RESOLUTION R-4786

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF KIRKLAND APPROVING THE PROPOSED KIRKLAND SHORELINE MASTER PROGRAM UPDATE AND THE ACCOMPANYING GOALS AND POLICIES, ENVIRONMENTAL DESIGNATIONS, REGULATIONS, RESTORATION PLAN AND CUMULATIVE IMPACTS ANALYSIS, AND DIRECTING THAT THE APPLICABLE SHORELINE MASTER PROGRAM UPDATE MATERIALS BE PROVIDED TO THE STATE DEPARTMENT OF ECOLOGY FOR ITS REVIEW, FILE ZON06-00017.

WHEREAS, the Washington Shoreline Management Act (RCW 90.58, referred to herein as "SMA") recognizes that shorelines are among the most valuable and fragile resources of the state, and that state and local government must establish a coordinated planning program to address the types and effects of development occurring along shorelines of state-wide significance; and

WHEREAS, the City of Kirkland ("City") is required to update its Shoreline Master Program ("SMP") pursuant to the SMA and WAC 173-26; and

WHEREAS, on December 1, 2006, the City did issue a Final Shoreline Analysis Report, an inventory and characterization of the city's shorelines to assess ecological functions and ecosystem-wide processes operating within the city's shoreline jurisdiction and to serve at a baseline from which future development actions in the shoreline jurisdiction will be measured; and

WHEREAS, there has been extensive public participation with respect to the SMP Update, including but not limited to the following: public meetings before the Houghton Community Council and the Kirkland Planning Commission, shoreline tours, public forums, open houses, meetings with property owners and neighborhood meetings; and

WHEREAS, the Kirkland Planning Commission, after numerous study sessions and public meetings and hearings, recommended approval of the SMP Update at its September 10, 2009 meeting; and

WHEREAS, the Kirkland City Council considered the SMP at study sessions dated October 22, 2009, November 2, 2009 and November 23, 2009; and

WHEREAS, the Kirkland City Council did conclude that the SMP will result in "no net loss" in shoreline ecological function relative to the baseline due to its implementation and will ultimately produce a net improvement in shoreline ecological function; and

WHEREAS, on July 16, 2009, the Kirkland City Council concludes that the SMP is consistent with and meets the Guidelines established under WAC Chapter 173.26; and

WHEREAS, the Kirkland City Council concludes that the SMP is consistent with and implements Shoreline Management Act (RCW 90.58 and the Growth Management Act (RCW 36.70); and

WHEREAS, the State Department of Ecology is authorized under the SMA to approve, deny or proposed modifications to the City's SMP; and

WHEREAS, on July 16, 2009, the City's State Environmental Policy Act responsible official issued an Environmental Impact Statement Addendum to the 2004 Environmental Impact Statement for the 2004 City of Kirkland Comprehensive Plan 10-Year Update.

NOW, THEREFORE, be it resolved by the City Council of the City of Kirkland as follows:

Section 1. The City Council hereby approves the proposed City of Kirkland Shoreline Management Plan Update as set forth in Attachments A through G attached to this resolution of intent and incorporated by reference:

Shoreline Environment Designation Map as set forth in Attachment A;

Amendments to the City's Comprehensive Plan Goals and Policies as set forth in Attachment B;

Amendments to the Kirkland Municipal Code deleting KMC Chapter 24.05 and 24.06 as set forth in Attachment C;

Amendments to the Zoning Code adding a new Chapters 83 and 141 and amending Chapter 180 – Plates as set forth in Attachment D;

Shoreline Restoration Plan as set forth in Attachment E; and

Shoreline Cumulative Impacts Analysis as set forth in Attachment F.

Section 2. The City Council directs City staff to forward the appropriate SMP documents to the State Department of Ecology for formal review and approval.

Passed by majority vote of the Kirkland City Council in open meeting this 1st day of December, 2009.

Signed in authentication thereof this 1st day of December, 2009.

MAYOR

Attest:

City Clerk

R-4786
Attch A



R-4786
Attch A

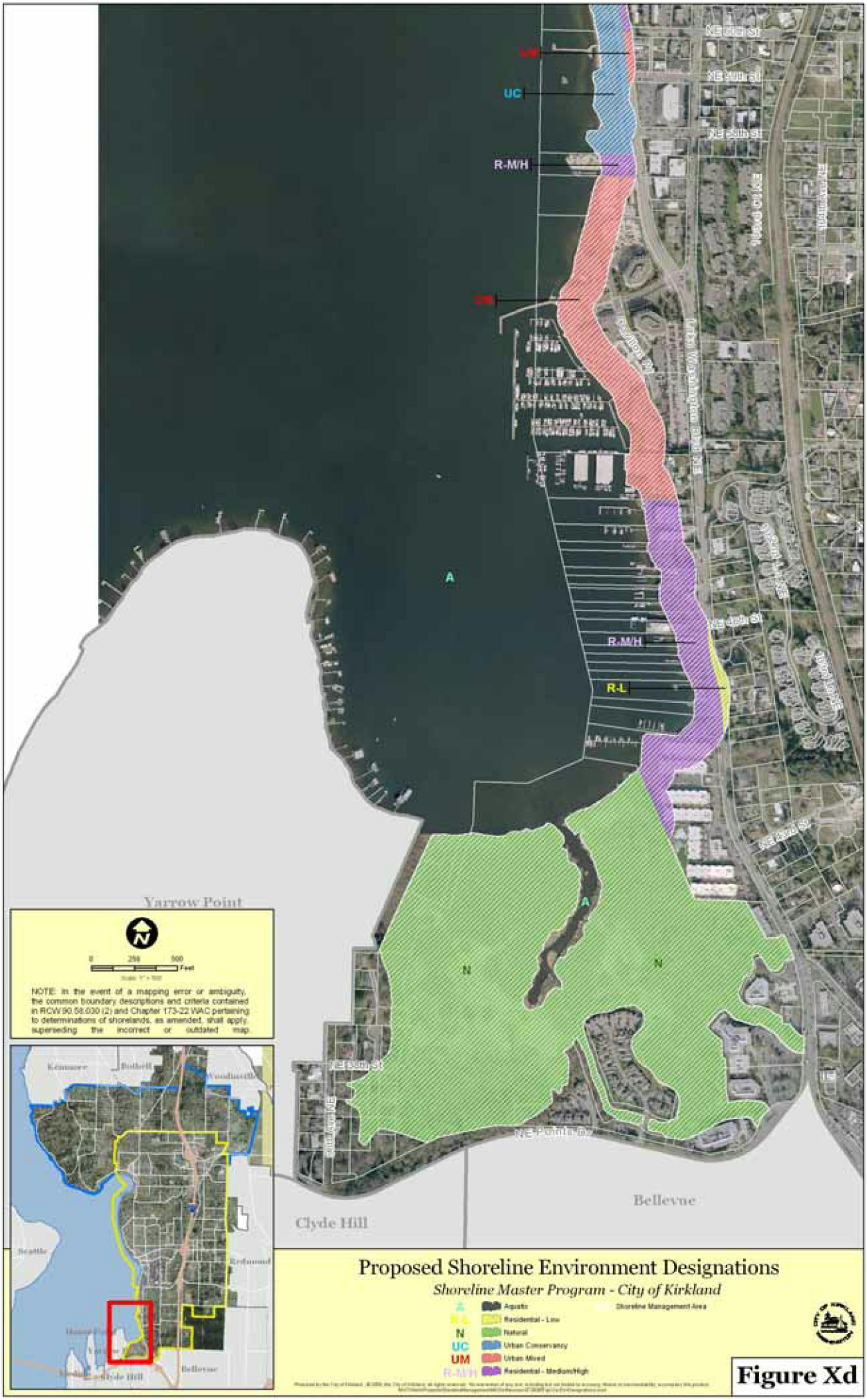


Figure Xb

R-4786
Attch A



R-4786
Attch A



New Comprehensive Plan Chapter XVI- Shoreline Area Shoreline Goals and Policies

Codification note: *A shoreline map showing the boundaries of the SMP jurisdiction and a map of the designation environments along with photos will be added to the chapter prior to final adoption.*

A. Introduction

The City of Kirkland's Shoreline Master Program consists of shoreline goals and policies contained in this chapter, shoreline regulations contained in KZC Chapters 83 and 141 and the Kirkland Shoreline Restoration Plan. The Program is adopted under the authority of RCW Chapter 90.58 and WAC Chapter 173-26.

Statutory Framework

The City of Kirkland manages the shoreline environment through implementation of the Shoreline Master Program. The Washington State Shoreline Management Act (SMA) provides guidance and prescribes the requirements for locally adopted Shoreline Master Programs. The goal of the SMA, passed by the Legislature in 1971 and adopted by the public in a 1972 referendum, is to "prevent the inherent harm in an uncoordinated and piecemeal development of the state's shorelines". The SMA establishes a broad policy giving preferences to uses that:

- Protect shoreline natural resources, including water quality, vegetation, and fish and wildlife habitat;
- Depend on the proximity to the shoreline (i.e. "water dependent uses");
- Preserve and enhance public access or increase recreational opportunities for the public along shorelines.

The SMA establishes a balance of authority between local and state government. Under the SMA, Kirkland adopts a shoreline master program that is based on state guidelines but tailored to the specific needs of the community. The program represents a comprehensive vision of how shoreline areas will be used and developed over time.

The Department of Ecology has issued State guidelines for Shoreline Master Programs in WAC 173-26. The guidelines are intended to assist local governments in developing master programs, which must be accepted and approved by the Department of Ecology as meeting the policy objectives of the SMA established under RCW 90.58.020 as well as the criteria for state review of local master programs under RCW 90.58.090.

Vision

The City of Kirkland's identity is strongly influenced and defined by its waterfront setting. Views of Lake Washington give Kirkland its sense of place and the City's integrated network of trails, parks, and open spaces along the shoreline provide abundant opportunities for public access to the

shoreline. The City's waterfront parks provide places and host events where people can gather and interact. Kirkland's shoreline commercial districts also provide opportunities for residents and visitors to enjoy the City's unique natural setting along the shoreline. The waterfront provides many varied recreational opportunities to meet the needs of Kirkland citizens and provides a gateway to the City. It also provides vital habitat for fish and wildlife and the natural systems within the shoreline serve many essential biological, hydrological and geological functions.

The shoreline zone is one of the most valuable and fragile of Kirkland's natural resources and, as a result, the utilization, protection, restoration, and preservation of the shoreline zone must be carefully considered.

The City developed its first Shoreline Master Program in 1974 as a component of the Comprehensive Plan. Key considerations within this plan and subsequent amendments have included conservation, public access to the shoreline, and the guidance for water-oriented recreational uses to locate along the Kirkland shoreline. These initial policy objectives are reflected in today's protection of the City's significant natural areas as open space, as well as the extensive shoreline trail system and network of shoreline parks which have been established over time.

Over the significant time that has spanned since the original adoption of the City's first Shoreline Master Program, there have been substantial changes to the lakefront environment. Industrial uses, such as the shipyard previously located at Carillon Point, have left Kirkland's shoreline. The City has added significant publicly owned properties to our waterfront park system, most significantly the Yarrow Bay wetlands, Juanita Bay Park, Juanita Beach Park, and David E. Brink Park. Water quality within Lake Washington, once severely impacted by nutrient loading from sewage, has remarkably improved since regional wastewater treatment plants were constructed and the final plant discharging directly into the lake was closed in 1967.

The lake environment has also been impacted by new challenges. The shoreline character has continued to change over time, as additional docks and bulkheads have been built, contributing to a loss of woody debris and other complex habitat features along the shoreline. Impervious surfaces have increased both within the shoreline area and in adjacent watersheds and this, together with consequent reduction in soil infiltration, have been correlated with increased velocity, volume and frequency of surface water flows. These and other changes have impacted the habitat for salmonids. In 1999, Chinook salmon and bull trout were listed as Threatened under the Federal Endangered Species Act in 1999. The region's response to this listing has resulted in new scientific data and research that has improved our understanding of shoreline ecological functions and their value in terms of fish and wildlife, water quality, and human health.

To address these changes, comply with the mandates of the Shoreline Management Act, and enable the City to plan for emerging issues, the City has initiated an extensive update of its Shoreline Master Program. The new program is needed to respond to current conditions and the community's vision for the future.

In updating the program, the City's primary objectives are to:

- Enable current and future generations to enjoy an attractive, healthy and safe waterfront.
- Protect the quality of water and shoreline natural resources to preserve fish and wildlife and their habitats.
- Protect the City's investments as well as those of property owners along and near the shoreline.

- 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 groups with an interest in the shoreline.
- Efficiently achieve the SMP mandates of the State.

The City of Kirkland, through adoption of the Shoreline Master Program, intends to implement the Washington State Shoreline Management Act (RCW 90.58) and its policies, including protecting the State's shorelines and their associated natural resources, planning for and fostering all reasonable and appropriate uses, and providing opportunities for the general public to have access to and enjoy shorelines.

The City of Kirkland's Shoreline Master Program represents the City's participation in a coordinated planning effort to protect the public interest associated with the shorelines of the State while, at the same time, recognizing and protecting private property rights consistent with the public interest. The Program preserves the public's opportunity to enjoy the physical and aesthetic qualities of shorelines of the State and protects the functions of shorelines so that, at a minimum, the City achieves a 'no net loss' of ecological functions, as evaluated under the *Final Shoreline Analysis Report* issued in December 2006. The Program also promotes restoration of ecological functions where such functions are found to have been impaired, enabling functions to improve over time.

The goals and policies of the SMA constitute one of the goals for growth management as set forth in RCW 36.70A.020 and, as a result, the goals and policies of this SMP serve as an element of Kirkland's Comprehensive Plan and should be consistent with other elements of the Comprehensive Plan. In addition, other portions of the SMP adopted under chapter 90.58 RCW, including use regulations, are considered a part of the city's development regulations.

Organization

The policies are grouped under seven sections:

- Shoreline Land Use and Activities
- Shoreline Environment
- Parks, Open Space and Recreation
- Shoreline Transportation
- Shoreline Utilities
- Shoreline Design
- Shoreline Archaeological, Historic and Cultural Resources

The Land Use section works together with other policies of the Shoreline Master Program contained in this Chapter of the Comprehensive Plan. The Land Use section addresses the general distribution and location of shoreline uses, the Shoreline Parks, Open Space and Recreation section more specifically addresses issues of public park operations and maintenance and standards for private shoreline recreation uses and modifications. The Environment section more specifically addresses shoreline critical areas, water quality, vegetation, and shoreline modifications such as filling and dredging. The Transportation section addresses both public access and circulation within the shoreline area. The ne Utilities section addresses utilities within the shoreline, while the Design section addresses public view corridors and designing for orientation to Lake Washington. The Archaeological, Historic and Cultural Resources addresses identifying important sites and preventing destruction of the sites, and having educational projects and programs to appreciate the important of the shoreline history.

B. Shoreline Goals and Policies

1. Shoreline Land Use and Activities

Goal SMP-1: Provide a high quality shoreline environment where
(1) Natural systems are preserved.
(2) Ecological functions of the shoreline are maintained and improved over time.
(3) The public enjoys access to and views of the lake.
(4) Recreational opportunities are abundant.

The Kirkland shoreline forms the western boundary of the City and encompasses 32,238 lineal feet (6.1 miles) of Lake Washington waterfront. A significant portion of the City's shoreline is area zoned or designated as park/open space. Approximately 57 percent of the area within the shoreline jurisdiction, or a total of 132.7 acres of the shoreline, are within areas designated as park or open space. Except for a few anomalies, the high-functioning portions of the shoreline have been appropriately designated and preserved within these areas. The City's extensive network of parks also provides the public with significant access opportunities throughout the City.

Much of the remaining shoreline is fully developed with single-family residential uses or areas of concentrated, compact development containing commercial, multifamily, or mixed-uses. In general, this pattern of land use is stable and only minimal changes are anticipated in the planning horizon. Redevelopment on some properties may result in single-family residences converting over time to multifamily or with new commercial or mixed-uses replacing existing commercial uses. Given the lack of existing vacant land (only 10 percent of the land within the shoreline is vacant, and much of that is encumbered by sensitive areas), additional housing or commercial square footage within the shoreline area will come over time as redevelopment and additions occur to existing developed properties.

Management of the shoreline area will need to carefully balance and achieve both shoreline utilization and protection of ecological functions. To protect valuable shoreline resources, the Shoreline Master Program limits the extent and character of a number of land uses and activities. Shoreline policies allow for a broad range of uses within the shoreline, while establishing limits to protect these shoreline resources and adjacent uses.

Shoreline policies aimed at protecting the natural environment address issues at both a broader scale, focusing on natural systems, as well as at the scale of ecological functions, which are the physical, chemical, and biological processes that contribute to the maintenance of the aquatic and terrestrial environments that constitute the shoreline's natural ecosystem.

Issues that must be addressed by the Shoreline Use Element include:

- How to manage new growth and redevelopment to be sensitive to and not degrade habitat, ecological systems and other shoreline resources.

- How to foster those uses that are unique to or depend on the proximity to the shoreline or provide an opportunity for substantial numbers of the people to enjoy the shoreline.

- How to ensure that land uses and shoreline activities are designed and conducted to minimize damage to the ecology of the shorelines and/or interference with the public's use of the water

and, where consistent with public access planning, provide opportunities for the general public to have access to the shorelines.

- How to protect the public right of navigation and ensure that uses minimize any interference with the public's use of the water.

Policy SMP-1.1 Allow for a diversity of appropriate uses within the shoreline area consistent with the varied character of the shorelines within the city.

The City's shoreline area is a collection of varied neighborhoods and business districts, each containing their own distinctive character as well as biological and physical condition along the shoreline. Kirkland's shorelines contain valuable natural amenities, providing critical habitat for fish and wildlife within the Juanita Bay and Yarrow Bay wetlands, two high-functioning natural areas. The shoreline also contains portions of several business districts, each with its own distinctive identity, including the Central Business District, Juanita Business District, and Carillon Point. Medium to high density residential and commercial uses are located to the south of the Central Business District. The shoreline in these more urban areas is heavily altered with shoreline armoring, overwater coverage, and impervious areas. Single-family residential uses are prevalent in the area north of the Central Business District. The City also contains a system of waterfront parks, which provide a broad range of passive and active recreational activities and environmental protection.

Policy SMP-1.2 Preserve and enhance the natural and aesthetic quality of important shoreline areas while allowing for reasonable development to meet the needs of the city and its residents.

These different and unique shoreline areas each contain qualities that contribute to Kirkland's shoreline identity, including waterfront orientation, shoreline public views and access, numerous and diverse recreational opportunities, abundant open space, natural habitat, and waterfront access trails. The Shoreline Master Program should seek to support these and other features which significantly contribute to the City's desired character along the shoreline.

Policy SMP-1.3 Maintain existing and foster new uses that are dependent upon, or have a more direct relationship with the shoreline and Lake Washington.

Certain shoreline uses are more dependent on, or have a more direct relationship with the shoreline than others. The Shoreline Management Act requires that shoreline master programs give priority to:

- Water-dependent uses. A water-dependent use is dependent on the water by reason of the intrinsic nature of its operations, and cannot exist in any other location. Examples include swimming beaches, boat launches, boat piers, and marinas. Industrial water-dependent uses, such as ship building facilities, are not currently found nor are planned along the City's waterfront. The Kirkland waterfront contains several facilities that would be considered water-dependent uses. The City contains one public marina and several private marinas. Large private commercial marinas include Carillon Point Marina, Yarrow Bay Marina and Kirkland Homeport Marina. The Yarrow Bay Marina contains a retail fuel service facility for boats, while the tour boat operators working out of the City's public marina provide shoreline tours. The City should encourage these water-dependent uses to remain.

- Water-related uses. A water-related use is dependant on a shoreline location because it has a functional requirement associated with a waterfront location, such as the transport of goods

by water, or uses that support water-dependant uses. Examples include boat sales and outfitters and manufacturers that transport goods by water. These uses are typically not located along Kirkland's shoreline, though the Yarrow Bay Marina contains a boat repair and service facility.

- Water-enjoyment uses. A water enjoyment use is a recreational use or other use that facilitates public access to the shoreline as a primary characteristic of the use, or a use that draws substantial numbers of people to the shoreline and that provides opportunities, through its design, location or operation, for the public to enjoy the physical and aesthetic benefits of the shoreline. Examples include parks and trails, museums, restaurants, and aquariums. Water enjoyment uses such as restaurants, retail stores, and offices are the primary commercial use along Kirkland's shoreline.

- Single family residential uses. There is a single-family residential neighborhood in the shoreline area within the Market Neighborhood.

- Shoreline recreation. The shoreline contains an extensive network of open spaces and public parks along the shoreline, providing places for fishing, swimming, boating, wildlife viewing and other recreational and educational activities.

Shoreline Environment Designations

Goal SMP-2: Provide a comprehensive shoreline environment designation system to categorize Kirkland's shorelines into similar shoreline areas to guide the use and management of these areas.

Environment designations are analogous to zoning designations for areas under SMP jurisdiction. Their intent is to encourage uses that will protect or enhance the current or desired character of a shoreline based on their physical, biological and development characteristics.

Policy SMP-2.1: Designate properties as Natural in order to protect and restore those shoreline areas that are relatively free of human influence or that include intact or minimally degraded shoreline functions that are sensitive to potential impacts from human use.

This type of designation would be appropriate for associated wetlands in and adjacent to Juanita Bay Park, the Yarrow Bay wetlands complex, and the portion of Juanita Bay Park located within shoreline jurisdiction. The following management policies should guide development within these areas:

a. Any use or development activity that would potentially degrade the ecological functions or significantly alter the natural character of the shoreline area should be severely limited or prohibited, as follows:
   1) Residential uses should be prohibited, except limited single-family residential development may be allowed as a conditional use if the density and intensity of such use is limited as necessary to protect ecological functions and be consistent with the purpose of the environment.
   2) Subdivision of the subject property as regulated under the provisions of Title 22 should be prohibited.
   3) Commercial and industrial uses should be prohibited.
   4) Nonwater-oriented recreation should be prohibited.

5) Roads, utility corridors, and parking areas that can be located outside of Natural designated shorelines should be prohibited unless no other feasible alternative exists. Roads, bridges and utilities that must cross a Natural designated shoreline should be processed through a Shoreline Conditional Use.

b. Development activity in the natural environment should only be permitted when no suitable alternative site is available on the subject property outside of shoreline jurisdiction.
c. Development, when feasible, should be designed and located to preclude the need for shoreline stabilization, flood control measures, native vegetation removal, or other shoreline modifications.
d. Development activity or land surface modification that would reduce the capability of vegetation to perform normal ecological functions should be prohibited.
e. Limited access may be permitted for scientific, historical, cultural, educational and low-intensity water-oriented recreational purposes, provided there are no significant adverse ecological impacts.

Policy SMP-2.2: Designate properties as Urban Conservancy to protect and restore ecological functions of open space, flood plain and other sensitive lands, while allowing a variety of compatible uses.

This type of designation would be appropriate for many of the City's waterfront parks. The following management policies should guide development within these areas:

a. Allowed uses should be those that preserve the natural character of the area and/or promote preservation and restoration within critical areas and public open spaces either directly or over the long term.
b. Restoration of shoreline ecological functions should be a priority.
c. Development, when feasible, should be designed and located to preclude the need for shoreline stabilization, flood control measures, native vegetation removal, or other shoreline modifications.
d. Public access and public recreation objectives should be implemented whenever feasible and significant ecological impacts can be mitigated.
e. Water-oriented uses should be given priority over nonwater-oriented uses. For shoreline areas adjacent to commercially navigable waters, water-dependent uses should be given highest priority.
f. Commercial and industrial uses, other than limited commercial activities conducted accessory to a public park, should be prohibited.

Policy SMP-2.3: Designate properties as Residential - L to accommodate low-density residential development.

This type of designation would be appropriate for single-family residential uses from one to nine dwelling units per acre for detached residential structures and one to seven dwelling units per acre for attached residential structures. The following management policies should guide development within these areas:

a. Standards for density, setbacks, lot coverage limitations, shoreline setbacks, shoreline stabilization, vegetation conservation, critical area protection, and water quality should mitigate adverse impacts to maintain shoreline ecological functions, taking into account the following:
    1) The environmental limitations and sensitivity of the shoreline area,

2) The level of infrastructure and services available, and
3) Other comprehensive plan considerations.

b. Access, utilities, and public services should be available and adequate to serve existing needs and/or planned future development.
c. Industrial, commercial, multifamily and institutional uses, except for government facilities, should be prohibited.

Policy SMP-2.4: Designate properties as Residential - M/H to accommodate medium and high-density residential development.

This type of designation would be appropriate for detached, attached, or stacked residential uses of up to 15 or more dwelling units per acre. The following management policies should guide development within these areas:

a. Standards for density, setbacks, lot coverage limitations, shoreline setbacks, shoreline stabilization, vegetation conservation, critical area protection, and water quality should mitigate adverse impacts to maintain shoreline ecological functions, taking into account the following:
   1) The environmental limitations and sensitivity of the shoreline area,
   2) The level of infrastructure and services available, and
   3) Other comprehensive plan considerations.
b. Access, utilities, and public services should be available and adequate to serve existing needs and/or planned future development.
c. Visual and physical access should be implemented whenever feasible and adverse ecological impacts can be avoided. Continuous public access along the shoreline should be provided, preserved or enhanced.
d. Industrial uses should be prohibited.
e. Water-dependent recreational uses should be permitted.
f. Limited water-oriented commercial uses which depend on or benefit from a shoreline location should also be permitted.
g. Non water-oriented commercial uses should be prohibited, except for small-scale retail and service uses that provide primarily convenience retail sales and service to the surrounding residential neighborhood should be permitted along portions of the east side of Lake Washington Blvd. NE/Lake Street S.
h. Institutional uses may be permitted in limited locations.

Policy SMP-2.5: Designate properties as Urban Mixed to provide for high-intensity land uses, including residential, commercial, recreational, transportation and mixed-used developments.

This type of designation would be appropriate for areas which include or are planned for retail, office, and/or multifamily uses. The following management policies should guide development within these areas:

a. Manage development so that it enhances and maintains the shorelines for a variety of urban uses, with priority given to water-dependent, water-related and water-enjoyment uses. Nonwater-oriented uses should not be allowed except as part of mixed-use developments, or in limited situations where they do not conflict with or limit opportunities for water-oriented uses or on sites where there is no direct access to the shoreline.

b. Visual and physical access should be implemented whenever feasible and adverse ecological impacts can be avoided. Continuous public access along the shoreline should be provided, preserved or enhanced.
c. Aesthetic objectives should be implemented by means such as sign control regulations, appropriate development siting, screening and architectural standards, and maintenance of natural vegetative buffers.

Policy SMP-2.6: Designate properties as Aquatic to protect, restore, and manage the unique characteristics and resources of the areas waterward of the ordinary high water mark.

This type of designation would be appropriate for lands waterward of the ordinary high-water mark. The following management policies should guide development within these areas:

a. Provisions for the management of the Aquatic environment should be directed towards maintaining and restoring shoreline ecological functions.
b. Shoreline uses and modifications should be designed and managed to prevent degradation of water quality and alteration of natural hydrographic conditions.
c. All developments and uses on navigable waters or their beds should be located and designed to minimize interference with surface navigation, to minimize adverse visual impacts, and to allow for the safe, unobstructed passage of fish and wildlife, particularly those species dependent on migration.
d. New overwater structures for water-dependent uses and public access are permitted, provided they will not preclude attainment of ecological restoration.
e. Public recreational uses of the water should be protected against competing uses that would interfere with these activities.
f. Underwater pipelines and cables should not be permitted unless demonstrated that there is no feasible alternative location based on an analysis of technology and system efficiency, and that the adverse environmental impacts are not significant or can be shown to be less than the impact of upland alternatives.
g. Existing residential uses located over the water and in the Aquatic environment may continue, but should not be enlarged or expanded.

Managing Shoreline Land Uses

Goal SMP-3: Locate, design and manage shoreline uses to prevent and, where possible, restore significant adverse impacts on water quality, fish and wildlife habitats, the environment and other uses.

It is important that shoreline development be regulated to control pollution and prevention of damage to the natural environment. Without proper management, shoreline uses can cause significant damage to the shoreline area through cumulative impacts from shoreline armoring, stormwater runoff, introduction of pollutants, and vegetation modification and removal.

Given existing conditions, there is very little capacity for future development within the shoreline. However, it is anticipated that expansion, redevelopment or alteration to existing development will occur over time. With remodeling or replacement, opportunities exist to improve the shoreline environment. In particular, improvements to nearshore vegetation cover and reductions in impervious surface coverage are two key opportunity areas on private property to restore ecological function along the shoreline. Reduction or modification of shoreline armoring and reduction of overwater cover and in-water structures provide other opportunities.

Policy SMP-3.1 Establish development regulations that avoid, minimize and mitigate impacts to the ecological functions associated with the shoreline zone.

In deciding whether to allow uses and activities in shoreline areas, the potential adverse impacts associated with uses or activities should be considered and avoided, where possible. This can be done by carefully selecting allowed uses, providing policies and standards to prevent or minimize adverse impacts, and carefully reviewing development proposals to prevent or minimize adverse impacts.

Policy SMP-3.2 Provide adequate setbacks and vegetative buffers from the water and ample open space and pervious areas to protect natural features and minimize use conflicts.

The purpose of a setback is to minimize potential impacts of adjacent land uses on a natural feature, such as Lake Washington, and maximize the long-term viability of the natural feature. Setbacks perform a number of significant functions including reducing water temperature; filtering sediments and other contaminants from stormwater; reducing nutrient loads to lakes; stabilizing stream banks with vegetation; providing riparian wildlife habitat; maintaining and protecting fish habitats; forming aquatic food webs; and providing a visually appealing greenbelt and recreational opportunities.

Establishing the width of a setback so it is effective depends on the type and sensitivity of the natural feature and the expected impacts of surrounding land uses. In determining appropriate setbacks in the shoreline jurisdiction, the City should consider shoreline ecological functions as well as aesthetic issues.

Policy SMP-3.3 Require new development or redevelopment to include establishment or preservation of appropriate shoreline vegetation to contribute to the ecological functions of the shoreline area.

Shoreline vegetation plays an important role in maintaining temperature, removing excessive nutrients, attenuating wave energy, removing sediment and stabilizing banks, and providing woody debris and other organic matter along Lake Washington.

The *Final* WRIA 8 *Chinook Salmon Conservation Plan* notes the importance of providing a vegetated riparian/lakeshore buffer and overhanging riparian vegetation to improve the habitat for juvenile Chinook salmon[i]. As a result, when substantial new upland development occurs, the on-site landscaping should be designed to incorporate native plant buffers along the shoreline. Proper plant selection and design should be done to ensure that views are not diminished.

Policy SMP-3.4 Incorporate low-impact development practices, where feasible, to reduce the amount of impervious surface area.

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.

Policy SMP-3.5 Limit parking within the shoreline area.

Facilities providing public parking are permitted within the shoreline area as needed to support adjoining water oriented uses. Private parking facilities should be allowed only as necessary to support an authorized use. All parking facilities, wherever possible, should be located out of the shoreline area.

Policy SMP-3.6 Minimize the aesthetic impacts of parking facilities.

Parking areas should be placed, screened, and buffered to mitigate impacts through use of design techniques, such as location, lidding, landscaping of other similar design features to minimize the aesthetic impacts of parking facilities. Exterior parking areas should be located away the shoreline or attractively landscaped with vegetation that will not obstruct views of the lake from the public right-of-way.

Policy SMP-3.7 Limit outdoor lighting levels in the shoreline to the minimum necessary for safe and effective use.

Artificial lighting can be used for many different purposes along the waterfront, including to aid in nighttime activities that would be impossible or unsafe under normal nighttime conditions, for security, or simply to make a property more attractive at night. At the same time, the shoreline area can be vulnerable to impacts of light and glare, potentially interrupting the opportunity to enjoy the night sky, impacting views and privacy and affecting the fish and wildlife habitat value of the shoreline area. To protect the scenic value, views, and fish and wildlife habitat value of shoreline areas, excessive lighting is discouraged. Shoreline development should use sensitive waterfront lighting to balance the ability to see at night with the desire to preserve the scenic and natural qualities of the shoreline. Parking lot lighting, lighting on structures or signs, and pier and walkway lighting should be designed to minimize excessive glare and light trespass onto neighboring properties and shorelines.

Policy SMP-3.8 Encourage the development of joint-use overwater structures, such as joint use piers, to reduce impacts to the shoreline environment.

The presence of an extensive number of piers has altered the shoreline. The construction of piers can modify the aquatic ecosystem by blocking sunlight and creating large areas of overhead cover. Minimizing the number of new piers by using joint facilities is one technique that can be used to minimize the effect of piers on the shoreline environment.

Policy SMP-3.9 Allow variations to development standards that are compatible with surrounding development to facilitate restoration opportunities along the shoreline.

The City should consider appropriate variations to development standards to maximize the opportunities to restore shoreline functions. For example, reductions in setbacks could be used to facilitate restoration in highly altered areas that currently provide limited function and value for such attributes as large woody debris recruitment, shading, or habitat.

Goal SMP-4: Incorporate a variety of management tools, including improvement of City practices and programs, public acquisition, public involvement and education, incentives, and regulation and enforcement to achieve its goals for the shoreline area.

Because Kirkland's natural resources are located on both public and on private land, a variety of approaches is needed for effective management of the shoreline. Kirkland should ensure that it uses

a mix of public education and involvement, acquisition, program funding, and improvement of City practices on City land, together with regulation and enforcement.

Goal SMP-5: Ensure that private property rights are respected.

A significant portion of Kirkland's shoreline is located in private ownership. Aspects of the Shoreline Master Program, including development regulations, setback requirements, environmental regulations and other similar regulatory provisions may take the form of limitations on the use of private property. In establishing and implementing these types of land use controls, the City should be careful to consider the public and private interests as well as the long term costs and benefits.

Residential

Goal SMP-6: Protect and enhance the character, quality and function of existing residential neighborhoods within the City's shoreline area.

Policy SMP-6.1 Permit structures or other development accessory to residential uses.

Accessory uses such as garages, sheds, accessory dwelling units, and fences are common features normally applicable to residential uses. They should be permitted if located landward of the ordinary high water mark and outside of any critical area or critical area buffer.

Policy SMP-6.2 New overwater residences are not a preferred use and shall not be permitted. Existing non-conforming overwater residential structures should not be enlarged or expanded.

The City contains a number of existing overwater residential structures that were constructed prior to the City's limitation on overwater structures to water dependent uses. These existing structures have created large areas of overhead cover, impacting the aquatic environment. Many of these structures are likely to be remodeled and modernized in the future and these activities should be carefully reviewed to prevent additional adverse impacts and to improve existing conditions, where possible.

Policy SMP-6.3 Manage new subdivisions of land within the shoreline to:

- ***Avoid the creation of new parcels with building sites that would impact wetlands, streams, slopes, frequently flooded areas and their associated buffers.***
- ***Ensure no net loss of ecological functions resulting from the division of land or build-out of the lots;***
- ***Prevent the need for new shoreline stabilization or flood risk measures that would cause significant impacts to other properties or public improvements or a net loss of shoreline ecological functions; and***
- ***Implement the provisions and policies for shoreline designations and the general policy goals of this Program.***
- ***Provide public access along the shoreline.***

Though there is not a great capacity to add new units to the shoreline area through subdivision, if properties are divided they should be designed to ensure no net loss, minimize impacts, and prevent the need for new shoreline stabilization structures.

Policy SMP-6.4 Evaluate new single-family development within areas impacted by critical areas to protect ecological functions and ensure some reasonable economic use for all property within Kirkland's shoreline.

West of and contiguous with the Yarrow Bay wetlands adjacent to the City limits there are a number of properties that were previously platted for residential use but remain vacant, forested, and impacted by critical areas. In addition, a few properties along the Forbes Creek corridor and Juanita Bay may be similarly encumbered. When considering development proposals on these properties, the City should use a process designed to assure that proposed regulatory or administrative actions do not unconstitutionally infringe upon private property rights.

Commercial

Goal SMP-7: Plan for commercial development along the shoreline the will enhance and provide access to the waterfront.

Policy SMP-7.1 Permit water-enjoyment uses within the shoreline area of the Central Business District.

Downtown Kirkland is an active urban waterfront which strongly benefits from its adjacency to Moss Bay. The Downtown area has a strong land use pattern that is defined by its restaurants, art galleries and specialty shops, which are connected within a pedestrian-oriented district. These uses draw substantial numbers of people to the Downtown and can provide opportunities, if appropriately designed and located, for the public to enjoy the physical and aesthetic benefits of the shoreline. For these reasons, water-enjoyment uses, such as restaurants, hotels, civic uses, and retail or other commercial uses should be encouraged within the Downtown provided they are designed to enhance the waterfront setting and pedestrian activity.

Policy SMP-7.2 Manage development in the shoreline area of the Central Business District to enhance the waterfront orientation.

The Central Business District contains extensive public use and views of the waterfront provided by public parks, street ends, public and private marinas, public access piers and shoreline public access trails. Yet, development along the shoreline has historically "turned its back" to Lake Washington, with active areas located opposite the lake and separated from it by large surface parking lots, limiting the ability to fully capitalize on the Downtown waterfront setting. Future growth and redevelopment along the shoreline in the Downtown should continue to reflect the waterfront setting and ensure that development is oriented to the lake. One key opportunity is to develop a large public plaza over the Marina Park parking lot in order to better connect the Downtown to the lake and the park.

Policy SMP-7.3 Maximize public access, use, and visual access to the lake within Carillon Point and the surrounding commercial area.

Carillon Point is a vibrant mixed use development that contains office space, restaurants, and retail space in addition to a hotel, day spa and marina facilities. The site has been designed to provide both visual and physical access to the shoreline, including expansive view corridors which provide a visual linkage from Lake Washington Blvd NE to the lake, as well as an internal pedestrian walkway system and outdoor plazas. The Central Plaza of Carillon Point is frequently used for public gatherings and events. The Plaza is encompassed by a promenade and Carillon Point's commercial

uses. If new development or redevelopment occurs on this site, existing amenities related to public access, use and visual access to the lake should be preserved.

Immediately south of Carillon Point, the Yarrow Bay Marina and new office development provides opportunities for public use and enjoyment of the waterfront, including boat rental facilities, a public waterfront trail and waterfront access area with seating and interpretative signs. In addition, public views across the site have been preserved in an expansive view corridor.

If new development or redevelopment occurs in the commercial area, the strong public access to and along the water's edge, waterfront public use areas, water-dependent uses such as the marinas, and views from Lake Washington Blvd should be preserved to the greatest extent feasible.

Policy SMP-7.4 Enhance the physical and visual linkages to Lake Washington in the Juanita Business District.

The shoreline area of the Juanita Business District presently contains a mix of retail, office and residential uses. Visual linkages to the lake in the Juanita Business District are limited, with existing development blocking most of the shoreline. Waterfront access trails are missing in several key locations, limiting access between Juanita Bay Park and Juanita Beach Park, which border the Business District on the north and south.

The ability to enhance physical and visual access to the Lake is challenging in this area. Several of the shoreline properties are developed with residential condominiums, which are unlikely to redevelop. Some of the commercial properties are significantly encumbered by wetlands that are associated with Lake Washington. Should properties redevelop in this area, public access should be required as a part of redevelopment proposals, where feasible.

Despite these challenges, future redevelopment along the shoreline in the Juanita Business District should emphasize Juanita Bay as a key aspect of the district's identity, highlighting recreational opportunities available at Juanita Beach Park and providing better visual and pedestrian connections to both Juanita Bay and Juanita Beach Park and Lake Washington.

Policy SMP-7.5 Allow limited commercial uses in the area located between the Central Business District and Planned Area 15 if public access to and use of the shoreline is enhanced.

Commercial uses which are open to and will attract the general public to the shoreline, such as restaurants, are appropriate within the urban area located between Downtown Kirkland and Carillon Point. These uses will enhance the opportunity for public access to this segment of the shoreline, and will compliment neighboring shoreline parks and, as a result, should be encouraged. To assure that these uses enhance the opportunity for the public to take advantage of the shoreline, these uses should include amenities where the public can view and enjoy the shoreline. These uses should also be limited and designed to assure that they do not adversely impact the natural environment and interfere with nearby uses.

Policy SMP-7.6 Allow limited commercial uses, such as a hotel/motel and limited marina use, within Planned Area 3B.

Planned Area 3B is fully developed with multifamily residential uses and contains a private marina facility. The site is also used for overnight lodging. The site has also been improved with a public

trail along its entire perimeter, providing public access to Lake Washington and visual access to the Yarrow Bay wetlands.

Policy SMP-7.7 Non-water oriented commercial development may be allowed if the site is physically separated from the shoreline by another property or right-of-way.

There are several commercial properties which do not have direct frontage on Lake Washington, either because they are separated by right-of-way (Lake Washington Blvd NE, Lake Street, and 98th Avenue NE) or by another property. These properties should be allowed a greater flexibility of uses, given the physical separation from the waterfront area.

Policy SMP-7.8 Prohibit overwater commercial development other than piers and similar features that support water dependent uses.

Overwater structures can adversely impact the shoreline environment and should be avoided, except where necessary to support water dependent uses, and then only when appropriately mitigated.

Boating Facilities

Goal SMP-8: Manage boating facilities to avoid or minimize adverse impacts.

Policy SMP-8.1: 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 Homeport Marina. 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-8.2: 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-9: 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. 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. The City should work cooperatively with state agencies, marina operators and boat owners to continue to minimize the impacts of boating on the aquatic environment.

Managing Shoreline Modifications

Goal SMP-10: Manage shoreline modifications to avoid, minimize, or mitigate significant adverse impacts.

Significant adverse impacts caused from shoreline modifications should be avoided, minimized, or mitigated 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-10.1: 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-10.2: 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.

Land Surface Modification

Policy SMP-10.3: Limit Land Surface Modification activities in the shoreline area.

Land Surface Modification 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 Land Surface Modification 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-10.4: Design and locate new shoreline development to avoid the need for dredging.

