities on private property serve to protect downstream resources, City programs should be continued to ensure that privately owned stormwater facilities are operated and maintained so that downstream systems are not affected.

Policy U-4.8: Educate the public on protecting and enhancing the quality of our water resources.

The City should strive to raise awareness of the impact that everyday business and residential activities can have on water quality and fish habitat and populations, and to provide information on practices, such as natural yard care, proper storage of materials, and washing practices, that can prevent the discharge of pollutants. Citizen volunteers should be involved in activities that increase stewardship of our water resources. The City should also explore new techniques for engaging the public and effecting positive changes in behavior.

Policy U-4.9: Coordinate basin planning, pollution prevention, and restoration activities with neighboring jurisdictions.

Watersheds do not stop at jurisdictional boundaries, and must be analyzed and restored as whole entities. The City should coordinate activities with King County, Bellevue and Redmond and other jurisdictions as appropriate to maximize the positive impact of projects and programs.

Policy U-4.10: Participate in regional surface water resources and fish resource conservation planning efforts.

The City should continue in the participation of the WRIA 8 salmon conservation planning effort and the Puget Sound Shared Strategy. The purpose of this project is to develop a plan for recovery of salmon habitat functions of the greater Lake Washington Watershed. Habitat is the only one of the four “H’s,” Habitat, Hydropower, Hatcheries, and Harvest, which is under local government control. Recovery of salmon stocks listed as threatened under the Federal Endangered Species Act would reduce the regulatory and liability burden for local jurisdictions, help to protect a vital part of our regional economy, and protect a species that has great cultural significance in the Pacific Northwest.

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Policy U-4.11: Ensure compliance with State and federal regulations related to surface water quality and fisheries resources.

The City should coordinate surface water management requirements and programs with a variety of State and federal programs and regulations, including but not limited to the following:

- ◆ National Pollutant Discharge Elimination System, Phase II;
- ◆ Puget Sound Water Quality Management Plan; and
- ◆ Federal Endangered Species Act listing of Chinook salmon as a threatened species.

This policy is intended to acknowledge and accommodate future regulatory changes.

Telecommunications

Goal U-5: Ensure adequate and competitively priced telecommunication infrastructure, facilities and services.

Policy U-5.1: Manage the City's existing and planned telecommunication improvements to optimize service delivery opportunities in Kirkland.

The City should plan and install sufficient capacity into its telecommunication system to meet future City needs.

Policy U-5.2: Use partnerships to achieve cooperation and cost-sharing in building telecommunication systems and providing service.

The City should establish partnerships with other public agencies and private sector organizations to achieve cooperation and cost-sharing in building telecommunication systems and providing services. Partnerships may include the use of shared telecommunication space, such as towers, buildings and fiber-optic lines.

Policy U-5.3: Review and update City policies, procedures and regulations to facilitate the installation and maintenance of telecommunication systems.

The City should review and update its policies, procedures and practices to ensure that they facilitate the installation of new telecommunication systems and support existing systems. In addition, the City's development regulations need to be flexible or revised on a regular basis to respond to changes in technology and consumer needs.

Policy U-5.4: Seek opportunities to enhance the number of service providers in the community to increase choice and encourage competitive pricing and high quality customer service.

Choice, availability and price are important factors to telecommunication consumers. The City should look for opportunities to increase the number of high quality service providers to have competitively priced and high quality telecommunication systems in Kirkland.

Policy U-5.5: Involve community stakeholders and service providers in telecommunication decisions.

The City should involve consumers, service providers and other public entities with telecommunication systems in Kirkland when reviewing its policies, practices and development regulations to ensure that consumer needs are being met and that providers and other public entities can install the facilities.

NON-CITY-MANAGED UTILITIES

The Washington Utilities and Transportation Commission (WUTC) has traditionally been the primary regulatory agency for private utilities. The WUTC has the authority to define the costs that a utility can recover, and consequently has the oversight to ensure that the utility acts prudently and responsibly. Under the Growth Management Act, local jurisdictions now have the obligation and requirement to plan for utilities including the identification of utility corridors.

V. NATURAL ENVIRONMENT

MANAGING THE NATURAL ENVIRONMENT

Goal NE-1: Protect natural systems and features from the potentially negative impacts of human activities, including, but not limited to, land development.

Policy NE-1.1: Use a system-wide approach to effectively manage environmental resources. Coordinate land use planning and management of natural systems with affected State, regional, and local agencies as well as affected federally recognized tribes.

Environmental resources – such as streams, soils, and trees – are not isolated features, but rather components of ecosystems that go beyond a development site and, indeed, beyond our City boundaries. Therefore, a system-wide approach is necessary for effective management of environmental resources. Also, recognition of the interdependence of one type of natural system upon another is essential. For this reason, a comprehensive approach to the management of natural resources is most effective.

Responsibility for management of these ecosystems falls to many agencies at many levels of government, including King County, State resource agencies, and watershed planning bodies. Kirkland and its planning area lie within the Usual and Accustomed Treaty Area of the Muckleshoot Indian Tribe. Joint coordination and planning with all affected agencies is appropriate to ensure consistent actions among the jurisdictions sharing an ecosystem.

Policy NE-1.2: Concentrate efforts in areas that will yield the greatest benefits.

City projects, programs, practices, and regulations related to the natural environment should be focused to yield maximum ecological benefit for the time and money involved. Application of this policy will involve selecting the most effective management tool for a desired outcome (see Policy NE-1.3), allocating staff and financial resources for greatest results, and

determining which natural features are most important to protect or restore.

Policy NE-1.3: Use a variety of techniques to manage activities affecting air, vegetation, water, and the land to maintain or improve environmental quality, to preserve fish and wildlife habitat, to prevent degradation or loss of natural features and functions, and to minimize risks to life and property.

The systems and features of the natural environment are considered to be community assets that significantly affect the quality of life in Kirkland. In public rights-of-way, City parks, and on other City-owned land, current technology, knowledge, and industry standards should be proactively used to practice and model sound stewardship practices. For resources on private property, the City should use a combination of public education and involvement, acquisition of prime natural resource areas, and incentives to promote stewardship, as well as regulations combined with effective enforcement.

Because of the many problems caused by adverse impacts to natural vegetation, water, or soils/geologic systems, developers should provide site-specific environmental information to identify possible on- and off-site methods for mitigating impacts. The City should be indemnified from damages resulting from development in sensitive or hazard areas, and land surface modification of undeveloped property should be prohibited unless a development application has been approved. Protective measures should also include techniques to ensure perpetual preservation of sensitive areas and their buffers, as well as certain hazard areas.