Policy SMP-10.5: 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-10.6: Limit use of hard structural stabilization measures to reduce shoreline damage.

Lake Washington is an important migration and rearing area for juvenile Chinook salmon. The juvenile Chinook salmon using the Lake depend on the following habitat characteristics:

- Shoreline areas with shallow depths (>1m)
- Gentle slope
- Fine substrates such as sand and gravel
- Overhanging vegetation/small woody debris
- Small creeks with a shallow, low-gradient at the creek mouth [ii]

Remaining areas with these characteristics should be protected and maintained, while developed areas along Kirkland's shoreline should be enhanced with these habitat features, where feasible.

Bulkheads and other forms of hard stabilization measures impact the suitability of the shoreline for juvenile Chinook salmon habitat, in particular the slope, depth and substrate materials of 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.

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. It is the intent of this policy to require that shoreline stabilization be accomplished through the use of nonstructural measures, such as building setbacks or on-site drainage improvements, or soft structural measures, such as bioengineering or beach enhancement unless these methods are determined to be infeasible, based on a scientific or geotechnical analysis. In those circumstances where alternatives are demonstrated to not be feasible, the shoreline stabilization measures used should be located, designed, and maintained in a manner that minimizes adverse effects on shoreline ecology.

Policy SMP-10.7: 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 be allowed 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.

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-10.8: 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-10.9: 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.

The WRIA 8 Conservation Strategy notes the importance of reducing bank hardening, restoring overhanging riparian vegetation, replacing bulkheads and riprap with sandy beaches with gentle slopes to improve the habitat for juvenile Chinook salmon[iii]. In order to facilitate the use of alternatives to shoreline stabilization composed of concrete, riprap, or other hard structural or engineered materials, the City should identify appropriate regulatory flexibility or offer incentives to shoreline property owners to voluntarily remove bulkheads and to re-vegetate the shoreline.

Policy SMP-10.11: Expand outreach to lakeside property owners about shoreline landscape design, maintenance, and armoring alternatives.

The City should evaluate different outreach and education actions to foster stewardship of shoreline property owners and the general public, including, but not limited to the following:

- Distribute educational materials on a range of topics, including salmon habitat needs, household and landscape best management practices, the value of large woody debris, the value of tree cover, and stormwater issues.
- Establish a contact list of shoreline property owners to facilitate educational outreach.
- Offer shoreline property owners workshops on "salmon friendly" design

- Use restoration projects sites for demonstration purposes and provide interpretation at restoration sites, including signage, tours, and other methods.
- Provide information about opportunities for involvement in community stewardship projects
- Offer education to landscape designers/contractors on riparian design.
- Create local informational TV spots that could run on the City's television channel.
- Focus environmental/science curricula on local watershed issues.

Public outreach efforts should focus on the opportunity to improve existing habitat, but also to the potential benefits that alternative shoreline stabilization can offer, including:

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

In-stream Structures

Policy SMP-10.12: 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-10.13: 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 Homeport Marina 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.

Piers

Goal SMP-11: Minimize impacts to the natural environment and neighboring uses from new or renovated piers .

Policy SMP-11.1: Design and locate private piers so that they do not interfere with shoreline recreational uses, navigation, or the public's safe use of the Lake and shoreline.

Private piers 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-11.2: Design and construct new or expanded piers 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[iv]. 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[v]. 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[vi]. 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[vii].

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-11.3: Minimize aesthetic impacts of piers and their accessory components.

To minimize aesthetic impacts, ensure that lighting does not spillover onto the lake water surface, and minimize glare, piers should make use of non-reflective materials, minimize lighting facilities to that necessary to find the pier at night and focus illumination downward and away from the lake.

Shoreline Habitat and Natural Systems Enhancement Projects

Goal SMP-12: Restore shoreline areas that have been degraded or diminished in ecological value and function as a result of past activities.

Policy SMP-12.1: 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 affected tribes, capital improvement projects, and incentives for private development to restore and enhance fish and wildlife habitat.

2. Shoreline Environment

Goal SMP-13: 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-13.1: Conserve and protect critical areas within the shoreline area from loss or degradation.

Environmentally critical areas within the shoreline area are important contributors to Kirkland's shoreline environment and high quality of life. Some natural features are critical to protect in order to preserve the important ecological functions they provide. The City also regulates and restricts development within critical areas because of the hazards they present to public health and safety. This policy is intended to ensure that the ecological functions and ecosystem-wide processes of these natural systems are maintained and improved.

Policy SMP-13.2: 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-13.3: 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-13.4: Protect and manage shoreline-associated wetlands.

Wetlands are areas that, under normal conditions, are inundated or saturated by surface or groundwater at a frequency and duration to 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-13.5: 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, and 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-14: Limit new development in floodplains.

Policy SMP-14.1: 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 though U-4.11.

Goal SMP-15: 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-15.1: 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[viii].

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-15.2: 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-15.3: Require environmental cleanup of previously contaminated shorelines.

Some of Kirkland's shorelines previously supported industrial or commercial practices that may have resulted in environmental contamination. If not addressed, environmental contamination can continue to impact the environmental quality of Kirkland's shorelines. The potential liability associated with contamination can complicate business development, property transactions or expansion on the property as well. Sites which are suspected of having past activities that may have resulted in environmental contamination should be evaluated and developers should comply with state and federal regulations and programs addressing environmental contamination, including the Model Toxics Control Act, as well as the The Department of Ecology's Voluntary Cleanup Program.

Policy SMP-15.4: 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 contaminates 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. Other effects include impaired reproduction, skeletal deformities, decreased swimming ability, and toxicity to salmon food sources.

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 piers 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-16: Protect, conserve and establish vegetation along the shoreline edge.

Policy SMP-16.1: Plan and design new development or substantial reconstruction to retain or provide shoreline vegetation.

Vegetation within the shoreline environment is essential for fish and wildlife habitat, providing habitat complexity and, in the case of riparian vegetation, supporting the insects that provide an important food source for salmon[ix]. Shoreline vegetation is also important in helping to camouflage young salmon as they hide amidst root wads, beneath overhanging vegetation, or within branches that have fallen into the water[x]. 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, including native trees, shrubs and groundcover, along the shoreline edge to improve shoreline vegetation and riparian structure and the ecological functions that these shoreline conditions affect.

Policy SMP-16.2: Minimize tree clearing and thinning activities along the shoreline and require mitigation for trees that are removed.

As a result of the functions that shoreline vegetation provides, it is important that vegetation conservation measures be implemented along the shoreline. New trees or other appropriate restoration should be installed to replace functions of trees that are removed, either through development or as part of on-going management of property. Tree removal or topping for the purposes of creating views should be prohibited. Limited thinning of trees to enhance views or for maintenance for health and vigor of the tree may be appropriate in certain circumstances, provided that this activity does not adversely impact tree health, ecological functions, and/or slope stability.

Applicants are encouraged to make trees that are removed available for City shoreline restoration projects.

Policy SMP-16.3: Provide outreach and education materials to lakeside property owners about the importance and role of shoreline vegetation.

The City should offer shoreline property owners workshops or other materials to address the value of riparian vegetation, invasive species, erosion control, the value of large woody debris for salmon habitat, and natural yard care practices.

Public outreach efforts should focus on the opportunity to improve existing habitat and on the ability to use shoreline vegetation to:

- Create an attractive landscape that offers variety and seasonal color;
- Reduce maintenance;
- Provide privacy without sacrificing views;
- Increase property values,
- Improved water quality; and
- Reduce use by geese and other waterfowl.

Goal SMP-17: 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 Kirkland'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) biological controls and herbicides.

In response to the problem of invasive, non-native species entering Washington waters, laws have now been enacted requiring that all boats leaving a Washington boat launch be free of aquatic weeds and other debris, or otherwise risk being ticketed.

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

3. 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-18: 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-18.1: 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 many extraordinary waterfront parks, we should never lose sight of capturing opportunities when 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-18.2: 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-18.3: 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 four street ends for the public's use and enjoyment. They are located along Lake Washington Boulevard at Street End Park, Settler's Landing, 5th Avenue South and Second Street West. The City has also plans in place for development of the Lake Avenue West Street End Park.

Policy SMP-18.4: Explore opportunities for use and enjoyment of unopened street ends.

Presently, two waterfront street ends, 4th Street West and 5th Street West, remain unopened for public use. The ability to use these street ends for public use is presently impacted by a lack of public access from the land to the street end. If the City decides to open the street end for public use, it should work with the community and neighboring residents to prepare and adopt a development and use plan.

Policy SMP-18.5 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-19: Protect and restore publicly owned natural resource areas located within the shoreline area.

Policy SMP-19.1: 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 salmonids. 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.

In order to protect wildlife habitat within Juanita and Yarrow Bay, it may be necessary to manage watercraft access, such as establishing restricted areas or limiting vessel speeds or other operations.

Policy SMP-19.2: 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-20: 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-20.1: 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-20.2: 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 maintained 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-20.3: 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. In conjunction with this project, the Parks Department plans to install vegetation along the shoreline edge.

Policy SMP-20.4 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-20.5: Control non-native species which impact Kirkland's shoreline.

The City Parks Department periodically undertakes programs to control non-native species along the shoreline. For instance, the Parks Department has planned improvements within Juanita Beach Park to reduce waterfowl impacts at this park. Programs aimed at controlling impacts associated with non-native species use of the waterfront should continue. Any programs initiated should be designed to minimize any potential impacts to native species.

Policy SMP-20.6: 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-20.7: 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-21: 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.

4. Shoreline Transportation

Note: The Transportation Chapter of the Comprehensive Plan contains a set of goals policies relating to vehicular, bicycle and pedestrian circulation.

Streets

Goal SMP-22: Provide for safe and efficient movement of vehicles, bicycles and pedestrians within the shoreline area, while recognizing and enhancing the unique, fragile and scenic character of the shoreline area.

Policy SMP-22.1: Maintain a roadway network which will efficiently and safely provide for vehicular circulation within the shoreline area.

The existing vehicular circulation system in Kirkland's shoreline area is largely complete, with several major roadways located within the shoreline jurisdiction, including portions of Lake Washington Boulevard NE/Lake Street South and Market Street/98th Avenue NE, as well as neighborhood access streets and driveways. The City should undertake improvements, as necessary, to address needed safety, capacity or efficiency improvements within the shoreline area.

Policy SMP-22.2: Enhance Lake Washington Blvd NE and Lake Street S to improve their function for scenic views, and recreational activities, as well as for local access and as a commute route.

Lake Washington Boulevard is designated as a major arterial and provides the major north-south route through Kirkland south of the Central Business District and west of I-405. The Boulevard also provides local access for a substantial number of residential developments and businesses. The Boulevard functions as a major pedestrian and bicycle corridor, serving waterfront park users, joggers, strollers, and downtown shoppers. The City should continue to manage this network to meet the needs of the broad variety of users, while maintaining the scenic quality of this roadway network.

Traffic along Lake Washington Boulevard and Lake Street S has increased over time, restricting local access to and from these streets and creating noise, safety problems, and conflicts for pedestrians, bicyclists, and adjacent residents. Solutions to these problems should be sought which recognize that these streets have a scenic and recreational function which is as important as its function as a commute route. Improvements to these streets should help accommodate their broader amenity function in such a manner that the safety of all the diverse users is enhanced. Accordingly, the following improvements would be desirable:

- Widening of sidewalks or development of landscape strips or landscaped median islands to separate traffic and provide pedestrian safety.
- Installation of pedestrian crossings at intersections and adjacent to waterfront parks where safety considerations allow such installation.
- Continuation and widening of bicycle lanes.
- Limitations on the number of new curb cuts and consolidation of driveways, where possible.
- Restrictions on turning movements by installation of c-curbs or other techniques, where needed.

Policy SMP-22.3: Design transportation improvement projects within the shoreline to avoid, minimize and mitigate environmental impacts.

Transportation facilities should be designed to have the least possible effect on shoreline features. When planning transportation facilities, both public and private, the environmental impacts of the facility need to be evaluated and minimized, and appropriate mitigation included. Environmental impacts of transportation facilities and services can include wetland and stream encroachment, vegetation removal, air quality deterioration, noise pollution, and landform changes.

Policy SMP-22.4: Design transportation improvement projects to maximize opportunities to improve existing shoreline ecological functions.

Transportation improvement projects located within the shoreline should include provisions for shoreline vegetation restoration, fish and wildlife habitat enhancement, and low impact development techniques, where practicable and feasible.

Policy SMP-22.5: Design transportation improvement projects to enhance scenic amenities and reflect neighborhood character.

Roadways should be designed to maximize views of the lake, where feasible. Shoreline roadways should also be designed with pedestrian improvements, such as widened sidewalks, and amenities such as benches or view stations and public sign systems that identify significant features along the shoreline such as historic or scenic features, parks and public access easements. In addition, appropriate landscaping and street tree selection should be used for rights-of-way with public views to maintain the views as the vegetation matures.

Policy SMP-22.6: Incorporate best management practices into road and utility maintenance activities.

Road maintenance activities are necessary to clean out sediment and debris from drainage systems, which provides benefits to salmon habitat by preventing pollutants and sediments entrapped in stormwater facilities from entering surface or groundwater. The activities can also have adverse water quality impacts, directly effecting aquatic species. In order to minimize any potential adverse impacts, the City road maintenance crews should continue to use best management practices, such as those incorporated into the Regional Road Maintenance ESA Program Guidelines, to guide their maintenance activities. The Regional Road Maintenance ESA Program Guidelines (Regional Program) describes physical, structural, and managerial best management practices designed so that when they are used, singularly or in combination, they reduce road maintenance activities' impacts on water and habitat.

Pedestrian/Bicycle Circulation

Goal SMP-23: Provide the maximum reasonable opportunity for the public to view and enjoy the amenities of the shoreline area.

Policy SMP-23.1: Provide a public access system that is both physical and visual, utilizing both private and public lands, consistent with the natural character, private rights and public safety.

Public access includes the ability of the general public to reach, touch, and enjoy the water's edge, to travel on the waters of the state, and to view the water and the shoreline from adjacent locations. Public access is a key component of the Shoreline Management Act and is one of the preferred uses in the shoreline area and should be encouraged, both in private and public developments and public acquisition.

Developing public access to the shoreline area has long been a priority of the City. Except for single-family residential areas or environmentally sensitive areas, the City has sought development to provide public access to the water's edge and along the shoreline as much as possible. Based on this approach, the City has made significant progress towards establishing continuous pedestrian access along the water's edge along portions of the shoreline.

In addition to these public access easements, the City has, over time, acquired many shoreline properties and designated these properties for park/open space and developed access trails.

Policy SMP-23.2: Enhance and maintain pedestrian and bicycle infrastructure within the shoreline area.

Pedestrian and bicycle movement on and off roadways in the shoreline area should be encouraged wherever feasible. Access points to and along the shoreline as well as shoreline recreational facilities should be linked by pedestrian and bicycle pathways developed as close to the water's edge as reasonable.

The City should work to infill key gaps in existing shoreline access by connect existing pathways and linking existing access points to and along the shoreline, where feasible. In addition, the City should work to complete bicycle improvements by infilling gaps in existing routes and making any necessary safety improvements.

The following identifies some of the key opportunities available to improve public access. Some of the sites are located within the shoreline area, while others located outside the shoreline jurisdiction are represented since they provide an important connection to the shoreline. These connections should be sought, either through a required condition of development, or, where appropriate, through use of public funds to acquire and develop public pedestrian walkways:

- Connecting Juanita Bay Park and Juanita Beach Park. The city should seek to complete a public pedestrian walkway along the shoreline from Juanita Bay Park to Juanita Beach Park. Because of the presence of wetlands, the walkway should be designed so as to cause the least impact. The City should also pursue improvements to connect the existing bicycle lanes along Market Street to those on Juanita Drive.

- Juanita Bay Park - provide an additional connection from the causeway to the lake if protection of the natural features can be reasonably ensured.

- Forbes Valley Pedestrian Facility – provide a sidewalk adjacent to Forbes Creek Drive to connect Crestwoods Park and Juanita Bay Park.

- 9th Street West – between Market Street and 20th Street across Juanita Bay Park should be improved for both pedestrians and bicycles.

- 10th Street West - connecting Kiwanis Park and Juanita Bay Park.

- Waverly Way – should be improved with sidewalk on the west side of the street. View stations at the unopened street ends at 4th Street West and 5th Street West along Waverly Way should also be considered.

- Lake Avenue West Street End Park – complete a pedestrian pathway across Heritage Park from Waverly Way to the Street End Park.

- In downtown south of Marina Park. In this area, buildings and parking lots interrupt the shoreline trail system that has been established on adjoining properties. Whenever possible, this shoreline trail system should be completed, in order to build upon this community amenity

and open space.

- Lake Washington Blvd NE – gaps in the existing public waterfront trail with connections to the Boulevard should be a required element of all shoreline developments other than single-family homes. Public use areas also should be encouraged adjacent to the westerly margin of Lake Washington Boulevard. The Boulevard is now a popular path for pedestrians, joggers, and bicyclists, and the continued improvement of this corridor as a promenade with wide sidewalks and public use areas, such as benches or view stations, pedestrian scale lighting, and public sign systems, would be a significant public asset.

The City of Kirkland Nonmotorized Transportation Plan (NTP), together with any additional routes identified in Neighborhood Plans, maps most of the bicycle and pedestrian facilities planned for future development. The Capital Improvement budget process prioritizes when routes will receive funding for improvements.

Policy SMP-23.3: Require public access to and along the water's edge and waterfront public use areas with new development or substantial redevelopment, except in limited circumstances.

In general, new development or substantial redevelopment should be required to install a public trail along the entire length of the waterfront with connections to Lake Washington Boulevard at or near each end. Areas which are available for other public waterfront activities also should be strongly encouraged. A public trail should not be required associated with the construction of an individual new single-family residence or where it is demonstrated to be infeasible due to impact to the shoreline environment or due to constitutional limitations.

Policy SMP-23.4: Minimize impacts on adjacent uses and the natural environment through the appropriate design of public access. Public access should also be designed to provide for public safety.

Developments required to provide public pedestrian access should be designed to minimize the impacts of the public access to adjoining properties, where possible, such as visually or physically separating the public pedestrian access from adjacent private spaces, or by placing an intervening structural or landscape buffer. The city may permit the establishment of reasonable limitations on the time, extent, and nature of public access in order to protect the natural environment and the rights of others.

In addition, public access trails should be located and designed to assure that users are visible and that pathways are well illuminated, if open in hours of darkness.

Public access through sensitive areas should be designed to avoid or minimize impacts to sensitive areas such as wetlands or streams or their protective buffers.

Policy SMP-23.5: Cooperate on interagency and public-private partnerships to preserve and enhance water trails along Kirkland's shoreline where feasible.

The Lakes-To-Locks Water Trail is a day use trail with over 100 public places in a series of lake and rivers extending from Issaquah to Elliot Bay to launch and land small non-motorized boats. The Lakes-to-Locks Water Trail contains nearly a dozen launch, landing and rest sites along Kirkland's

Shoreline. The City should continue to participate in this type of partnership to increase access and use of the City's shoreline.

Air and Water Access

Goal SMP-24: Provide opportunities for transportation alternatives, such as access by land or water.

Policy SMP-24.1: Explore opportunities to establish passenger-only ferry service along Kirkland's shorelines.

As the roads and highways in the region have increasingly reached full capacity, there has been renewed interest in re-establishing waterborne transportation in Lake Washington, particularly passenger-only ferries. King County has established a county-wide Ferry District, which plans to consider the delivery of passenger-only ferry services serving destinations in King County, including a route between Kirkland and Seattle. The City should participate in this effort and ensure that issues affecting the businesses and residents of Kirkland, such as location, traffic and parking, and the shoreline environment, are adequately addressed.

Policy SMP-24.2: Allow limited floatplane moorage in commercial shoreline areas.

Floatplanes can be used for both commercial and recreational purposes. Commercial operations can include a variety of activities including air charter and scheduled air operations. These activities are water-dependent and should be permitted within high intensity shoreline commercial districts in limited circumstances, if evaluated through a public review process and where it has been determined that the facility or operation has been designed to minimize impacts, including impacts on native fish and wildlife and their habitat, as well as impacts to shoreline views and community character. Further, the operation of these facilities should ensure protection of adjacent development and uses as well as human safety, including limiting noise and other impacts on residential uses. Floatplane facilities should be located so they do not interfere with public swimming beaches or boating corridors. The floatplane operations should comply with state and federal requirements.

Policy SMP-24.3: Limit helicopter landing facilities in the shoreline area.

Helicopter operations are not water-dependent and can include significant environmental issues such as noise pollution. As a result, helicopter landing facilities should not be permitted in the shoreline area, except as needed for emergency medical airlift.

5. Shoreline Utilities

Goal SMP-25: Manage the provision of public and private utilities within the shoreline area to provide for safe and healthy water and sanitary sewer service, while protecting and enhancing the water quality and habitat value of the shoreline.

Policy SMP-25.1: Locate new utilities and related appurtenances outside of the shoreline area, unless this location is reasonably necessary for the efficient operation of the utility.

Utilities are services that produce and carry electric power, gas, sewage, water, communications and oil. The provision of these services and the appurtenances associated with them can create

substantial impacts on the landscape and the functioning of the natural ecosystem. To minimize potential impacts, these facilities should be located outside of the shoreline area, and in particular, outside of the aquatic environment, where feasible. If necessary within the shoreline, utility facilities should be located and designed in a manner that preserves the natural landscape and shoreline ecology, and minimizes conflicts with present and planned land uses.

Alternative energy use such as solar- and wind-based energy systems should be encouraged within the shoreline environment, provided that any potential adverse impacts are minimized.

Policy SMP-25.2: Minimize impacts from the location, design, and maintenance of utility facilities located within the shoreline.

Careful planning and design is required to address impacts such as soil disturbance and intrusion on the visual setting. Potential adverse impacts should be minimized through the location, design and construction techniques used. For instance, where utility systems cross shoreline areas, clearing for installation or maintenance should be kept to a minimum width necessary to minimize impacts to trees and vegetation. Utilities should also be properly installed and maintained to protect the shoreline environment and water from contamination. The City should require location of utility lines prior to construction to avoid damaging the lines, incurring biological impacts, during construction.

Upon completion of utility installation or maintenance projects on shorelines, the shoreline area should be restored to pre-project configuration, replanted with native species and provided with maintenance care until the newly planted vegetation is established.

Even with revegetation, planting restrictions may limit the species that are replanted. As a result, existing functions may not be able to be fully restored. For this reason, utility corridors should be located outside of the shoreline jurisdiction, where possible.

Policy SMP-25.3: Encourage consolidation of utilities within existing rights-of-way or corridors.

In order to minimize the extent of shoreline modified by improvements, utility facilities should utilize existing transportation and utility sites, rights-of-way and corridors whenever practicable, rather than creating new corridors in the shoreline environment. Joint use of rights-of-way and corridors in shoreline areas should be encouraged.

Policy SMP-25.4: Locate utility facilities and corridors to protect scenic views and prevent impacts to the aesthetic qualities of the shoreline.

Utility lines and facilities, when they must be placed in a shoreline area, should be located so that they do not obstruct or destroy scenic views. Whenever feasible, these facilities should be placed underground, or designed to do minimal damage to the aesthetic qualities of the shoreline area.

6. Shoreline Design

Goal SMP-26: Maintain and enhance Kirkland's orientation to and linkages with Lake Washington.

Policy SMP-26.1: Preserve public view corridors along the City's street networks and public parks.

The street and waterfront park system provides a large number of local and regional views. The view corridors that lie within the public domain are valuable for the beauty, sense of orientation, and identity that they provide to Kirkland. The views also maintain the visual connection and perception of public accessibility to the lake. As a result, these views should be kept free of obstruction.

Policy SMP-26.2: Locate and design new development to provide view corridors of Lake Washington from Lake Washington Boulevard and Lake Street South south of the Central Business District.

Kirkland's history, identity and character are strongly associated with its proximity and orientation to Lake Washington. Lake Washington Boulevard and Lake Street are the streets from which most residents and visitors view the lake, providing a lasting visual impression and helping to establish the visual identity of the City. As a result, visual access to Lake Washington from Lake Washington Boulevard and Lake Street should be an integral element in the design of development along the west side of these streets. Both public and private development in these areas should be designed to include an open area that provides an unobstructed view of the water beyond. View corridors should be situated on the property to provide the widest view of the lake. Existing structures in some areas block views of the Lake. With renovation of existing structures, opening up of views should be encouraged.

The Central Business District (CBD) is a community activity area focused around its historic waterfront with extensive public use and views of the waterfront provided by public parks, street ends, public and private marinas, public access piers and shoreline public access trails. Because of this configuration and the desire to provide continuous pedestrian-oriented retail activity at the street, view corridors across private properties in the CBD should not be required.

Policy SMP-26.3: Explore opportunities to provide visual and pedestrian access from Central Way and Lake Street with redevelopment efforts.

The City should explore opportunities to participate in a public/private partnership to redevelop the commercial block between Kirkland Avenue and Central Way with visual and pedestrian access from a series of at-grade pedestrian connections from Central Way and Lake Street which would open to a large public plaza constructed west of the buildings to enhance the Downtown's lake front setting

Policy SMP-26.4: Design water-enjoyment uses to provide significant opportunities for public enjoyment of the aesthetic, natural and recreational amenities of the shoreline.

Water-enjoyment uses, such as restaurants, hotels or other mixed-use commercial projects, bring substantial numbers of people to the shoreline and provide opportunities for the public to enjoy shoreline amenities. These uses are encouraged in urban mixed areas, such as Kirkland's downtown area, and should be designed to respond to their shoreline location through a variety of measures, including the following:

- Architectural or site design elements that connect visually or physically to the lake.
- Orientation of views and windows to the lake
- Orientation of entries, sight lines, buildings, pathways and other design elements to the shoreline.

- Incorporating interpretative signs,
- Locating service areas away from the shoreline.
- Incorporating substantial landscaping and open space.
- Providing outdoor seating or gathering places along the shoreline.
- Designing signs to be compatible with the aesthetic quality of the shoreline.

Enhancement of views should not take precedence over vegetation conservation and, as such, removal of vegetation necessary for shoreline function should not be allowed in cases where views are partially impaired by existing vegetation. New landscaping should be appropriately designed to preserve designated view corridors.

7. Shoreline Archaeological, Historic and Cultural Resources

Goal SMP-27: Identify, protect, preserve, and restore important archeological, historical, and cultural sites located in the shoreline area.

Kirkland's shoreline area has a long history, dating back to use of Juanita Bay by Native Americans and use of Lake Washington for fish harvest by the Muckleshoot Tribe. The shoreline area also contains many historic structures, including residential structures and vessels moored along the City's shoreline.

Policy SMP-27.1: Prevent destruction or damage to historic, cultural, scientific or educational resources located along the shoreline.

Steps should be taken to identify, recover and preserve any artifacts or other resources that may exist along the City's shoreline. The City should work with property owners and tribal, state, and federal governments as appropriate to assess sites and make arrangements to preserve historical, cultural and archaeological values in advance of planned development. Proposed development should be designed and operated to be compatible with continued protection of the historic, cultural or archaeological resource. If development occurs in areas documented to contain archaeological resources, a site inspection or evaluation by a professional archaeologist in coordination with affected tribes should be required prior to issuance of permits. If archaeological resources are uncovered during excavation, work on the site should immediately stop and notification to the City, the state Office of Archaeology and Historic Preservation, and affected tribes should be made to determine the appropriate course of action.

Policy SMP-27.2: Encourage educational projects and programs that foster an appreciation of the importance of shoreline history.

Site development plans should incorporate measures for historic, cultural and archaeological resource preservation, restoration and education with open space or recreation areas whenever possible. Wherever feasible, shoreline development should recognize the former use of much of the city's shoreline area for such uses as boat yards, ferry landings and industrial sites.

8. Restoration Planning

Goal SMP 28: Implement the projects, programs and plans established within the Restoration Plan as funding and staffing resources permit.

Restoration planning is an important component of the environmental protection policy of the Shoreline Management Act. Continued improvement of shoreline ecological functions requires a comprehensive watershed approach that combines upland and shoreline projects and programs. The City of Kirkland has adopted a Restoration Plan for the City's shorelines that provides the framework for the community's efforts to restore degraded portions of the City's shorelines.

The Restoration Plan provides multiple programmatic and site-specific opportunities for restoring the City's shoreline areas that outline opportunities to achieve a net benefit in ecological conditions. Ecological benefits that would be realized by implementing this plan include: increased use of soft approaches for shoreline stability and corresponding reductions in low-functioning hard shorelines; increased organic inputs, habitat, and filtration from shoreline riparian vegetation; improved wildlife corridor connectivity; improved habitat for salmon; displacement of noxious vegetation; and eventual introduction of woody debris.

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[i] WRIA 8 Steering Committee. 2005. Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan. July 2005.

[ii] Tabor, R.A. and R.M. Piaskowski. 2002. Nearshore habitat use by juvenile chinook salmon in lentic systems of the Lake Washington Basin, Annual Report, 2001. U.S. Fish and Wildlife Service, Lacey, WA.
Tabor, R.A., J.A. Schuerer, H.A. Gearns, and E.P. Bixler. 2004b. Nearshore habitat use by juvenile chinook salmon in lentic systems of the Lake Washington basin, annual report, 2002. U.S. Fish and Wildlife Service, Western Washington Fish and Wildlife Office, Lacey, Washington.
Tabor, R.A., H.A. Gearns, C.M. McCoy III, and S. Camacho. 2006. Nearshore habitat use by juvenile chinook salmon in lentic systems of the Lake Washington Basin, Annual Report, 2003 and 2004. U.S. Fish and Wildlife Service, Lacey, WA.

[iii] WRIA 8 Steering Committee. 2005. Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan. July 2005.

[iv] Fresh, K.L. and G. Lucchetti. 2000. Protecting and restoring the habitats of anadromous salmonids in the Lake Washington Watershed, an urbanizing ecosystem. Pages 525-544 in E.E. Knudsen, C.R. Steward, D.D. MacDonald, J.E. Williams, and D.W. Reiser (editors). Sustainable Fisheries Management: Pacific salmon. CRC Press LLC, Boca Raton.

[v] Kahler T., M. Grassley, and D. Beauchamp. 2000. A Summary of the effects of bulkheads, piers, and other artificial structures and shorezone development on ESA-listed salmonids in lakes. Final Report. Prepared for City of Bellevue by The Watershed Company. 74 pp.
Kerwin, J. 2001. Salmon and steelhead habitat limiting factors report for the Cedar-Sammamish Basin (Water Resource Inventory Area 8). Washington Conservation Commission. Olympia, WA.
Tabor, R.A., H.A. Gearns, C.M. McCoy III, and S. Camacho. 2006. Nearshore habitat use by juvenile chinook salmon in lentic systems of the Lake Washington Basin, Annual Report, 2003 and 2004. U.S. Fish and Wildlife Service, Lacey, WA.

[vi] Tabor, R.A. and R.M. Piaskowski. 2002. Nearshore habitat use by juvenile chinook salmon in lentic systems of the Lake Washington Basin, Annual Report, 2001. U.S. Fish and Wildlife Service, Lacey, WA.
Tabor, R.A., J.A. Schuerer, H.A. Gearns, and E.P. Bixler. 2004b. Nearshore habitat use by juvenile chinook salmon in lentic systems of the Lake Washington basin, annual report, 2002. U.S. Fish and Wildlife Service, Western Washington Fish and Wildlife Office, Lacey, Washington.
Tabor, R.A., H.A. Gearns, C.M. McCoy III, and S. Camacho. 2006. Nearshore habitat use by juvenile chinook salmon in lentic systems of the Lake Washington Basin, Annual Report,

2003 and 2004. U.S. Fish and Wildlife Service, Lacey, WA.

[vii] Gayaldo, P.F. and K. Nelson. 2006. Preliminary results of light transmission under residential piers in Lake Washington, King County, Washington: A comparison between prisms and grating. Lake and Reserv. Manage. 22(3):245-249.

[ix] Christensen, D.L., B.R. Herwig, D.E. Schindler, and S.R. Carpenter. 1996. Impacts of lakeshore residential development on coarse woody debris in north temperate lakes. Ecological Applications 6:1143-1149.

[x] Tabor, R.A. and R.M. Piaskowski. 2002. Nearshore habitat use by juvenile chinook salmon in lentic systems of the Lake Washington Basin, Annual Report, 2001. U.S. Fish and Wildlife Service, Lacey, WA.

Tabor, R.A., M.T. Celedonia, F. Mejia, R.M. Piaskowski, D.L.Low, B. Footen, and L. Park. 2004a. Predation of juvenile chinook salmon by predatory fishes in three areas of the Lake Washington basin. Miscellaneous report. U.S. Fish and Wildlife Service, Western Washington Fish and Wildlife Office, Lacey, Washington.

KIRKLAND MUNICIPAL CODE

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ENVIRONMENTAL PROCEDURES

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24.02 **SEPA Procedures and Policies**
~~**24.05 Shoreline Master Program**~~
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RESCIND

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Authority and Purpose

83.10 Authority

1. This Chapter is adopted as part of the shoreline master program for the city. It is adopted under the authority of RCW Chapter 90.58 and WAC Chapter 173-26.

83.20 Applicability

1. The requirements of this Chapter apply to uses, activities and development within shoreline jurisdiction.
2. Designation ⊣ The waters of Lake Washington and shorelands associated with Lake Washington are designated as shorelines of statewide significance.
3. Shoreline Jurisdiction
   a. The provisions of this Chapter shall apply to all shorelines of the state, all shorelines of statewide significance, and shorelands.
   b. Lake Washington, its underlying land, associated wetlands, and those lands extending landward 200 feet from its OHWM are within shoreline jurisdiction.
   c. Shoreline jurisdiction does not include buffer areas for wetlands or streams that occur within shoreline jurisdiction, except those buffers contained within lands extending landward 200 feet from the OHWM of Lake Washington.

83.30 Purpose and Intent - It is the intent of the Kirkland Shoreline Master Program (SMP) to manage the use and development of the shorelines of Kirkland, giving preference to water-dependent and water-related uses, and encouraging shoreline development and uses to avoid, minimize and mitigate impacts. In addition, the SMP, consisting of this Chapter, the Shoreline Master Program Chapter of the Comprehensive Plan and the Restoration Plan, has the following purposes**:**

1. Enable current and future generations to enjoy an attractive, healthy and safe waterfront.
2. Protect the quality of water and shoreline natural resources 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. Efficiently achieve the SMP mandates of the State.
5. In interpreting the provisions of this Chapter, preference shall be given in the following order to uses that:
   a. Recognize and protect the statewide interest over local interest;
   b. Preserve existing natural areas along the shoreline;
   c. Result in long term over short term benefit;
   d. Protect the resources and ecology of the shoreline;
   e. Increase public access to publicly owned areas of the shorelines;
   f. Increase recreational opportunities for the public in the shoreline; and
   g. Provide for any other element as defined in RCW 90.58.100 deemed appropriate or necessary.

83.40 Relationship to other Codes and Ordinances

1. The shoreline regulations contained in this Chapter shall apply as an overlay and in addition to zoning, land use regulations, development regulations, and other regulations established by the City.

2. In the event of any conflict between these regulations and any other regulations of the City, the regulations that provide greater protection of the shoreline natural environment and aquatic habitat shall prevail.
3. Shoreline Master Program policies, found in the City's Comprehensive Plan, establish intent for the shoreline regulations.

83.50 Interpretation

1. General – The Planning Director may issue interpretations of any provisions of this Chapter as necessary to administer the shoreline master program policies and regulations. The Director shall base his/her interpretations on:
   a. The defined or common meaning of the words of the provision; and
   b. The general purpose of the provision as expressed in the provision; and
   c. The logical or likely meaning of the provision viewed in relation to the Washington State Shoreline Management Act (the Act), including the purpose and intent as expressed in chapter 90.58 RCW and the applicable guidelines as contained in WAC 173-26, and the Shoreline Chapter of the Comprehensive Plan.

   Any formal written interpretations of shoreline policies or regulations shall be submitted to the Department of Ecology for review.
2. Effect – An interpretation of this Chapter will be enforced as if it is part of this code.
3. Availability – All interpretations of this Chapter, filed sequentially, are available for public inspection and copying in the Planning Department during regular business hours. The Planning Official shall also make appropriate references in this code to these interpretations.

83.60 Liberal Construction

1. As provided for in RCW 90.58.900, the Shoreline Management Act is exempted from the rule of strict construction; the Act and this Chapter shall therefore be liberally construed to give full effect to the purposes, goals, objectives, and policies for which the Act and this Chapter were enacted and adopted, respectively.

83.70 Severability

1. The standards, procedures, and requirements of this Chapter are the minimum necessary to promote the health, safety, and welfare of the residents of Kirkland. The City is free to adopt more rigorous or different standards, procedures, and requirements whenever this becomes necessary.
2. The Act and this Chapter adopted pursuant thereto comprise the basic state and City law regulating use of shorelines. In the event provisions of this Chapter conflict with other applicable City policies or regulations, the more restrictive shall prevail. Should any section or provision of this Chapter be declared invalid, such decision shall not affect the validity of this Chapter as a whole.

Definitions

83.80 Definitions

For the purposes of this Chapter the following terms shall have the meaning ascribed to them below. Terms not defined in this section shall be defined as set forth in Chapter 5 KZC.

1. Act: The Washington State Shoreline Management Act, Chapter 90.58 RCW.

2. Agriculture: Agricultural uses and practices including, but not limited to: Producing, breeding, or increasing agricultural products; rotating and changing agricultural crops; allowing land used for agricultural activities to lie fallow in which it is plowed and tilled but left unseeded; allowing land used for agricultural activities to lie dormant as a result of adverse agricultural market conditions; allowing land used for agricultural activities to lie dormant because the land is enrolled in a local, state, or federal conservation program, or the land is subject to a conservation easement; conducting agricultural operations; maintaining, repairing, and replacing agricultural equipment; maintaining, repairing, and replacing agricultural facilities, provided that the replacement facility is no closer to the shoreline than the original facility; and maintaining agricultural lands under production or cultivation.

3. Aquaculture: The cultivation of fish, shellfish, and/or other aquatic animals or plants, including the incidental preparation of these products for human use.

4. Aquatic: Those areas waterward of the OHWM.

5. Appurtenance: For the purpose of an exemption of a single family residence, also referred to as a detached dwelling unit on one lot, and its associated appurtenances from a substantial development permit, an appurtenance includes those listed under WAC 173-14-040 and tool sheds, greenhouses, swimming pools, spas, accessory dwelling units and other accessory structures common to a single family residence located landward of the OHWM and the perimeter of a wetland.

6. Accessory Dwelling Unit: See Chapter 5 KZC.

7. Average Parcel Depth: The average of the distance from the OHWM to edge of the public right-of-way or vehicular access easement, whichever provides direct access to the existing or proposed primary structure on the subject property, as measured along the side property lines or the extension of those lines where the water frontage of the subject property ends, the center of the OHWM of the subject property and the quarter points of the OHWM of the subject property. At the northern terminus of the 5th Ave West access easement, the average parcel depth shall be measured from the OHWM to the west side of the public pedestrian access easement providing access to Waverly Beach Park. See Plate 19.

8. Average Parcel Width: The average of the distance from the north to the south property lines as measured along the OHWM and the front property line, or along the east and west property lines of the parcel does not abut Lake Washington.

9. Bioengineering: Project designs or construction methods that use live woody vegetation or a combination of live woody vegetation and specially developed natural or synthetic materials to establish a complex root grid within the existing bank that is resistant to erosion, provides bank stability, and maintains a healthy riparian environment with habitat features important to fish life. Use of wood structures or limited use of clean angular rock may be allowable to provide stability for establishment of the vegetation.

10. Boat: Any contrivance used or capable or being used as a means of transportation on water, except for cribs or piles, shinglebolts, booms or logs, rafts of logs, and rafts of lumber.

11. Boat House: An overwater structure designed for the storage of boats, but not including boatlift canopies.

12. Boat Launch: Graded slopes, slabs, pads, planks, or rails used for launching boats by means of a trailer, hand, or mechanical device.

13. Boat Lift: Lifts for motorized boats, kayaks, canoes and jet skis. Includes floating lifts that are designed to not contact the substrate of the Lake; ground-based lifts that are designed to be in contact with or supported by the substrate of the Lake; and suspended lifts that are designed to be affixed to the existing overwater structure with no parts contacting the substrate.

14. Boating Facilities: Facilities providing boat moorage space, fuel, or other commercial services. As used in this Chapter, boating facilities refer to the following use listings: Piers, Docks, Moorage Buoys, Boatlifts and Canopies serving Attached, Stacked and Detached Dwelling Units and Marinas and Moorage Facilities Associated with Commercial Uses.

15. Breakwater: Protective structures that are normally built offshore to provide protection from wave action.

16. Buffer: The area immediately adjacent to wetlands and streams that protects these sensitive areas and provides essential habitat elements for fish and/or wildlife.

17. Buffer Setback: A setback distance of 10 feet from a designated or modified wetland or stream buffer within which no buildings or other structures may be constructed, except as provided in KZC 83.500.3(b) and 83.510.3(b). The buffer setback serves to protect the wetland or stream buffer during development activities, use, and routine maintenance occurring adjacent to these resources.

18. Bulkhead: A vertical or nearly vertical erosion protection structure placed parallel to the shoreline consisting of concrete, timber, steel, rock, or other permanent material not readily subject to erosion.

19. Canopy: A cover installed as a component of a boatlift.

20. Channel Migration Zone: The area along a river or other watercourse within which the channel(s) can be reasonably predicted to migrate over time as a result of natural and normally occurring hydrological and related processes when considered with the characteristics of the river or other watercourse and its surroundings.

21. Class A Streams: Streams that are used by salmonids. Class A streams generally correlate with Type F streams as defined in WAC 222-16-030.

22. Class B Streams: Perennial streams (during years of normal precipitation) that are not used by salmonids. Class B streams generally correlate with Type F streams (if used by non-salmonids or they contain fish habitat) or Type Np streams (if they are perennial and do not contain fish habitat) as defined in WAC 222-16-030.