Policy NE-1.4: Proactively pursue restoration or enhancement of the natural environment. In addition, require site restoration if land surface modification violates adopted policy or development does not ensue within a reasonable period of time.

The City should look for and act upon opportunities to restore or enhance natural features and systems wherever significant environmental benefits will be realized cost-effectively. Too, land surface modifications that violate the intent of the Goals and Policies should

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be corrected through site restoration. Developers and property owners should be required to restore the affected sites to a state which approximates the conditions that existed prior to the unwarranted modification. At the very least, developers should be required to restore the site to a safe condition and re-vegetate areas where vegetation has been removed.

Policy NE-1.5: Provide to all stakeholders information concerning natural systems and associated programs and regulations. Work toward creating a culture of stewardship by fostering programs that support sound practices, such as low impact development and sustainable building techniques. Model good stewardship techniques in managing trees, streams, wetlands, shorelines and other natural features and systems in the public realm.

By sharing information the City can better serve the interests of both the environment and people. In order to provide a degree of consumer protection, the City should make available information which is based on current knowledge, technology, and appropriate standards and practices; as well as data regarding known natural resources and potential natural hazards.

Kirkland can promote public environmental awareness and stewardship of sensitive lands in a variety of ways. The City can support the provision of resources and incentives to assist the public in adopting practices that benefit rather than harm natural systems. For example, the City should work with residents, businesses, builders, and the development community to promote low impact development and sustainable building practices. Low impact development techniques minimize surface water runoff by reducing impervious surface and by using landscaping and permeable materials or retaining mature vegetation to absorb water close to the source. Sustainable building practices, such as use of recycled building materials, water reuse, and alternative heating and cooling systems, can lower construction and maintenance costs as well as benefit the environment.

The City should promote and model these practices and others, including purchasing energy-efficient and renewable technology products and services when-

ever feasible, by maintaining model sensitive area buffers, using current arboricultural techniques for public trees, and by linking Kirkland stakeholders to information sources and programs for notable trees, neighborhood planting events, backyard wildlife, lakeshore and streamside living.

The City can also increase awareness by allowing access where appropriate to sensitive areas for scientific and recreational use while protecting natural systems from disruption. Careful planning of access trails, and the installation of environmental markers and interpretive signs can allow public enjoyment of lakes, streams, or wetlands and increase public awareness of the locations, functions and needs of sensitive areas. In the case of large-scale projects on sensitive sites, the City can require developers to provide additional materials, such as brochures, to inform owners and occupants of the harmful or helpful consequences of their actions in or near sensitive areas and buffers.

Policy NE-1.6: Strive to minimize human impacts on habitat areas.

The presence and activities of humans can impact habitat in a variety of ways. City policies and regulations strive to ensure that those impacts are avoided, if possible, or at least mitigated. In addition to physical alterations of natural resources, less obvious impacts, such as those from noise and light, should be minimized.

V. NATURAL ENVIRONMENT

Preservation of native vegetation requires that noxious and invasive plant species in the native landscape and in environmentally sensitive areas and their buffers be effectively managed. Otherwise, non-native monoculture displaces the diverse habitat necessary to nourish, protect, and support native fish and wildlife. The City should work toward ensuring that noxious and invasive plant species are controlled on public and private property.

Policy NE-3.3: Ensure that regulations, incentives, and programs maximize the potential benefits of landscaping.

Trees and plants contribute to an overall sense of community and can bring aesthetic, environmental, and economic benefits. Besides the obvious advantages of adding summer shade, seasonal color, texture, and human scale, certain plants may be used to screen adjacent land uses and activities, define views, and unify and organize disparate site elements. Plants can play a significant role in modifying the climate of the immediate vicinity and moderating daily temperatures. They improve air quality by absorbing pollutants, thereby reducing unpleasant odors and filtering impurities. Foliage can reduce reflection or glare from the sun, street lights or vehicle lights, making an area more hospitable and safe. Too, dense foliage can absorb and disperse sound energy. Economic benefits can be realized through energy savings by arranging plants around buildings for an insulating effect from extreme temperatures and to deflect wind, and by attracting customers by increasing visual appeal. The City's landscaping requirements should be updated to maximize potential benefits and to reflect current knowledge, technology, and industry standards.

SOILS AND GEOLOGY

Goal NE-4: Manage the natural and built environment to maintain or improve soils/geologic resources and to minimize risk to life and property.

Policy NE-4.1: Introduce standards and programs to promote sound soil management practices.

Healthy soil provides nutrients to support vegetation, habitat for subsurface organisms, and it absorbs, cleans, stores, and conveys water, thereby improving water quality and moderating water quantity. Mismanagement or neglect of soil can result in increased flooding, loss of vegetation, sedimentation of watercourses, erosion, and landslides — all of which degrade habitat for humans as well as for other species. Although the City has standards to address soil erosion, additional standards and programs are needed so that valuable topsoil will be conserved and reused and soil for required plantings will be amended as appropriate.

Policy NE-4.2: Consider updating policies and regulations for geologic hazard areas in light of the new watershed conservation plan, once it has been completed.

For many years, Kirkland has regulated and mapped geologic hazard areas (see Figure NE-2), based on available geologic and soils information. Landslides are highly probable in some steep slope areas, regardless of development activity. These areas have been designated as “unstable slopes.” Landslides may be triggered by grading operations, land clearing, irrigation, or the load characteristics of buildings on hillsides. Damage resulting from landslides may include loss of life and property, disruptions to utility systems, or blockage of transportation corridors. For these reasons, development is regulated where landslides are likely. In some cases, regulation may result in severe limitations to the scale and placement of development, and land surface modification should be limited to the smallest modification necessary for reasonable site development.

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detailed regulations in Kirkland's SMP implement this policy. Pursuant to Washington State requirements, Kirkland's Shoreline Master Program will be updated by December 1, 2009.

Policy NE-2.7: Support regional watershed conservation efforts.

The federal listing of Puget Sound wild Chinook salmon as a threatened species in 1999 has focused attention on salmon. In addition to the economic, recreational, and cultural value of salmon, they are also a widely accepted indicator of the level of our region's environmental health, because their survival requires that they migrate throughout the watershed – from freshwater headwaters to the marine environment and back again. The decline of salmon points to the need to improve the quality of habitat in the watersheds that drain to Puget Sound.