23. Class C Streams: Seasonal or ephemeral streams (during years of normal precipitation) not used by salmonids. Class C streams generally correlate with Type F streams (if used by non-salmonid fish or they contain fish habitat) or Type Ns streams (if they are seasonal and do not contain fish habitat) as defined in WAC 222-16-030.

24. Commercial Use: Includes retail, office services, entertainment, recreation and/or light industrial uses, depending on the location. Retail uses are those that provide goods and/or services directly to the consumer, including service uses not usually allowed within an office use.

25. Concession Stand: A permanent or semi-permanent structure for the sale and consumption of food and beverages, and water-related products, such as sunscreen, sunglasses, and other similar products. A concession stand may include outdoor seating areas. Indoor seating and associated circulation areas shall not exceed more than 10 percent of the gross floor area of the use, and it must be demonstrated to the City that the floor plan is designed to preclude the seating area from being expanded.

26. Conditional Uses: A use, development, or substantial development that is classified as a conditional use in KZC Section 83.170 or that is not classified within the SMP. Those activities identified as conditional uses or not classified in this Chapter must be treated according to the review criteria established in WAC 173-27-160.

27. Convalescent Center: See Chapter 5 KZC.

28. Critical Areas: Critical areas include the following areas and ecosystems: (a) wetlands; (b) areas with a critical recharging effect on aquifers used for potable water; (c) fish and wildlife habitat conservation areas (streams); (d) frequently flooded areas; and (e) geologically hazardous areas. Kirkland does not contain any critical aquifer recharge areas. Critical areas may also be referred to as sensitive areas.

29. Development: A use consisting of the construction or exterior alteration of structures; dredging; drilling; dumping; filling; removal of any sand, gravel, or minerals; bulkheading; driving of piling; placing of obstructions; or any project of a permanent or temporary nature that interferes with the normal public use of the surface of the waters overlying lands subject to RCW 90.58 at any state of water level.

30. Dock: A structure that floats on the surface of the water, without piling supports, but that is attached to land. Typically used for boat moorage, swimming, public access, and other activities that requires access to deep water.

31. Drainage Basin: A specific area of land drained by a particular Kirkland watercourse and its tributaries.

32. Dredging: The removal, displacement, or disposal of unconsolidated earth material such as sand, silt, gravel, or other submerged materials, from the bottom of water bodies, ditches, or natural wetlands; maintenance dredging and/or support activities are included in this definition.

33. Dry Land Boat Storage: A commercial service providing storage of boats and other boats on the upland portion of a property.

34. Dwelling Unit, Attached: See Chapter 5 KZC.

35. Dwelling Unit, Detached: See Chapter 5 KZC.

36. Dwelling Unit, Stacked: See Chapter 5 KZC.

37. Ecological Functions: The work performed or role played by the physical, chemical, and biological processes that contribute to the maintenance of the aquatic and terrestrial environments constituting the shoreline's natural ecosystem.

38. Ecological Restoration: See Restore.

39. Ecologically Intact Shoreline: Those shoreline areas that retain the majority of their natural shoreline functions, as evidenced by the shoreline configuration and the presence of native vegetation. Generally, but not necessarily, ecologically intact shorelines are free of structural shoreline modifications, structures, and intensive human uses.

40. Ecosystem-wide Processes: The suite of naturally occurring physical and geological processes of erosion, transport, and deposition, and specific chemical processes that shape landforms within a specific shoreline ecosystem and determine both the types of habitat that are present and the associated ecological functions.

41. Ell: A terminal pier section oriented perpendicular to the pier walkway.

42. Feasible: An action, such as a development project, mitigation, or preservation requirement that meets all of the following conditions:

a. Can be accomplished with technologies and methods that have been used in the past in similar circumstances, or studies or tests that have demonstrated in similar circumstances that such approaches are currently available and likely to achieve the intended results;

b. Provides a reasonable likelihood of achieving its intended purpose; and

c. Does not physically preclude achieving the project's primary intended legal use.

The burden of proving infeasibility is on the applicant in cases where these guidelines require certain actions. In determining an action's infeasibility, the City may weigh the action's relative public costs and public benefits, considered in the short- and long-term time frames.

43. Ferry Terminal, Passenger-only: A docking facility used in the transport of passengers across a body of water. A ferry terminal may include accessory parking facilities, ticketing booths, and other accessory uses or structures necessary for its operation. A passenger-only ferry terminal does not include provisions for the ferrying of vehicles.

44. Fill: The addition of soil, sand, rock, gravel, sediment, earth-retaining structure, or other material to an area waterward of the OHWM, in wetlands, or on shorelands in a manner that raises the ground elevation or creates dry land.

45. Finger pier: A narrow pier section projecting from the pier walkway, typically perpendicular to the walkway and located landward of an ell in order to form the nearshore side of a boatslip.

46 Float: A structure that floats on the surface of the water that is not attached to the shore, but that may be anchored to submerged land. Floats are typically used for swimming, diving and similar recreational activities.

47. Float Plane Landing and Moorage Facility: A place where commercially operated water-based passenger aircraft arrive and depart. May include accessory facilities, such as waiting rooms, ticketing booths and similar facilities. May be used for private or public purposes.

48. Floodplain: Synonymous with the one hundred year floodplain and means the land susceptible to inundation with a one (1) percent chance of being equaled or exceeded in any given year. The limit of this area shall be based upon flood ordinance regulations maps or a reasonable method that meets the objectives of the Shoreline Management Act.

49. Forest Practices: Any activity conducted on or directly pertaining to forest land and relating to growing, harvesting, or processing timber.

50. Frequently Flooded Areas: All areas shown on the Kirkland Sensitive Areas Maps as being within a 100-year floodplain and all areas regulated by Chapter 21.56 KMC.

51. Gabions: Structures composed of masses of rocks or rubble held tightly together by wire mesh (typically) so as to form upright blocks or walls. Often constructed as a series of overlapping blocks or walls. Used primarily in retaining earth, steep slopes or embankments, to retard erosion or wave action, or as foundations for breakwaters or jetties.

52. Geologically Hazardous Areas: Landslide, erosion and seismic hazardous areas as defined in KZC 85.13 and in WAC 365-190-080(4).

53. Geotechnical Analysis: See Geotechnical Report.

54. Geotechnical Report: A scientific study or evaluation conducted by a qualified expert that includes a description of the ground and surface hydrology and geology, the affected land form and its susceptibility to mass wasting, erosion, and other geologic hazards or processes, conclusions and recommendations regarding the effect of the proposed development on geologic conditions, the adequacy of the site to be developed, the impacts of the proposed development, alternative approaches to the proposed development, and measures to mitigate potential site-specific and cumulative geological and hydrological impacts on the proposed development, including the potential adverse impacts to adjacent and down-current properties. Geotechnical reports shall conform to accepted technical standards and must be prepared by qualified professional engineers (or geologists) who have professional expertise about the regional and local shoreline geology and processes.

55. Grading: The movement or redistribution of the soil, sand, rock, gravel, sediment, or other material on a site in a manner that alters the natural contour of the land.

56. Hard Structural Shoreline Stabilization: Shore erosion control practices using hardened structures that armor and stabilize the shoreline from further erosion. Hard structural shoreline stabilization typically

uses concrete, boulders, dimensional lumber or other materials to construct linear, vertical or near-vertical faces that are located at or waterward of ordinary high water, as well those structures located on average within five (5) feet landward of OHWM. These include bulkheads, rip-rap, groins, retaining walls and similar structures.

57. Helipad: A takeoff and landing area for helicopters.

58. Houseboat: A structure designed and operated substantially as a permanently based overwater residence. Houseboats are not vessels and lack adequate self-propulsion and steering equipment to operate as a vessel. They are typically served by permanent utilities and semi-permanent anchorage/moorage facilities.

59. Impervious Surface: A hard surface water that either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development; and/or a hard surface area that causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, roof tops, walkways, patios, driveway, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled, macadam, or other surfaces that similarly impede the natural infiltration of surface and storm water runoff. Open, uncovered flow control or water quality treatment facilities shall not be considered impervious surfaces. Impervious surfaces do not include pervious surfaces as defined in this Chapter.

60. Industrial Uses: Uses such as manufacturing, assembly, processing, wholesaling, warehousing, distribution of products and high technology.

61. In-Stream Structure: A structure placed by humans within a stream or river waterward of the OHWM that either causes or has the potential to cause water impoundment or the diversion, obstruction, or modification of water flow. In-stream structures may include those for hydroelectric generation, irrigation, water supply, flood control, transportation, utility service transmission, fish habitat enhancement, or other purpose.

62. Joint-use: Piers and floats that are constructed by more than one contiguous waterfront property owner or by a homeowner's association or similar group.

63. Land Division: The division or redivision of land into lots, tracts, parcels, sites or divisions for the purpose of sale, lease, or transfer of ownership.

64. Land Surface Modification: The clearing or removal of shrubs, groundcover and other vegetation, excluding trees, and all grading, excavation and filling of materials.

65. Large Woody Debris: Trunks or branches of trees that have fallen in or been placed in a water body and serve the purposes of stabilization or habitat for fish and aquatic insects.

66. Low Impact Development: Low Impact Development (LID) is a set of techniques that mimic natural watershed hydrology by slowing, evaporating/transpiring, and filtering water that allows water to soak into the ground closer to its source. The development shall meet one or more of the following objectives:

- Preservation of natural hydrology.
- Reduction of impervious surfaces.
- Treatment of stormwater in numerous small, decentralized structures.
- Use of natural topography for drainage ways and storage areas.
- Preservation of portions of the site in undisturbed, natural conditions.
- Reduction of the use of piped systems. Whenever feasible, site design should use multifunctional open drainage systems such as vegetated swales or filter strips that also help to fulfill vegetation and open space requirements.

- Use of environmentally sensitive site design and green building construction that reduces runoff from structures, such as green roofs.

67. Marina: A private or public facility providing the purchase and or lease of a slip for storing, berthing and securing motorized boats or watercraft, including both long-term and transient moorage. Marinas may include accessory facilities for providing incidental services to users of the marina, such as waste collection, boat sales or rental activities, and retail establishments providing fuel service, repair or service of boats.

68. May: Means the action is acceptable, provided it conforms to the provisions of the Shoreline Management Act, with the decision-maker having or using the ability to act or decide according to their own discretion or judgment.

69. Minor Improvements: Walkways, pedestrian bridges, benches, and similar features, as determined by the Planning Official, pursuant to KZC 83.500.3(e) and 83.510.3(e).

70. Moorage Buoy: A floating object, sometimes carrying a signal or signals, anchored to provide a mooring place away from the shore.

71. Moorage Pile: A piling to which a boat is tied up to prevent it from swinging with changes of wind or other similar functions.

72. Must: means a mandate; the action is required.

73. Neighborhood-oriented Retail Establishment: Small scale retail and service uses that provide primarily convenience retail sales and service to the surrounding residential neighborhood. The following is a nonexclusive list of neighborhood-oriented retail uses: small grocery store, drug store, hair salon, coffee shop, dry cleaner or similar retail or service uses.

74. Nonconforming Use or Development: A shoreline use or development that was lawfully constructed or established prior to the effective date of The Act or the applicable master program, or amendments thereto, but that does not conform to present regulations or standards of the program.

75. Non-Structural Flood Hazard Reduction Measures: Improvements, actions or provisions that reduce flood hazard by non structural means, such as setbacks, land use controls, wetland restoration, dike removal, use relocation, biotechnical measures and surface water management programs.

76. Non-Water-Oriented Use: Uses that are not water-dependent, water-related, or water-enjoyment.

77. Ordinary High Water Mark (OHWM): The mark that will be found on all lakes and streams by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation, as that condition exists on June 1, 1971, as it may naturally change thereafter, or as it may change thereafter in accordance with permits issued by a local government or the department; provided, that in any area where the OHWM cannot be found, the OHWM adjoining fresh water shall be the line of mean high water, or as amended by the State. For Lake Washington, the OHWM corresponds with a lake elevation of 21.8 feet, based on the NGVD 29 datum.

78. Outfall: A structure used for the discharge of a stormwater or sewer system into a receiving water.

79. Pervious: As opposed to impervious surfaces, these are surfaces that allow water to pass through at rates similar to pre-developed conditions. Pervious surfaces, include, but are not limited to: pervious asphalt, pervious concrete, pervious gravel, grass or pervious pavers.

80. Permitted Uses: Uses that are allowed within the applicable shoreline environment, provided that they must meet the policies, use requirements, and regulations of this Chapter and any other applicable regulations of the City or state.

81. Pier: A structure that projects over, and is raised above the water but is attached to land, and that is used for boat moorage, swimming, fishing, public access, float plane moorage, or similar activities requiring access to deep water.

82. Piling: The structural supports for piers, usually below the pier decking and anchored in the water.

83. Preserve: The protection of existing ecological shoreline processes or functions.

84. Primary Basins: The primary basins shown on the Kirkland Sensitive Areas Map.

85. Primary Structure: A structure housing the main or principal use of the lot on which the structure is situated, including a detached garage associated with the primary structure. This term shall not include accessory uses, structures or activities as defined in Chapter 5 KZC.

86. Priority Habitat: A habitat type with unique or significant value to one or more species as defined in WAC173-26-020.

87. Priority Species: Species requiring protective measures and/or management guidelines to ensure their persistence at genetically viable population levels based on the criteria in WAC 173-26-020.

88. Public Access: The ability of the general public to reach, touch, and enjoy the water's edge, to travel on the waters of the state, and to view the water and the shoreline.

89. Public Access Facility: A water-oriented structure, such as a trail, pier, pedestrian bridge, boat launch, viewing platform, or fishing pier that provides access for the public to or along the shoreline.

90. Public Access Pier or Boardwalk: An elevated structure that is constructed waterward of the OHWM and intended for public use.

91. Public Pedestrian Walkway: A portion of private property subject to an easement giving the public the right to stand on or traverse this portion of the property.

92. Public Use Area: A portion of private property that is dedicated to public use and that contains one or more of the following elements: benches, tables, lawns, gardens, piers, exercise or play equipment or similar improvements or features. These elements are to provide the public with recreational opportunities in addition to the right to traverse or stand in this area.

93. Qualified Professional: An individual with relevant education and training, as determined by the Planning Official, and with at least 3 years experience in biological fields such as botany, fisheries, wildlife, soils, ecology, and similar areas of specialization, and including a professional wetland scientist.

94. Rain Garden: Rain gardens and bioretention areas are vegetation features adapted to provide on-site infiltration and treatment of stormwater runoff using soils and vegetation. They are commonly located within small pockets of residential land where surface runoff is directed into shallow, landscaped depressions; or in landscaped areas around buildings; or, in more urbanized settings, to parking lot islands and green street applications.

95. Recreational Use: Commercial and public facilities designed and used to provide recreational opportunities to the public.

96. Residential Use: Developments in which people sleep and prepare food, other than developments used for transient occupancy. As used in the Chapter, residential development includes single-family development (known as detached dwelling unit) and multifamily development (known as detached, attached or stacked dwelling units) and the creation of new residential lots through land division.

97. Restore: The reestablishment or upgrading of impaired ecological shoreline processes or functions. This may be accomplished through measures including but not limited to revegetation, removal of intrusive shoreline structures and removal or treatment of toxic materials. Restoration does not imply a requirement for returning the shoreline area to aboriginal or pre-European settlement conditions.

98. Restoration: See Restore.

99. Revetment: A shoreline protective structure constructed on a slope, and used to prevent erosion.

100. Riparian area: A transition area between the aquatic ecosystem and the adjacent upland area that supports a number of shoreline ecological functions and processes, including bank stability, the

recruitment of woody debris, leaf litter fall, nutrients, sediment filtering, shade, habitat and other riparian features that are important to both riparian forest and aquatic system conditions.

101. Salmonid: A member of the fish family salmonidae, including chinook, coho, chum, sockeye, and pink salmon; rainbow, steelhead, and cutthroat trout; brown trout; brook and dolly varden char, kokanee, and white fish.

102. Secondary Basins: The secondary basins depicted on the Kirkland Sensitive Areas Map.

103. Shall: Means a mandate; the action must be taken.

104. Shorelands: Those lands extending landward for 200 feet in all directions as measured on a horizontal plane from the OHWM; floodways and contiguous floodplain areas landward 200 feet from such floodways; and all wetlands and river deltas associated with the streams, lakes, and tidal waters that are subject to the provisions of the Shoreline Management Act; the same to be designated as to location by the Department of Ecology.

105. Shoreland Areas: See Shorelands.

106. Shoreline Functions: See Ecological Functions.

107. Shoreline Habitat and Natural Systems Enhancement Projects: Activities conducted for the purpose of establishing, restoring, or enhancing habitat for priority species in shorelines. The following is a nonexclusive list of shoreline habitat and natural systems enhancement projects: modification of vegetation, removal of non-native 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.

108. Shoreline Modification: Those actions that modify the physical configuration or qualities of the shoreline area, usually through the construction of a physical element, such as a dike, breakwater, pier, dredged basin, fill, bulkhead, or other shoreline structure. They can include other actions, such as clearing, grading, or application of chemicals.

109. Shoreline Setback: The distance measured in feet that a structure or improvement must be located from the OHWM.

110. Shoreline Stabilization: Means for protecting shoreline upland areas and shoreline uses from the effects of shoreline wave action, flooding or erosion. Shoreline stabilization includes structural and non-structural methods, riprap, bulkheads, gabions, jetties, dikes and levees, flood control weirs, and bioengineered walls or embankments.

111. Shorelines: All of the water areas of the state, including reservoirs, and their associated shorelands, together with the lands underlying them: except (i) shorelines of statewide significance; (ii) shorelines on segments of streams upstream of a point where the mean annual flow is twenty cubic feet per second or less and the wetlands associated with such upstream segments; and (iii) shorelines on lakes less than twenty acres in size and wetlands associated with such small lakes.

112. Shorelines of Statewide Significance: Those lakes, whether natural, artificial, or a combination thereof, with a surface acreage of one thousand acres or more measured at the OHWM and those natural rivers or segments thereof where the mean annual flow is measured at one thousand cubic feet per second or more. Definition is limited to freshwater areas in Western Washington.

113. Should: Means that the particular action is required unless there is a demonstrated, compelling reason, based on policy of the Shoreline Management Act and the Shoreline Rules, against taking the action.

114. Sign, Interpretive: A permanent sign without commercial message, located on a publicly-accessible site, that provides public educational and interpretive information related to the site on which the sign is located, such as information on natural processes, habitat restoration programs, or cultural history, or that is associated with an adopt-a-stream, adopt-a-park or similar agency-sponsored program.

115. Significant Tree: See Chapter 5 KZC.

116. Significant Vegetation Removal: The removal or alteration of trees, shrubs, and/or ground cover by clearing, grading, cutting, burning, chemical means, or other activity that causes significant ecological impacts to functions provided by such vegetation. The removal of invasive or noxious weeds does not constitute significant vegetation removal. Tree pruning, not including tree topping, where it does not affect ecological functions, does not constitute significant vegetation removal.

117. Skirting: Vertical boards along the edge of a pier extending downward.

118. Soft Structural Shoreline Stabilization Measures: Shore erosion control and restoration practices that contribute to restoration, protection or enhancement of shoreline ecological functions. Soft shoreline stabilization typically includes a mix of gravels, cobbles, boulders, logs and native vegetation placed to provide shore stability in a non-linear, sloping arrangement.

119. Streams: Areas where surface waters produce a defined channel or bed that demonstrates clear evidence of the passage of water, including but not limited to bedrock channels, gravel beds, sand and silt beds, and defined-channel swales. The channel or bed need not contain water year-round. Streams do not include irrigation ditches, canals, storm or surface water runoff devices, or other entirely artificial watercourses, unless they are used by salmonids or convey a naturally occurring stream that has been diverted into the artificial channel.

120. Structural Flood Hazard Reduction Measures: Improvements or activities that reduce flood hazard by structural means, such as dikes, levees, revetments, floodwalls, channel realignment, and elevation of structures consistent with the National Flood Insurance Program.

121. Structural Shoreline Stabilization: Means for protecting shoreline upland areas and shoreline uses from the effects of shoreline wave action, flooding or erosion that incorporate structural methods, including both hard structural shoreline stabilization methods and soft structural shoreline stabilization measures.

122. Substantial Development: As defined in the Washington State Shoreline Management Act (SMA) found in 90.58 RCW, and WAC 173-27-030 and 173-27-040.

123. Transportation Facilities: Facilities that include street pavement, curb and cutter, sidewalk and landscape strip as regulated under KZC 110.

124. Tour Boat Facility: A moorage pier designed for commercial tour boat usage.

125. Tree: A woody plant with one main trunk at a minimum height of 12 feet measured from the existing ground at maturity, having a distinct head in most cases. The Urban Forester shall have the authority to determine whether any specific woody plant shall be considered a tree or a shrub.

126. Upland: Generally described as the dry land area above and landward of the OHWM, but not including wetlands.

127. Utilities: Services, facilities and infrastructure that produce, transmit, carry, store, process or dispose of electric power, gas, water, sewage, communications, oil, storm water, and similar services and facilities.

128. Utility Production and Processing Facilities: Facilities for the making or treatment of a utility, such as power plants and sewage treatment plants or parts of those facilities.

129. Utility Transmission Facilities: Infrastructure and facilities for the conveyance of services, such as power lines, cables, and pipelines.

130. View Corridor: An open area of the subject property that provides views unobstructed by structures an across the subject property from the adjacent right-of-way to Lake Washington.

131. Water-Dependent Use: A use or portion of a use that cannot exist in a location that is not adjacent to the water and that is dependent on the water by reason of the intrinsic nature of its operation.

132. Water-Enjoyment Use: A recreational use or other use that facilitates public access to the shoreline as a primary characteristic of the use; or a use that provides recreational use or aesthetic enjoyment of the shoreline for a substantial number of people as a general characteristic of the use and that through location, design, and operation ensures the public's ability to enjoy the physical and aesthetic qualities of the shoreline. In order to qualify as a water-enjoyment use, the use must be open to the general public and the shoreline-oriented space within the project must be devoted to the specific aspects of the use that foster shoreline enjoyment.

133. Water-Oriented Use: A use that is water-dependent, water-related, or water-enjoyment or a combination of such uses.

134. Water Quality: The physical characteristics of water within shoreline jurisdiction, including water quantity, hydrological, physical, chemical, aesthetic, recreation-related, and biological characteristics. Where used in this Chapter, the term "water quantity" refers only to development and uses regulated under this Chapter and affecting water quantity, such as impermeable surfaces and storm water handling practices. Water quantity, for purposes of this Chapter, does not mean the withdrawal of ground water or diversion of surface water pursuant to RCW 90.03.250 through 90.03.340.

135. Water-Related Use: A use or portion of a use that is not intrinsically dependent on a waterfront location, but whose economic viability is dependent upon a waterfront location because:

a. The use has a functional requirement for a waterfront location, such as the arrival or shipment of materials by water or the need for large quantities of water; or

b. The use provides a necessary service supportive of the water-dependent uses and the proximity of the use to its customers makes it services less expensive and/or more convenient.

136. Watershed: A region or area bounded on the periphery by a parting of water and draining to a particular watercourse or body of water.

137. Watershed Restoration Plan: A plan, developed or sponsored by the State Department of Fish and Wildlife, the State Department of Ecology, the State Department of Natural Resources, the State Department of Transportation, a federally recognized Indian tribe acting within and pursuant to its authority, a city, a county, or a conservation district that provides a general program and implementation measures or actions for the preservation, restoration, re-creation, or enhancement of the natural resources, character, and ecology of a stream, stream segment, drainage area, or watershed for which agency and public review has been conducted pursuant to Chapter 43.21C RCW, the State Environmental Policy Act.

138. Watershed Restoration Project: A public or private project authorized by the sponsor of a watershed restoration plan that implements the plan or a part of the plan and consists of one or more of the following activities:

a. A project that involves less than ten miles of streamreach, in which less than twenty-five cubic yards of sand, gravel, or soil is removed, imported, disturbed or discharged, and in which no existing vegetation is removed except as minimally necessary to facilitate additional plantings;

b. A project for the restoration of an eroded or unstable stream bank that employs the principles of bioengineering, including limited use of rock as a stabilization only at the toe of the bank, and with primary emphasis on using native vegetation to control the erosive forces of flowing water; or

c. A project primarily designed to improve fish and wildlife habitat, remove or reduce impediments to migration of fish, or enhance the fishery resource available for use by all of the citizens of the state, provided that any structure, other than a bridge or culvert or instream habitat enhancement structure associated with the project, is less than two hundred square feet in floor area and is located above the OHWM of the stream.

139. Water Taxi: A boat used to provide public transport for passengers, with service scheduled with multiple stops or on demand to many locations. A water taxi does not include accessory facilities, such as ticketing booths, and does not include the transport of vehicles.

140. Wetlands: Those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soils conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, retention and/or detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990 (adoption date of GMA), that were unintentionally created as a result of the construction of a road, street, or highway. However, wetlands do include those artificial wetlands intentionally created from non-wetland sites as mitigation for the conversion of wetlands.

141. Wetland Rating: Wetlands shall be rated according to the *Washington State Wetland Rating System for Western Washington* (Department of Ecology 2004, or as revised). This document contains the definitions, methods and a rating form for determining the categorization of wetlands below:

a. Category I wetlands are those that 1) represent a unique or rare wetland type; or 2) are more sensitive to disturbance than most wetlands; or 3) are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime; or 4) provide a high level of functions. Category I wetlands include Natural Heritage wetlands, bogs, mature and old growth forested wetlands, and wetlands that score at least 70 points on the rating form.

b. Category II wetlands are difficult, though not impossible, to replace, and provide high levels of some functions. These wetlands occur more commonly than Category I wetlands, but still need a relatively high level of protection. Category II wetlands score between 51 and 69 points on the rating form.

c. Category III wetlands have a moderate level of function, scoring between 30 and 50 points on the rating form.

d. Category IV wetlands have the lowest levels of functions (scores less than 30 points on the rating form) and are often heavily disturbed. These are wetlands that can often be replaced, and in some cases improved. However, replacement cannot be guaranteed in any specific case. These wetlands may provide some important functions and also need to be protected.

Shoreline Environment Designations and Statewide Significance

83.90 Shoreline Jurisdiction and Official Shoreline Map

1. Shoreline Map -

   a. The adopted Shoreline Environment Designations Map is the graphic representation of the City's shorelines that are regulated by this program. The map, or set of maps, entitled City of Kirkland Shoreline Environment Designation Map and adopted by ordinance is hereby adopted as part of this code. See KZC Chapter 141 for information regarding amending this map.

   b. The adopted shoreline map identifies shoreline environment designations and the extent of shoreline jurisdiction.

      1) Extent of Shoreline Jurisdiction - The shoreline jurisdiction as depicted on the adopted Shoreline Environment Designations Map is intended to depict the *approximate* location and extent of known shorelands. In determining the exact location of shoreline jurisdiction, the criteria contained in RCW 90.58.030(2) shall be used. For Lake Washington, the OHWM corresponds with a lake elevation of 21.8 feet. The extent of shoreline jurisdiction on any individual lot, parcel or tract is to be determined by a field investigation and a survey and is the sole responsibility of the applicant. The location of the OHWM shall be included in shoreline permit application submittals to determine the extent of shoreline jurisdiction for review and approval by the Planning Official.

      2) Interpretation of Shoreline Environment Designations - The following shall be used to interpret the boundary of shoreline environment designations:

         a) Following Property Lines – Where a shoreline environment designation boundary is indicated as approximately following a property line, the property line is the shoreline environment designation boundary.

         b) Following Streets – Where a shoreline environment designation boundary is indicated as following a street, the midpoint of the street right-of-way is the shoreline environment designation boundary, except as follows:

            i) The portion of the public right-of-way known as 98th Avenue NE located within 200 feet of the OHWM is designated wholly as Urban Mixed.

            ii) Waterfront street ends, where the public right-of-way is designated wholly under one shoreline environment.

         c) Wetlands – Where an associated wetland boundary extends beyond the area depicted on the Shoreline Environment Designation Map, the additional wetland area shall be designated the same shoreline environment as the adjoining wetland area located on the shoreline map.

         d) Lakes – The Aquatic environment designation boundary extends into Lake Washington to the full limit and territorial extent of the police power, jurisdiction and control of the City of Kirkland.

         e) Other Cases – Where a shoreline environment designation boundary is not indicated to follow a property line or street, the boundary line is as follows:

            i) The transition of the shoreline environment designation from Urban Conservancy to Urban Mixed at Juanita Beach Park occurs at a point measured 75 feet east of the OHWM of Juanita Creek.

            ii) The transition of the shoreline environment designation from Urban Conservancy to Urban Residential west of Juanita Beach Park occurs at a point measured 75 feet west of the OHWM of Juanita Creek.

f) Classification of Vacated Rights-of-Way – Where a right-of-way is vacated, the area comprising the vacated right-of-way will acquire the classification of the property to which it reverts.

g) Undesignated Properties - Any shoreline areas not mapped and/or designated shall be assigned an Urban Conservancy designation, except wetlands as noted in KZC 83.90 2)c) above.

2. Shoreline Environment Designations -

a. Sections 83.100 through 83.150 establish the six (6) shoreline environment designations used in the City of Kirkland and their respective purposes, designation criteria, and management policies. Sections 83.180 through 83.550 then establish the different regulations that apply in these different environmental designations.

b. The management policies contained in the Shoreline Chapter of the Comprehensive Plan shall be used to assist in the interpretation of these regulations.

83.100 Natural

1. Purpose - To protect and restore those shoreline areas that are relatively free of human influence or that include intact or minimally degraded shoreline functions intolerant of human use. The Natural environment also protects shoreline areas possessing natural characteristics with scientific and educational interest. These systems require restrictions on the intensities and types of land uses permitted in order to maintain the integrity of the ecological functions and ecosystem-wide processes of the shoreline environment.

2. Designation Criteria – A Natural environment designation should be assigned to shoreline areas if any of the following characteristics apply:

a. The shoreline is ecologically intact and, therefore, currently performing an important, irreplaceable function or ecosystem-wide process that would be damaged by human activity;

b. The shoreline is considered to represent ecosystems and geologic types that are of particular scientific and educational interest; or

c. The shoreline is unable to support new development or uses without significant adverse impacts to ecological functions or risk to human safety.

83.110 Urban Conservancy

1. Purpose - To protect and restore ecological functions of open space, flood plain and other sensitive lands where they exist in urban and developed settings, while allowing a variety of compatible uses.

2. Designation Criteria - An Urban Conservancy environment designation should be assigned to shoreline areas appropriate and planned for development that is compatible with maintaining or restoring the ecological functions of the area, that are not generally suitable for water-dependent uses and that lie in incorporated municipalities or urban growth areas if any of the following characteristics apply:

a. They are suitable for water-related or water-enjoyment uses;

b. They are open space, flood plain or other sensitive areas that should not be more intensively developed;

c. They have potential for ecological restoration;

d. They retain important ecological functions, even though partially developed; or

e. They have the potential for development that is compatible with ecological restoration.

83.120 Residential - L

1. Purpose - To accommodate low-density residential development and appurtenant structures that are consistent with this Chapter.
2. Designation Criteria - A Residential - L environment designation should be assigned to shoreline areas inside urban growth areas, as defined in RCW 36.70A.110, and incorporated municipalities if they are predominantly single-family residential development or are planned and platted for low-density residential development, unless these areas meet the designation criteria for the Natural shoreline environment designation.

83.130 Residential - M/H

1. Purpose - To accommodate medium and high-density residential development and appurtenant structures that are consistent with this Chapter. An additional purpose is to provide appropriate public access and recreational uses, as well as limited water-oriented commercial uses that depend on or benefit from a shoreline location.
2. Designation Criteria - A Residential - M/H environment designation should be assigned to shoreline areas inside urban growth areas, as defined in RCW 36.70A.110, and incorporated municipalities if they are predominantly multifamily residential development or are planned and platted for medium or high-density residential development, unless these properties meet the designation criteria for the Natural or Urban Conservancy shoreline environment designation.

83.140 Urban Mixed

1. Purpose - To provide for high-intensity land uses, including residential, commercial, recreational, transportation and mixed-used developments. The purpose of this environment is to ensure active use of shoreline areas that are presently urbanized or planned for intense urbanization, while protecting existing ecological functions and restoring ecological functions in areas that have been previously degraded.
2. Designation Criteria - An Urban Mixed environment designation should be assigned to shoreline areas within incorporated municipalities and urban growth areas if they currently support high-intensity uses related to commerce, transportation or navigation; or are suitable and planned for high-intensity water-oriented uses.

83.150 Aquatic

1. Purpose - To protect, restore, and manage the unique characteristics and resources of the areas waterward of the OHWM.
2. Designation Criteria - An Aquatic environment designation should be assigned to lands waterward of the ordinary high-water mark.

Uses and Activities in the Shoreline Environment

83.160 User Guide

1. Explanation of Uses Table

   The table contained in KZC 83.170 identifies uses and activities and defines whether those uses are prohibited, permitted by application for Exemption or Shoreline Substantial Development Permit, or permitted by a Shoreline Conditional Use Permit. If a use is not specifically listed, then it may be considered through a Shoreline Conditional Use Permit (see Chapter 141). The following symbols apply:

   a. "X" means that the use or activity is prohibited in the identified Shoreline Environment. Shoreline uses, activities, or conditions listed as prohibited shall not be authorized through a variance, conditional use permit, or any other permit or approval.

   b. "SD" means that the use or activity may be permitted by approval of the Planning Official through a Letter of Shoreline Exemption (see KZC Chapter 141) or through a Shoreline Substantial Development Permit (see KZC Chapter 141).

   c. "CU" means that the use or activity may be permitted by approval of the Planning Official and Department of Ecology through a Shoreline Conditional Use Permit (see KZC Chapter 141). Uses that are not specifically prohibited under KZC 83.170 may be authorized through a Shoreline Conditional Use Permit.

      Shoreline Variances (see Chapter 141) are intended only to grant relief from specific bulk, dimensional or performance standards in this Chapter, NOT to authorize shoreline uses and activities. They are therefore not included in KZC 83.170.

2. See KZC 83.370 for federal and state approval.

83.170 Shoreline Environments, Permitted and Prohibited Uses and Activities Chart

The chart is coded according to the following legend. SD = Substantial Development[1] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
SHORELINE USE						
Resource Land Uses						
Agriculture	X	X	X	X	X	X
Aquaculture	X	X	X	X	X	X
Forest practices	X	X	X	X	X	X
Mining	X	X	X	X	X	X
Commercial Uses						
Water-dependent uses						
Float plane landing and mooring facilities[2]	X	X	X	X	CU	See adjacent upland environments
Any water-dependent Retail Establishment other than those specifically listed in this chart, selling goods or providing services.	X	SD[3]	X	X	SD	See adjacent upland environments
Water-related, water-enjoyment commercial uses						

[1] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemptions. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this Chapter 83.
[1] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemption. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this Chapter.
[2] Limited to water-based aircraft facilities for air charter operations.

The chart is coded according to the following legend. SD = Substantial Development[1] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
Any water-oriented Retail Establishment other than those specifically listed in this chart, selling goods or providing services.	X	SD[3]	X	X	SD	X

[3] Permitted as an accessory use to a Public Park.

The chart is coded according to the following legend. SD = Substantial Development[1] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
Retail Establishment providing new or used Boat Sales or Rental	X	SD[3]	X	CU[4,6]	SD[5]	See adjacent upland environments
Retail establishment providing gas and oil sale for boats	X	X	X	CU[4,6]	CU[6]	See adjacent upland environments
Retail establishment providing boat and motor repair and service	X	X	X	CU[4,6]	CU[6]	X
Restaurant or Tavern[7]	X	X	X	CU[4]	SD	X
Concession Stand	X	SD[3]	X	X	SD[3]	X
Entertainment or cultural facility	X	CU[8]	X	X	SD	X
Hotel or Motel	X	X	X	CU[9]/X	SD	X

[1] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemption. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this Chapter.
[3] Permitted as an accessory use to a Public Park.
[4] Permitted if located on the west side of Lake Washington Lake Blvd NE/Lake St S south of Lake Avenue West and north of NE 52nd Street.
[5] Permitted in the Juanita Business District or as an accessory use to a marina.
[6] Accessory to a marina only.
[7] Drive-in or drive-through facilities are prohibited.
[8] Use must be open to the general public.
[1] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemption. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this Chapter.
[9] Permitted in Planned Area 3B if allowed through the Lakeview Neighborhood Plan.

The chart is coded according to the following legend. SD = Substantial Development[1] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
Nonwater-oriented uses						
Any Retail Establishment other than those specifically listed in this chart, selling goods, or providing services including banking and related services	X	X	X	X	SD[10]	X
Office Uses	X	X	X	X	SD[10]	X
Neighborhood-oriented Retail Establishment	X	X	X	CU[11]	SD[10]	X
Private Lodge or Club	X	X	X	X	SD[10]	X
Vehicle Service Station	X	X	X	X	X	X
Automotive Service Center	X	X	X	X	X	X
Dry land boat storage	X	X	X	X	X	X

[10] Permitted as part of mixed-use development containing water-dependent uses, where there is intervening development between the shoreline and the use, or if located on the east side of Lake Washington Blvd NE/Lake St S or the east side of 98th Avenue NE.
[11] Permitted if located on the east side of Lake Washington Blvd NE between NE 60th Street and 7th Ave S.

The chart is coded according to the following legend. SD = Substantial Development[1] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
Industrial Uses						
Water-dependent uses	X	X	X	X	X	X
Water-related uses	X	X	X	X	X	X
Nonwater-oriented uses	X	X	X	X	X	X
Recreational Uses						
Water-dependent uses						
Marina[12]	X	CU	X	SD	SD	See adjacent upland environments
Piers, docks, boat lifts and canopies serving Detached Dwelling Unit[12]	X	X	SD	SD	SD[13]	
Piers, docks, boat lifts and canopies serving Detached, Attached or Stacked Dwelling Units[12]	X	X	X	SD	SD	
Float	X	SD[3]	X	X	SD[3]	
Tour Boat Facility	X	X	X	X	SD[14]	
Moorage buoy[12]	X	SD	SD	SD	SD	

[1] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemption. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this chapter.
[12] No boat shall be used as a place of habitation.
[13] Permitted if located south of NE 60th Street only.

The chart is coded according to the following legend. SD = Substantial Development[1] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
Public Access Pier or Boardwalk	CU	SD	SD	SD	SD	
Boat launch (for motorized boats)	X	X	X	X	CU	
Boat launch (for non-motorized boats)	SD	SD	SD	SD	SD	
Boat houses or other covered moorage not specifically listed	X	X	X	X	X	
Swimming beach and other public recreational use	CU	SD	SD	SD	SD	
Any water-dependent recreational development other than those specifically listed in this chart	CU	SD	SD	SD	SD	
Water-related, water-enjoyment uses						
Any water-oriented recreational development other than those specifically listed in this chart	X	CU	CU	CU	SD	X

[12] No boat shall be used as a place of habitation.
[3] Permitted as an accessory use to a Public Park.
[13] Permitted if located south of NE 60th Street only.
[14] Permitted as an accessory use to a Marina or Public Park only.
[1] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemption. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this Chapter.

The chart is coded according to the following legend. SD = Substantial Development[1] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
Other Public Park Improvements[15]	CU	SD	SD	SD	SD	X
Public Access Facility	SD[16]	SD	SD	SD	SD	See adjacent upland environments
Nonwater-oriented uses						
Nonwater-oriented recreational development.	X	X	X	X	SD[10]	X
Residential Uses						
Detached dwelling unit	CU	CU	SD	SD	SD[13]	X
Accessory dwelling unit[17]	X	X	SD	SD	SD[13]	X
Detached, Attached or Stacked Dwelling Units (multi-family units on one lot)	X	X	X	SD	SD	X

[1] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemption. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this Chapter.
[15] This use does not include other public recreational uses or facilities specifically listed in this chart.
[16] Limited to trails, viewpoints, interpretative signage and similar passive and low-impact facilities.
[10] Permitted as part of mixed-use development containing water-dependent uses, where there is intervening development between the shoreline and the use, or if located on the east side of Lake Washington Blvd NE/Lake St S or the east side of 98th Avenue NE.
[13] Permitted if located south of NE 60th Street only.
[17] One accessory dwelling unit (ADU) is permitted subordinate to a detached dwelling unit.
[1] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemption. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this Chapter.
[10] Permitted as part of mixed-use development containing water-dependent uses, where there is intervening development between the shoreline and the use, or if located on the east side of Lake Washington Blvd NE/Lake St S or the east side of 98th Avenue NE.

The chart is coded according to the following legend. SD = Substantial Development[1] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
Houseboats	X	X	X	X	X	X
Assisted Living Facility[18]	X	X	X	CU	SD	X
Convalescent Center or Nursing Home	X	X	X	CU[19]	SD[20]	X
Land division	SD[21]	SD[21]	SD	SD	SD	X
Institutional Uses						
Government Facility	X	SD	SD	SD	SD	X
Community Facility	X	X	X	X	SD	X
Church	X	X	X	CU[19]	SD[20]	X
School or Day-Care Center	X	X	X	CU[19]	SD[10]	X
Mini-School or Mini-Day-Care Center	X	X	X	SD[19]	SD[10]	X
Transportation						
Water-dependent						
Bridges	CU	CU	SD	SD	SD	See adjacent upland environments
Passenger-only Ferry terminal	X	X	X	X	CU	
Water Taxi	X	SD[22]	SD[22]	SD[22]	SD[22]	

[18] A nursing home use may be permitted as part of an assisted living facility use.
[19] Permitted if located on the east side of Lake Washington Blvd NE/Lake St S, or the east side of 98th Avenue NE.
[20] Not permitted in the Central Business District. Otherwise, permitted if located on the east side of Lake Washington Blvd NE/Lake St S, the east side of 98th Avenue NE or on the south side of NE Juanita Drive.
[21] May not create any new lot that would be wholly contained within shoreland area in this shoreline environment.
[22] Permitted as an accessory use to a marina or a public park.

The chart is coded according to the following legend. SD = Substantial Development[1] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
Nonwater-oriented						
Arterials, Collectors, and neighborhood access streets	CU	SD[23]/CU	SD	SD	SD	X
Helipad	X	X	X	X	X	X
Utilities						
Utility production and processing facilities	X	CU[24]	CU[24]	CU[24]	CU[24]	X
Utility transmission facilities	CU[24]	SD[24]	SD[24]	SD[24]	SD[24]	CU[24]
Personal Wireless Service Facilities[25]	X	SD	SD	SD	SD	X
Radio Towers	X	X	X	X	X	X
SHORELINE MODIFICATIONS						
Breakwaters/jetties/rock weirs/groins	X	X	X	SD[26]/CU	SD[26/]CU	See adjacent upland environments
Dredging and dredge materials disposal	SD[26]/CU	SD[26]/CU	SD[26]/CU	SD[26]/CU	SD[26]/CU	
Fill waterward of the OHWM	SD[26]/CU	SD[26]/CU	SD[26]/CU	SD[26]/CU	SD[26]/CU	

[23] Construction of pedestrian and bicycle facilities only.

[24] This use may be allowed provided there is no other feasible route or location. Must be underground unless not feasible.

[25] Wireless towers are not permitted.

[1] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemption. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this Chapter.

[26] Permitted under a substantial development permit when associated with certain shoreline stabilization measures, and habitat and natural system enhancement projects. See KZC 83.300.10.g and KZC 83.350.

The chart is coded according to the following legend. SD = Substantial Development[1] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	**Natural**	**Urban Conservancy**	**Residential - L**	**Residential – M/H**	**Urban Mixed**	**Aquatic**
Land surface modification	SD[26]/CU	SD	SD	SD	SD	
Shoreline habitat and natural systems enhancement projects	SD	SD	SD	SD	SD	
Hard Structural Shoreline Stabilization	X	CU	SD	SD	SD	
Soft Structural Shoreline Stabilization Measures	X	SD	SD	SD	SD	

Use Specific Regulations

83.180 Shoreline Development Standards

1. General –
   a. See KZC 83.40 for relationship to other code and ordinances.
   b. Development standards specified in this Chapter shall not extend beyond the geographic limit of the shoreline jurisdiction, except as noted in the provisions contained below.
2. Development Standards Chart –
   a. The following chart establishes the minimum required dimensional requirements for development. At the end of the chart are footnotes pertaining to certain uses and activities.
   b. KZC Section 83.170 contains an overview of the activities permitted under each of the use classifications contained in the development standards chart.
   c. KZC 83.180 through KZC 83.550 contains additional standards for the uses and activities, including provisions for No Net Loss and Mitigation Sequencing in KZC 83.360 and federal and state approval in KZC 83.370.

SHORELINE DEVELOPMENT STANDARDS

83.180. 3

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	**Natural**	**Urban Conservancy**	**Residential – L**	**Residential – M/H**	**Urban Mixed**
Residential Uses						
Detached Dwelling Units and Accessory Dwelling Units						
Minimum Lot Size	n/a	12,500 sq. ft.	12,500 sq. ft.	12,500 sq. ft. except for the following: • 5,000 sq. ft. if located on east side of Lake St S, at 7th Ave S; and • 7,200 sq. ft. if subject to the Historic Preservation provisions of KMC 22.28.048	3,600 sq. ft.	3,600 sq. ft.

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	**Natural**	**Urban Conservancy**	**Residential – L**	**Residential – M/H**	**Urban Mixed**
Shoreline Setback[1]	n/a	Thirty (30) % of the average parcel depth, except in no case is the shoreline setback permitted to be less than 30 feet or required to be greater than 60 feet, except as otherwise specifically allowed through this Chapter.	Outside of shoreline jurisdictional area, if feasible, otherwise 50'.	30% of the average parcel depth, except in no case is the shoreline setback permitted to be less than 30 feet or required to be greater than 60 feet, except as otherwise specifically allowed through this Chapter. For those properties located along Lake Ave W south of the Lake Ave W Street End Park, the following standard shall apply: If dwelling units exist immediately adjacent to both the	The greater of: a. 25' or b.15% of the average parcel depth.	The greater of: a. 25' or b.15% of the average parcel depth.

[1] Critical area buffer and buffer setback requirements may impose a larger setback requirement. Please see Sections 83.500 and 83.510.

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential – L	Residential – M/H	Urban Mixed
				north and south property lines of the subject property, then the shoreline setback of the primary structure on the subject property is the average of the shoreline setback of these adjacent dwelling units, but at a minimum width of 15 feet. If a dwelling unit is not adjacent to the subject property, then the setback of the property without a dwelling unit for the purposes of determining an average setback shall be based upon 30% of the average parcel depth. Also see KZC 83.190.2.b.3		
Maximum Lot Coverage	n/a	50%	50%	50%	80%	80%, except in CBD zone

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential – L	Residential – M/H	Urban Mixed
						100% less area for shoreline vegetation if required.
Maximum Height of Structure[2]	n/a	25' above ABE[3]	35' above ABE	30' above ABE	35' above ABE	35' above ABE
Other Residential Uses (Attached, Stacked, and Detached Dwelling Units/multifamily; Assisted Living Facility; Convalescent Center or Nursing Home)						
Maximum Density[4]	n/a	n/a	n/a	n/a	3,600 sq. ft./unit, except 1,800 sq. ft./unit for up to 2 dwelling units if the public access provisions of KZC 83.420 are met	No minimum lot size in the CBD zones; otherwise 1,800 sq. ft./unit
Shoreline Setback[1]	n/a	n/a	n/a	n/a	The greater of: a. 25' or b.15% of the average parcel depth.	The greater of: a. 25' or b.15% of the average parcel depth. In the PLA 15A zone located south of NE 52nd Street, a mixed-use development approved under a Master Plan shall comply with the

[1] Critical area buffer and buffer setback requirements may impose a larger setback requirement. Please see Section 83.500 and 83.510.
[2] The height limit applies to that portion of the building physically located within the shoreline jurisdiction. Permitted increases in building height are addressed in KZC 83.190.4.
[3] Structure height may be increased to 30' above ABE in the Natural shoreline environment. See KZC83.190.4.c.1
[4] For density purposes 2 assisted living units shall be constitute one dwelling unit.

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential – L	Residential – M/H	Urban Mixed
						Master Plan provisions.
Maximum Lot Coverage	n/a	n/a	n/a	n/a	80%	80%, except in CBD zone 100% less area for shoreline vegetation if required.

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	**Natural**	**Urban Conservancy**	**Residential – L**	**Residential – M/H**	**Urban Mixed**
Maximum Height of Structure[2]	n/a	n/a	n/a	n/a	30' above ABE[5]	41' above ABE, except for the following: • In the CBD zones, if located on the east side of Lake Street South, 55' above the abutting right-of-way measured at the midpoint of the frontage of the subject property. • In the PLA 15A zone located south of NE 52nd Street, mixed-use developments approved under a Master Plan shall comply with the Master Plan provisions.[6]
Commercial Uses						
Minimum Lot Size	n/a	n/a	n/a	n/a	n/a	n/a

[2] The height limit applies to that portion of the building physically located within the shoreline jurisdiction. Permitted increases in building height are addressed in KZC 83.190.4
[5] Structure height may be increased to 35' above ABE. See KZC 83.190.4
[6] See KZC 83.190.4 for height in Master Plan.

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	**Natural**	**Urban Conservancy**	**Residential – L**	**Residential – M/H**	**Urban Mixed**
Shoreline Setback[1]	n/a	n/a	Water-dependent uses: 0', Water-related use: 25', Water-enjoyment use: 30', Other uses: Outside of shoreline jurisdictional area, if feasible, otherwise 50'.	n/a	The greater of: a. 25' or b.15% of the average parcel depth.	The greater of: a. 25'or b.15% of the average parcel depth. In the PLA 15A zone located south of NE 52nd Street, mixed-use developments approved under a Master Plan shall comply with the Master Plan provisions.
Maximum Lot Coverage	n/a	n/a	50%	n/a	80%	80%, except in the CBD. In CBD, 100% less area for shoreline vegetation if required.

[1] Critical area buffer and buffer setback requirements may impose a larger setback requirement. Please see Section 83.500 and 83.510.

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	**Natural**	**Urban Conservancy**	**Residential – L**	**Residential – M/H**	**Urban Mixed**
Maximum Height of Structure[2]	n/a	n/a	If adjoining the Residential-L Shoreline Environment, then 25' above ABE. Otherwise, 30' above ABE.[3]	n/a	30' above ABE[5]	41' above ABE, except for: • In the CBD zones, if located on the east side of Lake St S, 55' above the abutting right-of-way measured at the midpoint of the frontage of the subject property. • In the PLA 15A zone located south of NE 52nd Street, mixed-use developments approved under a Master Plan shall comply with the Master Plan provisions. [6]
Recreational Uses						
Minimum Lot Size	n/a	n/a	n/a	n/a	n/a	n/a
Shoreline Setback[1]	n/a	Water-dependent	Water-dependent uses: 0', Water-	30% of the average parcel depth,	The greater of:	The greater of:

[6] See KZC 83.190.4 for height in Master Plan.
[1] Critical area buffer and buffer setback requirements may impose a larger setback requirement. Please see Section 83.500 and 83.510.
[2] The height limit applies to that portion of the building physically located within the shoreline jurisdiction. Permitted increases in building height are addressed in KZC 83.190.4
[3] Structure height may be increased to 30' above ABE in the Natural shoreline environment. See KZC83.190.4.c.1
[5] Structure height may be increased to 35' above ABE. See KZC 83.190.4

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	**Natural**	**Urban Conservancy**	**Residential – L**	**Residential – M/H**	**Urban Mixed**
		uses: 0', Water-related use: 25', Water-enjoyment use: 30', Other uses: Outside of shoreline area, if feasible, otherwise 50'.	related use: 25', Water-enjoyment use: 30', Other uses: Outside of shoreline jurisdictional area, if feasible, otherwise 50'.	except in no case is the shoreline setback permitted to be less than 30 feet or required to be greater than 60 feet, except as otherwise specifically allowed through this Chapter.	a. 25' or b.15% of the average parcel depth.	a. 25' or b.15% of the average parcel depth. In the PLA 15A zone located south of NE 52nd Street, mixed-use developments approved under a Master Plan shall comply with the Master Plan provisions.
Maximum Lot Coverage	n/a	10%	30%	30%	80%	80%, except in CBD zone 100% less area for shoreline vegetation if required.
Maximum Height of Structure[2]	n/a	25' above ABE	If adjoining the Residential-L Shoreline Environment, then 25' above ABE. Otherwise, 30' above ABE[3]	25' above ABE	30' above ABE[4]	41' above ABE, except for the following: • In the CBD zones, if located on the east side of Lake St S, 55' above the abutting right-of-way measured at the midpoint of the frontage

[2] The height limit applies to that portion of the building physically located within the shoreline jurisdiction. Permitted increases in building height are addressed in KZC 83.190.4

[3] Structure height may be increased to 30' above ABE in the Natural shoreline environment. See KZC 83.190.4.c.1

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential – L	Residential – M/H	Urban Mixed
						of the subject property. • In the PLA 15A zone located south of NE 52nd Street, mixed-use developments approved under a Master Plan shall comply with the Master Plan provisions.
Institutional Uses						
Minimum Lot Size	n/a	n/a	n/a	n/a	n/a	n/a
Shoreline Setback[1]	n/a	n/a	Outside of shoreline jurisdictional area, if feasible, otherwise 50'.	Outside of the shoreline jurisdictional area, if feasible, otherwise 30% of the average parcel depth, except in no case is the shoreline setback permitted to be less than 30 ft. or required to be greater than 60 ft., except as	The greater of: a. 25' or b.15% of the average parcel depth.	The greater of: a. 25' or b.15% of the average parcel depth.

[1] Critical area buffer and buffer setback requirements may impose a larger setback requirement. Please see Section 83.500 and 83.510.

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	**Natural**	**Urban Conservancy**	**Residential – L**	**Residential – M/H**	**Urban Mixed**
				otherwise specifically allowed through this Chapter.		
Maximum lot coverage	n/a	n/a	50%	50%	80%	80%, except in CBD zone 100% less area for shoreline vegetation if required.
Maximum height of structure[2]	n/a	n/a	If adjoining the Residential-L Shoreline Environment, then 25' above ABE. Otherwise, 30' above ABE[3]	25' above ABE	30' above ABE[5]	41' above ABE, except In the CBD zones, if located on the east side of Lake St S, 55' above the abutting right-of-way measured at the midpoint of the frontage of the subject property.
Transportation Facilities						
Minimum Lot Size	n/a	n/a	n/a	n/a	n/a	n/a
Shoreline Setback[1]	n/a	n/a	Outside of shoreline area, if feasible, otherwise 50'.	30% of the average parcel depth, except in no case is the	The greater of: a. 25' or b.15% of the average	The greater of: a. 25' or b.15% of the average parcel

[1] Critical area buffer and buffer setback requirements may impose a larger setback requirement. Please see Section 83.500 and 83.510.
[2] The height limit applies to that portion of the building physically located within the shoreline jurisdiction. Permitted increases in building height are addressed in KZC 83.190.4
[3] Structure height may be increased to 30' above ABE in the Natural shoreline environment. See KZC83.190.4.c.1
[5] Structure height may be increased to 35' above ABE. See KZC 83.190.4

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential – L	Residential – M/H	Urban Mixed
				shoreline setback permitted to be less than 30 feet or required to be greater than 60 feet, except as otherwise specifically allowed through this Chapter.	parcel depth.	depth.
Maximum Lot Coverage	n/a	n/a	n/a	n/a	n/a	n/a
Maximum Height of Structure[2]	n/a	n/a	n/a	n/a	n/a	n/a
Utilities						
Minimum Lot Size	n/a	n/a	n/a	n/a	n/a	n/a
Shoreline Setback[1]	n/a	Outside of shoreline area, if feasible, otherwise 50'.	Outside of shoreline area, if feasible, otherwise 50'.	30% of the average parcel depth, except in no case is the shoreline setback permitted to be less than 30 feet or required to be	The greater of: a. 25' or b.15% of the average parcel depth.	The greater of: a. 25' or b.15% of the average parcel depth.

[1] Critical area buffer and buffer setback requirements may impose a larger setback requirement. Please see Section 83.500 and 83.510.
[2] The height limit applies to that portion of the building physically located within the shoreline jurisdiction. Permitted increases in building height are addressed in KZC 83.190.4

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	**Natural**	**Urban Conservancy**	**Residential – L**	**Residential – M/H**	**Urban Mixed**
				greater than 60 feet, except as otherwise specifically allowed through this Chapter.		
Maximum Lot Coverage	n/a	5%	30%	50%	80%	80%, except in CBD zone 100% less area for shoreline vegetation if required.
Maximum Height of Structure[2]	n/a	25' above ABE	If adjoining the Residential-L Shoreline Environment, then 25' above ABE. Otherwise, 30' above ABE[3]	25' above ABE	30' above ABE[5]	41' above ABE, except: • In the CBD zones if located on the east side of Lake St South, 55' above the abutting right-of-way measured at the midpoint of the frontage of the subject property. • In the PLA 15A zone located south of NE 52nd Street, mixed-use developments approved under a Master Plan

[2] The height limit applies to that portion of the building physically located within the shoreline jurisdiction. Permitted increases in building height are addressed in KZC 83.190.4
[3] Structure height may be increased to 30' above ABE in the Natural shoreline environment. See KZC83.190.4.c.1
[5] Structure height may be increased to 35' above ABE. See KZC 83.190.4

DEVELOPMENT STANDARDS	SHORELINE ENVIRONMENT					
	Aquatic	Natural	Urban Conservancy	Residential – L	Residential – M/H	Urban Mixed
						shall comply with the Master Plan provisions.[5]

[5] Structure height may be increased to 35' above ABE. See KZC 83.190.4

83.190 Lot Size or Density, Shoreline Setback, Lot Coverage and Height

1. Calculation of Minimum Lot Size or Maximum Density

   a. Development shall not use lands waterward of the OHWM to determine minimum lot size or to calculate allowable maximum density.

   b. For properties that are only partially located within the shoreline jurisdiction, the allowed density within the shoreline jurisdiction shall be based upon the land area located within the shoreline jurisdiction only. If dwelling units will be partially located within the shoreline jurisdiction, the City may approve an increase in the actual number of units in the shoreline jurisdiction, provided that the total square footage of the units within the shoreline jurisdiction does not exceed the allowed density multiplied by the average unit size in the proposed development on the subject property.

   c. If a maximum density standard is used, the number of permitted dwelling units shall be rounded up to the next whole number (unit) if the fraction of the whole number is at least 0.50.

   d. For detached dwelling units, the provisions addressing lot size, lot size averaging, and historic preservation contained in Chapter 22.28 KMC shall apply within the shoreline jurisdiction.

2. Shoreline Setback

   a. General – This section establishes what structures, improvements, and activities may be in or take place in the shoreline setback established for each use in each shoreline environment.

   b. Measurement of Shoreline Setback

      1) The shoreline setback shall be measured landward from the OHWM on the horizontal plane and in the direction that results in the greatest dimension from the OHWM (see Plate XX).

      2) In those instances where the OHWM moved further upland pursuant to any action required by this Chapter, or in accordance with permits involving a shoreline habitat and natural systems enhancement project approved by the City, a state or federal agency, the shoreline setback shall be measured from the location of the OHWM that existed immediately prior to the action or enhancement project.

      3) For those properties located along Lake Ave West south of the Lake Ave W Street End Park in the Residential – L environment, in instances where the shoreline setback of adjacent dwelling units has been reduced through a shoreline reduction authorized under KZC Section 83.380, the shoreline setback of these adjacent dwelling units, for the purpose of calculating a setback average, shall be based upon the required setback that existed prior to the authorized reduction.

      4) In those instances where there is an intervening property that is 60 feet in depth between the OHWM and an upland property, a shoreline setback shall be provided on the upland property based on the average parcel depth of the upland property. The setback on the upland property shall be measured from the OHWM across the intervening property and the upland property.

   c. Exceptions and Limitations in Some Zones – KZC Sections 83.190 through 83.250 contain specific regulations regarding what may be in or take place in the shoreline setback. Where applicable, those specific regulations supersede the provisions of this section.

   d. Structures and Improvements – The following improvements or structures may be located in the shoreline setback, except within the Natural shoreline environment, provided that they are constructed and maintained in a manner that meets KZC 83.360 for avoiding or at least minimizing adverse impacts to shoreline ecological functions:

1) For public pedestrian access required under KZC 83.420, walkways, benches, and similar features, as approved by the Planning Official.

2) For private pedestrian access to the shoreline, walkways within the shoreline setback are permitted, subject to the following standards:

   a) The maximum width of the walkway corridor area shall be no more than 25 percent of the property's shoreline frontage, except in no case shall the corridor area required be less than 15 feet in width (see Plate XX).

   b) The walkway corridor area shall be located outside of areas of higher ecological and habitat value.

   c) The walkway in the corridor area shall be no more than 8 feet wide, and be constructed of a pervious walking surface, such as unit pavers, grid systems, pervious concrete, or, equivalent material approved by the Planning Official.

   d) The walkway corridor area may contain minor improvements, such as garden sculptures, light fixtures, trellises and similar decorative structures that are associated with the walkway, provided that these improvements comply with the dimensional limitations required for the walkway corridor area and any view corridor requirements under KZC Section 83.410. Light fixtures approved under this subsection shall comply with the provisions contained in KZC 83.470.

3) Those portions of a water-dependent development that require improvements adjacent to the water's edge, such as fueling stations for retail establishments providing gas sales, haul-out areas for retail establishments providing boat and motor repair and service, boat ramps for boat launches or other similar activities.

4) Public access facilities or other similar public water-enjoyment recreational uses, including swimming beaches.

5) Underground utilities accessory to a shoreline use approved by the Planning Official, provided there is no other feasible route or location.

6) Bioretention swales, rain gardens, or other similar bioretention systems that allow for filtration of water through planted grasses or other native vegetation.

7) Infiltration systems provided that installation occurs as far as feasible from the OHWM.

8) Bay windows, greenhouse windows, eaves, cornices, awnings, and canopies may extend up to 18 inches into the shoreline setback, subject to the following limitations:

   a) Eaves on bay windows may extend an additional 18 inches beyond the bay window.

   b) Chimneys that are designed to cantilever or otherwise overhang are permitted.

   c) The total horizontal dimension of these elements that extend into the shoreline setback, excluding eaves and cornices, shall not exceed 25 percent of the length of the facade of the structure.

9) Decks, patios and similar improvements may extend up to 10 feet into the shoreline setback but shall not be closer than 25 feet to the OHWM, except no closer than 15 feet to the OHWM within the Residential – L environment south of the Lake Ave West Street End Park, subject to the following standards:

   a) The improvement shall be constructed of a pervious surface, such as wood with gaps between boards and a pervious surface below, unit pavers, grid systems, pervious concrete, or, alternatively, equivalent material approved by the Planning Official.

   b) The total horizontal dimension of the improvement that extends into the shoreline setback shall not exceed 50 percent of the length of the facade of the residence structure.

c) The improvement shall be located on the ground floor of the building and shall not be elevated more than necessary to allow for grade transition from the structure to the deck or to follow the existing topography.

10) In the Urban Mixed environment, balconies at least 15 feet above finished grade may extend up to 4 feet into the required shoreline setback, but no closer than 21 feet to the OHWM.

11) Outdoor seating areas for restaurants, hotels and other water enjoyment commercial uses may extend up to 10 feet into the shoreline setback, but shall be no closer than 16 feet to the OHWM, subject to the following standards:

a) The improvement shall be constructed of a permeable surface, such as wood with gaps between boards and a pervious surface below, unit pavers, grid systems, porous concrete, or equivalent material approved by the Planning Official.

b) The total horizontal dimension of the improvement that extends into the shoreline setback shall not exceed 50 percent of the length of the facade of the primary structure.

c) The improvement shall be located on the ground floor of the building and shall not be elevated more than necessary to allow for grade transition from the structure to the seating area or to follow the existing topography.

d) All outdoor lighting is required to meet the lighting standards of KZC 83.470.

e) The seating area is required to be fenced off from the shoreline by rope stanchions, portable planters, or similar device approved by the City, with openings through the fencing for customer entry. The floor plan of the seating area shall be designed to preclude the seating area from being expanded.

f) The applicant is required to provide one (1) or more approved trash receptacles and one (1) or more ashtrays.

g) The area of the seating shall be considered new gross floor area for the purposes of determining whether vegetation is required under the provisions of KZC 83.400.

12) Retaining walls and similar structures that are no more than four (4) feet in height above finished grade; provided the following standards are met:

a) The structure shall be designed so that it does not interfere with the shoreline vegetation required to be installed under the provisions of KZC 83.400;

b) The structure shall not be installed to provide the function of a hard shoreline stabilization measure unless approved under the provisions of KZC 83.300 and shall be located, on average, five (5) feet landward or greater of the OHWM, and

c) The structure shall meet the view corridor provisions of KZC 83.410.

13) Public bridges and other essential public facilities that must cross the shoreline.

14) Parking as authorized by the Planning Official under the provisions of KZC 83.440.

15) Shoreline stabilization measures approved under the provisions of KZC 83.300.

16) Fences, swimming pools, tool sheds, greenhouses and other accessory structures and improvements are not permitted within the shoreline setback, except those specifically listed above in subsection 83.190 2.d.2).d).

3. Maximum Lot Coverage –

a. General –

1) KZC 83.180.3, Development Standards Chart, establishes the maximum lot coverage by use and shoreline environment.

2) In calculating lot coverage, lands waterward of the OHWM shall not be included in the calculation.

3) The area of all structures and pavement and any other impervious surface on the subject property will be calculated under either of the following, at the discretion of the applicant:

   1) A percentage of the total lot area of the subject property, or

   2) A percentage of the area of the subject property located within the shoreline jurisdiction.

4) If the subject property contains more than one use, the maximum lot coverage requirements for the predominant use will apply.

5) In those instances where the OHWM moved further upland pursuant to any action required by this Chapter, or in accordance with permits involving a shoreline habitat and natural systems enhancement project approved by the City, a state or federal agency, the lot area for purposes of calculating lot coverage shall be measured from the location of the OHWM that existed immediately prior to the enhancement project.

b. Exceptions – The exceptions contained in Chapter 115 KZC shall apply within the shoreline jurisdiction.

4. Height Regulations –

a. General –

1) KZC 83.180.3, Development Standards Chart, establishes the maximum allowed building height for all primary and accessory structures. In the event that the maximum allowable building height in KZC 83.180.3 is greater than the maximum allowable height in the Kirkland Zoning Code, the lower of the two (2) height provisions shall apply.

2) Maximum building height shall be measured from an average building elevation (ABE), calculated under the methods described in KZC 115 and depicted in Plates 17A and 17B. The calculation of ABE shall be based on all wall segments of the structure, whether or not the segments are located within the shoreline jurisdiction.

3) In the CBD zones, maximum building height shall be measured from the midpoint of the abutting right-of-way, not including alleys.

4) Pursuant to RCW 90.58.320, no permit shall be issued for any new or expanded building or structure more than 35 feet above average grade level that will obstruct the view to the lake of a substantial number of residences on or adjoining the shoreline, except where this Chapter does not prohibit a height of more than 35 feet and only when overriding considerations of the public interest will be served. The applicant shall be responsible for providing sufficient information to the City to determine whether such development will obstruct the view to the lake for a substantial number of residences on or adjoining such shorelines. For the purposes of this provision, average grade level is equivalent to and shall be calculated under the method for calculating average building elevation established in Option 2 as described in KZC 115 for calculating average building elevation and depicted in Plate 17B.

b. Exceptions –

Element or feature of a structure, other than the appurtenances listed below, shall not exceed the applicable height limitation established for each use in each shoreline environment. The following appurtenances shall be located and designed so that views from adjacent properties to the lake will not be significantly blocked.

1) Antennas, chimneys, and similar appurtenances, but not including personal wireless service facilities that are subject to the provisions of Chapter 117 KZC.

2) Rooftop appurtenances and their screens as regulated in KZC 115.

3) Decorative parapets or peaked roofs approved through design review pursuant to Chapter 142 KZC.

4) Rooftop solar panels or other similar energy devices provided that the equipment is mounted as flush to the roof as feasible.

c. Permitted Increases in Height – The following permitted increases in building height shall be reviewed by the City as part of the shoreline permit required for the proposed development activity.

1) In the Natural shoreline environment, the structure height of a detached dwelling unit may exceed the standard height limit by a maximum of 5 feet above average building elevation if a reduction in the footprint of the building is sufficient to lessen the impact on a sensitive area and sensitive area buffer. The City shall include in the written decision any conditions and restrictions that it determines are necessary to eliminate or minimize any undesirable effects of approving the exception.

2) In the Residential – M/H and Urban Conservancy shoreline environments located south of Market Street, the structure height of a commercial, recreational, institutional, utility or residential use, other than a detached dwelling unit, may be increased to 35 feet above average building elevation if:

a) Obstruction of views from existing development lying east of Lake St South or Lake Washington Boulevard is minimized. The applicant shall be responsible for providing sufficient information to the City to evaluate potential impacts to views; and

b) The increase is offset by an enhanced view corridor beyond what is required in KZC 83.410.

3) Properties in the PLA 15A zone in the UM Shoreline Environment that contain mixed-use development where building heights have been previously established under an approved Master Plan shall comply with the building height requirements as approved. Modifications to the approved building heights shall be considered under the standards established in the Master and in consideration of the compatibility with adjacent uses and the degree to which public access, use and views are provided.

4) In all shoreline environments, the maximum height may be increased up to 35 feet if the City approves a Planned Unit Development under the provisions of KZC Chapter 125.

83.200 Residential Uses

1. General – Residential uses shall not occur over water, including houseboats, live-aboards, or other single- or multi-family dwelling units.

2. Detached Dwelling Units in the Residential-L environment- Not more than one (1) dwelling unit shall be on each lot, regardless of the size of each lot, except an accessory dwelling unit.

3. Accessory Structures or Uses - Accessory uses and structures shall be located landward of the principal residence, unless the structure is or supports a water-dependent use.

83.210 Commercial Uses

1. Float Plane Landing and Mooring Facilities –

a. Use of piers or docks for commercial float plane service shall be allowed only in public or private marinas and shall be subject to a conditional use permit.

b. Any shoreline conditional use permit for float plane use shall specify:

1) Taxiing patterns to be used by float planes that will minimize noise impacts on area residents and wildlife and minimize interference with navigation and moorage;

2) Float plane facilities and services shall conform to all applicable City codes and Federal Aviation Administration standards and requirements for fuel, oil spills, safety and firefighting equipment, noise, and pedestrian and swimming area separation; and

3) Hours of operation may be limited to minimize impacts on nearby residents.

2. Retail establishment providing new or used Boat Sales or Rental – Outdoor boat parking and storage areas must be buffered as required for a parking area under the provisions of KZC 83.440.

3. Retail Establishment Providing Gas and Oil Sale for Boats –

   a. The location and design of fueling facilities must meet applicable state and federal regulations.

   b. Storage of petroleum products shall not be located over water.

   c. Storage tanks shall be located underground and shall comply with state and federal standards for Underground Storage Tanks.

   d. Fueling stations shall be located and designed to allow for ease of containment and spill cleanup.

   e. New fueling facilities shall incorporate the use of automatic shutoffs on fuel lines and at hose nozzles to reduce fuel loss.

   f. Facilities, equipment and established procedures for the containment, recovery and mitigation of spilled petroleum products shall be provided.

   g. See KZC 83.360 for avoiding and minimizing impacts when locating, designing, constructing and operating the use.

4. Retail Establishment Providing Boat and Motor Repair and Service –

   a. Storage of parts shall be conducted entirely within an enclosed structure.

   b. If hull scraping, boat painting, or boat cleaning services is provided, boats shall be removed from the water and debris shall be captured and disposed in a proper manner.

   c. Repair and service activities shall be conducted on dry land and either totally within a building or totally sight screened from adjoining property and the right-of-way.

   d. All dry land motor testing shall be conducted within a building.

   e. An appropriate storage, transfer, containment, and disposal facility for liquid material, such as oil, harmful solvents, antifreeze, and paints shall be provided and maintained.

   f. Facilities, equipment and established procedures for the containment, recovery and mitigation of spilled petroleum or hazardous products shall be provided.

5. Restaurant or Tavern –

   a. The building design must be oriented for the view to the waterfront.

   b. Drive-in or drive-through facilities are prohibited.

83.220 Recreational Uses

1. Motorized Boats – See KMC Chapter 14.24, Operation of Watercraft, for prohibition of use within restricted shoreline areas and established speed limits.

2. Floats/swim platforms – Only public floats/swim platforms are permitted.

3. Marina, Piers, Moorage Buoy or Pilings, Boat Facility and Boat Canopies – See standards contained in KZC 83.270 through 290.

4. Tour Boat Facility – Tour Boat Facilities shall be designed to meet the following standards:

a. Size – The City will determine the maximum capacity of the tour boat facility based on the following factors:

   1) The suitability of the environmental conditions, such as, but not limited to, a consideration of the following conditions: the presence of submerged aquatic vegetation, proximity to shoreline associated wetlands, critical nesting and spawning areas, water depth, water circulation, sediment inputs and accumulation, and wave action

   2) The ability of the land landward of the high waterline to accommodate the necessary support facilities.

b. Moorage structures supporting a tour boat facility shall comply with the moorage structure location standards and design standards for Marinas in KZC Section 83.290.

c. The City will make the determination if any parking and/or a passenger loading area will be required.

d. Associated buildings and structures, other than moorage structure for the tour boat facility, shall not be permitted over water.

e. Tour boat facilities shall comply with applicable state and/or federal laws, including but not limited to those for registration, licensing of crew and safety regulations.

f. Tour boat facilities operated accessory to public parks shall comply with the standards in Chapter 14.36 KMC.

g. See KZC 83.360 for avoiding and minimizing impacts when locating, designing, constructing and operating the use.

5. Public Access Pier, Dock or Boardwalk –

   a. See KZC 83.360 for avoiding and minimizing impacts when locating, designing and constructing the use minimizing impacts.

   b. No accessory uses, buildings, or activities are permitted as part of this use.

   c. See KZC 83.370 for federal and state approvals prior to submittal of a building permit for this use.

   d. Must provide at least one (1) covered and secured waste receptacle upland of the OHWM.

   e. All utility and service lines located waterward of the OHWM must be below the pier deck. All utility and service lines located upland of the OHWM shall be underground, where feasible.

   f. Piers or docks shall be marked with reflectors, or otherwise identified to prevent unnecessarily hazardous conditions for water surface users during the day or night.

   g. Structures must display the street address of the subject property. The address must be oriented to the lake with letters and numbers at least four inches high and visible from the lake.

   h. Public access structures shall not be within 10 feet of a side property line, except that setbacks between moorage structures and north and south property lines may be decreased for over-water public use facilities that connect with waterfront public access on adjacent property.

   i. Public access structures shall be separated from the outlet of a stream, including piped streams, by the maximum extent feasible, while meeting other required setback standards established under this section.

   j. Pier structures shall comply with the moorage structure design standards for Marinas in KZC 83.290, except primary walkways and floats shall be no wider than 8 feet.

6. Boat Launch (for non-motorized boats) –

a. Location Standards ¬ Boat launches for non-motorized boats shall be sited so that they do not significantly damage fish and wildlife habitats and shall not occur in areas with native emergent vegetation. Removal of native upland vegetation shall be minimized to the greatest extent feasible.

b. Size - The applicant shall demonstrate that the proposed size of the boat launch is the minimum necessary to safely launch the intended craft.

c. Design Standards ¬ Boat launches for non-motorized boats shall be constructed of gravel or other similar natural material.

7. Boat Launch (for motorized boats) -

a. Location Standards ¬

1) Boat launches shall not be approved in cases when it can be reasonably foreseen that the development or use would require maintenance dredging during the life of the development or use.

2) Boat launches shall be designed and located according to the following criteria:

a) Separated from existing designated swimming areas by a minimum of 25 feet.

b) Meet KZC 83.360 for avoiding impacts to fish and wildlife habitats.

c) Located only at sites with suitable transportation and access. The applicant must demonstrate that the streets serving the boat launch can safely handle traffic generated by such a facility.

d) Not be located within 25 feet of a moorage structure not on the subject property; or within 50' of the outlet of a stream, including piped streams.

b. Size - The applicant shall demonstrate that the proposed length of the ramp is the minimum necessary to safely launch the intended craft. In no case shall the ramp extend beyond the point where the water depth is 6 feet below the OHWM, unless the City determines that a greater depth is needed for a public boat launch facility.

c. Design Standards ┤

1) Preferred ramp designs, in order of priority, are:

a) Open grid designs with minimum coverage of lake substrate.

b) Seasonal ramps that can be removed and stored upland.

c) Structures with segmented pads and flexible connections that leave space for natural beach substrate and can adapt to changes in shoreline profile.

2) The design shall comply with all regulations as stipulated by state and federal agencies, affected tribes, or others that have jurisdiction.

d. Boat launches shall provide trailer spaces, at least 10 feet by 40 feet, commensurate with projected demand.

8. Public Park - Recreation facilities that support non-water related, high-intensity activities, such as basketball and tennis courts, baseball and soccer fields and skate parks, shall be located outside of shoreline jurisdiction to the extent feasible.

9. Public Access Facility -

a. Fragile and unique shoreline areas with valuable ecological functions, such as wetlands and wildlife habitats, shall be used only for non-intensive recreation activities, such as trails, viewpoints, interpretative signage and similar passive and low-impact facilities.

b. Physical public access shall be located, designed and constructed to meet KZC 83.360 for net loss of shoreline ecological functions.

83.230 Transportation Facilities

1. General -
   a. See KZC 83.360 for avoiding and minimizing impacts when locating, designing, constructing and operating the use.
   b. Transportation facilities shall utilize existing transportation corridors whenever feasible; provided, that facility additions and modifications that will not adversely impact shoreline resources and otherwise consistent with this program are allowed. If expansion of the existing corridor will result in significant adverse impacts, then a less disruptive alternative shall be utilized.
   c. When permitted within shoreline areas, transportation facilities must be placed and designed to minimize negative aesthetic impacts upon shoreline areas and to avoid and minimize impacts to existing land uses, public shoreline views, public access, and the natural environment.
   d. Transportation and utility facilities shall be required to make joint use of rights-of-way, and to consolidate crossings of water bodies to minimize adverse impacts to the shoreline.
   e. Transportation facilities located in shoreline areas must be designed and maintained to prevent erosion and to permit the natural movement of surface water.
2. Construction and Maintenance -
   a. All debris and other waste materials from roadway construction and maintenance shall be disposed of in such a way as to prevent their entry into any water body.
   b. All shoreline areas disturbed by facility construction and maintenance shall be replanted and stabilized with approved riparian vegetation by seeding, mulching, or other effective means immediately upon completion of the construction or maintenance activity. Such vegetation shall be maintained until established.
   c. Clearing of vegetation within transportation corridors shall be the minimum necessary for infrastructure maintenance and public safety. The City shall give preference to mechanical means rather than the use of herbicides for roadside brush control on city roads in shoreline jurisdiction.
   d. Construct facilities that cross streams to allow passage of fish inhabiting the stream or that may inhabit the stream in the future are allowed.
   e. Construct facilities within the 100-year floodplain to allow for water pass-through is allowed.
3. Passenger-only Ferry Terminal -
   a. See KZC 83.360 for minimizing impacts when locating, designing, constructing and operating the use.
   b. Associated buildings and structures, other than moorage structure for the ferry terminal, shall not be permitted over water.
   c. Equipment storage shall be conducted entirely within an enclosed structure.
   d. Facilities, equipment and established procedures for the containment, recovery and mitigation of spilled petroleum or hazardous products shall be provided.
   e. The City will make the determination if any parking and/or a passenger loading area will be required.
4. Water Taxi -
   a. See KZC 83.360 for avoiding and minimizing impacts when locating, designing, constructing and operating the use.
   b. Equipment storage shall be conducted entirely within an enclosed structure.

c. Facilities, equipment and established procedures for the containment, recovery and mitigation of spilled petroleum or hazardous products shall be provided.

5. Arterials, Collectors, and Neighborhood Access Streets and Bridges –

a. New street and bridge construction in shoreline jurisdiction shall be minimized and allowed only when related to and necessary for the support of permitted shoreline activities.

b. Streets other than those providing access to approved shoreline uses shall be located away from the shoreline, except when no reasonable alternate location exists.

c. Any street expansion affecting streams and waterways shall be designed to allow fish passage and minimum impact to habitat.

d. Drainage and surface runoff from streets and street construction or maintenance areas shall be controlled so that pollutants will not be carried into water bodies.

e. Streets within shoreline jurisdiction shall be designed with the minimum pavement area feasible.

f. Streets shall be designed to provide frequent safe crossings for pedestrians and bicycles seeking access to public portions of the shoreline.

g. Low impact development techniques shall be used where feasible for roadway or pathway and related drainage system construction.

h. Street alignments shall be designed to fit the topography so that alterations of the natural site conditions will be minimized.

i. New and expanded streets or bridges shall be designed to include pedestrian amenities, such as benches or view stations and public sign systems, if an area is available for the improvement that identifies significant features along the shoreline.

j. Vegetation and street trees shall be selected and located so that they do not impair public views of the lake from public rights of way to the maximum extent feasible.

k. Shoreline street ends may be used for public access or recreational purposes.

l. Shoreline street ends shall not be vacated except in compliance with RCW 35.79.035 or its successor, as well as KMC 19.16.090.

83.240 Utilities

1. General –

a. See KZC 83.360 for avoiding and minimizing impacts when locating, designing, constructing and operating the use

b. Whenever feasible, utility facilities shall be located outside the shorelines area. Whenever these facilities must be placed in a shoreline area, the location shall be chosen so as not to adversely impact shoreline ecological functions or obstruct scenic views.

c. Utilities shall be located in existing rights-of-way and utility corridors wherever feasible.

d. New utilities shall not be located waterward of the OHWM or in the Natural shoreline environment unless it is demonstrated that no feasible alternative exists.

e. Utility lines, pipes, conduits, cables, meters, vaults, and similar infrastructure and appurtenances shall be placed underground consistent with the standards of the serving utility to the maximum extent feasible.

f. Proposals for new utilities or new utility corridors in the shoreline jurisdiction must fully substantiate the infeasibility of existing routes or alternative locations outside of the shoreline jurisdiction.

g. Utilities that are accessory and incidental to a shoreline use shall be reviewed under the provisions of the use to which they are accessory.

h. Utilities shall provide screening of facilities from the lake and adjacent properties in a manner that is compatible with the surrounding environment. The City will determine the type of screening on a case-by-case basis.

i. Utility development shall, through coordination with local government agencies, provide for compatible, multiple uses of sites and rights-of-way. Such uses include shoreline access points, trail systems and other forms of recreation and transportation, providing such uses will not unduly interfere with utility operations, or endanger public health and safety.

2. Construction and Maintenance –

a. All shoreline areas disturbed by utility construction and maintenance shall be replanted and stabilized with approved vegetation by seeding, mulching, or other effective means immediately upon completion of the construction or maintenance activity. Such vegetation shall be maintained until established.

b. Clearing of vegetation within utility corridors shall be the minimum necessary for installation, infrastructure maintenance and public safety.

c. Construction of pipelines placed under aquatic areas shall be placed in a sleeve in order to avoid the need for excavation in the event of a failure in the future.

d. Construction located near wetlands and streams shall use native soil plugs, collars or other techniques to prevent potential dewatering impacts.

e. See KZC 83.480 for conducting maintenance activities that minimize impacts.

3. Utility production and processing facilities - Utility production and processing facilities not dependent on a shoreline location shall be located outside of the shoreline jurisdiction, unless it is demonstrated that no feasible alternative location exists.

4. Utility Transmission Facilities –

a. Transmission facilities shall be located outside the shoreline jurisdiction where feasible, and when necessarily located within shoreline areas, shall assure no net loss of shoreline ecological functions.

b. Pipelines transporting hazardous substances or other substances harmful to aquatic life or water quality are prohibited, unless it is demonstrated that no feasible alternative exists.

c. Sanitary sewers shall be separated from storm sewers.