In the Lake Washington/Cedar River/Lake Sammamish Watershed, Kirkland has joined with 26 other local jurisdictions to sign an interlocal agreement to fund a joint effort to conserve salmon habitat in the shared watershed. It is anticipated that the resulting watershed conservation plan, developed through a multi-jurisdictional, multi-stakeholder process with a scientific basis, will be implemented by the participating local governments in the watershed as they update their policies, regulations, and programs (e.g., capital facilities and road management practices) for critical areas, shorelines, drainage, and clearing/grading to be consistent with the conservation plan.

Completion of the Lake Washington/Cedar River/Lake Sammamish watershed conservation plan is scheduled for June 2005. Once finished, that plan will be joined with the conservation plans of several neighboring watersheds in 2005 to form a Puget Sound-wide conservation plan for a coordinated approach to restoring the wild Chinook salmon of Puget Sound.

VEGETATION

Goal NE-3: Manage the natural and built environments to protect and, where possible, to enhance and restore vegetation.

Policy NE-3.1: Work toward increasing Kirkland's tree cover to 40 percent.

In 2003, Kirkland's overall tree cover was estimated to be 32 percent (see Figure NE-4: Tree Canopy). Significant improvements in storm water management and air quality could be realized if the average tree cover were to be increased to 40 percent¹. To approach measurable economic and ecologic benefits, Kirkland's regulations, programs, and public outreach should aim toward increasing the City's tree canopy long term, to the extent feasible when balancing other City goals. In order to track progress, it will be important to complete, then monitor and maintain the inventory of public trees, as well as to periodically assess the canopy Citywide. As land develops, care should be taken to preserve and protect trees and other natural resources of value whenever feasible.

Policy NE-3.2: Preserve healthy mature native vegetation whenever feasible.

Healthy mature native vegetation contributes numerous ecological benefits to the community, including oxygen production, provision of fish and wildlife habitat, filtration of stormwater runoff, erosion reduction, hillside and stream bank stabilization, moderation of temperature, interception of rainfall that would otherwise become surface runoff, and scenic beauty. Of special importance are significant stands of native evergreen trees and sensitive area buffers appropriately vegetated with native plants. Needless removal or destruction of such vegetation should not be allowed. In cases where development necessitates plant removal, every effort should be made to expeditiously replant equivalent and appropriate vegetation.

1. Regional Ecosystem Analysis: Puget Sound Metropolitan Area – Calculating the Value of Nature, 1998, by American Forests, www.americanforests.org.

V. NATURAL ENVIRONMENT

Preservation of native vegetation requires that noxious and invasive plant species in the native landscape and in environmentally sensitive areas and their buffers be effectively managed. Otherwise, non-native monoculture displaces the diverse habitat necessary to nourish, protect, and support native fish and wildlife. The City should work toward ensuring that noxious and invasive plant species are controlled on public and private property.

Policy NE-3.3: Ensure that regulations, incentives, and programs maximize the potential benefits of landscaping.

Trees and plants contribute to an overall sense of community and can bring aesthetic, environmental, and economic benefits. Besides the obvious advantages of adding summer shade, seasonal color, texture, and human scale, certain plants may be used to screen adjacent land uses and activities, define views, and unify and organize disparate site elements. Plants can play a significant role in modifying the climate of the immediate vicinity and moderating daily temperatures. They improve air quality by absorbing pollutants, thereby reducing unpleasant odors and filtering impurities. Foliage can reduce reflection or glare from the sun, street lights or vehicle lights, making an area more hospitable and safe. Too, dense foliage can absorb and disperse sound energy. Economic benefits can be realized through energy savings by arranging plants around buildings for an insulating effect from extreme temperatures and to deflect wind, and by attracting customers by increasing visual appeal. The City's landscaping requirements should be updated to maximize potential benefits and to reflect current knowledge, technology, and industry standards.

SOILS AND GEOLOGY

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Policy NE-4.1: Introduce standards and programs to promote sound soil management practices.

Healthy soil provides nutrients to support vegetation, habitat for subsurface organisms, and it absorbs, cleans, stores, and conveys water, thereby improving water quality and moderating water quantity. Mismanagement or neglect of soil can result in increased flooding, loss of vegetation, sedimentation of watercourses, erosion, and landslides – all of which degrade habitat for humans as well as for other species. Although the City has standards to address soil erosion, additional standards and programs are needed so that valuable topsoil will be conserved and reused and soil for required plantings will be amended as appropriate.

Policy NE-4.2: Consider updating policies and regulations for geologic hazard areas in light of the new watershed conservation plan, once it has been completed.

For many years, Kirkland has regulated and mapped geologic hazard areas (see Figure NE-2), based on available geologic and soils information. Landslides are highly probable in some steep slope areas, regardless of development activity. These areas have been designated as “unstable slopes.” Landslides may be triggered by grading operations, land clearing, irrigation, or the load characteristics of buildings on hillsides. Damage resulting from landslides may include loss of life and property, disruptions to utility systems, or blockage of transportation corridors. For these reasons, development is regulated where landslides are likely. In some cases, regulation may result in severe limitations to the scale and placement of development, and land surface modification should be limited to the smallest modification necessary for reasonable site development.

City of Kirkland Natural Resource Management Plan

C. Land And Vegetation

URBAN FOREST

1. TREE CANOPY COVER

The ecological and economic benefits of a significant tree canopy cover in an urban area are optimized at an overall coverage of 40%.

If the average tree cover were increased to 40% in the urban areas of the Puget Sound Region, the environment would be significantly improved in terms of storm water management and air quality². With an estimated current tree cover of 32%, Kirkland is aiming to increase the tree canopy long term toward 40% – to the extent feasible when balancing other City goals – in order to approach measurable economic and ecologic benefits. The challenge will be to increase the City's tree cover wherever feasible to the extent necessary to compensate for those highly urbanized areas in Kirkland where significantly less cover can be sustained. The City has identified the following strategies in which to strive toward that goal:

- Proactive Public Tree Management
- Private Tree Preservation
- Appropriate Transportation Standards for new Street Trees
- Notable Tree Program and other public outreach

Tree management goals should favor preservation over tree replacement. More tree management budget and staff resources should be directed toward education and incentives than toward enforcement. Use of native vegetation on public and private property should be promoted where appropriate, because it can require less maintenance and watering, is essential for fish and wildlife, and contributes to the unique character of our region.

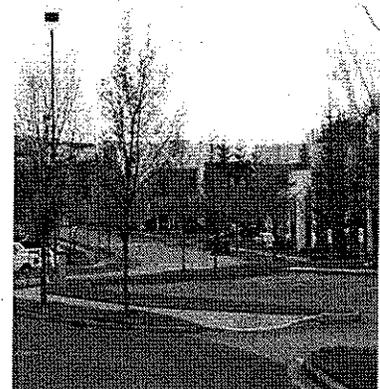
2. PROACTIVELY MANAGE PUBLIC TREES

Trees in City parks, rights-of-way, and on other City-owned properties constitute valuable public assets.