5. Personal Wireless Service Facilities – Personal Wireless Service Facilities shall use concealment strategies to minimize the appearance of antennas and other equipment from the lake and public pedestrian walkways or public use areas.

83.250 Land Division

1. New lots created through land division in the shoreline shall only be permitted when the following standards are met:

a. The lots created will not require structural flood hazard reduction measures, such as dikes, levees, or stream channel realignment, during the life of the development or use.

b. The lots created will not require hard structural shoreline stabilization measures in order for reasonable development to occur, as documented in a geotechnical analysis of the site and shoreline characteristics.

c. In the Natural and Urban Conservancy shoreline environments, the lots created shall contain buildable land area located outside of the shoreland area.

2. Land division, except those for lot line adjustment and lot consolidation purposes, shall provide public access as provided for in KZC 83.420, unless otherwise excepted or modified under the provisions of KZC 83.420.
3. Land divisions shall establish a prohibition on new private piers and docks on the face of the plat. An area for joint use moorage may be approved if it meets all requirements for shared moorage in KZC 83.270.
4. The required view corridor and public access shall be established prior to recording of the land division consistent with KZC 83.410 and 83.420 and shall be depicted on the face of the recorded document.

Shoreline Modification Regulations

83.260 General

1. See KZC 83.360 for no net loss standard and mitigation sequencing.
2. See KZC 83.370 for federal and state approval required prior to submittal of a building permit.
3. See KZC 83.430 for in water construction.
4. Structures must be designed to preclude moorage in locations that would have insufficient water depth to avoid boats resting on the substrate at any time of year.

83.270 Piers, Docks, Moorage Buoys and Piles, Boatlifts and Boat Canopies Serving a Detached Dwelling Unit Use (Single-family)

1. General –

   a. Piers, Docks, Moorage Buoys and Piles, Boatlifts and Canopies may only be developed and used accessory to existing dwelling units on waterfront lots or upland lots with waterfront access rights. Use of these structures is limited to the residents and guests of the waterfront lots to which the moorage is accessory. Moorage space shall not be leased, rented, or sold unless otherwise approved as a Marina under the provisions of KZC 83.290.

   b. In the following circumstances, a joint use pier shall be required:

      1) On lots subdivided to create additional lots with waterfront access rights.

      2) New residential development of two or more dwelling units with waterfront access rights.

   c. Piers, docks, boatlifts and moorage piles shall be designed and located to meet KZC 83.360 for no net loss standard and mitigation sequencing.

   d. For proposed extension of structures proposed waterward of the Inner Harbor Lines, see KZC 83.370.

2. Setbacks

   a. All piers, docks, boatlifts and moorage piles for Detached Dwelling Unit Use shall comply with the following location standards:

New Pier, Dock, Boatlift and Moorage Pile for Detached Dwelling Unit	Minimum Setback Standards
Side property lines	5 ft for moorage pile; otherwise 10 ft.
Another moorage structure not on the subject property, excluding adjacent moorage structure that does not comply with required side property line setback	25 ft., except that this standard shall not apply to moorage piles
Outlet of a stream regulated under KZC 90, including piped streams	Maximum distance feasible while meeting other required setback standards established under this section
Public park	25 ft., except that this standard shall not apply within the Urban Mixed shoreline environment.

   b. Joint-use structures may abut property lines provided the property owners sharing the moorage facility have mutually agreed to the structure location. To insure that a pier is shared, each property owner must sign a statement in a form acceptable to the City Attorney,

stating that the pier or dock is used by the other property. The applicant must file this statement with the King County Recorder's Office to run with the properties.

3. General Standards

   a. Proposed piers and docks that do not comply with the dimensional standards contained in this section or cannot be permitted through the Administrative Approval for Alternative Design process in this section may only be approved if they obtain a shoreline variance under the provisions of KZC Chapter 141.70.3.

   b. All piers and docks and other developments regulated by this section shall be constructed and maintained in a safe and sound condition. Abandoned or unsafe structures shall be removed or repaired promptly by the owner.

   c. Temporary moorages shall be permitted for vessels used in the construction of shoreline facilities. The design and construction of temporary moorages shall be such that upon termination of the project, the aquatic habitat in the affected area can be returned to its original (pre-construction) condition.

   d. The following structures and improvements are not permitted:

      a) Covered moorage, boathouses, or other walled covered moorage, except boat canopies that comply with the standards in this subsection.

      b) Skirting on any structure

      c) Aircraft moorage

   e. See KZC 83.470 Lighting Standards for required lighting.

   f. Piers and docks must display the street address of the subject property. The address must be oriented to the lake with letters and numbers at least 4 inches high.

   g. Piers and docks shall be marked with reflectors, or otherwise identified to prevent unnecessarily hazardous conditions for water surface users during the day or night. Exterior finish of all structures and windows shall be generally non-reflective.

   h. Must provide at least one (1) covered and secured waste receptacle.

   i. All utility and service lines located waterward of the OHWM must be below the pier deck. All utility and service lines located upland of the OHWM shall be underground, where feasible.

4. New Pier or Dock Dimensional Standards

   a. New piers or docks may be permitted, subject to the following regulations:

New Pier, Dock or Moorage Piles for Detached Dwelling Unit (single family)	**Dimensional and Design Standards**
Maximum Area: surface coverage, including all attached float decking, ramps, ells and fingers	480 sq. ft. for single property owner 700 sq. ft. for joint-use facility used by 2 residential property owners 1000 sq. ft. for joint-use facility used by 3 or more residential property owners These area limitations shall include platform lifts. Where a pier cannot reasonably be constructed under the area limitation above to obtain a moorage depth of 10 ft. measured above

	ordinary high water, an additional 4 sq. ft. of area may be added for each additional foot of pier length needed to reach 10 ft. of water depth.
Maximum Length for piers, docks, ells, fingers and attached floats	150 ft, but piers or docks extending further waterward than adjacent piers or docks must demonstrate that they will not have an adverse impact on navigation. 26 ft. for ells 20 ft. for fingers and float decking attached to a pier
Maximum Width	4 ft. for pier or dock 6 ft. for ells 2 ft. for fingers 6 ft. for float decking attached to a pier, must contain a minimum of 2 ft. of grating down the center of the entire float. For piers or docks with no ells or fingers, the most waterward 26 ft. section of the walkway may be 6 ft. wide
Height of piers and diving boards	Minimum of 1.5 ft. above ordinary high water to bottom of pier stringers, except the floating section of a dock and float decking attached to a pier Maximum of 3 feet above deck surface for diving boards or similar features Maximum of 3 feet above deck for safety railing, which shall be an open framework
Minimum Water Depth for ells and float decking attached to a pier	Must be in water with depths of 9 ft. or greater at the landward end of the ell or finger. Must be in water with depths of 10 ft. or greater at the landward end of the float
Decking for piers, docks walkways, platform lifts, ells and fingers	Piers and docks and platform lifts must be fully grated or contain other materials that allow a minimum of 40% light transmittance through the material. If float tubs for docks preclude use of fully grated decking material, then a minimum of 2 ft. of grating down the center of the entire float shall be provided.
Location of ells, fingers and deck platforms	No closer than 30 ft. waterward of the OHWM Within 30 ft. of the OHWM, only the access ramp portion of pier or dock is allowed
Pilings, Moorage Piles, and Buoys	Piles shall not be treated with pentachlorophenol, creosote, chromated copper arsenate (CCA) or comparably toxic compounds. First set of piles located no closer than 18 ft from OHWM Maximum 2 moorage piles or buoys per detached dwelling unit, including existing piles Maximum 4 moorage piles or buoys for joint use piers or docks, including existing piles
Mitigation	Plantings or other mitigation as described below in KZC 83.270.5

b. The City shall approve the following modifications to a new pier proposal that deviates from

the dimensional standards of KZC 83.270.4, subject to both U.S Army Corps of Engineer and Washington Department of Fish and Wildlife approval to an alternate project design. In addition, the following requirements and all other applicable provisions in this Chapter shall be met.

Administrative Approval for Alternative Design of New Pier or Dock for Detached Dwelling Unit (single family)	**Requirements**
State and Federal Agency Approval	U.S. Army Corps of Engineers, and the Washington Department of Fish and Wildlife have approved proposal.
Maximum Area	No larger than authorized through state and federal approval
Maximum Width	4 ft. for portion of pier or dock located within 30 ft. of the OHWM; otherwise, 6 ft. for walkways Otherwise, the pier and all components shall meet the standards noted in KZC 83.270.4
Minimum Water Depth	No shallower than authorized through state and federal approval

With submittal of a building permit, the applicant shall provide documentation that the U.S. Army Corps of Engineers, and the Washington Department of Fish and Wildlife have approved the alternative proposal design.

5. Mitigation. All proposals involving new piers or docks are subject to the following mitigation requirements:

   1) Any existing in-water and overwater structures shall be removed if they are associated with either a moorage structure or other recreational use that is located within 30 feet of the OHWM.

   2) Emergent vegetation shall be planted waterward of the OHWM, unless the City determines that it is not appropriate or feasible.

   3) Native riparian vegetation shall be planted in at least 75 percent of the nearshore riparian area located along the water's edge. The vegetated portion of the nearshore riparian area shall average ten (10) feet in depth from the OHWM, but may be a minimum of five (5) feet wide to allow for variation in landscape bed shape and plant placement. Joint-use piers required under the provisions of this Chapter shall require a vegetative riparian zone along all properties sharing the pier. Other joint-use piers shall be required to provide the same mitigation as required for one property, which can be slit evenly between the subject properties.

   4) Mitigation plantings shall be subject to the following requirements:

      a) Restoration of native vegetation shall consist of a mixture of trees, shrubs and groundcover and be designed to improve habitat functions. At least three (3) trees per 100 linear feet of shoreline and 60% shrubs must be included in the plan. Plant materials must be native and selected from the Kirkland Native Plant List, or other native or shoreline appropriate species approved by the Planning Official or Urban Forester. Plant density and spacing shall be appropriate for the site and commensurate with spacing recommended for each individual species proposed. An alternative planting plan or mitigation measure in lieu of meeting these requirements

shall be allowed if approved by other state and federal agencies.

In addition, the City shall accept existing native trees, shrubs and groundcover as meeting the requirements of this section, including vegetation previously installed as part of a prior development activity, provided that the existing vegetation provides a landscape strip at least as effective in protecting shoreline ecological functions as the required vegetation.

b) Vegetation placement – See the provisions contained in KZC 83.400, including the vegetation placement and alternative compliance provisions.

5) In addition to a native planting plan, a 5-year vegetation maintenance and monitoring plan shall be submitted to the City for approval. The monitoring plan shall include the following performance standards:

a) Preparation of as-built drawings after installation of the mitigation plantings;

b) Annual monitoring reports for 5 years, that include written and photographic documentation on tree and shrub mortality, subject to the following success criteria:

i. One-hundred (100) percent survival of all planted native trees and shrubs during the first two (2) years after planting; and

ii. One hundred (100) percent survival of trees and eighty (80) percent survival of remaining native plants in years three (3) through five (5).

Copies of reports that are submitted to state or federal agencies in compliance with permit approvals may be submitted in lieu of a separate report to the City, provided that the reports address a 5-year maintenance and monitoring plan.

6) Woody debris existing on-site or contributed to the site as part of the mitigation efforts shall not be removed.

6. Replacement of Existing Pier or Dock –

a. A replacement of an existing pier or dock shall meet the following requirements:

Replacement of Existing Pier or Dock for Detached Dwelling Unit (single family)	**Requirements**
Replacement of entire existing pier or dock, including piles OR more than 50 percent of the pier-support piles and more than 50 percent of the decking or decking substructure (e.g. stringers)	Must meet the dimensional decking and design standards for new piers as described in KZC 83.270.4, except the City may administratively approve an alternative design described in subsection b. below.
Mitigation	Existing skirting shall be removed and may not be replaced. Existing in-water and overwater structures located within 30 feet of the OHWM, except for existing or authorized shoreline stabilization measures, shall be removed.

b. Alternative Design - The City shall approve the following modifications to a pier replacement proposal that deviates from the dimensional standards of KZC 83.270.4, subject to both U.S Army Corps of Engineer and Washington Department of Fish and Wildlife approval to an alternate project design. In addition, the following requirements and all other applicable provisions in this Chapter shall be met.

Administrative Approval for Alternative Design of Replacement Pier or Dock for Detached Dwelling Unit	Requirements
State and Federal Agency Approval	U.S. Army Corps of Engineers and the Washington Department of Fish and Wildlife have approved proposal.
Maximum Area	No larger than existing pier
Maximum Length	26 ft. for fingers and float decking attached to a pier Otherwise, the pier and all components shall meet the standards noted in KZC 83.270.4
Maximum Width	4 ft. for portion of pier or dock located within 30 ft. of the OHWM; otherwise, 6 ft. for walkways 8 ft. for ells and float decking attached to a pier For piers with no ells or fingers, the most waterward 26 ft. section of the walkway may be 8 ft. wide Otherwise, the pier and all components shall meet the standards noted in KZC 83.270.4
Minimum Water Depth	No shallower than authorized through state and federal approval

With submittal of a building permit, the applicant shall provide documentation that the U.S. Army Corps of Engineers, and the Washington Department of Fish and Wildlife have approved the alternative proposal design.

7. Additions to Pier or Dock

Proposals involving the modification and/or enlargement of existing piers or docks must comply with the following requirements:

Addition to Existing Pier or Dock for Detached Dwelling Unit (single family)	Requirements
Addition or enlargement	Must demonstrate that there is a need for the enlargement of an existing pier or dock. Examples of need include, but are not limited to safety concerns or inadequate depth of water.
Dimensional standards	Enlarged portions must comply with the new pier or dock standards for length and width, height, water depth, location, decking and pilings and for materials as described in KZC

	83.270.
Decking for piers, docks walkways, ells and fingers	Must convert an area of existing nearshore decking to grated decking equivalent in size to the additional surface coverage. Grated or other materials must allow a minimum of 40% light transmittance through the material.
Mitigation	Planting and other mitigation as described in KZC 83.270.5 Existing skirting shall be removed and may not be replaced. Existing in-water and overwater structures located within 30 ft. of the OHWM, except for existing or authorized shoreline stabilization measures or pier or docks, shall be removed at a 1:1 ratio to the area of the addition

8. Repair of Existing Pier or Dock–I

a. Repair proposals that replace only decking or decking substructure and less than 50 percent of the existing pier-support piles must comply with the following regulations:

Minor Repair of Existing Pier or Dock for Detached Dwelling Unit (single family)	Requirements
Replacement piles	Must use materials as described under KZC 83.270.5 Must minimize the size of piles and maximize the spacing between pilings to the extent allowed by site-specific engineering or design considerations
Replacement of 50 percent or more of the decking or 50 percent or more of decking substructure	Must replace any solid decking surface located within the nearshore 30 ft. of the pier or dock with a grated surface material that allows a minimum of 40% light transmittance through the material.

b. Other repairs to existing legally established moorage facilities where the nature of the repair is not described in the above subsections shall be considered minor repairs and are permitted, consistent with all other applicable codes and regulations. If cumulative repairs of an existing pier or dock would make a proposed repair exceeds the threshold for a replacement pier established in KZC 83.270.5 above, the repair proposal shall be reviewed under KZC 83.270.4 for a new pier or dock, except as described in KZC 83.270.5.b for

administrative approval of alternative design.

9. Boatlifts, Boatlift Canopies and Moorage Piles –

Boatlifts, boatlift canopies and moorage piles may be permitted as an accessory to piers and docks, subject to the following regulations:

Boatlift, Boat Canopy and Moorages Buoy for Detached Dwelling Unit (single family)	**Requirements**
Location	Boat lifts shall placed as far waterward of the OHWM as feasible and safe, within the limits of the dimensional standards for piers established in KZC 83.270.4 Bottom of a boatlift canopy shall be elevated above the boatlift to the maximum extent feasible, the lowest edge of the canopy must be a least 4 ft. above the ordinary high water, and the top of the canopy must not extend more than 7 ft. above an associated pier. Moorage piles or buoys shall not be closer than 30 ft. from OHWM or any farther waterward than the end of the pier or dock
Maximum Number	1 free-standing or deck-mounted boatlift per detached dwelling unit 2 jet ski lifts or 1 fully grated platform lift per detached dwelling unit use 1 boatlift canopy per detached dwelling unit, including joint use piers 2 moorage piles per detached dwelling unit, including existing piles 4 moorage piles for joint use piers or docks, including existing piles
Canopy Materials	Must be made of translucent fabric materials. Must not be constructed of permanent structural material.
Fill for Boatlift	Maximum of 2 cubic yards of fill are permitted to anchor a boatlift, subject to the following requirements: • May only be used if the substrate prevents the use of anchoring devices that can be embedded into the substrate • Must be clean • Must consist of rock or pre-cast concrete blocks • Must only be used to anchor the boatlift

	• Minimum amount of fill is utilized to anchor the boatlift

83.280 Piers, Docks, Boat lifts and Canopies Serving Detached, Attached or Stacked Dwelling Units (Multi-family)

1. General –

   a. Piers, Docks, Moorage Buoy and Piles, Boatlifts and Canopies may only be developed and used accessory to existing dwelling units on waterfront lots or upland lots with waterfront access rights. Use of these structures is limited to the residents and guests of the waterfront lots to which the moorage is accessory. Moorage space shall not be leased, rented, or sold unless otherwise approved as a Marina under the provisions of KZC 83.290.

   b. Piers, docks, boatlifts and moorage piles shall be designed and located to meet KZC 83.360 Mitigation Sequencing.

   c. See KZC 83.370 for structures to be extended waterward of the Inner Harbor Line.

2. Setbacks –

   All piers, docks, boatlifts and moorage piles serving Detached, Attached or Stacked Dwelling Units shall comply with the following setback standards:

New Pier, Dock, Boatlift and Moorage Pile for Detached, Attached or Stacked Dwelling Units (multi-family)	**Minimum Setback Standards**
Side property lines	5 ft for moorage pile; otherwise 10 ft.
Lot containing a detached dwelling unit	The area defined by a line that starts where the OHWM of the lot intersects the side property line of the lot closest to the moorage structure and runs waterward toward the moorage structure and extends at a 30° angle from that side property line. This setback applies whether or not the subject property abuts the lot, but does not extend beyond any intervening overwater structure. This standard shall not apply within the Urban Mixed shoreline environment.
Another moorage structure not on the subject property, excluding adjacent moorage structure that does not comply with required north and south property line setback	25 ft., except that this provision shall not apply to moorage piles
Outlet of a stream regulated under KZC 90, including piped streams	Maximum distance feasible while meeting other required setback standards established under this section
Public park	100 feet; or The area defined by a line that starts where the OHWM of the park intersects with the side property line of the park closest to the moorage structure and extends at a 45°

	angle from the side property line. This setback applies whether or not the subject property abuts the park, but does not extend beyond any intervening over water structure. This standard shall not apply within the Urban Mixed shoreline environment.

3. Number of Moorage Spaces – The City will limit the total number of moorages to one per each dwelling unit on the subject property. In addition, each unit shall be allowed to moor jet skis or kayaks or similar watercraft on the property.
4. General Standards -
   a. Must provide at least two (2) covered and secured waste receptacles upland of the OHWM.
   b. All utility and service lines located waterward of the OHWM must be below the pier deck. All utility and service lines located upland of the OHWM shall be underground, where feasible.
   c. Moorage facilities shall be marked with reflectors, or otherwise identified to prevent unnecessarily hazardous conditions for water surface users during the day or night.
   d. Exterior finish shall be generally non-reflective.
   e. Moorage structures must display the street address of the subject property. The address must be oriented to the lake with letters and numbers at least four (4) inches high.
   f. See KZC 83.470 Lighting Standards for required lighting.
   g. The following structures and improvements are not permitted:
      a) Covered moorage, boathouses, or other walled covered moorage, except boat canopies that comply with the standards in this subsection
      b) Skirting on any structure
      c) Aircraft moorage
5. New Pier or Dock Dimensional Standards -
   a. Moorage structures shall not be larger than is necessary to provide safe and reasonable moorage for the boats to be moored. The City will specifically review the size and configuration of each proposed moorage structure to help ensure that:
      1) The moorage structure does not extend waterward beyond the point necessary to provide reasonable draft for the boats to be moored, but not beyond the outer harbor line;
      2) The moorage structure is not larger than is necessary to moor the specified number of boats;
      3) The moorage structure will not interfere with the public use and enjoyment of the water or create a hazard to navigation; and
      4) The moorage structure will not have a significant long-term adverse effect on ecological functions.
   b. Piers and docks shall be the minimum size necessary to meet the needs of the proposed water-dependent use and shall observe the following standards:

New Pier, Dock or Moorage Piles for	**Dimensional and Design Standards**

Detached, Attached or Stacked Dwelling Units (multi-family)	
Maximum Width	4 ft. within 30 ft of the OHWM for pier, dock or floating deck 6 ft. for pier or dock more than 30 ft. waterward of the OHWM 8 ft. for ells 4 ft. for fingers, and shall be reduced to 2 ft. in those instances where the projection provides secure boat moorage but is not necessary for boat-user access. 6 ft. for float decking attached to a pier An alternative design in lieu of meeting these requirements shall be allowed if approved by other state and federal agencies.
Height of piers and diving boards	Minimum of 1.5 ft above ordinary high water to bottom of pier stringers, except the floating section of a dock and float decking attached to a pier Maximum of 3 ft. above deck for diving boards or similar features above the deck surface Maximum of 3 feet above deck for safety railing, which shall be an open framework
Minimum Water Depth for ells and float decking attached to a pier	Must be in water with depths of 9 ft. or greater at the landward end of the ell or finger. Must be in water with depths of 10 ft. or more at the landward end of the float An alternative design in lieu of meeting these requirements shall be allowed if approved by other state and federal agencies.
Decking for piers, docks walkways, platform lifts, ells and fingers	Must be fully grated or contain other materials that allow a minimum of 40% light transmittance through the material If float tubs for docks preclude use of fully grated decking material, then a minimum of 2 ft. of grating down the center of the entire float shall be provided
Location of ells, fingers and deck platforms	No closer than 30 ft. waterward of the OHWM Within 30 ft. of the OHWM, only access ramp portion of pier or dock is allowed
Pilings and Moorage Piles	First set of piles located no closer than 18 ft. from OHWM Piles shall not be treated with pentachlorophenol, creosote, chromated copper arsenate (CCA) or comparably toxic compounds.
Mitigation	Plantings and other mitigation as described in KZC 83.280.6 below.

6. Mitigation –I

   All proposals involving new piers or docks are subject to the following mitigation requirements:

   a. Any existing in-water and overwater structures shall be removed if they are associated with either a moorage structure or other recreational use that is located within 30 feet of the

OHWM.

b. Emergent vegetation shall be planted waterward of the OHWM, unless the City determines that it is not appropriate or feasible.

c. Native riparian vegetation shall be planted in at least 75 percent of the nearshore riparian area located along the water's edge. The vegetated portion of the nearshore riparian area shall average ten (10) feet in depth from the OHWM, but may be a minimum of five (5) feet wide to allow for variation in landscape bed shape and plant placement. Joint-use piers will require a vegetative riparian zone along all properties sharing the pier.

d. Mitigation plantings shall be subject to the following requirements:

1) Restoration of native vegetation shall consist of a mixture of trees, shrubs and groundcover and be designed to improve habitat functions. At least three (3) trees per 100 linear feet of shoreline and 60% shrubs must be included in the plan. Plant materials must be native and selected from the Kirkland Native Plant List, or other native or shoreline appropriate species approved by the Planning Official or Urban Forester. Plant density and spacing shall be appropriate for the site and commensurate with spacing recommended for each individual species proposed.

2) An alternative planting plan or mitigation measure in lieu of meeting these requirements shall be allowed if approved by other state and federal agencies. In addition, the City shall accept existing native trees, shrubs and groundcover as meeting the requirements of this section, including vegetation previously installed as part of a prior development activity, provided that the existing vegetation provides a landscape strip at least as effective in protecting shoreline ecological functions as the required vegetation.

3) Vegetation placement – See the provisions contained in Section 83.400.

4) In addition to a native planting plan, a 5-year vegetation maintenance and monitoring plan shall be submitted to the City for approval. The monitoring plan shall include the following performance standards:

a) Preparation of as-built drawings after installation of the mitigation plantings;

b) Annual monitoring reports for five (5) years, that include written and photographic documentation on tree and shrub mortality, subject to the following success criteria:

i) One hundred (100) percent survival of all planted native trees and shrubs during the first two years after planting; and

ii) One hundred (100) percent survival of trees and eighty (80) percent survival of remaining native plants in years three through five.

Copies of reports that are submitted to state or federal agencies in compliance with permit approvals may be submitted in lieu of a separate report to the City, provided that the reports address a 5-year maintenance and monitoring plan.

c) Woody debris existing on-site or contributed to the site as part of the mitigation efforts shall not be removed.

7. Replacement, Additions and Repairs -

a. Replacement - Replacement of Piers and Docks serving Detached, Attached or Stacked Dwelling Units shall be considered under the provisions for New Piers and Docks Serving Detached, Attached or Stacked Dwelling Units established in KZC 83.280.5 when the entire existing pier or dock is replaced, including piles or when more than 50 percent of the pier-support piles and more than 50 percent of the decking or decking substructure (e.g. stringers). However, the mitigation requirement for Additions to Piers and Docks in KZC 83.280.7.b below shall be met and not the mitigation requirements for New Piers or Docks in KZC 83.280.6.

b. Additions ¬ Proposals involving the modification and/or enlargement of existing piers or docks must comply with the following measures:

Additions to Pier, Dock or Moorage Piles for Detached, Attached or Stacked Dwelling Units (multi-family)	Requirements
Addition or enlargement	Must demonstrate that there is a need for the enlargement of an existing pier or dock.
Dimensional standards	Enlarged portions must comply with the new pier or dock dimensional standards for length, width, height, water depth, location, decking material and pilings and for materials as described in KZC 83.280.
Decking for piers, docks walkways, ells and fingers	Must convert an area of existing nearshore decking to grated decking equivalent in size to the additional surface coverage. Grated or other materials must allow a minimum of 40% light transmittance through the material.
Mitigation	Plantings and other mitigation as described in KZC 83.280.6 above Existing skirting shall be removed and may not be replaced Existing in-water and overwater structures located within 30 feet of the OHWM, except for existing or authorized shoreline stabilization measures or pier or docks, shall be removed at a 1:1 ratio to the area of the addition.

c. Repair¬ Repair proposals that replace only decking or decking substructure and less than 50 percent of the existing pier-support piles must comply with the following:

Minor Repair to Pier, Dock or Moorage Piles for Detached, Attached or Stacked Dwelling Units (Multi-family)	Requirements
Replacement piles	Must use materials as described under KZC 83.280.5 Must minimize the size of piles and maximize

	the spacing between pilings to the extent allowed by site-specific engineering or design considerations
Replacement of 50 percent or more of the decking or 50 percent or more of decking substructure	Must replace any solid decking surface located within the nearshore 30 feet of the pier or dock with a grated surface material that allows a minimum of 40% light transmittance through the material

Other repairs to existing legally established moorage facilities where the nature of the repair is not described in the above subsections shall be considered minor repairs and are permitted, consistent with all other applicable codes and regulations. If cumulative repairs of an existing pier or dock would make a proposed repair exceeds the threshold established in KZC 83.280.7.c, above, the repair proposal shall be reviewed under KZC 83.280 for a new pier or dock.

8. Boatlifts, Boatlift Canopies and Moorage Piles for serving Detached, Attached or Stacked Dwelling Units –

Boatlifts, boatlift canopies and moorage piles may be permitted as an accessory to piers and docks, subject to the following regulations:

Boatlift, Boat Canopy and Moorages Buoy for Detached, Attached or Stacked Dwelling Units (Multi-family)	**Regulations**
Location	Boat lifts shall placed as far waterward of the OHWM as feasible and safe, within the limits of the dimensional standards for piers and docks established in KZC 83.280.5 Bottom of a boatlift canopy shall be elevated above the boatlift to the maximum extent feasible, the lowest edge of the canopy must be at least 4 ft. Moorage piles shall not be closer than 30 ft. from OHWM or any farther waterward than the end of the pier or dock
Maximum Number	1 freestanding or deck-mounted boatlift is allowed per dwelling unit on the subject property. 2 jet ski lifts or 1 fully grated platform lift is permitted per dwelling unit on the subject property. 2 boatlift canopies or equal to 10 % of the dwelling units on the subject property, whichever is greater.
Canopy Materials	Must be made of translucent fabric materials Must not be constructed of permanent structural material.

Fill for Boatlift	Maximum of 2 cubic yards of fill are permitted to anchor a boatlift, subject to the following requirements: • May only be used if the substrate prevents the use of anchoring devices that can be embedded into the substrate • Must be clean • Must consist of rock or pre-cast concrete blocks • Must only be used to anchor the boatlift • Minimum amount of fill is utilized to anchor the boatlift

9. Submittal Requirements - In addition to submitting an application to construct a new, enlarged or replacement pier or dock, the applicant shall submit an assessment of the impacts and measures taken to avoid, minimize, and mitigate impacts. See 83.360 KZC for requirements on mitigation sequencing.

83.290 Marinas and Moorage Facilities Associated with Commercial Uses

1. General –
   a. Marinas shall not be approved in cases where it is reasonably foreseeable that the development or use would require maintenance dredging and/or installation of a breakwater during the life of the development or use.
   b. See KZC 83.370 for structures to be extended waterward of the Inner Harbor Line.
   c. Marinas shall be designed and located according to the following criteria:
      1) Shall not interfere with the public use and enjoyment of the water or create a hazard to navigation;
      2) Shall meet KZC 83.360 for mitigation sequencing; and
      3) Shall be located only at sites with sufficient water depth, adequate navigational and vehicular access, and not adjacent to an outlet of a stream.
2. Setback –

   Marinas and moorage facilities shall comply with the following location standards:

Marinas and Moorage Facilities Associated with Commercial Uses	Minimum Setback Standards
Side property lines	10 ft.
Lot containing a detached dwelling unit	The area defined by a line that starts where the OHWM of the lot intersects the side property line of the lot closest to the moorage structure and runs waterward toward the moorage structure and extends at a 30° angle from that side property line. This setback applies whether or not the

	subject property abuts the lot, but does not extend beyond any intervening overwater structure. This standard shall not apply within the Urban Mixed shoreline environment.
Another moorage structure not on the subject property, excluding adjacent moorage structure that does not comply with required north and south property line setback	25 ft
Outlet of a stream regulated under KZC 90, including piped streams	Maximum distance feasible while meeting other required setback standards established under this section
Public park	100 feet; or The area defined by a line that starts where the OHWM of the park intersects with the side property line of the park closest to the moorage structure and extends at a 45° angle from the side property line. This setback applies whether or not the subject property abuts the park, but does not extend beyond any intervening over water structure. This standard shall not apply within the Urban Mixed shoreline environment.

3. Number of Moorage Slips –I

The City will determine the maximum allowable number of moorages based on the following factors:

a) The suitability of the environmental conditions, such as, but not limited to: the presence of submerged aquatic vegetation, proximity to shoreline associated wetlands, critical nesting and spawning areas, water depth, water circulation, sediment inputs and accumulation, and wave action.

b) The ability of the land upland of the OHWM to accommodate the necessary support facilities.

c) The demand analysis submitted by the applicant to demonstrate anticipated need for the requested number of moorages.

4. General Standards -

a. See KZC 83.370 for required state and federal approval.

b. Structures, other than each moorage structure or public access pier, shall not be waterward of the OHWM. For regulations regarding public access piers, see KZC 83.220.

c. At least two (2) covered and secured waste receptacles shall be provided upland of the OHWM.

d. Utility and service lines located waterward of the OHWM must be below the pier deck. Utility and service lines located upland of the OHWM shall be underground, where feasible.

e. Public restrooms shall be provided upland of the OHWM.

f. At least one (1) pump-out facility for use by the general public shall be provided. This facility must be easily accessible to the general public and clearly marked for public use.

g. Transient moorage may be required as part of a marina if the site is in an area near commercial facilities generating commercial transient moorage demand.

h. Moorage facilities shall be marked with reflectors, or otherwise identified to prevent unnecessarily hazardous conditions for water surface users during the day or night.

i. Exterior finish shall be generally non-reflective.

j. Moorage structures must display the street address of the subject property. The address must be oriented to the lake with letters and numbers at least four (4) inches high.

k. See KZC 83.470 Lighting Standards for required lighting.

l. Covered moorage, including boatlift canopies, is not permitted.

m. Aircraft moorage is not permitted, except as associated with an approved float plane landing and mooring facility.

n. Marinas and other moorage facilities associated with commercial uses shall be designed and operated consistent with federal and state water quality laws and established Best Management Practices (BMPs) for Marina Operators, including BMPs for bilge water discharge, hazardous waste, waste oil and spills, sewer management, and spill prevention and response. Rules for spill prevention and response, including reporting requirements, shall be posted on site.

o. Boats moored within marinas shall comply with the mooring restrictions contained in Chapter 14.16 KMC.

5. New Pier or Dock Dimensional Standards ¬

a. Moorage structures shall not be larger than is necessary to provide safe and reasonable moorage for the boats to be moored. The City will specifically review the size and configuration of each proposed moorage structure to help ensure that:

1) The moorage structure does not extend waterward beyond the point necessary to provide reasonable draft for the boats to be moored, but not beyond the outer harbor line;

2) The moorage structure is not larger than is necessary to moor the specified number of boats; and

3) Must be designed to preclude moorage in locations that would have insufficient water depth to avoid boats resting at any time of year to on the substrate of the lake.

b. For public access piers, docks or boardwalks associated with public parks and other public facilities see KZC 83.220.5 for allowed width of the structure.

c. Piers and docks shall be the minimum size necessary to meet the needs of the proposed water-dependent use and shall meet the following dimensional and design standards:

New Marinas and Moorage Facilities Associated with Commercial Uses	**Dimensional and Design Standards**
Maximum Width	6 ft. for access ramp portion of pier or dock and primary walkways 8 ft. for ells 4 ft. for fingers, and shall be reduced to 2 ft. in those instances where the projection provides secure boat moorage but is not necessary for

	boat-user access. 6 ft. for float decking attached to a pier. An alternative design in lieu of meeting these requirements may be allowed if approved by other state and federal agencies.
Height of piers, diving boards and railings	Minimum of 1.5 ft above ordinary high water to bottom of pier stringer, except the floating section of a dock and float decking attached to a pier Maximum of 3 ft. above deck for diving boards or similar features above the deck surface Maximum of 3 ft. above deck for safety railing, which shall be an open framework
Decking for piers, docks walkways, ells and fingers	Fully grated or contain other materials that allow a minimum of 40% light transmittance through the material If float tubs for docks preclude use of fully grated decking material, then a minimum of 2 ft. of grating down the center of the entire float shall be provided
Location of ells, fingers and deck platforms	No closer than 50 ft. waterward of the OHWM Within 50 ft. of the OHWM, only access ramp portion of pier or dock is allowed
Pilings	First set of piles located no closer than 18 ft from OHWM Piles shall not be treated with pentachlorophenol, creosote, chromated copper arsenate (CCA) or comparably toxic compounds.
Mitigation	As required through mitigation sequencing in KZC 83.360.

6. Replacement, Additions and Repairs –

   a. Replacement - Replacement of marinas or portions thereof shall be considered under the provisions for new marinas established in KZC 83.290.

   b. Additions – Proposals involving the modification and/or enlargement of marinas must comply with the following measures:

Additions to Marinas and Moorage Facilities Associated with Commercial Uses	Requirements
Addition or enlargement	Must demonstrate that there is a need for the enlargement of an existing pier or dock
Dimensional standards	Enlarged portions must comply with the new pier dimensional standards for pier or dock length and width, height, water depth, location, decking and pilings and for materials
Decking for piers, docks walkways, ells and fingers	Must convert an area of existing nearshore decking to grated decking equivalent in size to the additional surface coverage that allows a minimum of 40% light transmittance through the

	material
Mitigation	As determined through mitigation sequencing in KZC 83.360 Existing skirting shall be removed and may not be replaced Existing in-water and overwater structures located within 50 ft. of the OHWM, except for existing or authorized shoreline stabilization measures or pier or docks, shall be removed at a 1:1 ratio to the area of the addition

c. Repair–¬ Repair proposals that replace only decking or decking substructure and less than 50 percent of the existing pier-support piles must comply with the following:

Minor Repair to Marinas and Moorage Facilities Associated with Commercial Uses	Requirements
Replacement piles	Must use materials as described under KZC 83.290.5 Must minimize the size of piles and maximize the spacing between pilings to the extent allowed by site-specific engineering or design considerations
Replacement of 10 percent or more of the decking or decking substructure	Must replace any solid decking surface located within the nearshore 30 ft. of the pier or dock with a grated surface material
Repair of the roof structure of existing boathouses or other similar covered moorage	Must use translucent materials

Other repairs to existing legally established marinas where the nature of the repair is not described in the above subsections shall be considered minor repairs and are permitted, consistent with all other applicable codes and regulations. If cumulative repairs of an existing marina would make a proposed repair exceeds the threshold established in KZC 83.290.6.c above, the repair proposal shall be reviewed under KZC 83.290 for a new marina.

7. Submittal Requirements - In addition to submitting an application, the applicant shall submit the following as part of a request to construct a new, enlarged, or replacement marina or its associated facilities:

   a. An assessment of the anticipated need for the requested number of moorages and ability of the site to accommodate the proposal, considering such factors as environmental conditions, shoreline configuration, access, and neighboring uses.

b. An assessment of the impacts and measures taken to avoid, minimize, and mitigate impacts. See KZC 83.360 for mitigation sequencing.

83.300 Shoreline Stabilization

1. General -

a. The standards in this section apply to all developments and uses in shoreline jurisdiction.

b. New development or redevelopment shall be located and designed to avoid the need for new or future soft or hard structural shoreline stabilization to the extent feasible.

c. If structural stabilization is necessary to protect the primary structure, then the feasibility of soft structural measures shall be evaluated prior to consideration of hard structural measures. Soft structural stabilization measures must be used unless the City determines that it is not feasible based on information required in this section and provided by the applicant.

d. Soft shoreline stabilization may include the use of gravels, cobbles, boulders, and logs, as well as vegetation.

e. Plate XX provides guidance on different shoreline stabilization measures that may be considered, based upon the unique characteristics of the subject property and shoreline.

f. During construction or repair work on a shoreline stabilization measure, areas of temporary disturbance within the shoreline setback shall be restored as quickly as feasible to their pre-disturbance condition or better to avoid impacts to the ecological function of the shoreline. Also see KZC 83.430 for in-water construction activity.

g. The following is a summary of the key requirements found in KZC 83.300.2 through KZC 83.300.7:

Shoreline Stabilization Measures	Requirements
Structural and Nonstructural Methods	Nonstructural methods preferred, but if there is a demonstrated need for a structural stabilization measure to protect primary structure, then soft structural stabilization must be considered prior to hard structural stabilization.
New or Enlargement of Hard Shoreline Structural Measures (enlargement includes additions and increases in size, such as height, width, length, or depth, to existing shoreline stabilization measures)	Allowed when existing primary structure is 10 ft. or less from OHWM When existing primary structure is greater than 10 ft. from OHWM, requires geotechnical report to show need, an evaluation of the feasibility of soft rather than hard structural shoreline stabilization measures and design recommendations for minimizing structural shoreline measures. Requires mitigation plantings
Major Repair or Replacement of Hard Shoreline Structural Measures	A major repair is a collapsed or eroded structure or a demonstrated loss of structural integrity, or repair of toe rock or footings; and is more than 50% in continuous linear length; or A major repair is repair to more than 75%

	of the linear length of structure that involves replacement of top or middle course rocks or other similar repair Allowed when existing primary structure is 10 ft. or less from OHWM For existing primary structure is more than 10 ft. from the OHWM, requires a written narrative that provides a demonstration of need
Minor Repair of Hard Shoreline Stabilization Measure	Does not meet threshold of new, enlarged, major repair or replacement measurement. No geotechnical report or needs assessment required.
New, Enlarged, Repair or Replacement of Soft Shoreline Stabilization Measure	Allowed when existing primary structure is 10 ft. or less from OHWM or for repair or replacement. For primary structure greater than 10 ft. from the OHWM, new or enlarged requires a written narrative that provides a demonstration of need

2. New or Enlarged Structural Shoreline Stabilization ¬

a. For the purposes of this section, enlargement of an existing structural stabilization shall include additions to or increases in size (such as height, width, length, or depth). Primary structure includes appurtenances listed under WAC 173-14-040, but not tool sheds, greenhouses, swimming pools, spas and other ancillary residential improvements listed in KZC 83.80.5.

b. When allowed:

The City may only approve a new or enlarged hard or soft structural stabilization measure in the following circumstances:

1) To protect an existing primary structure, including a detached dwelling unit, in either of the following circumstances:

a) The existing primary structure is located ten (10) feet or less from the OHWM. For the purposes of the provision, the distance shall be measured to the most waterward location of the primary structure, or

b) The existing primary structure is located more than ten (10) feet from the OHWM.

In order to be approved, the applicant must demonstrate the following:

i. For new or enlarged hard structural stabilization, conclusive evidence, documented by a geotechnical analysis, that the primary structure is in danger from shoreline erosion caused by waves. The analysis must show that there is a significant possibility that an existing structure will be damaged within three (3) years as a result of shoreline erosion in the absence of hard structural stabilization measures, or where waiting until the need is immediate results in the loss of opportunity to use measures that would avoid impacts on ecological functions. Where the geotechnical report confirms a need to prevent potential damage to a primary structure, but the need is not as immediate as three (3) years, the report may still be

used to justify more immediate authorization to protect against erosion using soft structural stabilization measures.

ii. For new soft structural stabilization measures, demonstrate need for structural stabilization to protect the new primary structure.

iii. For hard and soft stabilization measures, any on-site drainage issues have been directed away from the shoreline edge prior to considering structural stabilization.

iv. For hard and soft shoreline stabilization measures, nonstructural measures, such as planting vegetation, or installing on-site drainage improvements are shown not to be feasible or sufficient to protect the primary structure.

2) To protect a new primary structure, including a detached dwelling unit, when all of the conditions below apply:

a) For new non water-dependant uses, placing the new primary structure farther upland from the OHWM is not feasible or not sufficient to prevent damage to the primary structure;

b) Upland conditions, such as drainage problems and the loss of vegetation, are not causing the erosion;

c) Nonstructural measures, planting vegetation, or installing on-site drainage improvements are shown not to be feasible or sufficient to prevent damage to the primary structure; and

d) The need to protect the new primary structures from potential damage is due to erosion from wave action. For hard structural stabilization measures, a geotechnical report must be submitted demonstrating need. For soft structural stabilization measures, an assessment by a qualified professional must be submitted demonstrating need.

3) To protect projects for the restoration of ecological functions or for hazardous substance remediation projects pursuant to Chapter 70.105D RCW when nonstructural measures, planting vegetation, or installing on-site drainage improvements, are not feasible or not sufficient.

3. Submittal Requirements for New or Enlarged Structural Stabilization Measures -

In addition to the requirements described in KZC 83.300.2 above, the following shall be submitted to the City for an existing primary structure more than 10 feet from the OHWM or for a new primary structure:

a. For a hard structural shoreline stabilization measure, a geotechnical report prepared by a qualified professional with an engineering degree. The report shall include the following:

1) An assessment of the necessity for hard structural stabilization by estimating time frames and rates of erosion and documenting the urgency associated with the specific situation.

2) An assessment of the cause of erosion, looking at processes occurring both waterward and landward of the OHWM.

b. An assessment prepared by a qualified professional (e.g., shoreline designer or other consultant familiar with lakeshore processes and shore stabilization), containing the following:

1) For a hard structural shoreline stabilization measure, an evaluation of the feasibility of using soft shoreline stabilization measures in lieu of hard structural shoreline stabilization measures. The evaluation shall address the feasibility of implementing options presented in Plate XX based on an assessment of the subject property's characteristics.

2) For a soft structural stabilization measure, an assessment of:

a) The erosion potential resulting from the action of waves or other natural processes operating at or waterward of the OHWM in the absence of the soft structural stabilization.

b) The feasibility of using nonstructural measures in lieu of soft structural shoreline stabilization measures.

3) For both hard and soft structural shoreline stabilization measures, design recommendations for minimum the sizing of shoreline stabilization materials, including gravel and cobble beach substrates necessary to dissipate wave energy, eliminate scour, and provide long-term shoreline stability.

4) See additional submittal requirements below in subsections 8, 9 and 10 for general submittal requirements, maintenance agreement and general design standards.

4. Replacement or Major Repair of Hard Structural Shoreline Stabilization -

a. For the purposes of this section, major repair or replacement of a hard shoreline stabilization measure shall include the following activities:

1) A repair needed to a portion of an existing stabilization structure that has collapsed, eroded away or otherwise demonstrated a loss of structural integrity, or in which the repair work involves modification of the toe rock or footings, and the repair is 50 percent or greater than the linear length of the shoreline stabilization measure; or

2) A repair to more than 75 percent of the linear length of the existing hard structural shoreline stabilization measure in which the repair work involves replacement of top or middle course rocks or other similar repair activities.

b. When allowed -

The City may only approve a major repair or replacement of an existing hard structural stabilization measure with a hard structural shoreline stabilization measure to protect existing primary structures or principal uses, including detached dwelling units, in either of the following circumstances:

1) The primary structure is located 10 feet or less from the OHWM. For the purposes of the provision, the distance shall be measured to the most waterward location of the primary structure; or

2) For a primary structure located more than 10 feet from the OHWM or a use, conclusive evidence is provided to the City that the primary structure or use is in danger from shoreline erosion caused by waves as required in KZC 83.300.5 below.

5. Submittal Requirements for Major Repairs or Replacements of Hard Stabilization Measures -

The following shall be submitted to the City when the primary structure is located more than 10 feet landward of the OHWM or for a use with no primary structure:

a. Written narrative that provides a demonstration of need shall be submitted. A qualified professional (e.g., shoreline designer or other consultant familiar with lakeshore processes and shore stabilization), but not necessarily a licensed geotechnical engineer shall prepare a written narrative. The written narrative shall consist of the following:

1) An assessment of the necessity for hard structural stabilization, considering site-specific conditions such as water depth, orientation of the shoreline, wave fetch, and location of the nearest structure. The evaluation shall address the feasibility of implementing options presented in Plate XX, given an assessment of the subject property's characteristics.

2) An assessment of erosion potential resulting from the action of waves or other natural processes operating at or waterward of the OHWM in the absence of the hard structural shoreline stabilization.

3) An assessment of the feasibility of using soft structural stabilization measures in lieu of hard structural shoreline stabilization measures. Soft stabilization may include the use of gravels, cobbles, boulders, and logs, as well as vegetation.

b. Design recommendations for minimizing impacts and ensuring that the replacement or repaired stabilization measure is designed, located, sized, and constructed to assure no net loss of ecological functions.

c. See additional submittal requirements below in subsections 8, 9 and 10 for general submittal requirements, maintenance agreement and general design standards.

6. Minor Repairs of Hard Shoreline Stabilization

Minor repairs of hard shoreline stabilization include those maintenance and repair activities not otherwise addressed in the subsection above. The City shall allow minor repair activities to existing hard structural shoreline stabilization measures.

7. Repair or Replacement of Soft Shoreline Stabilization and Submittal Requirements

a. The City shall allow repair or replacement of soft shoreline stabilization.

b. The applicant shall submit to the City design recommendations for minimizing impacts and ensuring that the replacement or repaired stabilization measure is designed, located, sized, and constructed to assure no net loss of ecological functions.

c. See additional submittal requirements below in subsections 8, 9 and 10 for general submittal requirements, maintenance agreement and general design standards.

8. General Submittal Requirements for New, Enlarged, Replacement and Major Repair Measures

Detailed construction plans shall be submitted to the City, including the following:

a. Plan and cross-section views of the existing and proposed shoreline configuration, showing accurate existing and proposed topography and OHWM.

b. Detailed construction sequence and specifications for all materials, including gravels, cobbles, boulders, logs, and vegetation. The sizing and placement of all materials shall be selected to accomplish the following objectives:

1) Protect the property and structures from erosion and other damage over the long term, and accommodate the normal amount of alteration from wind- and boat-driven waves;

2) Allow safe passage and migration of fish and wildlife; and

3) Minimize or eliminate juvenile salmon predator habitat.

c. For hard structural stabilization measures when shoreline vegetation is required as part of mitigation, a detailed 5-year vegetation maintenance and monitoring program to include the following:

1) Goals and objectives of the shoreline stabilization plan;

2) Success criteria by which the implemented plan will be assessed;

3) A 5-year maintenance and monitoring plan, consisting of one (1) site visit per year by a qualified professional, with annual progress reports submitted to the Planning Official and all other agencies with jurisdiction;

4) A contingency plan in case of failure; and

5) Proof of a written contract with a qualified professional who will perform the monitoring.

d. Fee for a consultant selected by the City to review the shoreline stabilization plan, the monitoring and maintenance program, the narrative justification of demonstrated need, and drawings. In addition, the Planning Official may require a fee for a consultant to review the geotechnical report and recommendations. In the case of use of a consultant, the applicant shall sign the City's standard 3-party contract.

9. Maintenance Agreement for Hard and Soft Structural Stabilization -

The applicant shall complete and submit a 5-year period maintenance agreement, using the City's standard form, for recording to ensure maintenance of any structural shoreline stabilization measure.

10. General Design Standards - The following design standards shall be incorporated into the stabilization design:

a. Soft structural shoreline stabilization measures shall be used to the maximum extent feasible, limiting hard structural shoreline stabilization measures to the portion or portions of the site where necessary to connect to existing hard shoreline stabilization measures on adjacent properties. The length of hard structural shoreline stabilization connections to adjacent properties shall be minimized to the maximum extent feasible, and extend into the subject property from adjacent properties no more than needed.

b. For enlarged, major repair or replacement of hard structural shoreline stabilization measures, excavation and fill activities associated with the structural stabilization shall be landward of the existing OHWM, except when not feasible due to existing site constraints or to mitigate impacts of hard structural stabilization by increasing shallow water habitat with gravel, rocks and logs.

c. For short-term construction activities, hard and soft structural stabilization measures must minimize and mitigate any adverse impacts to ecological functions by compliance with appropriate timing restrictions, use of best management practices to prevent water quality impacts related to upland or in-water work, and stabilization of exposed soils following construction.

d. For long-term impacts, new, enlarged or major repair or replacement of hard structural shoreline stabilization shall incorporate the following measures into the design wherever feasible.

1) Limiting the size of hard structural shoreline stabilization measures to the minimum necessary, including height, depth, and mass.

2) Shifting hard stabilization structure landward and/or sloping the structure landward to provide some dissipation of wave energy and increase the quality or quantity of nearshore shallow-water habitat.

e. For new and enlarged hard shoreline stabilization, the following additional measures shall be incorporated into the design:

1) To increase shallow-water habitat, install gravel/cobble beach fill waterward of the OHWM, grading slope to a maximum of 1 vertical (v): 4 horizontal (h). The material shall be sized and placed to remain stable and accommodate alteration from wind- and boat-driven waves.

2) Plant native riparian vegetation as follows:

a) At least 75 percent of the nearshore riparian area located along the edge of the OHWM shall be planted.

b) The vegetated portion of the nearshore riparian area shall average ten (10) feet in depth from the OHWM, but may be a minimum of 5 feet wide to allow for variation in landscape bed shape and plant placement provided that the total square footage of the area planted equals ten (10) feet along the water's edge.

c) Restoration of native vegetation shall consist of a mixture of trees, shrubs and groundcover and be designed to improve habitat functions. At least 3 trees per 100 linear feet of shoreline and 60% shrubs must be included in the plan.

d) Plant materials must be native and selected from the Kirkland Native Plant List, or other native or shoreline appropriate species approved by the Planning Official or Urban Forester.

e) An alternative planting plan or mitigation measure in lieu of meeting this section shall be allowed if approved by other state and federal agencies. In addition, the City shall accept existing native trees, shrubs and groundcover as meeting the requirements of this section, including vegetation previously installed as part of a prior development activity, provided that the existing vegetation provides a landscape strip at least as effective in protecting shoreline ecological functions as the required vegetation.

f) Standards for vegetation placement are provided in KZC 83.400.

f. Hard and soft shoreline stabilization measures shall be designed to not significantly interfere with normal surface and/or subsurface drainage into Lake Washington, constitute a hazard to navigation or extend waterward more than the minimum amount necessary to achieve effective stabilization.

g. Hard and soft stabilization measures are allowed to have gravel, logs and rocks waterward of the OHWM, as approved by the City and federal and state agencies, to provide enhancement of shoreline ecological functions through creation of nearshore shallow-water habitat.

h. Stairs or other water access measures may be incorporated into the shoreline stabilization, but shall not extend waterward of the shoreline stabilization measure.

i. The shoreline stabilization measures shall be designed to ensure that the measures do not restrict public access or make access unsafe to the shoreline, except where such access is modified under the provisions of KZC 83.420 for public access. Access measures shall not extend farther waterward than the face of the shoreline stabilization structure.

j. See KZC 83.300.11 and 12 below concerning additional design standards for hard structural stabilization and KZC 83.300.13 for soft structural stabilization.

11. Specific Design Standards for New or Enlarged Hard Structural Stabilization ¬

In addition to the general design standards in KZC 83.300.10 above, the following design standards shall be incorporated:

a. Where hard stabilization measures are not located on adjacent properties, the construction of a hard stabilization measure on the site shall tie in with the existing contours of the adjoining properties, as feasible, such that the proposed stabilization will not cause erosion of the adjoining properties.

b. Where hard stabilization measures are located on adjacent properties, the proposed hard stabilization measure may tie in flush with existing hard stabilization measures on adjoining properties, but by no more than as reasonably required. The new hard stabilization measure shall not extend waterward of OHWM, except as necessary to make the connection to the adjoining hard stabilization measures. No net intrusion into the lake and no net creation of upland shall occur with the connection to adjacent stabilization measures.

c. Fill behind hard shoreline stabilization measures shall be limited to an average of one (1) cubic yard per running foot of bulkhead. Any filling in excess of this amount shall be considered a regulated activity subject to the regulations in this Chapter pertaining to fill activities and the requirement for obtaining a shoreline substantial development permit.

12. Specific Design Standards for Replacement of Hard Structural Stabilization ¬

Replacement hard structural stabilization measures shall not encroach waterward of the OHWM or waterward of the existing shoreline stabilization measure unless the primary structure was

constructed prior to January 1, 1992 (RCW 90.58.100.6 and WAC 173.26.241 and WAC 173.26.231.3.j), and there is overriding safety or environmental concerns if the stabilization measure is moved landward of the OHWM. In such cases, the replacement structure shall abut the existing shoreline stabilization structure. All other replacement structures shall be located at or landward of the existing shoreline stabilization structure.

13. Specific Design Standards for Soft Structural Stabilization –

In addition to the general design standards in KZC 83.300.10, the following design standards shall be incorporated:

a. Provide sufficient protection of adjacent properties by tying in with the existing contours of the adjoining properties to prevent erosion at the property line. Proposals that include necessary use of hard structural stabilization measures only at the property lines to tie in with adjacent properties shall be permitted as soft structural shoreline stabilization measures. The length of hard structural stabilization connections to adjacent properties shall be the minimum needed and extend into the subject property from adjacent properties as reasonably required.

b. Size and arrange any gravels, cobbles, logs, and boulders so that the improvement remains stable in the long-term and dissipate wave energy, without presenting extended linear faces to oncoming waves.

14. Expansion of SMA Jurisdiction from Shift in OHWM -

If a shoreline stabilization measure from any action required by this Chapter or intended to improve ecological functions results in shifting the OHWM landward of the pre-modification location that expands the shoreline jurisdiction onto any property other than the subject property, then as part of the shoreline permit process found in KZC 141:

a. The City shall notify the affected property owner in writing, and

b. The City may propose to grant relief for the affected property owners from applicable shoreline regulations resulting in expansion of the shoreline jurisdiction. The proposal to grant relief must be submitted to the Department of Ecology with the shoreline permit under the procedures established in KZC 141.70.5. If approved, notice of the relief, in a form approved by the City Attorney, shall be recorded on the title of the affected property in the King County Office.

83.310 Breakwaters, Jetties, Groins

1. Breakwaters, jetties, and groins are not permitted in the Natural, Urban Conservancy, or Residential – L shoreline environments. Breakwaters, jetties, and groins may only be permitted in other shoreline environments where necessary to support water-dependent uses, public access, shoreline stabilization, or other specific public purpose.

2. The City will permit the construction and use of a breakwater, jetty or groin only if:

a. The structure is essential to the safe operation of a moorage facility or the maintenance of other public water-dependent uses, such as swimming beaches;

b. The City determines that the location, size, design, and accessory components of the moorage facility or other public water-dependent uses to be protected by the breakwater are distinctly desirable and within the public interest; and

c. The benefits to the public provided by the moorage facility or other public water-dependent uses protected by the breakwater outweigh any undesirable effects or adverse impacts on the environment or nearby waterfront properties.

3. Design Standards

a. All breakwaters, jetties or groins must be designed and constructed under the supervision of a civil engineer or similarly qualified professional. As part of the application, the engineer or other professional designing the breakwater, jetty or groin must certify that it is the smallest

feasible structure to meet the requirements of this Chapter and accomplish its purpose and that the design will result in the minimum feasible adverse impacts upon the environment, nearby waterfront properties and navigation.

b. Breakwaters may only use floating or open-pile designs.

83.320 Dredging and Dredge Material Disposal

1. New development shall be sited and designed to avoid or, if that is not feasible, to minimize the need for new and maintenance dredging.
2. Dredging waterward of the OHWM may be allowed for only the following purposes:
   a. To establish, expand, relocate or reconfigure navigation channels and basins 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 must be restricted to maintaining previously dredged and/or existing authorized location, depth, and width.
   b. To maintain the use of existing private or public boat moorage, water-dependent use, or other public access use. Maintenance dredging is restricted to maintaining previously dredged and/or existing authorized location, depth, and width.
   c. To restore ecological functions, provided the applicant can demonstrate a clear connection between the proposed dredging and the expected environmental benefits to water quality and/or fish and wildlife habitat.
   d. To obtain fill or construction material when necessary for the restoration of ecological functions. Dredging waterward of the OHWM for the primary purpose of obtaining fill or construction materials is not permitted under other circumstances. When allowed, the site where the fill is to be placed must be located waterward of the OHWM. The project must be associated with a significant habitat enhancement project.
3. Depositing dredge materials waterward of the OHWM shall only be allowed in approved sites, only when the material meets or exceeds state pollutant standards, and only for the purposes of fish or wildlife habitat improvement or permitted beach enhancement.
4. Dredging Design Standards ¬
   a. All permitted dredging must be the minimum area and volume necessary to accommodate the existing or proposed use, and must be implemented using practices that do not exceed state water quality standards.
   b. Dredging projects shall be designed and carried out to prevent direct and indirect impacts on adjacent properties.
5. Submittal Requirements -

   The following information shall be required for all dredging applications:

   a. A description of the purpose of the proposed dredging.
   b. A detailed description of the existing physical character, shoreline geomorphology and biological resources provided by the area proposed to be dredged, including:
      1) A site plan map outlining the perimeter of the proposed dredge area. The map must also include the existing bathymetry depths based on the OHWM and have data points at a minimum of 2-foot depth increments.
      2) A habitat survey identifying aquatic vegetation, potential native fish spawning areas, or other physical or biological habitat parameters.
      2) Information on the stability of lakebed adjacent to proposed dredging area.

3) Information on the composition of the material to be removed.

c. A description of:

1) Dredging procedure, including length of time it will take to complete dredging, method of dredging, and amount of material removed.

2) Where the materials will be placed to allow for sediment to settle, by what means the materials will be transported away from the dredge site, and specific approved land or open-water disposal site.

3) Plan for anticipated future maintenance dredging and disposal, including frequency and quantity, for at least a 20-year period.

d. Copies of state and federal approvals.

83.330 Land Surface Modification

1. General – The following standards must be met for any approved land surface modification:

a. Land surface modification within required shoreline setback shall only be permitted upon approval of a land surface modification permit, under the provisions established in KMC Title 29.

b. The land surface modification shall be consistent with the provisions of this Chapter, including, but not limited to, the regulations regarding streams, wetlands and their buffers, geologically hazardous areas, shoreline vegetation, and trees.

c. The land surface modification is consistent with the provisions of the most current edition of the Public Works Department's Pre-Approved Plans and Policies.

d. All excess material resulting from land surface modification shall be disposed of in a manner that prevents the material entering into a waterbody through erosion or runoff. Where large quantities of plants are removed by vegetation control activities authorized under this section, plant debris shall be collected and disposed of in an appropriate location located outside of the shoreline setback.

e. Areas disturbed by permitted land surface modification in the shoreline setback shall be stabilized with approved vegetation.

f. All materials used as fill shall be non-dissolving and non-decomposing. Fill material shall not contain organic or inorganic material that would be detrimental to water quality or existing habitat, or create any other significant adverse impacts to the environment.

g. The land surface modification must be the minimum necessary to accomplish the underlying reason for the land surface modification.

h. Except as is necessary during construction, dirt, rocks and similar materials shall not be stockpiled on the subject property. If stockpiling is necessary during construction, it must be located as far as feasible from the lake and strictly contained to prevent erosion and runoff.

2. Permitted Activities -

a. Land surface modification is prohibited within the shoreline setback, except for the following:

1) For the purpose of shoreline habitat and natural systems enhancement projects, setting back shoreline stabilization measures or portions of shoreline stabilization measures from the OHWM, or soft structural shoreline stabilization measures under a plan approved by the City.

2) As authorized by a valid shoreline permit or approval issued by the City.

3) Associated with the installation of improvements located within the shoreline setback or waterward of the OHWM, as permitted under KZC 83.190.2.

4) Removal of prohibited vegetation.

5) As performed in the normal course of maintaining existing vegetation on a lot associated with existing buildings, provided such work:

a) Does not modify any drainage course.

b) Does not involve the importation of fill material, except as needed for mulch or soil amendment.

c) Does not involve removal of native vegetation or vegetation installed as part of an approved restoration or enhancement plan, unless approved by the Planning Official.

d) Does not result in erosion of the shoreline or undermine stability of neighboring properties.

e) Does not result in the compaction of existing soils in a manner that significantly decreases the ability of the soil to absorb rainfall.

f) Is the minimum extent necessary to reasonably accomplish the maintenance activity.

6) Correction of storm drainage improvements when supervised by the Department of Public Works.

7) As necessary to maintain or upgrade the structural safety of a legally established structure.

8) For exploratory excavations under the direction of a professional engineer licensed in the state of Washington, as long as the extent of the land surface modification does not exceed the minimum necessary to obtain the desired information.

b. Land surface modification outside of the shoreline setback is regulated as land surface modifications throughout the City. See KMC Title 29 for those regulations.

83.340 Fill

1. Fill shall be permitted only where it is demonstrated that the proposed action will not:
   a. Result in significant damage to water quality, fish, aquatic habitat, and/or wildlife habitat; or
   b. Adversely alter natural drainage and circulation patterns, currents, or stream flows, or significantly reduce floodwater-holding capabilities.
2. Fills landward and waterward of the OHWM shall be designed, constructed, and maintained to prevent, minimize, and control all material movement, erosion, and sedimentation from the affected area.
3. Fills waterward of the OHWM shall be permitted only:
   a. In conjunction with an approved water-dependent use or public access use, including maintenance of beaches or
   b. As part of an approved mitigation or restoration project.
4. Any placement of materials landward of the OHWM shall comply with the provisions in KZC 83.330 for land surface modification.
5. No refuse disposal sites, solid waste disposal sites, or sanitary fills shall be permitted.

83.350 Shoreline Habitat and Natural Systems Enhancement Projects

1. Purpose - 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.
2. Covered Activities – The following actions are allowed under this section, provided they first meet the purpose stated in KZC 83.850.1 above:

a. Establishment or enhancement of native vegetation.

b. Removal of non-native or invasive plants upland of the OHWM, including only those identified as noxious weeds on King County's published Noxious Weed List, unless otherwise authorized by the City.

c. Conversion of hard structural shoreline stabilization to soft shoreline stabilization, including associated clearing, dredging and filling necessary to implement the conversion, provided that the primary purpose of such actions is clearly restoration of the natural character and ecological functions of the shoreline.

d. Implementation of any project or activity identified in the City's Restoration Plan.

e. Implementation of any project or activity identified in the *Final WRIA 8 Chinook Salmon Conservation Plan and related documents.*

General Regulations

83.360 No Net Loss Standard and Mitigation Sequencing

1. General –

   a. If specific standards, such as setbacks, pier dimensions and tree planting requirements, are provided in this Chapter, then the City shall not require additional mitigation sequencing analysis under these provisions.

   b. In the following circumstances, the applicant shall provide an analysis of measures taken to mitigate environmental impacts:

      1) Where specific regulations for a proposed use or activity are not provided in this Chapter;

      2) Where either a conditional use or variance application are proposed;

      3) Where the standards contained in this Chapter require an analysis of the feasibility of or need for an action or require analysis to determine whether the design has been minimized in size; and

      4) Where the standards provide for alternative compliance or mitigation measures.

   c. Under WAC Chapter 173-26, uses and shoreline modifications along Kirkland's shoreline shall be designed, located, sized, constructed and/or maintained to achieve no net loss of shoreline ecological functions.

   d. Maintenance activities shall be conducted in a manner that minimizes impacts to fish, wildlife, and their associated habitat and utilizes best management practices, unless specific standards in this Chapter are already provided for maintenance activities.

   e. Where evaluating the feasibility of a proposed action, the City shall consider whether the cost of avoiding disturbance is substantially disproportionate as compared to the environmental impact of the proposed disturbance, including any continued impacts on functions and values over time.

   f. Where mitigation is required, the City shall consider alternative mitigation measures that are proposed by the applicant that may be less costly than those prescribed in this Chapter, provided that the alternatives are as effective in meeting the requirements of no net loss.

2. Mitigation Analysis - In order to assure that development activities contribute to meeting the no net loss provisions by avoiding, minimizing, and mitigating for adverse impacts to ecological functions or ecosystem-wide processes, an applicant required to complete a mitigation analysis pursuant to KZC 83.360.1 above, shall utilize the following mitigation sequencing guidelines that appear in order of preference, during the design, construction and operation of the proposal:

   a. Avoiding the impact altogether by not taking a certain action or parts of an action;

   b. Minimizing impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology or by taking affirmative steps to avoid or reduce impacts;

   c. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

   d. Reducing or eliminating the impact over time by preservation and maintenance operations;

   e. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and

   f. Monitoring the impact and the compensation projects and taking appropriate corrective measures.

   Failure to demonstrate that the mitigation sequencing standards have been met may result in permit denial. The City may request necessary studies by qualified professionals to determine compliance with this standard and mitigation sequencing.

83.370 Federal and State Approval

1. All work at or waterward of the OHWM requires permits or approvals from one or more of the following state and federal agencies: U.S. Army Corps of Engineers, Washington Department of Fish and Wildlife, Washington Department of Natural Resources, or Washington Department of Ecology.
2. Documentation verifying necessary state and federal agency approvals must be submitted to the City prior to issuance of a building permit, including shoreline exemption. All activities within shoreline jurisdiction must comply with all other applicable laws and regulations.
3. If structures are proposed to extend waterward of the inner harbor line, the applicant must obtain an aquatic use authorization from the Washington State Department of Natural Resources and submit proof of authorization with submittal of a Building Permit.

83.380 Shoreline Setback Reduction

1. Improvements permitted within the Shoreline Setback - See standards contained in KZC 83.190.2.
2. Shoreline Setback Reductions ¬

   a. In the Residential ¬ L shoreline environment, the shoreline setback may be reduced by two (2) feet if subject to the Historic Preservation provisions of KMC 22.28.048, but in no case closer than 25 feet with the exception in the Residential L - shoreline environment south of the Lake Ave West Street End Park where the minimum shoreline setback is 15 feet.

   b. The required shoreline setback may be reduced to a minimum of 25 feet when setback reduction impacts are mitigated using a combination of the mitigation options provided in the chart below to achieve an equal or greater protection of lake ecological functions. In the portion of the Residential-L environment located south of the Lake Ave W Street End Park, the required shoreline setback may be reduced to a minimum of 15 feet. The following standards shall apply to any reduced setback:

      1) The minimum setback that may be approved through this reduction provision is 25 feet in width, except that properties in the Residential L ¬ shoreline environment south of the Lake Ave West Street End Park may reduce to a minimum setback of 15 feet. Any further setback reduction below 25 feet or 15 feet, respectively, in width shall require approval of a shoreline variance application.

      2) The City shall accept previous actions that meet the provisions established in the setback reduction option chart in KZC 83.380.d. below as satisfying the requirements of this section, provided that all other provisions are completed, including but not limited to, the agreement noted in Section 83.380.2.b.4 below. The reduction allowance for previously completed reduction actions may only be applied once on the subject property.

      3) Prior to issuance of a certificate of occupancy or final inspection, the applicant shall provide a final as-built plan of any completed improvements authorized or required under this subsection.

      4) Applicants who obtain approval for a reduction in the setback must record the final approved setback and corresponding conditions, including maintenance of the conditions throughout the life of the development, unless otherwise approved by the City, in a form acceptable to the City Attorney, and recorded with the King County Recorder's Office. The applicant shall provide land survey information for this purpose in a format approved by the Planning Official.

      5) The shoreline setback reduction mechanisms shall not apply within the Natural shoreline environment.

c. The reduction allowance shall be applied to the required shoreline setback. For instance, if a reduction is proposed in the Residential –1 L environment, where the shoreline setback requirement is 30% of the average parcel depth, the shoreline setback could be reduced to 20% of the average parcel depth, but in no case less than 25 feet, if Reduction Option 1 in the chart below is used.

d. The chart below describes the setback reduction options:

Shoreline Setback Reduction Options		Reduction Allowance	
		Standard Reduction (min. 25 ft. setback)	**Residential-L, south of Lake Ave W Street End Park (min. 15 ft. setback)**
Water Related Conditions or Actions			
1	Presence of non-structural or soft structural shoreline stabilization measures located at, below, or within 5 feet landward of the lake's OHWM along at least 75 percent of the linear lake frontage of the subject property. This can include the removal of an existing hard structural shoreline stabilization measure and subsequent restoration of the shoreline to a natural or semi-natural state, including restoration of topography, and beach/substrate composition. This option cannot be used in conjunction with Option 2 below	Reduce required setback by 15 percentage points, or in cases where the required setback is 60% reduce setback by 30 ft.	Reduce required setback by 15 ft.
2	Presence of non-structural or soft structural shoreline stabilization measures located at, below, or within 5 feet landward of the lake's OHWM along at least 15 linear feet of the lake frontage of the subject property. This may include the removal of an existing hard structural shoreline stabilization measure and subsequent restoration of the shoreline to a natural or semi-natural state, including creation or enhancement of nearshore shallow-water habitat, beach/substrate composition. This option cannot be used in conjunction with Option 1 above;	Reduce required setback by 5 percentage points, or in cases where the required setback is 60% reduce setback by 10 ft.	Reduce required setback by 5 ft.
3	Opening of previously piped on-site watercourse to allow potential rearing opportunities for anadromous fish for a minimum of 25 feet in length. Opened watercourses must be provided with a native planted buffer at least 5 feet wide on both side of the stream, and must not encumber adjacent properties with a 5 foot wide buffer without express written permission of the adjacent property owner. A qualified professional must design opened watercourses. The opened watercourse shall be exempt from the buffer provisions of KZC 83.490. The opened watercourse is exempt from the buffer requirements and standards of KZC 83.510.	Reduce required setback by 5 percentage points, or in cases where the required setback is 60% reduce setback by 4 ft.	Reduce required setback by 5 ft.

Shoreline Setback Reduction Options		Reduction Allowance	
		Standard Reduction (min. 25 ft. setback)	Residential-L, south of Lake Ave W Street End Park (min. 15 ft. setback)
4	Hard structural shoreline stabilization measure is setback from the OHWM between 2 ft. to 4 ft based on feasibility and existing conditions and/are sloped at a maximum 3 vertical (v): 1 horizontal (h) angle to provide dissipation of wave energy and increase the quality or quantity of nearshore shallow-water habitat.	Reduce required setback by 5 percentage points, or in cases where the required setback is 60 ft. reduce setback by 4 ft.	Reduce required setback by 5 ft.
5	Soft structural shoreline stabilization measures are installed waterward of the OHWM. They may include the use of gravels, cobbles, boulders, and logs, as well as vegetation. The material shall be of a size and placed to remain stable and accommodate alteration from wind- and boat-driven waves and shall be graded to a maximum slope of 1 vertical (v): 4 horizontal (h).	Reduce required setback by 2 percentage points, or in cases where the required setback is 60 ft. reduce setback by 4 ft.	Reduce required setback by 2 ft.
Upland Related Conditions or Actions			
6	Installation of biofiltration/infiltration mechanisms in lieu of piped discharge to the lake, such as mechanisms that infiltrate or disperse surface water on the surface of the subject property, These mechanisms shall be sized to store a minimum of 70% of the annual volume of runoff water from the subject property, for sites with poor soils, or 99% of the annual volume of runoff water from the subject property, for sites with well-draining soils. This mechanism shall apply to sites where the total new or replaced impervious surface is less than or equal to 5,000 square feet. The mechanisms shall be designed to meet the requirements in the City's current surface water design manual.	Reduce required setback by 2 percentage points, or in cases where the required setback is 60 ft. reduce setback by 4 ft.	Reduce required setback by 2 ft.
7	Increasing the width of the required landscape strip within the reduced shoreline setback a minimum of five (5) additional feet in width.	Reduce required setback by 2 percentage points, or in cases where the required	Reduce required setback by 2 ft.

Shoreline Setback Reduction Options		Reduction Allowance	
		Standard Reduction (min. 25 ft. setback)	Residential-L, south of Lake Ave W Street End Park (min. 15 ft. setback)
		setback is 60 ft. reduce setback by 4 ft.	
8	Installation of pervious material for all pollution generating surfaces such as driveways, parking or private roads that allows water to pass through at rates similar to pre-developed conditions. Excluded from this provision are the vehicular easement roads, such as 5th Ave West or Lake Ave West in the Residential-L shoreline environment.	Reduce required setback by 2 percentage points, or in cases where the required setback is 60 ft. reduce setback by 4 ft.	Reduce required setback by 2 ft.
9	Limiting the lawn area within the shoreline setback to no more than 50 percent of the reduced setback area.	Reduce required setback by 2 percentage points, or in cases where the required setback is 60 ft. reduce setback by 4 ft.	Reduce required setback by 2 ft.
10	Preserving or restoring at least 20 percent of the total lot area outside of the reduced setback and any critical areas and their associated buffers as native vegetation.	Reduce required setback by 2 percentage points, or in cases where the required setback is 60ft reduce setback by 4 ft.	Reduce required setback by 2 ft.

83.390 Site and Building Design Standards

1. Water-enjoyment and non-water oriented commercial and recreational uses shall contain the following design features to provide for the ability to enjoy the physical and aesthetic qualities of the shoreline:

   a. Buildings are designed with windows that orient toward the shoreline.

   b. Buildings are designed to incorporate outdoor areas such as decks, patios, or viewing platforms that orient toward the shoreline.

   c. Buildings are designed with entrances along the waterfront façade and with connections between the building and required public pedestrian walkways.

   d. Service areas are located away from the shoreline.

   e. Site planning includes public use areas along waterfront public pedestrian walkways, if required under the provisions established in KZC 83.420, that will encourage pedestrian activity, including but not limited to:

      1) Permanent seating areas;

      2) Vegetation, including trees to provide shade cover; and

      3) Trash receptacles.

2. Exemptions – The following are exempt from the requirements of KZC 83.390.1 above:

   a. Non-water oriented commercial and recreational uses that are located on the east side of Lake Washington Blvd. NE/Lake Street or on the east side of 98th Avenue NE.

   b. Non-water oriented commercial and recreational uses where there is an intervening development between the shoreline and the subject property.

3. Buildings shall not incorporate materials that are reflective or mirrored.

83.400 Tree Management and Vegetation in Shoreline Setback

1. Tree Retention - The following provisions shall apply to significant trees located within the shoreline jurisdiction, in addition to the provisions contained in Chapter 95 KZC. Provisions contained in Chapter 95 KZC that are not addressed in this section continue to apply.

   To maintain the ecological functions that trees provide to the shoreline environment, significant trees shall be retained or, if removed, the loss of shoreline ecological functions shall be mitigated for, subject to the following standards:

   a. No Development Activity –

      For tree removal in the shoreline setback when no development activity is proposed or in progress, the following tree replacement standards and requirements shall apply:

      1) Healthy, diseased or nuisance trees that are removed or fallen trees in the shoreline setback shall be replaced as follows:

Removed Tree Type	Replacement Requirement
1 conifer tree less than 24 inches in diameter as measured at breast height	For removal of conifer tree up to 12 inches in diameter replace with ~~: 1)~~ 1 native conifer tree at least 6 ft. in height measured from existing grade~~, and 2) plant at least 40 square feet of native riparian vegetation or plant 1 additional tree~~. Riparian area shall contain at least 60% shrubs and be a minimum of 3 ft. wide in all dimensions at the time of planting.

	From removal of conifer tree greater than 12 inches in diameter but less than 24 inches in diameter, same replacement requirements as for conifer tree 12 inches in diameter or less, but riparian vegetation area shall be at least 80 square feet at the time of planting.
1 deciduous tree less than 24 inches in diameter as measured at breast height	For removal of deciduous tree up to 12 inches in diameter replace with~~: 1)~~ 1 deciduous tree at least 2 inches in caliper measured 6 inches above existing grade or 1 native conifer tree at least 6 feet in height measured from existing grade.~~; and 2) plant at least 40 square feet of native riparian vegetation or plant 1 additional tree~~. Riparian area shall contain at least 60% shrubs and be a minimum of 3 feet wide in all dimensions at the time of planting. For removal of deciduous tree greater than 12 inches in diameter but less than 24 inches in diameter, same replacement requirements as for deciduous tree 12 inches in diameter or less, but riparian vegetation area shall be at least 80 square feet at the time of planting.
1 conifer or deciduous tree 24 inches in diameter or greater as measured at breast height	Only tree meeting the criteria found in KZC Chapter 95 for a nuisance or hazard tree may be removed. A report, prepared by a qualified professional certified arborist, must be submitted showing how tree meets the criteria. The City arborist shall make the final determination if tree meets the criteria and may be removed. If the City arborist approved removal of the tree, tree replacement shall be: For removal of 1 conifer tree, replace with 2 native confer trees at least 6 ft. in height at the time of planting. For removal of 1 deciduous tree, replace with 2 trees of either type. Native conifer tree shall be at least 6 ft. in height and deciduous tree shall be at least 2 inches in caliper measured 6 inches above existing grade at the time of planting.
A significant tree that has fallen as a result of natural causes, such as a fire, flood, earthquake or storm	If the subject property complies with the minimum tree density requirement established in KZC Chapter 95, no replacement is required. Otherwise, replace with 1 tree. Native conifer tree shall be at least 6 ft. in height and deciduous tree shall be at least 2 inches in caliper measured 6 inches above existing grade at the time of

	planting.

1) A tree removal request shall be submitted in writing to the City prior to any tree removal within the shoreline setback. The request shall include the location, number, type and size of tree(s) being removed and the proposed replacement tree(s) and riparian vegetation planting plan meeting the standards required in KZC 83.400.1.a) above. The City shall inspect the tree replacement once installation is complete.

2) An alternative replacement option shall be approved if an applicant can demonstrate that:

   a) It is not feasible to plant all of the required mitigation trees in the shoreline setback of the subject property, given the existing tree canopy coverage and location of trees on the property, the location of structures on the property, and minimum spacing requirements for the trees to be planted, or

   b) The required tree replacement will obstruct existing views to the lake, at the time of planting or upon future growth that cannot otherwise be mitigated through tree placement or maintenance activities. The applicant shall be responsible for providing sufficient information to the City to determine whether the tree replacement will obstruct existing views to the lake.

   The alternate replacement option must be equal or superior to the provisions of this section in accomplishing the purpose and intent of maintaining shoreline ecological functions and processes. This may include, but shall not be limited to, a riparian restoration plan consisting of at least 60% shrubs and some groundcovers selected from the Kirkland Native Plant List that shall equal at a minimum 80 square feet for each tree to be replanted. The applicant shall submit a planting plan to be reviewed by the Planning Official or Urban Forester, who may approve, approve with conditions, or deny the request.

   If the alternative plan is consistent with the standards provided in this subsection, the Planning Official or Urban Forester shall approve the plan or may impose conditions to the extent necessary to make the plan consistent with the provisions. If the alternative mitigation is denied, the applicant shall be informed of the deficiencies that caused its disapproval so as to provide guidance for its revision and re-submittal.

3) In circumstances where the proposed tree removal includes a tree that was required to be planted as a replacement tree under the provisions of this subsection or as part of the required vegetation in the shoreline setback established in KZC 83.400.3 below, the required tree replacement shall be addressed under the provision below that requires only a 1:1 replacement.

4) For required replacement trees, a planting plan showing the location, size and species of the new trees is required to be submitted and approved to by the Planning Official. All replacement trees in the shoreline setback must be selected from the Kirkland Native Plant List, or other native or shoreline appropriate species approved by the Planning Official or Urban Forester.

b. Development Activity ¬

For tree removal in the shoreline setback when development activity is proposed or in progress.

1) Submittal Requirements in the Shoreline Setback ¬

   a) A site plan showing the approximate location of significant trees, their size (DBH) and their species, along with the location of existing structures, driveways, access ways and easements and the proposed improvements.

b) An arborist report stating the size (DBH), species, and assessment of health of all significant trees located within the shoreline setback. This requirement may be waived by the Planning Official if it is determined that proposed development activity will not potentially impacts significant trees within the shoreline setback.

2) Tree Retention Standards in the Shoreline Setback - Within the shoreline setback, existing significant trees shall be retained, provided that the trees are determined to be healthy and windfirm by a qualified professional, and provided the trees can be safely retained consistent with the proposed development activity. The Planning Official is authorized to require site plan alterations to retain significant trees in the shoreline setback. Such alterations include minor adjustments to the location of building footprints, adjustments to the location of driveways and access ways, or adjustment to the location of walkways, easements or utilities. The applicant shall be encouraged to retain viable trees in other areas on-site.

3) Replanting Requirements in the Shoreline Setback

a) If the Planning Official approves removal of a significant tree in the shoreline setback area, then the tree replacement requirements of KZC 83.400.1.a above shall be met. See alternative mitigation option in KZC 83.400.1.b.3) c) below that may be proposed.

b) For required replacement trees, a planting plan showing location, size and species of the new trees is required. All replacement trees in the shoreline setback must be selected from the Kirkland Native Plant List, or other native or shoreline appropriate species approved by the Planning Official or Urban Forester.

c) An alternative mitigation option may be approved if an applicant can demonstrates that:

i. It is not feasible to plant all of the required mitigation trees on the subject property, given the existing tree canopy coverage and location of trees on the property, the location of structures on the property, and minimum spacing requirements for the trees to be planted, or

ii. The required tree replacement will obstruct existing views to the lake, at the time of planting or upon future growth that cannot otherwise be mitigated through tree placement or maintenance activities. The applicant shall be responsible for providing sufficient information to the City to determine whether the tree replacement will obstruct existing views to the lake.

The alternate mitigation must be equal or superior to the provisions of this subsection in accomplishing the purpose and intent of maintaining shoreline ecological functions and processes. This may include, but shall not be limited to, a riparian restoration plan consisting of at least 60% shrubs, perennials and groundcovers selected from the Kirkland Native Plant List that shall equal at minimum 80 square feet for each tree to be replanted. The applicants shall submit a planting plan to be reviewed by the Planning Official or Urban Forester, who may approve, approve with conditions, or deny the request.