Kirkland's public trees constitute important "green" infrastructure in the community. Their contribution to the overall urban forest and their associated benefits are significant. Proper maintenance of existing healthy trees and adequate planting efforts are critical components to ensure that the trees remain assets, and do not become liabilities.

Gathering useful data on the public trees through an inventory will help the City determine maintenance needs and areas to enhance, thus investing in and increasing the value of Kirkland's public trees.

The most effective way to ensure proper maintenance for the City to commit to a comprehensive public tree management program. All City and ROW trees should be maintained by ISA-certified arborists and tree workers according to a sound plan and following the national (ANSI) standards. At some point, the City may wish to explore the feasibility of adding an Adopt-a-Street program that could train interested citizens to properly maintain designated groupings of street trees for which they wish to assume responsibility.



City of Kirkland Natural Resource Management Plan

C. Land and Vegetation, continued

Planting trees is an important component of proactive, public tree management. The City will need to explore funding options, such as a dedicated tree fund, to support the planting of trees as well as proper care of existing trees in public spaces. Kirkland's Public Works Department and Parks and Community Services Department have started to develop a tree nursery as a source of new public trees, but its success will depend upon the availability of funding and staff.

3. PRIVATE TREE PRESERVATION

Ensure more effective retention and preservation efforts for mature trees during development.

The Kirkland Department of Planning and Community Development should explore several ways to approach revision of the current tree regulations to ensure feasible tree retention efforts on private property.

One approach could be based on the fact that Kirkland neighborhoods differ in character, particularly in the extent of their tree cover. To address these differences and where feasible, tree regulations could be tailored to fit the concerns and character of City neighborhoods, drainage basins, or other logical sub-areas. At the same time, it is essential that care is taken to ensure that sub-area variations in tree regulations will result collectively in achieving the City's ecosystem goals.

Effective tools for preservation of healthy, mature wooded stands could include use of Natural Growth Protection Easements, increased dedication of landscape buffers, and standards that help preserve perimeter trees.

In some areas, dense development limits space available for trees to the extent that the City may benefit from a "tree bank" for developers to pay into when tree replacement is not feasible on site. The funds would be dedicated to tree planting in other more appropriate locations in the community, thereby maintaining and enhancing the overall tree canopy. Since the replacement trees may go to City parks or other public spaces, this practice may result in shifting some of the City's tree cover and its maintenance from private to public land.

Restrict removal of mature trees from developed properties unless deemed nuisances or hazards or an appropriate replacement plan is in place.

Recognizing that mature trees exponentially provide great benefit to the community, the City should explore restriction of removal of such trees without good reason. Limiting tree removal to those trees determined to be hazards or nuisances is a sensible approach when combined with flexible options for replacements to ensure "no net loss". Concepts of thinning forest stands for tree health and solar access may also need to be considered when proposing final zoning code amendments dealing with private trees.

Provide education on the benefits of trees on private property and on alternatives to removal.

Through public outreach with brochures and programs (Tree City USA, Arbor Day, Notable Tree Program, Neighborhood tree projects), the City can demonstrate the local and community-wide benefits of trees and foster positive stewardship among the residents and neighborhoods.

City of Kirkland Natural Resource Management Plan

C. Land and Vegetation, continued

4. TRANSPORTATION STANDARDS FOR A GREEN AND SAFE STREETScape

Update street tree planting space standards and planting specifications to better accommodate a more diverse palette of tree species.

Ensure street trees are not planted in sub-standard strips, and encourage expanding the standard planting widths in specific areas to accommodate larger tree species. The City should also review and revise planting specifications for required trees, utilizing the latest research on best planting techniques and lessons learned from past installations.

5. TREE CITY U.S.A.

Strive to maintain Tree City USA status.

Achieving the first designation of Tree City USA for Kirkland in 2002 was done with minimal completion of the standards. In order to



legitimately hold on to this title on an annual basis, the following must be developed:

Standard 1: Adopt a tree preservation ordinance.

The interim ordinance adopted in 2002 should be replaced by permanent code amendments.

Standard 2: Urban forestry budget of \$2 per capita.

This budget should be direct costs toward planting and maintaining community trees.

Standard 3: Designate a Board or group.

The Natural Resource Management Team was designated in 2002. The team must clearly show consistent work toward a community tree program.

Standard 4: Celebrate Arbor Day.

The City must embrace this event on its own and be clearly dedicated toward a community tree effort.

6. NOTABLE TREE PROGRAM

Develop and maintain a program to identify and preserve notable trees in Kirkland.

Such a program could raise awareness of trees in Kirkland that are of exceptional value to the community. Selection of notable trees could be based on tree age, size, rare species, landmark location, or a combination of attributes. The viability of Notable Trees on private property may be enhanced by offering incentives, such as maintenance service to be provided by City crews or sponsored by a local tree care company. When tree regulations are updated, new rules that would specifically protect Notable Trees could be explored as well.

City of Kirkland Natural Resource Management Plan

C. Land and Vegetation, continued

7. VIEWS

Exceptions to limitations on tree removal should not be made for the sole purpose of enhancing views.

View enhancement can be achieved by judicious pruning of vegetation to frame views (except in environmentally sensitive areas or their buffers). Too, the removal of trees as permitted by Kirkland's codes (e.g., nuisance and hazard trees) can result in enhanced views. However, removal of trees for the sole purpose of view enhancement should be avoided.

LAND

8. SOIL MANAGEMENT

Soil is a valuable component of the ecosystem and should be managed with care.

Soil performs many vital functions in the ecosystem. It provides nutrients to support vegetation, habitat for subsurface organisms; and it absorbs, cleans, stores, and conveys water, thereby improving water quality and moderating water quantity.

Mismanagement or neglect of soil can result in increased flooding, loss of vegetation, sedimentation of water courses, erosion, and landslides – all of which clearly degrade habitat for humans as well as for other species.

Important steps for sound soil management include managing soils for maximum cleansing and infiltration of stormwater and managing construction site runoff to prevent soil loss. In addition, the City should use and promote compost amendment, and other healthy soil techniques as well as water conservation gardening. Too, the City should consider amendments to codes to address sound soil management practices on developing/redeveloping properties, such as requiring that topsoil be conserved, prohibiting the practice of burying construction debris onsite, and requiring soil restoration following site development.