If the alternative plan is consistent with the standards provided in this subsection, the Planning Official or Urban Forester shall approve the plan or may impose conditions to the extent necessary to make the plan consistent with the provisions. If the alternative mitigation is denied, the applicant shall be informed of the deficiencies that caused its disapproval so as to provide guidance for its revision and re-submittal.

2. Tree Pruning - Non-destructive thinning of lateral branches to enhance views or trimming, shaping, thinning or pruning of a tree necessary to its health and growth is allowed, consistent with the following standards:

a. In no circumstance shall removal of more than one-fourth (1/4) ~~one-third (1/3)~~ of the original crown be permitted;

b. Pruning shall not include topping, stripping of branches or creation of an imbalanced canopy;

c. Pruning shall retain branches that overhang the water to the maximum extent feasible.

3. Required Vegetation in Shoreline Setback – Riparian vegetation contributes to shoreline ecological functions in a number of different ways, including maintaining temperature, removing excessive nutrients and toxic compounds, attenuating wave energy, removing and stabilizing sediment and providing woody debris and other organic matter. In order to minimize potential impacts to shoreline ecological functions from development activities, the following shoreline vegetation standards are required:

a. For properties that do not comply with the shoreline vegetation standards contained in this subsection, refer to KZC 83.550 to determine when compliance is required.

b. Minimum Vegetation Standard Compliance –

1) Location –

a) Water-dependent Uses or Activities - The applicant shall plant native vegetation, as necessary, in at least 75 percent of the nearshore riparian area located along or near the water's edge, except for the following areas, where the vegetation standards shall not apply: Those portions of water-dependent development that require improvements adjacent to the water's edge, such as fuel stations for retail establishments providing gas sales, haul-out areas for retail establishments providing boat and motor repair and service, boat ramps for boat launches, swimming beaches or other similar activities shall plant native vegetation on portions of the nearshore riparian area located along the water's edge that are not otherwise being used for the water-dependent activity.

b) All Other Uses - The applicant shall plant native vegetation, as necessary, in at least 75 percent of the nearshore riparian area located along or near the water's edge.

c) In the instance where there is an intervening property between the shoreline and an upland property and the portion of the intervening property abutting the upland property has an average parcel depth of less than 25 feet, shoreline vegetation along the west property line area of the upland property shall be provided within the shoreline setback pursuant to KZC 83.400, unless:

i. The required shoreline vegetation already exists on the intervening lot;

ii. The intervening property owner agrees to installing the shoreline vegetation on their property; or

iii. A proposal for alternative compliance is approved under the provisions established in KZC 83.400.3.f.

2) Planting Requirements –

a) For uses other than those list below in KZC 83.400.2) b) for Detached, Attached and Stacking Dwelling units, the vegetated portion of the nearshore riparian area shall average ten (10) feet in depth from the OHWM, but may be a minimum of five (5) feet wide to allow for variation in landscape bed shape and plant placement. Total square feet of landscaped area shall be equal to a continuous 10-foot wide area.

b) For Detached, Attached or Stacked Dwelling Units within the Residential – M/H shoreline environment, the vegetated portion of the nearshore riparian area shall average 15 feet in depth from the OHWM. Total square feet of landscaped area shall be equal to a continuous 15-foot wide area.

c) The public access walkway required under KZC 83.420 may extend into the required landscape strip as necessary to meet the public pedestrian access requirements, provided that the overall width of the landscape strip is maintained.

d) Installation of native vegetation shall consist of a mixture of trees, shrubs and groundcover and be designed to improve habitat functions. At least 3 trees per 100 linear feet of shoreline must be included in the plan, with portions of a tree rounded up to the next required tree. At least 60 % of the landscape bed shall consist of shrubs.

e) Plant materials must be native and selected from the Kirkland Native Plant List, or other native or shoreline appropriate species approved by the Planning Official or Urban Forester.

c. Use of Existing Vegetation - The City shall accept existing native trees, shrubs and groundcover as meeting the requirements of this subsection, including vegetation previously installed as part of a prior development activity, provided that the existing vegetation provides a landscape strip at least as effective in protecting shoreline ecological functions as the required vegetation. The City may require the applicant to plant trees, shrubs, and groundcover according to the requirements of this subsection to supplement the existing vegetation in order to provide a buffer at least as effective as the required buffer.

d. Landscape Plan Required - The applicant shall submit a landscape plan that depicts the quantity, location, species, and size of plant materials proposed to comply with the requirements of this subsection, and shall address the plant installation and maintenance requirements set forth in KZC 95. Plant materials shall be identified with both their scientific and common names. Any required irrigation system must also be shown.

e. Vegetation Placement – When required either by this subsection or as a mitigation measure, such as for a new pier or dock or structural shoreline stabilization measure, vegetation selection and placement shall comply with the following standards:

1) Vegetation shall be selected and positioned on the property so as not to obscure the public view within designated view corridors from the public right-of-way to the lake and the shoreline on the opposite side of the lake at the time of planting or upon future growth.

2) Vegetation may be selected and positioned to maintain private views to the water by clustering vegetation in a selected area, provided that the minimum landscape standard is met, unless alternative compliance is approved.

f. Alternative Compliance - Vegetation required by this subsection shall be installed unless the applicant demonstrates one of the following:

1) The vegetation will not provide shoreline ecological function due to existing conditions, such as the presence of extensive shoreline stabilization measures that extend landward from the OHWM; or

2) It is not feasible to plant all of the required vegetation on the subject property, given the existing tree canopy coverage and location of trees on the property, the location of structures on the property, or minimum spacing requirements for the vegetation to be planted; or

3) The vegetation will substantially interfere with the use and enjoyment of the portion of the property located between the primary structure and OHWM, such as the existing structure is located in very close proximity to the OHWM; the area in between the primary structure and the OHWM is encumbered by a sanitary sewer or public pedestrian access easement or other constraining factors; or

4) The required vegetation placement will obstruct existing views to the lake, at the time of planting or upon future growth, which cannot otherwise be mitigated through placement or maintenance activities. The applicant shall be responsible for providing sufficient

information to the City to determine whether the vegetation placement will obstruct existing views to the lake.

The alternate measures must be equal or superior to the provisions of this subsection in accomplishing the purpose and intent of maintaining and improving shoreline ecological functions and processes.

Requests to use alternative measures shall be reviewed by the Planning Official who may approve, approve with conditions, or deny the request. Cost of producing and implementing the alternative plan, and the fee to review the plan by City staff or the City's consultant shall be borne by the applicant.

If the alternative plan is consistent with the standards provided in this subsection, the Planning Official shall approve the plan or may impose conditions to the extent necessary to make the plan consistent with the provisions. If the alternative mitigation is denied, the applicant shall be informed of the deficiencies that caused its disapproval so as to provide guidance for its revision and re-submittal.

4. Other Standards -

   a. For other general requirements, see Chapter 95 KZC, Tree Management and Landscaping Requirements.

   b. The applicant is encouraged to make significant trees removed under these provisions available for City restoration projects, as needed.

5. Responsibility for Regular Maintenance -

   a. The applicant, landowner, or successors in interest shall be responsible for the regular maintenance of vegetation required under this section. Plants that die must be replaced in kind or with similar plants contained on the Native Plant List, or other native or shoreline appropriate species approved by the Planning Official or Urban Forester.

   b. All required vegetation must be maintained throughout the life of the development. Prior to issuance of a certificate of occupancy or final inspection, the proponent shall provide a final as-built landscape plan and a recorded agreement, in a form approved by the City Attorney, to maintain and replace all vegetation that is required by the City.

83.410 View Corridors

1. General - Development within the shoreline areas located west of Lake Washington Boulevard and Lake Street South shall include public view corridors that provide the public with an unobstructed view of the water. The intent of the corridor is to provide an unobstructed view from the adjacent public right-of-way to the lake and the shoreline on the opposite side of the lake.

2. Standards -

   a. For properties lying waterward of Lake Washington Boulevard and Lake Street South, a minimum view corridor of thirty (30) percent of the average parcel width must be maintained. A view of the shoreline edge of the subject property shall be provided if existing topography, vegetation, and other factors allow for this view to be retained.

   b. The view corridors approved for properties located in the Urban Mixed shoreline environment established under a zoning master plan or zoning permit approved under the provisions of Chapter 152 KZC shall continue to comply with those requirements. Modifications to the proposed view corridor shall be considered under the standards established in this Chapter and the zoning master plan.

3. Exceptions - The requirement for a view corridor does not apply to the following:

   a. The following water-dependent uses:

      1) Piers and docks associated with a marina or moorage facility for a commercial use;

2) Piers, docks, moorage buoys, boatlifts and canopies associated with Detached, Attached and Stacked Unit uses; and

3) Tour boat facility, ferry terminal or water taxi, including permanent structures up to 200 square feet in size housing commercial uses ancillary to the facility.

4) Public Access Pier or Boardwalk

5) Boat launch

b. Public Parks

c. Properties located in the Urban Mixed shoreline environment within the Central Business District zone.

4. View corridor location - The location of the view corridor shall be designed to meet the following location standards and must be approved by the Planning Official.

a. If the subject property does not directly abut the shoreline, the view corridor shall be designed to coincide with the view corridor of the properties to the west.

b. The view corridor must be adjacent to either the north or south property line of the subject property, whichever will result in the widest view corridor, considering the following, in order of priority:

1) Locations of existing view corridors.

2) Existing development or potential development on adjacent properties, given the topography, access and likely location of future improvements.

3) The availability of actual views of the water and the potential of the lot for providing those views from the abutting street.

4) Location of existing sight-obscuring structures, parking areas or vegetation that is likely to remain in place in the foreseeable future.

c. The view corridor must be in one continuous piece.

d. For land divisions, the view corridor shall be established as part of the land division and shall be located to create the largest view corridor on the subject property.

5. Permitted encroachments -

a. The following shall be permitted within a view corridor:

1) Areas provided for public access, such as public pedestrian walkways, public use areas, or viewing platforms.

2) Parking lots and subsurface parking structures, provided that the parking does not obstruct the view from the public right-of-way to the waters of the lake and the shoreline on the opposite side of the lake.

3) Structures if the slope of the subject property permits full, unobstructed views of the Lake and the shoreline on the opposite side of the lake over the structures from the public right-of-way.

4) Shoreline restoration plantings and existing specimen trees and native shoreline vegetation.

5) Vegetation, including required vegetation screening around parking and driving areas and land use buffers, provided it is designed and of a size that will not obscure the view from the public right-of-way to the water and the shoreline on the opposite side of the lake at the time of planting or upon future growth. In the event of a conflict between required site screening and view preservation. View preservation shall take precedents over buffering requirements found in KZC 95.

6) Open fencing that is designed not to obscure the view from the public right-of-way to the lake and the shoreline on the opposite side of the lake.

6. Dedication -The applicant shall execute a covenant or similar legal agreement, in a form acceptable to the City Attorney, and record the agreement with the King County Recorder's Office, to protect the view corridor. Land survey information shall be provided by the applicant for this purpose in a format approved by the Planning Official.

83.420 Public Access

1. General – Promoting a waterfront pedestrian corridor is an important goal within the City. Providing pedestrian access along Lake Washington enables the public to view and enjoy the scenic beauty, natural resources, and recreational activities that are found along the shoreline. This pedestrian corridor provides opportunities for physical recreation and leisure and serves as a movement corridor. Connections between the shoreline public pedestrian walkway and the public right-of-way serve to link the walkway with the larger city-wide pedestrian network.

   The applicant shall comply with the following pedestrian access requirements with new development for all uses and land divisions under KMC Chapter 22, pursuant to the standards of this section:

   a. Pedestrian Access Along the Water's Edge – Provide public pedestrian walkways along or near the water's edge.

   b. Pedestrian Access From Water's Edge to Right-of-Way – Provide public pedestrian walkways designed to connect the shoreline public pedestrian walkway to the abutting right-of-way.

2. Public Pedestrian Walkway Location – The applicant shall locate public pedestrian walkways pursuant to the following standards:

   a. The walkways shall be designed and sited to minimize the amount of native vegetation removal, impact to existing significant trees, soil disturbance, and disruption to existing habitat corridor structures and functions.

   b. The walkways shall be located along or near the water's edge between the development and the shoreline at an average of ten (10) feet but no closer than five (5) feet landward of the OHWM so that the walkway may meander and not be a straight line. In cases where the walkway on the adjoining property has been installed closer to the shoreline than allowed under this provision, the walkway extend within five (5) feet of the OHWM in order to connect to the existing walkway.

   c. Locating the walkways adjacent to other public areas including street-ends, waterways, parks, and other public access and connecting walkways, shall maximize the public nature of the access.

   d. The walkways shall be situated so as to minimize significant grade changes and the need for stairways.

   e. The walkways shall minimize intrusions of privacy for occupants and residents of the site by avoiding locations directly adjacent to residential windows and outdoor private open spaces, or by screening or other separation techniques.

   f. The walkways shall be located so as to avoid undue interference with the use of the site by water-dependent businesses.

   g. The Planning Official shall determine the appropriate location of the walkway on the subject property when planning for the connection of a future waterfront walkway on an adjoining property.

   h. In the instance where there is an intervening property between the shoreline and an upland property and the portion of the intervening property abutting the upland property has an average parcel depth of less than 25 feet, the required public pedestrian walkway along the

west property line of the upland property shall be provided within the shoreline setback pursuant to KZC 83.420, unless:

1) The required public pedestrian walkway already exists on the intervening lot;

2) The intervening property owner agrees to installing the public pedestrian walkway improvement and submitting a public access easement to the City for recording, or

3. 3) A modification to the public access requirement is granted for the upland property under the provisions established in KZC 83.420.6.Development Standards Required for Pedestrian Improvements - The applicant shall install pedestrian walkways pursuant to the following standards:

   a. The walkways shall be at least 6 feet wide, but no more than 8 feet wide, and contain a permeable paved walking surface, such as unit pavers, grid systems, porous concrete, or equivalent material approved by the Planning Official.

   b. The walkways shall be distinguishable from traffic lanes by pavement material, texture, or change in elevation.

   c. The walkways shall not be included with other impervious surfaces for lot coverage calculations.

   d. Permanent barriers that limit future extension of pedestrian access between the subject property and adjacent properties are not permitted.

   e. Regulated public access shall be indicated by signs installed at the entrance of the public pedestrian walkway on the abutting right-of-way and along the public pedestrian pathway. The signs shall be located for maximum public visibility. Design, materials and location of the signage shall meet City specifications.

   f. All public pedestrian walkways shall be provided through a minimum 6-foot wide easement or similar legal agreement, in a form acceptable to the City Attorney, and recorded with the King County Department of Records and Elections. Land survey information shall be provided by the applicant for this purpose in a format approved by the Planning Official.

4. Operation and Maintenance Requirements for Pedestrian Improvements – The following operation and maintenance requirements apply to all public pedestrian walkways required under this section:

   a. Hours of operation and limitations on accessibility – Unless otherwise required by the City, all required pedestrian walkways shall be open to the public between the hours of 10 am to dusk from March 21st to September 21st, and the remainder of the year between the hours of 10 am to 5 pm.

   b. The applicant is permitted to secure the subject property outside of the hours of operation noted in subsection 4.a above by a security gate, subject to the following provisions:

      1) The gate shall remain in an open position during hours of permitted public access; and

      2) Signage shall be included noting the hours of permitted public access.

   c. The Planning Official is authorized to approve a temporary closure when hazardous conditions are present that would affect public safety.

   d. Performance and maintenance.

      1) No certificate of occupancy or final inspection shall be issued until all required public access improvements are completed, except under special circumstances approved by the Planning Official and after submittal of an approved performance security.

      2) The owner, its successor or assigns, shall be responsible for the completion and maintenance of all required waterfront public access areas and signage on the subject property.

5. Exceptions

   a. The requirement for the dedication and improvement of public access does not apply to:

      1) Development located within the Residential - L shoreline environment, except the following uses and developments that are required to comply with the public access provisions:

         (a) Public entities, such as government facilities and public parks; or

         (b) Divisions of land containing five (5) or more new lots located within the shoreline jurisdiction.

      2) Development located within the Natural shoreline environment.

      3) Detached Dwelling unit on one lot and normal appurtenances associated with this use that is not part of a land division. For development involving land division, public pedestrian access is required, unless otherwise excepted under this subsection.

6. Modifications

   a. The Planning Official may require or grant a modification to the nature or extent of any required improvement for any of the following reasons:

      1) If the presence of critical areas, such as wetlands, streams, or geologically hazardous areas, preclude the construction of the improvements as required.

      2) To avoid interference with the operations of water-dependant uses, such as marinas.

      3) If the property contains unusual site constraints, such as size, configuration, topography, or location.

      4) If the access would create unavoidable health or safety hazards to the public.

   b. If a modification is granted, the Planning Official may require that an alternate method of providing public access, such as a public use area or viewing platform, be provided.

   c. Access from the right-of-way to the shoreline public access walkway may be waived by the Planning Official if all of following criteria are met:

      1) If public access along the shoreline of the subject property can be reached from an adjacent property,

      2) If the adjacent property providing access to the shoreline contains an existing public access walkway connecting with the public right-of-way and the maximum separation between public access entry points along the public right-of-way is 300 feet or less; and

      3) If the subject property does not contain a public use area required as a condition of development by the Planning Official under the provisions of this Chapter.

83.430 In-Water Construction

1. Standards ⇀ The following standards shall apply to in-water work, including, but not limited to, installation of new structures, repair of existing structures, restoration projects, and aquatic vegetation removal:

   a. In-water structures and activities shall be sited and designed to avoid the need for future shoreline stabilization activities and dredging, giving due consideration to watershed functions and processes, with special emphasis on protecting and restoring priority habitat and species.

   b. In-water structures and activities are not subject to the shoreline setbacks established in KZC 83.180.

   c. See KZC 83.370 for federal and state approval and timing restrictions.

d. Removal of existing structures shall be accomplished so the structure and associated material does not re-enter the lake.

e. Waste material and unauthorized fill, such as construction debris, silt or excess dirt resulting from in-water structure installation, concrete blocks or pieces, bricks, asphalt, metal, treated wood, glass, paper and any other similar material upland of or below the OHWM shall be removed.

f. Measurements shall be taken in advance and during construction to ensure that no petroleum products, hydraulic fluid, cement, sediments, sediment-laden water, chemicals, or any other toxic or deleterious materials are allowed to enter or leach into the lake during in-water activities. Appropriate spill clean-up materials must be on-site at all times, and any spills must be contained and cleaned immediately after discovery.

g. In-water work shall be conducted in a manner that causes little or no siltation to adjacent areas. A sediment control curtain shall be used in those instances where siltation is expected. The curtain shall be maintained in a functional manner that contains suspended sediments during project installation.

h. Any trenches, depressions, or holes created below the OHWM shall be backfilled prior to inundation by high water or wave action.

i. Fresh concrete or concrete by-products shall not be allowed to enter the lake at any time during in-water installation. All forms used for concrete shall be completely sealed to prevent the possibility of fresh concrete from entering the lake.

j. Alteration or disturbance of the bank and bank vegetation shall be limited to that necessary to perform the in-water work. All disturbed areas shall be protected from erosion using vegetation or other means.

k. If at any time, as a result of in-water work, water quality problems develop, immediate notification shall be made to the Department of Ecology.

83.440 Parking

1. General -

   a. Only parking associated with a permitted or conditional shoreline use shall be allowed, except that within the Urban Mixed shoreline environment, surface or structured parking facilities may accommodate parking for surrounding uses and commercial parking uses.

   b. Parking as a primary use on a subject property is prohibited.

2. Number of Parking Spaces -

   Uses must provide sufficient off-street parking spaces. The required number of parking stalls established in KZC Chapter 105, KZC 50.60 and with the applicable parking standards for each use shall be met.

3. Parking Location -

   a. Intent – To reduce the negative impacts of parking and circulation facilities on public spaces within the shoreline, such as shoreline public pedestrian walkways, public use areas, and view corridors along public rights-of-way.

   b. Standards - The applicant shall locate parking areas on the subject property according to the following requirements:

      1) Parking is prohibited in the shoreline setback established in KZC 83.180, except as follows:

         a) Subsurface parking is allowed, provided that:

i. The structure is designed to avoid the need for future shoreline stabilization as documented in a geotechnical report, prepared by a qualified geotechnical engineer or engineering geologist.

ii. The structure is designed to comply with shoreline vegetation standards established in KZC 83.400. As part of any proposal to install subsurface parking within the shoreline setback, the applicant shall submit site-specific documentation prepared by a qualified expert to establish that the design will adequately support the long-term viability of the required vegetation.

iii. The structure is designed to not impact public access and views to the lake from the public right-of-way.

iv. Public access over subsurface parking structures shall be designed to minimize significant changes in grade.

b) The parking is designed as a short-term loading area to support a water-dependent use.

2) Parking is prohibited on structures located over water.

3) Parking, loading, and service areas for a permitted use activity shall not extend closer to the shoreline than a permitted structure unless:

a) The parking is incorporated within a structure, subject to the following standards:

i. The parking is subsurface, or

ii. The design of any above-grade structured parking incorporates vegetation and/or building surface treatment to provide an appearance comparable to the remainder of the building not used for parking.

b) The parking is accessory to a public park.

c) The parking is designed as a short-term loading area to support a water-dependent use.

4. Design of Parking Areas -

a. Pedestrian Connections

1) Parking areas shall be designed to contain pedestrian connections to public pedestrian walkways and building entrances. Pedestrian connections shall either be a raised sidewalk or composed of a different material than the parking lot material.

2) Pedestrian connections must be at least 5 feet wide, excluding vehicular overhang.

b. Design of Surface Parking Lots – In addition to the perimeter buffering and internal parking lot landscaping provisions established in KZC Chapter 95, the applicant shall buffer all parking areas and driveways visible from required public pedestrian walkways or public use areas with appropriate landscaping screening that is consistent with the landscaping and buffering standards for driving and parking areas contained in KZC Chapter 95.

c. Design of Structured Parking Facilities - Each facade of a garage or a building containing above-grade structured parking visible from a required view corridor, or is facing a public pedestrian walkway, public use area, or public park must incorporate vegetation and/or building surface treatment to mitigate the visual impacts of the structured parking.

83.450 Screening of Storage and Service Areas, Mechanical Equipment and Garage Receptacles

1. Outdoor Use, Activity and Storage. Outdoor Use, Activity and Storage areas must comply with the following:

a. Comply with the shoreline setback established for the use with which they are associated.

b. Be located to minimize visibility from any street, Lake Washington, required public pedestrian walkway, public use area or public park.

c. Be screened from view from the street, adjacent properties, Lake Washington, required public pedestrian walkways, and other public use areas by a solid screening enclosure or within a building.

d. Outdoor dining areas and temporary storage for boats undergoing service or repair that are accessory to a marina are exempt from the placement and screening requirements of KZC 83.450. 1 above.

2. Mechanical and similar equipment or appurtenances.

a. At-grade mechanical and similar equipment or appurtenances are not permitted within the shoreline setback.

b. Rooftop appurtenances and at or below grade appurtenances shall be screened with vegetation or a solid screening enclosure or located in such a manner as to not be visible from Lake Washington, required public pedestrian walkways, or public use areas.

3. Garbage and trash receptacles. Garbage and recycling receptacles must comply with the following:

a. Comply with the shoreline setback established for the use with which they are associated.

b. Be located to minimize visibility from any street, Lake Washington, required public pedestrian walkway, public use area or public parks.

c. Be screened from view from Lake Washington, required public pedestrian walkways, and other public use areas by a solid screening enclosure, such as a wooden fence without gaps, or within a building.

d. Exemptions – Garbage receptacles for detached dwelling units, duplexes, moorage facilities, parks, and construction sites, but not including dumpsters or other containers larger than a typical individual trash receptacle, are exempt from the placement and screening requirements of this subsection.

83.460 Signage

1. Standards – The following standards shall apply to signs within the shoreline jurisdiction:

a. Signage shall not interfere or block designated view corridors within the shoreline jurisdiction.

b. Signs shall comply with the shoreline setback standards contained in KZC 83.180.

c. Signage shall not be permitted to be constructed over water, except as follows:

1) For retail establishments providing gas and oil sales for boats, where the facility is accessible from the water:

a) One sign, not exceeding 20 square feet per sign face, is permitted. The sign area for the water-oriented sign shall be counted towards the maximum sign area permitted in KZC Chapter 100.

b) Internally-illuminated signs are not permitted. Low-wattage external light sources that are not directed towards neighboring properties or Lake Washington are permitted, subject to approval by the Planning Official.

c) Signs shall be affixed to a pier or wall-mounted. The maximum permitted height of a freestanding sign is 5 feet above the surface of the pier. A wall-mounted sign shall not project above the roofline of the building to which it is attached.

2) Boat traffic signs, directional signs, and signs displaying a public service message.

3) Interpretative signs in coordination with public access and recreation amenities.

4) Building addresses mounted flush to the end of a pier, with letters and numbers at least 4 inches high.

83.470 Lighting

1. General - Exterior lighting shall be controlled using limits on height, light levels of fixtures, lights shields, time restrictions and other mechanisms in order to:
   a. Prevent light pollution or other adverse effects that could infringe upon public enjoyment of the shoreline;
   b. Protect residential uses from adverse impacts that can be associated with light trespass from higher-intensity uses; and
   c. Prevent adverse effects on fish and wildlife species and their habitats.
2. Exceptions -
   a. The following development activities are exempt from the submittal and lighting standards established in this section:
      1) Emergency lighting required for public safety;
      2) Lighting for public rights-of-way;
      3) Outdoor lighting for temporary or periodic events (e.g. community events at public parks);
      4) Seasonal decoration lighting; and
      5) Sign lighting governed by KZC 83.460.
   b. The following development activities are exempt from the submittal standards established in KZC 83.470.3 below, but are still subject to the lighting standards contained in KZC 83.470.4 below:
      1) Development of a detached dwelling unit or associated appurtenances;
      2) Piers and docks;
      3) Public access pier or boardwalk; and
      4) Moorage buoy.
3. Submittal Requirements - All development proposing exterior lighting within the shoreline jurisdiction, except as otherwise indicated in subsection 2) above, shall submit a lighting plan and photometric site plan for approval by the Planning Official. The plan shall contain the following:
   a. A brief written narrative, with accompanying plan or sketch that demonstrates the objectives of the lighting.
   b. The location, fixture type, mounting height, and wattage of all outdoor lighting and building security lighting, including exterior lighting mounted on piers or illuminating piers.
   c. A detailed description of the fixtures, lamps, supports, reflectors, and other devices. The description shall include manufacturer's catalog specifications and drawings, including sections when requested.
   d. If building elevations are proposed for illumination, drawings shall be provided for all relevant building elevations showing the fixtures, the portions of the elevations to be illuminated, and the illuminate levels of the elevations.
   e. Photometric data, such as that furnished by manufacturers, showing the angle of light emissions.
   f. Computer generated photometric grid showing footcandle readings every 20 feet within the property or site, and 15 feet beyond the property lines, including Lake Washington, if applicable. Iso-footcandle contour line style plans are also acceptable.

4. Standards –

   a. Direction and Shielding –

      1) All exterior building-mounted and ground-mounted light fixtures shall be directed downward and use "fully shielded cut off" fixtures as defined by the Illuminating Engineering Society of North America (IESNA), or other appropriate measure to conceal the light source from adjoining uses, to direct the light towards the ground and away from the shoreline, and to prevent lighting from spilling on to the lake water. For detached dwelling unit or associated appurtenances, this requirement shall apply to any light fixtures that are directed towards or face Lake Washington.

      2) Exterior lighting mounted on piers, docks or other water-dependent uses located at the shoreline edge shall be at ground or dock level, be directed away from adjacent properties and the water, and designed and located to prevent lighting from spilling onto the lake water.

      3) For properties located within the Natural shoreline environment, exterior lighting installations shall incorporate motion-sensitive lighting and lighting shall be limited to those areas where it is needed for safety, security, and operational purposes.

   b. Lighting Levels –

      1) Exterior lighting installations shall be designed to avoid harsh contrasts in lighting levels.

      2) For properties located adjacent to a Natural shoreline environment, exterior lighting fixtures shall produce a maximum initial luminance value of 0.1 foot-candles (as measured at three feet above grade) at the site or environment boundary.

      3) For properties in the Urban Mixed shoreline environment located adjacent to residential uses in another shoreline environment or for commercial uses located adjacent to residential uses in the Urban Residential shoreline environment, exterior lighting fixtures shall produce a maximum initial luminance value of 0.6 horizontal and vertical foot-candles (as measured at three feet above grade) at the site boundary, and drop to 0.1 foot-candles onto the abutting property as measured within 15 feet of the property line.

      4) Exterior lighting shall not exceed a strength of 1 foot-candle at the water surface of Lake Washington, as measured waterward of the OHWM.

   c. Height of Light Fixtures - The maximum mounting height of ground-mounted light fixtures shall be 12 feet. Height of light fixtures shall be measured from the finished floor or the finished grade of the parking surface, to the bottom of the light bulb fixture.

   d. Other –

      1) Illumination of a building façade to enhance architectural features is not permitted.

      2) Where feasible, exterior lighting installations shall include timers, dimmers, sensors, or photocell controllers that turn the lights off during daylight hours or hours when lighting is not needed, to reduce overall energy consumption and eliminate unneeded lighting.

83.480 Water Quality, Stormwater, and Nonpoint Pollution

1. General - Shoreline development and use shall incorporate all known, available, and reasonable methods of prevention, control, and treatment to protect and maintain surface and/or ground water quantity and quality in accordance with KMC 15.52 and other applicable laws.

2. Submittal Requirements - All proposals for development activity or land surface modification located within the shoreline jurisdiction shall submit for approval a storm water plan with their application and/or request, unless exempted by the Public Works Official. The storm water plan shall include the following:

   a. Provisions for temporary erosion control measures; and

b. Provisions for storm water detention, water quality treatment and storm water conveyance facilities, in accordance with the City's adopted surface water design manual in effect at the time of permit application.

3. Standards -

a. Shoreline development shall comply with the standards established in the City's adopted surface water design manual in effect at the time of permit application.

b. Shoreline uses and activities shall apply Best Management Practices (BMPs) to minimize any increase in surface runoff and to control, treat and release surface water runoff so that receiving properties, wetlands or streams, and Lake Washington are not adversely affected, consistent with the City's adopted surface water design manual. All types of BMPs require regular maintenance to continue to function as intended.

Low Impact Development techniques shall be considered and implemented to the greatest extent practicable, consistent with the City's adopted surface water design manual.

c. New outfalls or discharge pipes to Lake Washington shall be avoided, where feasible. If a new outfall or discharge pipe is demonstrated to be necessary, it shall be designed so that the outfall and energy dissipation pad is installed above the OHWM.

d. In addition to providing storm water quality treatment facilities as required in this section and the City's Surface Water Master Plan, the developer and/or property owner shall provide source control BMPs designed to treat or prevent storm water pollution arising from specific activities expected to occur on the site. Examples of such specific activities include, but are not limited to, carwashing at Detached, Attached Stacked (multifamily) residential sites and oil storage at marinas providing service and repair.

e. No release of oils, hydraulic fluids, fuels, paints, solvents or other hazardous materials shall be permitted into Lake Washington. If water quality problems occur, including equipment leaks or spills, work operations shall cease immediately and the Public Works Department and other agencies with jurisdiction shall be contacted immediately to coordinate spill containment and cleanup plans.

It shall be the responsibility of property owner to fund and implement the approved spill containment and cleanup plans and to complete the work by the deadline established in the plans.

f. All materials that come into contact with water shall be constructed of untreated wood, cured concrete, steel or other approved non-toxic materials. Materials used for over-water decking or other structural components that may come into contact with water shall comply with regulations of responsible agencies (i.e. Washington State Department of Fish and Wildlife or Department of Ecology) to avoid discharge of pollutants.

g. The application of pesticides, herbicides, or fertilizers shall comply with the following standards:

1) The application of pesticides, herbicides or fertilizers within shoreline setbacks shall utilize Best Management Practices (BMPs) outlined in the BMPs for Landscaping and Lawn/Vegetation Management Section of the 2005 Stormwater Management Manual for Western Washington, to prevent contamination of surface and ground water and/or soils, and adverse effects on shoreline ecological functions and values.

2) Pesticides, herbicides, or fertilizers shall be applied in a manner that minimizes their transmittal to adjacent water bodies. The direct runoff of chemical-laden waters into adjacent water bodies is prohibited. Spray application of pesticides shall not occur within 100 feet of open waters including wetlands, ponds, and streams, sloughs and any drainage ditch or channel that leads to open water except when approved by the City.

3) The use of pesticides, herbicides or fertilizers within the shoreline jurisdiction, including applications of herbicides to control noxious aquatic vegetation, shall comply with regulations of responsible federal and state agencies.

4) A copy of the applicant's National Pollutant Discharge Elimination System (NPDES) permit, issued from Washington State Department of Ecology, authorizing aquatic pesticide (including herbicides) to Lake Washington must be submitted to the Planning Department prior to the application.

83.490 Critical Areas – General Standards

1. The provisions of this Chapter do not extend beyond the shoreline jurisdiction limits specified in this Chapter and the Act. For regulations addressing critical area buffers that are outside of the shoreline jurisdiction, see KZC Chapter 85 and 90.

2. Avoiding impacts to critical areas.

   a. An applicant for a land surface modification or development permit within a critical area or its associated buffer shall utilize the following mitigation sequencing guidelines, that appear in order of preference, during design of the proposed project:

      1) Avoiding the impact or hazard by not taking a certain action, or redesigning the proposal to eliminate the impact. The applicant shall consider reasonable, affirmative steps and make best efforts to avoid critical area impacts. If impacts cannot be avoided through redesign, or because of site conditions or project requirements, the applicant shall then proceed with the following sequence of steps below in subsection (2)(a)(2) through (7) of this subsection.

      2) Minimizing the impact or hazard by limiting the degree or magnitude of the action or impact with appropriate technology or by changing the timing of the action.

      3) Restoring the impacted critical areas by repairing, rehabilitating or restoring the affected critical area or its buffer.

      4) Minimizing or eliminating the hazard by restoring or stabilizing the hazard area through plantings, engineering or other methods.

      5) Reducing or eliminating the impact or hazard over time by preservation or maintenance operations during the life of the development proposal, activity or alteration.

      6) Compensating for the adverse impact by enhancing critical areas and their buffers or creating substitute critical areas and their buffers as required in the KZC 83.500 and 510.

      7) Monitoring the impact, hazard or success of required mitigation and taking remedial action based upon findings over time.

      In the required critical areas study, the applicant shall include a discussion of how the proposed project will utilize mitigation sequencing to avoid, minimize, and mitigate impacts to critical areas and associated buffers. The applicant shall seek to avoid, minimize and mitigate overall impacts based on the functions and values of all relevant critical areas.

   b. In addition to the above steps, the specific development standards, permitted alteration requirements, and mitigation requirements of this Chapter and elsewhere in this code apply.

   c. In determining the extent to which the proposal shall be further redesigned to avoid and minimize the impact, the City may consider the purpose, effectiveness, engineering feasibility, commercial availability of technology, best management practices, safety and cost of the proposal and identified modifications to the proposal. The City may also consider the extent to which the avoidance of one type or location of a critical area could require or lead to impacts to other types or locations of nearby or adjacent critical areas. The City shall document the decision-making process used under this subsection as a part of the critical areas review conducted pursuant to KZC 83. 500 and 83.510.

3. Trees in Critical Areas or Critical Area Buffers

   a. General - The intent of preserving vegetation in and near streams and wetlands and in geologically hazardous areas is to support the functions of healthy sensitive areas and sensitive area buffers and/or avoid disturbance of geologically hazardous areas.

   b. Submittal Requirements – When proposing to trim or remove any tree located within critical areas or critical area buffers, the property owner must submit a report to the City containing the following:

      1) A site plan showing the approximate location of significant trees, their size (DBH) and their species, along with the location of structures, driveways, access ways and easements.

      2) An arborist report explaining how the tree(s) fit the criteria for a nuisance or hazard tree. This requirement may be waived by the Planning Official if it is determined that the nuisance or hazard condition is obvious.

      3) A proposal detailing how the trees will be made into a snag or wildlife tree, including access and equipment, snag height, and placement of woody debris.

      4) For required replacement trees, a planting plan showing location, size and species of the new trees.

   c. Tree Removal Standards

      1) If a tree meets the criteria of a nuisance or hazard in a critical area or its buffer as described below, then a “snag” or wildlife tree shall be created. If creation of a snag is not feasible, then the felled tree shall be left in place unless the Planning Official permits its removal in writing.

         a) Hazard Tree Criteria. A hazard tree must meet the following criteria:

            i. The tree must have a combination of structural defects and/or disease that makes it subject to a high probability of failure and is in proximity to moderate-high frequency of persons or property; and

            ii. The hazard condition of the tree cannot be lessened with reasonable and proper arboricultural practices.

         b) Nuisance Tree Criteria. A nuisance tree must meet the following criteria:

            i. The tree is causing obvious, physical damage to private or public structures, including but not limited to: sidewalk, curb, road, driveway, parking lot, building foundation, roof;

            ii. The tree has been damaged by past maintenance practices that cannot be corrected with proper arboricultural practices; or

            iii. The problems associated with the tree must be such that they cannot be corrected by any other reasonable practice including, but not limited to, the following:

               - Pruning of the crown or roots of the tree and/or small modifications to the site improvements, including but not limited to a driveway, parking lot, patio or sidewalk, to alleviate the problem.

               - Pruning, bracing, or cabling to reconstruct a healthy crown.

      2) The removal of any tree will require the planting of a native tree of a minimum of 6 feet in height in close proximity to where the removed tree was located. The Planning Official shall approve the selection of native species and timing of installation.

4. Mitigation and Restoration Plantings in Critical Areas and Critical Area Buffers.

a. Plants intended to mitigate for the loss of natural resource values are subject to the following requirements.

1) Plant Source. Plant materials must be native and selected from the Kirkland Plant List or otherwise approved by the City's Urban Forester. Seed source must be as local as feasible, and plants must be nursery propagated unless transplanted from on-site areas approved for disturbance. These requirements must be included in the Mitigation Plan specifications.

2) Installation. Plant materials must be supported only when necessary due to extreme winds at the planting site. Where support is necessary, stakes, guy wires, or other measures must be removed as soon as the plant can support itself, usually after the first growing season. All fertilizer applications to turf or trees and shrubs shall follow Washington State University, National Arborist Association or other accepted agronomic or horticultural standards.

3) Fertilizer Applications. Fertilizers shall be applied in such a manner as to prevent their entry into waterways and wetlands and minimize entry into storm drains. No applications shall be made within 50 feet of a waterway or wetland, or a required buffer, whichever is greater, unless specifically authorized in an approved mitigation plan or otherwise authorized in writing by the Planning Official.

83.500 Wetlands

1. Applicability – The following provisions shall apply to wetlands and wetland buffers located within the shoreline jurisdiction, in place of provisions contained in Chapter 90 KZC. Provisions contained in Chapter 90 KZC that are not addressed in this section continue to apply, with the exception of the following subsections that shall not apply within the shoreline jurisdiction:

   a. KZC 90.20 – General Exceptions

   b. KZC 90.30 – Definitions

   c. KZC 90.75 – Minor Lakes

   d. KZC 90.140 – Reasonable Use Exception

   e. KZC 90.160 – Appeals

   f. KZC 90.170 – Planning/Public Works Official Decisions – Lapse of Approval

2. Wetland Determinations, Delineations, Regulations, Criteria, and Procedures - All determinations and delineations of wetlands shall be made using the criteria and procedures contained in the Washington State Wetlands Identification and Delineation Manual (Washington Department of Ecology, 1997). All determinations, delineations, and regulations of wetlands shall be based on the entire extent of the wetland, irrespective of property lines, ownership patterns, or other factors.

3. Wetland Determinations - Either prior to or during review of a development application, the Planning Official shall determine whether a wetland or its buffer is present on the subject property using the following provisions:

   a. During or immediately following a site inspection, the Planning Official shall make an initial assessment as to whether any portion of the subject property or surrounding area (that shall be the area within 250 feet of the subject property) meets the definition of a wetland. If this initial site inspection does not indicate the presence of a wetland on the subject property or surrounding area, no additional wetland studies will be required at that time.

   However, if the initial site inspection or information subsequently obtained indicates the presence of a wetland on the subject property or surrounding area, then the applicant shall follow the procedure in KZC 83.500.3.b below.

b. If the initial site inspection or information subsequently obtained indicates that a wetland may exist on or near the subject property or surrounding area, the applicant shall either (a) fund a study and report prepared by the City's consultant; or (b) submit a report prepared by a qualified professional approved by the City, and fund a review of this report by the City's wetland consultant.

c. If a wetlands study and report are required, at a minimum the report shall include the following:

1) A summary of the methodology used to conduct the study;

2) A professional survey that is based on the KCAS or plat-bearing system and tied to a known monument, depicting the wetland boundary on a map of the surrounding area which shows the wetland and its buffer;

3) A description of the wetland habitat(s) found throughout the entire wetland (not just on the subject property) using the U.S. Fish & Wildlife Service classification system (Classification of Wetlands and Deepwater Habitats in the U.S., Cowardin et al., 1979);

4) A description of nesting, denning, and breeding areas found in the wetland or its surrounding area;

5) A description of the surrounding area, including any drainage systems entering and leaving the wetland, and a list of observed or documented plant and wildlife species;

6) A description of historical, hydrologic, vegetative, topographic, and soil modifications, if any;

7) A proposed classification of the wetland as Category I, II, III, or IV wetland; and

8) A completed rating form using the *Washington State Wetland Rating System for Western Washington – Revised* (Washington State Department of Ecology Publication # 04-06-025, or latest version). [Note: When a wetland buffer outside of shoreline jurisdiction is proposed to be modified, the wetland in shoreline jurisdiction must be rated using the methodology required by KZC 90 to determine the appropriate buffer width. Ecology's rating system and the corresponding buffers only apply to those wetlands and buffers located in shoreline jurisdiction.]

d. Formal determination of whether a wetland exists on the subject property, as well as its boundaries and rating, shall be made by the Planning Official after preparation and review of the delineation report, if applicable, by the City's consultant. The Planning Official's decision under this section shall be used for review of any development permit or activity proposed on the subject property for which an application is received within five ~~two~~ (5~~2~~) years of the ~~decision~~delineation report; provided, that the Planning Official may modify any decision whenever physical circumstances have markedly and demonstrably changed on the subject property or the surrounding area as a result of natural processes or human activity.