NATURAL HAZARD AREAS

9. CONSIDER UPDATING POLICIES AND REGULATIONS

Consider evaluating and possibly updating City policies and regulations regarding natural hazard areas in light of the new watershed conservation plan, once it has been completed.

Kirkland is participating in the production of a long term conservation plan for the Lake Washington/Lake Sammamish/Cedar River watershed. Much new scientific study specific to our watershed has been underway to support this salmonid recovery effort. Since natural hazard areas directly affect salmonid habitat, it is anticipated that the plan and its scientific foundation will provide new information concerning sound management of landslide hazard areas, high erosion areas, seismic areas, and frequently flooded areas. Once the conservation plan has been completed, the City may want to evaluate and perhaps update Kirkland's adopted policies and regulations in light of this new source of scientific and policy information.

Commenter	Identifier	Subject	Sub-Topic	Summary of Comment	Follow-up/Response	Context
Citizen/NGO (SPOCA)	3.3	Shoreline Redevelopment/Restoration	Shoreline Stabilization	The Shoreline Master Plan's restoration component should include criteria regarding the installation of shoreline bulkheads, as well as the net-benefits of removing bulkheads.	Emphasis that the City was not attempting to return Lake Washington to predevelopment conditions, but rather limit the negative impacts of future development on Lake Washington.	Correspondence (5-17 November 2007)
Citizen/NGO (SPOCA)	3.3	Species/Habitat	Invasive Species	Urged the city to continue its current emphasis on removing and controlling invasive species	Regarding the issue of run-off, the City was engaged in on-going efforts, including education and incentives, to help shoreline property owners address these concerns.	Correspondence (5-17 November 2007)
Citizen/NGO (SPOCA)	3.3	Shoreline Regulation	Storm Water	Advocated expanding the Shoreline Master Plan study area to include additional sources of non-point pollution for Lake Washington.		Correspondence (5-17 November 2007)
Citizen/NGO (SPOCA)	3.3	Shoreline Regulation	Boating practices	Expressed concern over Appendix F of the Shoreline Master Plan Draft Inventory, stating that it misrepresented the negative impacts of marina and recreational boats on the shoreline, since the causes of these impacts were already illegal.		Correspondence (5-17 November 2007)
Local Employee	4.6	Shoreline Research	Best Available Science	Requesting careful consideration be placed on changes made to local SMP. Science being used to drive changes are inconclusive and do not provide a clear determination of impacts on water quality of fish life.		Correspondence (2-28-2008)
Citizen/NGO (SPOCA)	2.6; 2.8; 3.3	Shoreline Regulation	Boating practices	Power/pump-out stations could be offered boaters to encourage them from dumping raw sewage (such as Marina Park).	Comment forwarded to Parks and Community Services Dept.	Report on the Tour of Innovative Shoreline Design (30 September 2006); Correspondence (5-17 November 2007)
Citizen/NGO (SPOCA)	3.3	Shoreline Regulation	Storm Water	Referred the City to a recent study concerning efforts by the Denny Park Neighborhood Assoc. to address storm water run-off.	These suggestions and references are being considered.	Correspondence (5-17 November 2007)
Citizen/Local Employee	4.6, 3.6	Shoreline Regulation	Storm Water	City needs to consider impact of surface runoff from upland development on water quality and fish life.		Official Correspondence and Houghton Community Council Meeting
Citizens/Property Owners	4.8	Shoreline Master Program Process		Appreciated the City of Kirkland's recent shoreline presentation, and stated that they will attempt to involve other homeowners in future meetings.		Correspondence (25 September 2007)
Citizens/Property Owners	4.8	Shoreline Master Program Process	Growth	Expressed concern that Kirkland was changing "rapidly".		Correspondence (25 September 2007)
Citizens/Property Owners	4.8	Shoreline Redevelopment/Restoration	Storm Water	Encouraged use of sand filters (e.g., treat run-off).		Kirkland Public Forum: Updating Shoreline Master Program (September 2006)

Commenter	Identifier	Subject	Sub-Topic	Summary of Comment	Follow-up/Response	Context
Local Employee	4.6	Shoreline Regulation	Piers and Docks	Warned of the dangers inherent in incorporating the Army Corps' of Engineers design standards into a critical area ordinance (which could cause a backlash from affected property owners).	The respondent's suggestions would be forwarded to the City of Kirkland Deputy Director of Planning and Community Dev.	Official Correspondence (7-10 September 2007)
Local Employee	4.6	Shoreline Regulation		Lauded the efforts of the Senior Planner within whom he was communicating, stating that the Planner was effective in listening to the concerns of private property owners, and was not unduly burdening them with federal and state shoreline and ecological requirements.	Although the WA State Dept. of Ecology's guidelines for local Shoreline Master Plan updates are ambiguous, they do provide considerable flexibility for how local governments respond	Official Correspondence (7-10 September 2007)
Local Gov. (Kirkland)	4.5	Shoreline Regulation		Person commented on specific language in Sections 4.2.1 and 4.2.2 regarding land uses and the presence of condominium piers. Also suggested changes to Figure 6.	The specific comments and suggestions had been implemented.	Public Comments provided on the Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline (August 2006)
Citizen	2.6; 4.4	Shoreline Redevelopment/Restoration	Shoreline Vegetation	Expressed concern over the removal of trees from Heritage Park.	Referred to City of Kirkland Natural Resource Management Plan . Document identifies criteria for retaining trees.	Report on the Tour of Innovative Shoreline Design (30 September 2006) ; Public Comments provided on the Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline (August 2006)
Citizen	4.4	Shoreline Redevelopment/Restoration	Storm Water	Alarmed about recent street flooding that had resulted from breakdowns within the municipal water pipe system.		Public Comments provided on the Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline (August 2006)
Citizen	2.4; 3.1; 3.3; 3.6; 4.4;	Shoreline Redevelopment/Restoration	Storm Water	Concerned over the amount of storm water run-off that empties into Lake Washington from non-point pollution sources.	Storm water being addressed in Section 3.3.2 (Storm water Utilities) and the Surface Water Master Plan.	Report on the Tour of Innovative Shoreline Design (30 September 2006) ; Public Comments provided on the Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline (August 2006)

Commenter	Identifier	Subject	Sub-Topic	Summary of Comment	Follow-up/Response	Context
Citizen	4.4	Shoreline Redevelopment/Restoration		Disliked that on a recent public tour of de-armored shoreline homes, no examples from Kirkland were used, and was doubtful whether the examples that were used were applicable to Kirkland shoreline property owners.	Either completely removing or softening the portion of Kirkland's shoreline located along private property is unlikely to be accomplished on a grand scale. As a result, the Shoreline Master Plan is designed to be site-specific.	Public Comments provided on the Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline (August 2006)
Citizen	3.3; 4.4	Shoreline Regulation	Public access	How is public access being addressed in Shoreline Master Plan? Also, will city require public access through waterfront single-family properties?	City has no intention of requiring or promoting access through single-family neighborhoods. For more information of existing possible future public access sites, refer to Juanita Beach Park Master Plan.	Public Comments provided on the Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline (August 2006)
Citizen	4.4	Shoreline Regulation	Boating practices	What are the established speed limits within Lake Washington?	King County only limits boating speeds within 100 yards of shoreline. Otherwise, a boat operator allowed to exercise judgment, but must be able to bring a "watercraft to a stop within the assured clear distance ahead."	Public Comments provided on the Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline (August 2006)
Citizen	4.4	Shoreline Regulation	Piers and Docks	What new regulations may be developed concerning docks?	City considering requiring consistency with state/federal regulations. Also, would likely allow some flexibility in enforcement.	Public Comments provided on the Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline (August 2006)
Citizen	3.6	Shoreline Redevelopment/Restoration		Asked whether Lake Washington's historic pre-development condition was considered in the recent Draft Shoreline Master Program Inventory?	Although historic conditions were considered, the present conditions constituted the baseline from which all potential impacts are assessed.	Public Comments provided on the Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline (August 2006)
Citizen	3.3; 3.6	Shoreline Master Program Process		How do the shoreline inventories specifically related to shoreline habitat restoration and specie health, and what measures were being used to address this issue?	Inventories would serve as indicators for addressing habitat restoration and specie health, particularly as a result of piers, bulkheads, and storm water discharges. City departments will coordinate to address these issues.	Public Comments provided on the Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline (August 2006)
Citizen	3.6	Shoreline Master Program Process	Best Available Science	Questioned the accuracy and best available science regarding statements in the report.	Some statements based on conjecture removed from the report. Other speculative statements remain since they are supported by best available science.	Public Comments provided on the Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline (August 2006)

Committer	Identifier	Subject	Sub-Topic	Summary of Comment	Follow-up/Response	Context
Citizen	3.3; 3.6	Shoreline Master Program		What positive changes had occurred since the adoption of the original Shoreline Master Plan? What about future improvements to shoreline ecological conditions?	Text has been added to the document that addresses past positive shoreline changes. Specifically, refer to sections 2.1 and 3.3.1. Future improvements will be addressed in the future Restoration Plan.	Public Comments provided on the <i>Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline</i> (August 2006)
Local Gov. (Kirkland)	4.5	Shoreline Regulation		Commented on specific language in Sections 4.2.1 and 4.2.2 regarding land uses and the presence of condominium piers. Also suggested changes to Figure 8.	The specific comments and suggestions had been implemented.	Public Comments provided on the <i>Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline</i> (August 2006)
Citizen/NGO (SPOCA)	3.3	Shoreline Redevelopment/Restoration	Sedimentation	How is the Shoreline Master Plan addressing sediment flow into Juanita Creek and Juanita Bay?	City has added a section to the Shoreline Master Plan that addresses Juanita Creek: Section 4.2.4.	Public Comments provided on the <i>Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline</i> (August 2006)
Citizen/NGO (SPOCA)	3.3	Shoreline Redevelopment/Restoration		What specific opportunities exist for improving the shoreline's ecological functions?	Potential for replacing solid decking with grating on boardwalk over Forbes Creek; in Denny Creek. Also, further discussion of ecological improvements on residential properties. Refer to sections 3.11; 4.3.4; and 4.4.4.	Public Comments provided on the <i>Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline</i> (August 2006)
Citizen	4.2	Species/Habitat		Expressed concern over maintaining wildlife habitat (especially for birds) in Juanita Bay.	Shoreline wildlife habitat was being addressed in the <i>Final Shoreline Analysis Report</i> .	Public Comments provided on the <i>Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline</i> (August 2006)
Citizen	4.1	Shoreline Regulation	Piers and Docks	Asked that inhabitants of Lake Washington (e.g. their dwelling is a boat) be allowed to temporarily use boat moorage covers.		Correspondence (8 February 1999)
Citizen	4.3	Shoreline Regulation		Referenced 'Figure 7a' concerning boatlifts	Two additional boatlifts were included in Figure 7a.	Public Comments provided on the <i>Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline</i> (August 2006)

Commenter	Identifier	Subject	Sub-Topic	Summary of Comment	Follow-up/Response	Context
Citizen	3.2; 3.3; 4.3	Species/Habitat	Invasive Species	Inquired about invasive species along the shoreline. For example, how severe are invasive species?	Referred to the Final Shoreline Analysis Report section 3.10.3 and 4.2.5, where the subject of invasive species is discussed in-depthly. Invasive species include water lily and milfoil. However, unsure as to the full extent to which invasive species impact shoreline 9but will be addressed in future reports).	Kirkland Public Forum: Updating Kirkland's Shoreline Master Plan (18 September, 2006); Public Comments provided on the Draft Shoreline Master Program Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline (August 2006)
Local Gov. (Kirkland)	3.8	Shoreline Master Program Process	Public participation	How do we communicate this process to more people, in order to get them involved?		Kirkland Public Forum: Updating Kirkland's Shoreline Master Plan (18 September, 2006)
Citizen	3.6	Shoreline Master Program Process		Since Port Townsend's Shoreline Master Plan close to completion, has it been analyzed as a comparison?	State Dept. of Ecology official answered: Not yet, but it may inform Kirkland's future process. City of Kirkland Senior Planner responded: Because of the restrictive timeline, advisory committees are not feasible. Instead, public meetings will be used as substitutes.	Kirkland Public Forum: Updating Kirkland's Shoreline Master Plan (18 September, 2006)
Citizen	3.7	Shoreline Master Program Process	Public participation	Will the city use advisory committees to help inform the Shoreline Master Program process?		Kirkland Public Forum: Updating Kirkland's Shoreline Master Plan (18 September, 2006)
Citizen	3.1	Shoreline Permitting		Although most property owners would be open to changes that improve Lake Washington, felt that the permitting process needs to be more conducive toward accommodating residents/property owners.		Kirkland Public Forum: Updating Kirkland's Shoreline Master Plan (18 September, 2006)
Citizen	3.6	Shoreline Research	Storm Water	Are there any studies on storm water runoff (within the Watershed Co. report)?	A representative from the Watershed Co. answered: Storm water runoff is addressed in their report, and will continue to be addressed. However, most storm water-related issues are outside of the Shoreline Master Program's jurisdiction.	Kirkland Public Forum: Updating Kirkland's Shoreline Master Plan (18 September, 2006)
Citizen	3.1	Shoreline Redevelopment/Restoration/Regulation	Shoreline Stabilization	Property owners should be able to push shoreline portion of their property farther into the Lake as an incentive to remove bulkheads.		Kirkland Public Forum: Updating Kirkland's Shoreline Master Plan (18 September, 2006)
Citizen/NGO (SPOCA)	3.3	Shoreline Regulation	Shoreline Stabilization	Felt that the city had made many improvements to the shoreline as a result of the Shoreline Management Act. These included a low number of bulkheads (relative to its urban setting) and a high amount of access.		Kirkland Public Forum: Updating Kirkland's Shoreline Master Plan (18 September, 2006)
Citizen	3.2; 4.6	Species/Habitat		In favor of improving environment for both wildlife and humans. However, emphasis may vary (i.e. favor human activities if sustainable; encourage environmental stewardship).		Kirkland Public Forum: Updating Kirkland's Shoreline Master Plan (18 September, 2006)

Commenter	Identifier	Subject	Sub-Topic	Summary of Comment	Follow-up/ Response	Context
NGO	3.4	Shoreline Master Program Process		Stated that central goal of the tour was for neighbors to learn from each other.		Kirkland Public Forum: Updating Kirkland's Shoreline Master Plan (18 September, 2006)
Citizen	3.5	Shoreline Regulation	Incentives	Inquired whether any incentive existed for restoring commercial/mixed uses along the shoreline.	City of Kirkland Senior Planner responded: No incentives currently exist, but the idea is being explored.	Kirkland Public Forum: Updating Kirkland's Shoreline Master Plan (18 September, 2006)
Citizen	3.1	Shoreline Redevelopment/ Restoration	Incentives	City could streamline/mitigate permitting process for private property owners by creating local improvement districts and partnering with private owners to Redevelopment large swath of shoreline at once.		Kirkland Public Forum: Updating Kirkland's Shoreline Master Plan (18 September, 2006)
Citizen	2.3; 3.1	Shoreline Pollution/Trash		Concerned over garbage dumped into the Lake by boaters.	Unfortunately, because boaters may come from outside Kirkland, it is a regional issue. However, an effort is needed to educate boaters on this issue.	Report on the Tour of Innovative Shoreline Design (30 September 2006) Kirkland Public Forum: Updating Kirkland's Shoreline Master Plan (18 September, 2006)
Citizen	3.1	Shoreline Pollution/Trash		Raccoons using nearby storm water pipe		Kirkland Public Forum: Updating Kirkland's Shoreline Master Plan (18 September, 2006)
Citizen/NGO (SPOCA)	3.3	Shoreline Recreation		Valued the water quality of and access to Lake Washington. Also felt that the City offered particularly good shoreline access.		Kirkland Public Forum: Updating Kirkland's Shoreline Master Plan (18 September, 2006)
Citizen	3.1	Shoreline Regulation		What constitutes the near shore zone?	Generally, the near shore comprises the first 30' of shoreline at a depth of 9'. However, recent research may change these benchmarks.	Kirkland Public Forum: Updating Kirkland's Shoreline Master Plan (18 September, 2006)
Citizen	2.13	Shoreline Master Program Process	Public participation	The city should engage the press, in order to highlight positive changes that have occurred with Kirkland's shoreline.		Report on the Tour of Innovative Shoreline Design (30 September 2006)
Citizen	2.14	Shoreline Master Program Process		(Regarding the tour component) will the bus tour be videotaped?	City of Kirkland Senior Planner responded: The bus tour will be videotaped, and made available to the public.	Report on the Tour of Innovative Shoreline Design (30 September 2006)
Citizen	2.15	Shoreline Master Program Process		How can one give further input after the meeting?	Any additional comments should be made by e-mail, mail, or writing.	Report on the Tour of Innovative Shoreline Design (30 September 2006)
Citizen	2.11; 2.12	Shoreline Redevelopment/ Restoration		City should be as site-specific as possible when addressing shoreline conditions on private property.		Report on the Tour of Innovative Shoreline Design (30 September 2006)
Local Gov. (Kirkland)	2.9	Shoreline Regulation		How can the permit process be streamlined for applicants that use the correct approach?	Opportunities exist, but it requires coordination.	Report on the Tour of Innovative Shoreline Design (30 September 2006)

Commenter	Identifier	Subject	Sub-Topic	Summary of Comment	Follow-up/Response	Context
Citizen	2.10	Shoreline Regulation	Consistency	Do all Lake Washington cities require the same criteria for permits?	Jurisdications do have the same permit criteria, and there is an effort to bring these criteria more closely in-line.	<i>Report on the Tour of Innovative Shoreline Design (30 September 2006)</i>
Citizen/Property Owner	1.1	Shoreline Redevelopment/Restoration	Shoreline Stabilization	How much did it cost to Redevelopment and de-armor a double lot located along the shoreline?	The cost was \$ 200,000-250,000. Meeting attendees felt that this was "a very good deal."	<i>Report on the Tour of Innovative Shoreline Design (30 September 2006)</i>
Citizen	1.2	Shoreline Redevelopment/Restoration	Shoreline Stabilization	How well did a double-lot along the shoreline that had recently been de-armored survive storm/erosion damage?	Property owner responded: So far no evidence of any weather-related damage.	<i>Report on the Tour of Innovative Shoreline Design (30 September 2006)</i>
Citizen/Property Owner	1.3	Shoreline Redevelopment/Restoration	Shoreline Stabilization	Regarding a recently de-armored shoreline property, would the owners have done anything differently (concerning the de-armoring process)?	Only change would have been to orient the fireplace differently	<i>Report on the Tour of Innovative Shoreline Design (30 September 2006)</i>
Federal Gov. (NOAA)	1.4	Shoreline Redevelopment/Restoration	Shoreline Stabilization	Would the owners of a recently de-armored shoreline property have preferred a contiguous beach (than what was built)?	Initially the owners would have preferred a contiguous beach, but this would have required sacrificing trees.	<i>Report on the Tour of Innovative Shoreline Design (30 September 2006)</i>
Citizen/NGO (SPOCA)	1.5	Shoreline Redevelopment/Restoration	Shoreline Stabilization	Regarding a recently de-armored shoreline property, how are the environmental benefits of de-armoring a shoreline property quantified?	Tour coordinators answered: The benefits are realized through the increase or restoration of endangered species habitat.	<i>Report on the Tour of Innovative Shoreline Design (30 September 2006)</i>
Citizen	1.6	Shoreline Redevelopment/Restoration	Shoreline Stabilization	How does one go about planning for shoreline design?	One must decide upfront what the needs and priorities are, and clearly articulate goals.	<i>Report on the Tour of Innovative Shoreline Design (30 September 2006)</i>
Citizen	1.6	Shoreline Master Program Process	Piers and Docks	How does one avoid being overwhelmed by the extent of decisions required for planning Kirkland's shoreline?	One must decide upfront what the needs and priorities are, and clearly articulate goals.	<i>Report on the Tour of Innovative Shoreline Design (30 September 2006)</i>
Citizen	1.7	Shoreline Redevelopment/Restoration	Piers and Docks	Should docks be constructed of aluminum (in order to minimize impact)?	Not per se. Rather how the material will impact species habitat should be main concern.	<i>Report on the Tour of Innovative Shoreline Design (30 September 2006)</i>
Citizen	1.7	Shoreline Redevelopment/Restoration		When importing new soils (as part of shoreline restoration), do the supporting geotextile fabrics prevent sinkholes? Are they muskrat proof?	Usually fabrics are, but they may require an additional metal mesh	<i>Report on the Tour of Innovative Shoreline Design (30 September 2006)</i>
Citizen	1.8	Shoreline Redevelopment/Restoration		Does a property owner need permits for property developments below the ordinary high water mark?	Yes, an owner would need to obtain a permit.	<i>Report on the Tour of Innovative Shoreline Design (30 September 2006)</i>
Citizen	1.9	Shoreline Redevelopment/Restoration	Shoreline Stabilization	Should property owners' use large boulders/stones when redeveloping shoreline property? If so, do they need to obtain a permit for this?	Property owners should always consult with the city first (as some boulder/stones may not be beneficial). Permits would be required.	<i>Report on the Tour of Innovative Shoreline Design (30 September 2006)</i>
Citizen/NGO (SPOCA)	1.10	Shoreline Redevelopment/Restoration		(Referring to the tour's overall comments) Why is there so much emphasis on salmon, rather than other species?	The salmon are officially listed as threatened; as such, governments are required to protect them.	<i>Report on the Tour of Innovative Shoreline Design (30 September 2006)</i>

Commenter	Identifier	Subject	Sub-Topic	Summary of Comment	Follow-up/Response	Context
Citizen	1.11	Species/Habitat	Invasive Species	Do invasive predators (e.g. bass) prefer non-native plant species? Regarding shoreline restoration efforts, how much study had gone into offshore areas (of Lake Washington), and its topography, and water depth (as well as the best available science to account for these factors)?	Yes, non-native predators do associate with non-native plants. Restoration will likely be constrained by what can be done, and will be informed by other local efforts.	Report on the Tour of Innovative Shoreline Design (30 September 2006)
Citizen	2.1	Shoreline Research				Report on the Tour of Innovative Shoreline Design (30 September 2006)
Citizen	2.2	Shoreline Master Program Process		Asked to have the Shoreline Master Program's timeline clarified?	The City is farther along in the process than other Lake Washington jurisdictions. Best way to remove it is by pulling it from the roots. Moreover, milfoil removal is addressed in a recent Dept. of Fish and Wildlife publication.	Report on the Tour of Innovative Shoreline Design (30 September 2006)
Citizens	2.3; 2.4	Species/Habitat	Invasive Species	Milfoil is an issue--there was too much of it and it smelled foul. A comment was made about the balance between salmon (a native species) and bass and sculpin (non-native)		Report on the Tour of Innovative Shoreline Design (30 September 2006)
Citizen	2.5	Species/Habitat				Report on the Tour of Innovative Shoreline Design (30 September 2006)
Citizen	2.6	Shoreline Regulation	Incentives	Reduce street setbacks for new homes, so as to keep homes farther away from the shoreline.		Report on the Tour of Innovative Shoreline Design (30 September 2006)
Citizen	2.6	Shoreline Regulation	Boating practices	Could moorage rates be increased?		Report on the Tour of Innovative Shoreline Design (30 September 2006)
Citizen	2.6	Shoreline Redevelopment/Restoration	Shoreline Vegetation	Could native trees be planted that support eagles and osprey?		Report on the Tour of Innovative Shoreline Design (30 September 2006)
Citizen	2.7	Shoreline Recreation	Boating practices	Could boaters could be directed toward the free pump station (at Yarrow Bay)?		Report on the Tour of Innovative Shoreline Design (30 September 2006)
Citizen	2.8	Shoreline Redevelopment/Restoration	Shoreline Stabilization	How can the shoreline be softened (i.e. remove bulkheads)--particularly since most of the shoreline is privately owned? There are regulations in place to address impacts through both the state and federal processes. It is important that local governments are careful not to impose overly rigid restrictions that force property owners to pursue Shoreline Variances or Conditional Use Permits.	Cost-effective opportunities exist, such as through official certification courses, which in turn can be used for community outreach/education.	Report on the Tour of Innovative Shoreline Design (30 September 2006)
Local Employee	4.6	Permitting		Need to ensure that SMP regulations for overwater structures are flexible, practical and reasonable to enable property owners to meet their needs while exercising responsible stewardship toward the valuable resources of our region.		Official correspondence and Houghton Community Council Meeting (February 25, 2008)
Citizen/Local Employee	4.6.5.1	Shoreline Permitting				Official correspondence and Houghton Community Council Meeting (February 25, 2008)

Committer	Identifier	Subject	Sub-Topic	Summary of Comment	Follow-up/ Response	Context
Local Employee	4.6	Shoreline Regulation	Shoreline Stabilization	Carefully consider regulations addressing bulkheads. Restoring natural shorelines will not work in all locations and in many cases depending on the water depth at the face of the existing bulkhead a property owner will need to shift their shoreline landward quite a bit, which can impact setback and the amount of impervious area.		<i>Official correspondence and Houghton Community Council Meeting (February 25, 2008)</i>
Citizen/NGO (SPOCA)	3.6, 5.1	Shoreline Master Program Process	Public participation	Need for public participation. Make property owners understand implications of changes early on in process.		<i>Houghton Community Council Meeting (February 25, 2008)</i>
Citizen	3.6	Shoreline Regulation		Kirkland, as largest property owner along shoreline, has biggest impact and needs to consider how regulations would impact their activities as well as those of private property owners.		<i>Houghton Community Council Meeting (February 25, 2008)</i>
Citizen/NGO (SPOCA)	3.6, 5.1	Shoreline Regulation		Need for clarity and consistency in shoreline regulations.		<i>Houghton Community Council Meeting (February 25, 2008)</i>