4. Wetland Buffers and Setbacks

a. No land surface modification shall occur and no improvement may be located in a wetland or its buffer, except as provided in KZC 83.500.4 through 83.500.10. See also KZC 83.490,3 Trees in Critical Areas or Critical Area Buffers and KZC 83.490,4 Mitigation and Restoration Plantings in Critical Areas and Critical Area Buffers. Required or standard, buffers for wetlands are as follows and are measured from the outer edge of the wetland boundary:

Wetland Buffers

WETLAND CATEGORY AND CHARACTERISTICS	BUFFER
Category I	
Natural Heritage Wetlands	215 feet

Bog	215 feet
Habitat score[1] from 29 to 36 points	225 feet
Habitat score from 20 to 28 points	150 feet
Other Category I wetlands	125 feet
Category II	
Habitat score from 29 to 36 points	200 feet
Habitat score from 20 to 28 points	125 feet
Other Category II wetlands	100 feet
Category III	
Habitat score from 20 to 28 points	125 feet
Other Category III wetlands	75 feet
Category IV	50 feet

[1] Habitat score is one of three elements of the rating form.

Note: Buffer widths were developed by King County for its urban growth areas using the best available science information presented in *Chapter 9: Wetlands* of *Best Available Science – Volume 1: A Review of Scientific Literature*

Modification to Buffer for Divided Wetland Buffer - Where a legally established, improved road right-of-way or structure divides a wetland buffer, the Planning Official may approve a modification of the required buffer in that portion of the buffer isolated from the wetland by the road or structure, provided the isolated portion of the buffer:

1) Does not provide additional protection of the wetland from the proposed development; and

2) Provides insignificant biological, geological or hydrological buffer functions relating to the portion of the buffer adjacent to the wetland.

b. Buffer Setback – Structures shall be set back at least ten (10) feet from the designated or modified wetland buffer. The City may allow minor improvements within this setback that would clearly have no adverse effect during their construction, installation, use, or maintenance, on fish, wildlife, or their habitat or any vegetation in the buffer or adjacent wetland.

c. Storm Water Discharge– Necessary surface discharges of storm water through wetland buffers and buffer setbacks may be allowed on the surface, but piped system discharges are prohibited unless approved pursuant to this section.

Storm water outfalls (piped systems) may be located within the buffer setback specified in subsection (b) of this section and within the buffers specified in subsection (a) of this section only when the City determines, based on a report prepared by a qualified professional under contract to the City and paid for by the applicant, that:

1) Surface discharge of storm water through the buffer would clearly pose a threat to slope stability, and

2) The storm water outfall will not:

   a) Adversely affect water quality;

   b) Adversely affect fish, wildlife, or their habitat;

   c) Adversely affect drainage or storm water detention capabilities;

d) Lead to unstable earth conditions or create erosion hazards or contribute to scouring actions; and

e) Be materially detrimental to any other property in the area of the subject property or to the City as a whole, including the loss of significant open space or scenic vistas.

Storm water outfalls shall minimize potential impacts to the wetland or wetland buffer by meeting the following design standards:

1) Catch basins must be installed as far as feasible from the buffer boundary.

2) Outfalls must be designed to reduce the chance of adverse impacts as a result of concentrated discharges from pipe systems. This may include:

a) Installation of the discharge end as far as feasible from the sensitive area; and

b) Use of appropriate energy dissipation at the discharge end.

d. Water Quality Facilities – Water quality facilities, as determined by the City, may be located within the required wetland buffers of KZC 83.500.4. The City may only approve a proposal to install a water quality facility within the outer one-half (1/2) of a wetland buffer if a feasible location outside of the buffer is not available and only if:

1) It will not adversely affect water quality;

2) It will not adversely affect fish, wildlife, or their habitat;

3) It will not adversely affect drainage or storm water detention capabilities;

4) It will not lead to unstable earth conditions or create erosion hazards or contribute to scouring actions;

5) It will not be materially detrimental to any other property in the area of the subject property or to the City as a whole, including the loss of significant open space or scenic vistas;

6) The existing buffer is already degraded as determined by a qualified professional;

7) Installation would be followed immediately by enhancement of an area equal in size and immediately adjacent to the affected portion of the buffer; and

8) Once installed, it would not require any further disturbance or intrusion into the buffer.

The City may only approve a proposal by a public agency to install a water quality facility elsewhere in a wetland buffer if criteria d. 9 – 12 (below) is met in addition to d. 1 – 8 (above):

9) The project includes enhancement of the entire buffer;

10) The project would provide an exceptional ecological benefit off-site;

11) The water quality facility, once installed, would not require any further disturbance or intrusion into the buffer; and

12) There is no feasible alternative proposal that results in less impact to the buffer.

e. Utilities and Rights-of-Way – The following work may only be allowed in critical areas and their buffers subject to City review after appropriate mitigation sequencing in KZC 83.490.2 has been considered and implemented, provided that activities will not increase the impervious area or reduce flood storage capacity:

1) All utility work in improved City rights-of-way;

2) All normal and routine maintenance, operation and reconstruction of existing roads, streets, and associated rights-of-way and structures; and

3) Construction of sewer or water lines that connect to existing lines in a sensitive area or buffer where no feasible alternative location exists based on an analysis of technology and system efficiency.

All affected critical areas and buffers shall be expeditiously restored to their pre-project condition or better. For purposes of this subsection only, "improved City rights-of-way" include those rights-of-way that have improvements only underground, as well as those with surface improvements.

f. Minor Improvements – Minor improvements may be located within the sensitive area buffers specified in subsection (a) of this section. These minor improvements shall only be located within the outer one-half (1/2) of the sensitive area buffer, except where approved stream crossings are made.

The City may only approve a proposal to construct a minor improvement within an environmentally sensitive area buffer if:

1) It will not adversely affect water quality;

2) It will not adversely affect fish, wildlife, or their habitat;

3) It will not adversely affect drainage or storm water detention capabilities;

4) It will not lead to unstable earth conditions or create erosion hazards or contribute to scouring actions;

5) It will not be materially detrimental to any other property in the area of the subject property or to the City as a whole, including the loss of significant open space or scenic vistas; and

6) It supports public or private shoreline access.

The City may require the applicant to submit a report prepared by a qualified professional that describes how the proposal will or will not comply with the criteria for approving a minor improvement.

5. Wetland Buffer Fence or Barrier - Prior to beginning development activities, the applicant shall install a six (6) foot high construction-phase chain link fence or equivalent fence with silt screen fabric, as approved by the Planning Official and consistent with City standards, along the upland boundary of the entire wetland buffer. The construction-phase fence shall remain upright in the approved location for the duration of development activities.

Upon project completion, the applicant shall install between the upland boundary of all wetland buffers and the developed portion of the site, either (1) a permanent three (3) to four (4) foot-tall split rail fence; or (2) equivalent barrier, as approved by the Planning Official. Installation of the permanent fence or equivalent barrier must be done by hand where necessary to prevent machinery from entering the wetland or its buffer.

6. Permit Process -

The City shall consolidate and integrate the review and processing of the critical areas aspects of the proposal with the shoreline permit required for the proposed development activity, except as follows:

Development Proposal	Permit Process
Wetland Modifications, or Wetland Buffer Modifications affecting greater than 25% of the standard buffer	Shoreline Variance pursuant to Process IIA, described in Chapter 141
Wetland Buffer Modifications affecting 25% or less of the standard buffer	Underlying development permit or development activity

Wetland Restoration Plans	Underlying development permit or development activity

7. Modification of Wetlands –\

   a. No land surface modification shall occur and no improvement shall be located in a wetland, except as provided in this subsection. Furthermore, all modifications of a wetland shall be consistent with *Kirkland's Streams, Wetlands and Wildlife Study* (The Watershed Company, 1998) and the *Kirkland Sensitive Areas Regulatory Recommendations Report* (Adolfson Associates, Inc., 1998).

   b. Submittal Requirements - The applicant shall submit a report prepared by a qualified professional and fund a review of this report by the City's consultant. The report shall include the following:

      1) A determination and delineation of the sensitive area and sensitive area buffer containing all the information specified in KZC 83.500.3 for a wetland;

      2) A description of the area of the site that is within the sensitive area or within the setbacks or buffers required by this Chapter;

      3) An analysis of the impact that the amount of development proposed would have on the sensitive area and the sensitive area buffer;

      4) An analysis of the mitigation sequencing as outlined in KZC 83.490.2;

      5) An assessment of the habitat, water quality, storm water detention, ground water recharge, shoreline protection, and erosion protection functions of the wetland and its buffer. The report shall also assess the effects of the proposed modification on those functions;

      6) Sensitive site design and construction staging of the proposal so that the development away from the sensitive area and/or sensitive area buffer and will minimizes net loss of sensitive area and/or sensitive area buffer functions to the greatest extent feasible;

      7) A description of protective measures that will be undertaken, such as siltation curtains, hay bales and other siltation prevention measures, and scheduling the construction activity to avoid interference with wildlife and fisheries rearing, nesting or spawning activities;

      8) Information specified in KZC 83.500 8);

      9) An evaluation of the project's consistency with the shoreline variance criteria contained in WAC 173-27-170; and

      10) Such other information or studies as the Planning Official may reasonably require.

   c. Decisional Criteria - The City may only approve an improvement or land surface modification in a wetland if:

      1) The project demonstrates consideration and implementation of appropriate mitigation sequencing as outlined in KZC 83.490.2;

      2) It will not adversely affect water quality;

      3) It will not adversely affect fish, wildlife, or their habitat;

      4) It will not have an adverse effect on drainage and/or storm water detention capabilities;

      5) It will not lead to unstable earth conditions or create an erosion hazard or contribute to scouring actions;

      6) It will not be materially detrimental to any other property or the City as a whole;

7) Compensatory mitigation is provided in accordance with the table in KZC 83.500.b.8 below;

8) Fill material does not contain organic or inorganic material that would be detrimental to water quality or fish and wildlife habitat;

9) All exposed areas are stabilized with vegetation normally associated with native wetlands and/or buffers, as appropriate; and

10) There is no feasible alternative development proposal that results in less impact to the wetland and its buffer.

8. Compensatory Mitigation –All approved impacts to regulated wetlands require compensatory mitigation so that the goal of no net loss of wetland function, value, and acreage is achieved. A mitigation proposal must utilize the mitigation ratios specified below as excerpted from: Washington State Department of Ecology, U.S. Army Corps of Engineers Seattle District, and U.S. Environmental Protection Agency Region 10. March 2006. *Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance (Version 1)*. Washington State Department of Ecology Publication #06-06-011a. Olympia, WA.

Compensatory Mitigation

Category and Type of Wetland Impacts	Re-establishment or Creation	Rehabilitation Only[1]	Re-establishment or Creation (R/C) and Rehabilitation (RH)[1]	Re-establishment or Creation (R/C) and Enhancement (E)[1]	Enhancement Only[1]
All Category IV	1.5:1	3:1	1:1 R/C and 1:1RH	1:1 R/C and 2:1 E	6:1
All Category III	2:1	4:1	1:1 R/C and 2:1 RH	1:1 R/C and 4:1 E	8:1
Category II	3:1	6:1	1:1 R/C and 4:1 RH	1:1 R/C and 8:1 E	12:1
Category I Forested	6:1	12:1	1:1 R/C and 10:1 RH	1:1 R/C and 20:1 E	24:1
Category I - based on score for functions	4:1	8:1	1:1 R/C and 6:1 RH	1:1 R/C and 12:1 E	16:1
Category I Natural Heritage site	Not allowed	6:1 Rehabilitation of a Natural	Not allowed	Not allowed	Case-by-case

[1] These ratios are based on the assumption that the rehabilitation or enhancement actions implemented represent the average degree of improvement possible for the site. Proposals to implement more effective rehabilitation or enhancement actions may result in a lower ratio, while less effective actions may result in a higher ratio. The distinction between rehabilitation and enhancement is not clear-cut. Instead, rehabilitation and enhancement actions span a continuum. Proposals that fall within the gray area between rehabilitation and enhancement will result in a ratio that lies between the ratios for rehabilitation and the ratios for enhancement.

Category and Type of Wetland Impacts	Re-establishment or Creation	Rehabilitation Only[1]	Re-establishment or Creation (R/C) and Rehabilitation (RH)[1]	Re-establishment or Creation (R/C) and Enhancement (E)[1]	Enhancement Only[1]
		Heritage site			
Category I Bog	Not allowed	6:1 Rehabilitation of a bog	Not allowed	Not allowed	Case-by-case

9. Wetland Buffer Modification

   a. Departures from the standard buffer requirements shall be approved only after the applicant has demonstrated consideration and implementation of appropriate mitigation sequencing as outlined in KZC 83.490.2.

   b. Approved departures from the standard buffer requirements of KZC 83.500.4 allow applicants to modify the physical and biological conditions of portions of the standard buffer for the duration of the approved project. These approved departures from the standard buffer requirements do not permanently establish a new regulatory buffer edge. Future development activities on the subject property may be required to reestablish the physical and biological conditions of the standard buffer.

   c. Modification of Wetland Buffers When Wetland Is Also To Be Modified – Wetland buffer impact is assumed to occur when wetland fill or modification is proposed. Any proposal for wetland fill/modification shall include provisions for establishing a new wetland buffer to be located around the compensatory mitigation sites and to be equal in width to its standard buffer specified in KZC 83.500.4 a) or a buffer reduced in accordance with this section by no more than twenty-five percent (25%) of the standard buffer width in all cases, regardless of wetland category or basin type.

   d. Modification of Wetland Buffers When Wetland Is Not To Be Modified – No land surface modification may occur and no improvement may be located in a wetland buffer, except as provided for in this subsection.

      1) Types of Buffer Modifications – Buffers may be reduced through one of two means, either (a) buffer averaging, or (b) buffer reduction with enhancement. A combination of these two buffer reduction approaches shall not be used:

         a) Buffer averaging requires that the area of the buffer resulting from the buffer averaging is equal in size and quality to the buffer area calculated by the standards specified in KZC 83.500.4. Buffers may not be reduced at any point by more than twenty-five (25%) percent of the standards specified in KZC 83.500.4, unless approved through a shoreline variance. Buffer averaging calculations shall only consider the subject property.

         b) Buffers may be decreased through buffer enhancement. The applicant shall demonstrate that through enhancing the buffer (by removing invasive plants, planting native vegetation, installing habitat features, such as downed logs or snags, or other

means), the reduced buffer will function at a higher level than the existing standard buffer.

The reduced on-site buffer area must be planted and maintained as needed to yield over time a reduced buffer that is equivalent to undisturbed Puget Lowland forests in density and species composition. At a minimum, a buffer enhancement plan shall provide the following: (a) a map locating the specific area of enhancement; (b) a planting plan that uses native species, including groundcover, shrubs, and trees; and (c) a monitoring and maintenance program prepared by a qualified professional consistent with the standards specified in KZC 83.500.8.

Buffers may not be reduced at any point by more than 25% of the standards in KZC 83.500.3(a). Buffer reductions of more than 25% approved through a shoreline variance will be assumed to have direct wetland impacts that must be compensated for as described above under KZC 83.500.8.

2) Decisional Criteria – An improvement or land surface modification may only be approved in a wetland buffer only if:

a) The development activity or buffer modification demonstrates consideration and implementation of appropriate mitigation sequencing as outlined in KZC 83.490.2.

b) It is consistent with *Kirkland's Streams, Wetlands and Wildlife Study* (The Watershed Company, 1998) and the *Kirkland Sensitive Areas Regulatory Recommendations Report* (Adolfson Associates, Inc., 1998);

c) It will not adversely affect water quality;

d) It will not adversely affect fish, wildlife, or their habitat;

e) It will not have an adverse effect on drainage and/or storm water detention capabilities;

f) It will not lead to unstable earth conditions or create an erosion hazard;

g) It will not be materially detrimental to any other property or the City as a whole;

h) Fill material does not contain organic or inorganic material that would be detrimental to water quality or to fish, wildlife, or their habitat;

i) All exposed areas are stabilized with vegetation normally associated with native wetland buffers, as appropriate; and

j) There is no feasible alternative development proposal that results in less impact to the buffer.

As part of the modification request, the applicant shall submit a report prepared by a qualified professional and fund a review of this report by the City's consultant. The report shall assess the habitat, water quality, storm water detention, ground water recharge, shoreline protection, and erosion protection functions of the buffer; assess the effects of the proposed modification on those functions; and address the ten (10) criteria listed in KZC 83.500.9d)(2) above.

10. On-Site versus Off-Site Mitigation

On-site mitigation for a wetland or its buffer is preferable to off-site mitigation. Given on-site constraints, the City may approve a plan to implement all or a portion of the required mitigation off-site, if the off-site mitigation is within the same drainage basin as the property that will be impacted by the project. The applicant shall demonstrate that the off-site mitigation will result in higher wetland functions, values, and/or acreage than on-site mitigation. Required compensatory mitigation ratios shall be the same for on-site or off-site mitigation, or a combination of both.

If the proposed on-site or off-site mitigation plan will result in the creation or expansion of a wetland or its buffer on any property other than the subject property, the plan shall not be

approved until the applicant submits to the City a copy of a statement signed by the owners of all affected properties, in a form approved by the City Attorney and recorded in the King County Recorder's Office, consenting to the wetland and/or buffer creation or increase on such property and to the required maintenance and monitoring that may follow the creation or expansion of a wetland or its buffer.

11. Mitigation Plan and Monitoring and Maintenance Program

Applicants proposing to alter wetlands or their buffers shall submit a mitigation plan prepared by a qualified professional. The mitigation plan shall consist of a description of the existing functions and values of the wetlands and buffers affected by the proposed project, the nature and extent of impacts to those areas, and the mitigation measures to offset those impacts. The mitigation plan shall also contain a drawing that illustrates the compensatory mitigation elements. The plan and/or drawing shall list plant materials and other habitat features to be installed.

To ensure success of the mitigation plan, the applicant shall submit a monitoring and maintenance program prepared by a qualified professional. At a minimum, the monitoring and maintenance plan shall include the following:

1) The goals and objectives for the mitigation plan;
2) Success criteria by which the mitigation will be assessed;
3) Plans for a five (5) year monitoring and maintenance program;
4) A contingency plan in case of failure; and
5) Proof of a written contract with a qualified professional who will perform the monitoring program.

The monitoring program shall consist of at least two site visits per year by a qualified professional, with annual progress reports submitted to the City and all other agencies with jurisdiction.

The cost of producing and implementing the mitigation plan, the monitoring and maintenance program, reports, and drawing, as well as the review of each component by the City's wetland consultant, shall be borne by the applicant.

12. Shoreline Variance for Wetland Modification or Wetland Buffer Modification

An applicant who is unable to comply with the specific standards of KZC 83.500 must obtain a shoreline variance, pursuant to KZC 141.70.3 and meet the criteria set forth in WAC 183-27-170. In additional, the following City submittal requirements and criteria must also be met:

a. Submittal Requirements – As part of the shoreline variance request, the applicant shall submit a report prepared by a qualified professional and fund a review of this report by the City's qualified professional. The report shall include the following:

1) A determination and delineation of the sensitive area and sensitive area buffer containing all the information specified in KZC 83.500 3) for a wetland;
2) An analysis of whether any other proposed development with less impact on the sensitive area and sensitive area buffer is feasible;
3) Sensitive site design and construction staging of the proposal so that the development will have the least feasible impact on the sensitive area and sensitive area buffer;
4) A description of the area of the site that is within the sensitive area or within the setbacks or buffers required by this Chapter;
5) A description of protective measures that will be undertaken, such as siltation curtains, hay bales and other siltation prevention measures, and scheduling the construction activity to avoid interference with wildlife and fisheries rearing, nesting or spawning activities;

6) An analysis of the impact that the proposed development would have on the sensitive area and the sensitive area buffer;

7) How the proposal minimizes net loss of sensitive area and/or sensitive area buffer functions to the greatest extent feasible;

8) Whether the improvement is located away from the sensitive area and the sensitive area buffer to the greatest extent feasible;

9) Information specified in KZC 83.500.8 for Compensatory Mitigation;

10) Such other information or studies as the Planning Official may reasonably require.

b. Decisional Criteria – The City shall may grant approval of a shoreline variance only if all of the following criteria are met:

1) No other permitted type of land use for the property with less impact on the sensitive area and associated buffer is feasible;

2) The proposal has the minimum area of disturbance;

3) The proposal maximizes the amount of existing tree canopy that is retained;

4) The proposal utilizes to the maximum extent feasible innovative construction, design, and development techniques, including pervious surfaces, that minimize to the greatest extent feasible net loss of sensitive area functions and values;

5) The proposed development does not pose an unacceptable threat to the public health, safety, or welfare on or off the property;

6) The proposal meets the mitigation, maintenance, and monitoring requirements of this Chapter;

7) The granting of the shoreline variance will not confer on the applicant any special privilege that is denied by this Chapter to other lands, buildings, or structures under similar circumstances.

13. Wetland Restoration - City approval is required prior to wetland restoration. The City may permit or require the applicant or property owner to restore and maintain a wetland and/or its buffer by removing material detrimental to the area, such as debris, sediment, or vegetation. The City may also permit or require the applicant to restore a wetland or its buffer through the addition of native plants and other habitat features. See also KZC 83.490.3, Trees in Critical Areas or Critical Area Buffers; and KZC 83.490.4, Mitigation and Restoration Plantings in Critical Areas and Critical Area Buffers. Restoration may be required whenever a condition detrimental to water quality or habitat exists. When the City requires wetland restoration, the requirements of KZC 83.500.8, Compensatory Mitigation, shall apply.

14. Wetland Access - The City may develop access through a wetland and its buffer in conjunction with a public park, provided the purpose supports education or passive recreation, and is designed to minimize environmental impacts during construction and operation.

83.510 Streams

1. Applicability – The following provisions shall apply to streams and stream buffers located within the shoreline jurisdiction, in place of provisions contained in Chapter 90 KZC. Provisions contained in Chapter 90 KZC that are not addressed in this section continue to apply, with the exception of the following subsections that shall not apply within the shoreline jurisdiction:

a. KZC 90.20 – General Exceptions

b. KZC 90.30 – Definitions

c. KZC 90.75 – Minor Lakes

d. KZC 90.140 – Reasonable Use Exception

e. KZC 90.160 – Appeals

f. KZC 90.170 – Planning/Public Works Official Decisions – Lapse of Approval

2. Activities in or Near Streams – No Land surface modification shall occur and no improvements shall be located in a stream or its buffer except as provided in KZC 83.510.3 through 83.510.11.

3. Stream Determinations - The Planning Official shall determine whether a stream or stream buffer is present on the subject property using the following provisions. During or immediately following a site inspection, the Planning Official shall make an initial assessment as to whether a stream exists on any portion of the subject property or surrounding area (which shall be the area within approximately 100 feet of the subject property).

   If the initial site inspection indicates the presence of a stream, the Planning Official shall determine, based on the definitions contained in this Chapter and after a review of all information available to the City, the classification of the stream.

   If this initial site inspection does not indicate the presence of a stream on or near the subject property, no additional stream study will be required.

   If an applicant disagrees with the Planning Official's determination that a stream exists on or near the subject property or the Planning Official's classification of a stream, the applicant shall submit a report prepared by a qualified professional approved by the Planning Official that independently evaluates the presence of a stream or the classification of the stream, based on the definitions contained in this Chapter.

   The Planning Official shall make final determinations regarding the existence of a stream and the proper classification of that stream. The Planning Official's decision under this section shall be used for review of any development activity proposed on the subject property for which an application is received within five (5) ~~2~~ years of the decision; provided, that the Planning Official may modify any decision whenever physical circumstances have markedly and demonstrably changed on the subject property or the surrounding area as a result of natural processes or human activity.

4. Stream Buffers and Setbacks

   a. Stream Buffers – No land surface modification shall occur and no improvement shall be located in a stream or its buffer, except as provided in this section. See also KZC 83.490.3, Trees in Critical Areas or Critical Area Buffers; and KZC 83.490.4, Mitigation and Restoration Plantings in Critical Areas and Critical Area Buffers.

      Required or standard buffers for streams are as follows:

      Stream Buffers

Stream Class	Primary Basins	Secondary Basins
A	75 feet	N/A
B	60 feet	50 feet
C	35 feet	25 feet

      Stream buffers shall be measured from each side of the OHWM of the stream, except that where streams enter or exit pipes, the buffer shall be measured in all directions from the pipe opening. Essential improvements to accommodate required vehicular, pedestrian, or utility access to the subject property may be located within those portions of stream buffers that are measured toward culverts from culvert openings.

Where a legally established, improved road right-of-way or structure divides a stream buffer, the Planning Official may approve a modification of the required buffer in that portion of the buffer isolated from the stream by the road or structure, provided the isolated portion of the buffer:

1) Does not provide additional protection of the stream from the proposed development; and

2) Provides insignificant biological, geological or hydrological buffer functions relating to the portion of the buffer adjacent to the stream.

b. Buffer Setback – Structures shall be set back at least 10 feet from the designated or modified stream buffer. The City may allow within this setback minor improvements that would have no potential adverse effect during their construction, installation, use, or maintenance to fish, wildlife, or their habitat or to any vegetation in the buffer or adjacent stream.

c. Storm Water Discharge – Necessary discharge of storm water through stream buffers and buffer setbacks may be allowed on the surface, but a piped system discharge is prohibited unless approved pursuant to this section. Storm water outfalls (piped systems) may be located within the buffer setback specified in subsection (b) of this section and within the buffers specified in subsection (a) of this section only when the City determines, based on a report prepared by a qualified professional under contract to the City and paid for by the applicant, that surface discharge of storm water through the buffer would clearly pose a threat to slope stability; and if the storm water outfall will not:

1) Adversely affect water quality;

2) Adversely affect fish, wildlife, or their habitat;

3) Adversely affect drainage or storm water detention capabilities;

4) Lead to unstable earth conditions or create erosion hazards or contribute to scouring actions; and

5) Be materially detrimental to any other property in the area of the subject property or to the City as a whole, including the loss of significant open space or scenic vistas.

Storm water facilities shall minimize potential impacts to the stream or stream buffer by meeting the following design standards:

1) Catch basins must be installed as far as feasible from the buffer boundary.

2) Outfalls must be designed to reduce the chance of adverse impacts as a result of concentrated discharges from pipe systems. This may include:

   a) Installation of the discharge end as far as feasible from the sensitive area, and

   b) Use of appropriate energy dissipation at the discharge end.

d. Water Quality Facilities – The City may only approve a proposal to install a water quality facility within the outer one-half (1/2) of a stream buffer if a suitable location outside of the buffer is not available and only if:

1) It will not adversely affect water quality;

2) It will not adversely affect fish, wildlife, or their habitat;

3) It will not adversely affect drainage or storm water detention capabilities;

4) It will not lead to unstable earth conditions or create erosion hazards or contribute to scouring actions;

5) It will not be materially detrimental to any other property in the area of the subject property or to the City as a whole, including the loss of significant open space or scenic vistas;

6) The existing buffer is already degraded as determined by a qualified professional;

7) The installation of the water quality facility would be followed immediately by enhancement of an area equal in size and immediately adjacent to the affected portion of the buffer; and

8) Once installed, it would not require any further disturbance or intrusion into the buffer.

The City may only approve a proposal by a public agency to install a water quality facility elsewhere in a stream buffer if Criteria 9 – 12 (below) are met in addition to 1 – 8 (above):

9) The project includes enhancement of the entire on-site buffer;

10) The project would provide an exceptional ecological benefit off-site;

11) The water quality facility, once installed, would not require any further disturbance or intrusion into the buffer; and

12) There is no feasible alternative proposal that results in less impact to the buffer.

e. Utilities and Rights-of-Way – Provided that activities will not increase the impervious surface area or reduce flood storage capacity, the following work shall be allowed in critical areas and their buffers subject to City review after appropriate mitigation sequencing per KZC 83.490.2 has been considered and implemented:

1) All utility work in improved City rights-of-way;

2) All normal and routine maintenance, operation and reconstruction of existing roads, streets, and associated rights-of-way and structures; and

3) Construction of sewer or water lines that connect to existing lines in a sensitive area or buffer where no feasible alternative location exists based on an analysis of technology and system efficiency.

All affected critical areas and buffers shall be expeditiously restored to their pre-project condition or better. For purposes of this subsection only, "improved City rights-of-way" include those rights-of-way that have improvements only underground, as well as those with surface improvements.

f. Minor Improvements – Minor improvements may be located within the sensitive area buffers specified in subsection 83.510.4. These minor improvements shall be located within the outer one-half (1/2) of the sensitive area buffer, except where approved stream crossings are made. The City may only approve a proposal to construct a minor improvement within a sensitive area buffer if:

1) It will not adversely affect water quality;

2) It will not adversely affect fish, wildlife, or their habitat;

3) It will not adversely affect drainage or storm water detention capabilities;

4) It will not lead to unstable earth conditions or create erosion hazards or contribute to scouring actions;

5) It will not be materially detrimental to any other property in the area of the subject property or to the City as a whole, including the loss of significant open space or scenic vistas; and

6) It supports public or private shoreline access.

The City may require the applicant to submit a report prepared by a qualified professional that describes how the proposal will or will not comply with the criteria for approving a minor improvement.

5. Stream Buffer Fence or Barrier - Prior to beginning development activities, the applicant shall install a 6-foot-high construction-phase chain link fence or equivalent fence, as approved by the Planning Official and consistent with City standards, along the upland boundary of the entire

stream buffer with silt screen fabric. The construction-phase fence shall remain upright in the approved location for the duration of development activities.

Upon project completion, the applicant shall install between the upland boundary of all stream buffers and the developed portion of the site, either (1) a permanent three- to four-foot-tall split rail fence; or (2) equivalent barrier, as approved by the Planning Official. Installation of the permanent fence or equivalent barrier must be done by hand where necessary to prevent machinery from entering the stream or its buffer.

6. Permit Process

The City shall consolidate and integrate the review and processing of the critical areas aspects of the proposal with the shoreline permit required for the proposed development activity, except as follows:

Development Proposal	Permit Process
Steam Relocations or Modifications, or Stream Buffer Modifications affecting more than one-third (1/3) of the standard buffer	Shoreline Variance pursuant to Process IIA, described in Chapter 141
Stream Buffer Modifications affecting less than one-third (1/3) of the standard buffer	Underlying development permit or development activity
Bulkheads or other hard stabilization measures in Stream, Stream Crossings or Stream Rehabilitation	Underlying development permit or development activity

7. Stream Buffer Modification

a. Departures from the standard buffer requirements shall be approved only after the applicant has demonstrated consideration and implementation of appropriate mitigation sequencing as outlined in KZC 83.490.2.

b. Approved departures from the standard buffer requirements of KZC 83.510.4.a) allow applicants to modify the physical and biological conditions of portions of the standard buffer for the duration of the approved project. These approved departures from the standard buffer requirements do not permanently establish a new regulatory buffer edge. Future development activity on the subject property may be required to reestablish the physical and biological conditions of the standard buffer.

c. Types of Buffer Modification – Buffers may be reduced through one of two means, either (1) buffer averaging; or (2) buffer reduction with enhancement. A combination of these two buffer reduction approaches shall not be used.

1) Buffer averaging requires that the area of the buffer resulting from the buffer averaging be equal in size and quality to the buffer area calculated by the standards specified in KZC 83.510.4(a). Buffers may not be reduced at any point by more than one-third (1/3) of the standards in KZC 83.510.4(a). Buffer averaging calculations shall only consider the subject property.

2) Buffers may be decreased through buffer enhancement. The applicant shall demonstrate that through enhancing the buffer (by removing invasive plants, planting native vegetation, installing habitat features such as downed logs or snags, or other means) the reduced buffer will function at a higher level than the standard existing buffer. The reduced on-site buffer area must be planted and maintained as needed to yield over time a reduced buffer that is equivalent to an undisturbed Puget Lowland forests in density and species composition.

A buffer enhancement plan shall at a minimum provide the following: (1) a map locating the specific area of enhancement; (2) a planting plan that uses native species, including groundcover, shrubs, and trees; and (3) a monitoring and maintenance program prepared by a qualified professional consistent with the standards specified in KZC 83.500.8.

Buffers may not be reduced at any point by more than one-third (1/3) of the standards in KZC 83.510.4.a).

d. Decisional Criteria – An improvement or land surface modification may only be approved in a stream buffer only if:

1) The project demonstrates consideration and implementation of appropriate mitigation sequencing as outlined in KZC 83.490.2.

2) It is consistent with *Kirkland's Streams, Wetlands and Wildlife Study* (The Watershed Company, 1998) and the *Kirkland Sensitive Areas Regulatory Recommendations Report* (Adolfson Associates, Inc., 1998);

3) It will not adversely affect water quality;

4) It will not adversely affect fish, wildlife, or their habitat;

5) It will not have an adverse effect on drainage and/or storm water detention capabilities;

6) It will not lead to unstable earth conditions or create an erosion hazard or contribute to scouring actions;

7) It will not be materially detrimental to any other property or the City as a whole;

8) Fill material does not contain organic or inorganic material that would be detrimental to water quality or to fish, wildlife, or their habitat;

9) All exposed areas are stabilized with vegetation normally associated with native stream buffers, as appropriate; and

10) There is no practicable or feasible alternative development proposal that results in less impact to the buffer.

As part of the modification request, the applicant shall submit a report prepared by a qualified professional and fund a review of this report by the City's consultant. The report shall assess the habitat, water quality, storm water detention, ground water recharge, and erosion protection functions of the buffer; assess the effects of the proposed modification on those functions; and address the 10 criteria listed in this subsection above.

8. Shoreline Variance for Stream Relocation or Modification or Stream Buffer Modification

An applicant who is unable to comply with the specific standards of KZC 83.510 must obtain a shoreline variance, pursuant to KZC 141.70.3 and meet the criteria set forth in WAC 183-27-170. In additional, the following City submittal requirements and criteria must also be met:

a. Submittal Requirements – As part of the shoreline variance request, the applicant shall submit a report prepared by a qualified professional and fund a review of this report by the City's qualified professional. The report shall include the following:

1) A determination and delineation of the sensitive area and sensitive area buffer containing all the information specified in KZC 83.510 3) for a wetland;

2) An analysis of whether any other proposed development with less impact on the sensitive area and sensitive area buffer is feasible;

3) Sensitive site design and construction staging of the proposal so that the development will have the least feasible impact on the sensitive area and sensitive area buffer;

4) A description of the area of the site that is within the sensitive area or within the setbacks or buffers required by this Chapter;

5) A description of protective measures that will be undertaken, such as siltation curtains, hay bales and other siltation prevention measures, and scheduling the construction activity to avoid interference with wildlife and fisheries rearing, nesting or spawning activities;

6) An analysis of the impact that the proposed development would have on the sensitive area and the sensitive area buffer;

7) How the proposal minimizes net loss of sensitive area and/or sensitive area buffer functions to the greatest extent feasible;

8) Whether the improvement is located away from the sensitive area and the sensitive area buffer to the greatest extent feasible;

9) Information specified in KZC 83.500.8 for Compensatory Mitigation;

10) Such other information or studies as the Planning Official may reasonably require.

b. Decisional Criteria ¬ The City shall may grant approval of a shoreline variance only if all of the following criteria are met:

1) No other permitted type of land use for the property with less impact on the sensitive area and associated buffer is feasible;

2) The proposal has the minimum area of disturbance;

3) The proposal maximizes the amount of existing tree canopy that is retained;

4) The proposal utilizes to the maximum extent feasible innovative construction, design, and development techniques, including pervious surfaces that minimize to the greatest extent feasible net loss of sensitive area functions and values;

5) The proposed development does not pose an unacceptable threat to the public health, safety, or welfare on or off the property;

6) The proposal meets the mitigation, maintenance, and monitoring requirements of this Chapter;

7) The granting of the shoreline variance will not confer on the applicant any special privilege that is denied by this Chapter to other lands, buildings, or structures under similar circumstances.

9. Stream Relocation or Modification - The City may only permit a stream to be relocated or modified if water quality, conveyance, fish and wildlife habitat, wetland recharge (if hydrologically connected to a wetland), and storm water detention capabilities of the stream will be significantly improved by the relocation or modification. Convenience to the applicant in order to facilitate general site design shall not be considered.

A proposal to relocate or modify a Class A stream may only be approved if the Washington Department of Fish and Wildlife issues a Hydraulic Project Approval for the project. Furthermore, all modifications shall be consistent with *Kirkland's Streams, Wetlands and Wildlife Study* (The Watershed Company, 1998) and the *Kirkland Sensitive Areas Regulatory Recommendations Report* (Adolfson Associates, Inc., 1998).

If the proposed stream activity will result in the creation or expansion of a stream or its buffer on any property other than the subject property, the City shall not approve the plan until the applicant submits to the City a copy of a statement signed by the owners of all affected properties, in a form approved by the City Attorney and recorded in the King County Recorder's Office, consenting to the sensitive area and/or buffer creation or increase on such property.

Prior to the City's decision to authorize approval of a stream relocation or modification, the applicant shall submit a stream relocation/modification plan prepared by a qualified professional approved by the City. The cost of producing, implementing, and monitoring the stream relocation/modification plan, and the cost of review of that plan by the City's stream consultant shall be borne by the applicant. This plan shall contain or demonstrate the following:

a. A topographic survey showing existing and proposed topography and improvements;

b. The filling and revegetation of the existing stream channel;

c. A proposed phasing plan specifying time of year for all project phases;

d. The ability of the new stream channel to accommodate flow and velocity of 100-year storm events; and

e. The design and implementation features and techniques listed below, unless clearly and demonstrably inappropriate for the proposed relocation or modification:

1) The creation of natural meander patterns;

2) The formation of gentle and stable side slopes, no steeper than two feet horizontal to one-foot vertical, and the installation of both temporary and permanent erosion-control features (the use of native vegetation on stream banks shall be emphasized);

3) The creation of a narrow sub-channel (thalweg) against the south or west stream bank;

4) The utilization of native materials;

5) The installation of vegetation normally associated with streams, emphasizing native plants with high food and cover value for fish and wildlife;

6) The creation of spawning areas, as appropriate;

7) The re-establishment of fish population, as appropriate;

8) The restoration of water flow characteristics compatible with fish habitat areas;

9) Demonstration that the flow and velocity of the stream after relocation or modification shall not be increased or decreased at the points where the stream enters and leaves the subject property, unless the change has been approved by the City to improve fish and wildlife habitat or to improve storm water management;

10) A written description of how the proposed relocation or modification of the stream will significantly improve water quality, conveyance, fish and wildlife habitat, wetland recharge (if hydrologically connected to a wetland), and storm water detention capabilities of the stream; and

11) A monitoring and maintenance plan consistent with KZC 83.500.8 for wetlands.

Prior to diverting water into a new stream channel, a qualified professional approved by the City shall inspect the completed new channel and issue a written report to the City stating that the new stream channel complies with the requirements of this section. The cost for this inspection and report shall be borne by the applicant.

10. Stream Bank Protection

a. General –

1) Stream bank protection measures shall be selected to address site- and reach-based conditions and to avoid habitat impacts.

2) The selection of the streambank protection technique shall be based upon an evaluation of site conditions, reach conditions and habitat impacts.

3) Nonstructural or soft structural streambank protection measures shall be implemented unless demonstrated to not be feasible.

b. Submittal Requirements for Streambank Protection Measures – The following shall be submitted to the City:

An assessment prepared by a qualified professional containing the following:

1) An evaluation of the specific mechanism(s) of streambank failure as well as the site and reach-based causes of erosion.

2) An evaluation of the considerations used in identifying the preferred streambank solution technique. The evaluation shall address the provisions established in the Washington Department of Fish and Wildlife's *Integrated Streambank Protection Guidelines* (2003, or as revised).

c. Bulkheads or other erosion control practices using hardened structures that armor and stabilize the streambank from further erosion are not permitted along a stream, except as provided in this subsection. The City shall allow a bulkhead to be constructed only if:

1) It is not located within a wetland or between a wetland and a stream;

2) It is needed to prevent significant erosion;

3) I The use of vegetation and/or other biological materials would not sufficiently stabilize the stream bank to prevent significant erosion;

4) The applicant submits a plan prepared by a qualified professional approved by the City that shows a bulkhead and implementation techniques that meet the following criteria:

a) There will be no adverse impact to water quality;

b) There will be no adverse impact to fish, wildlife, and their habitat;

c) There will be no increase in the velocity of stream flow, unless approved by the City to improve fish habitat;

d) There will be no decrease in flood storage volumes;

e) The installation, existence, nor operation of the bulkhead will lead to unstable earth conditions or create erosion hazards or contribute to scouring actions; and

f) The installation, existence nor operation of the bulkhead or other hard stabilization measures will be detrimental to any other property or the City as a whole.

5) The Washington Department of Fish and Wildlife issues a Hydraulic Project Approval for the project.

d. The stream bank protection shall be designed consistent with Washington Department of Fish and Wildlife's *Integrated Streambank Protection Guidelines* (2003, or as revised). The stabilization measure shall be designed and constructed to minimize the transmittal of water current and energy to other properties. Changes in the horizontal or vertical configuration of the land shall be kept to a minimum. Fill material used in construction of a bulkhead shall be non-dissolving and non-decomposing. The applicant shall also stabilize all exposed soils by planting native riparian vegetation with high food and cover value for fish and wildlife.

11. Stream Crossings - Stream crossings are not permitted, except as specified in this section. The City shall review and decide upon an application to cross a stream with an access drive, driveway, or street. A stream crossing shall be allowed only if:

a. The stream crossing is necessary to provide required vehicular, pedestrian, or utility access to the subject property. Convenience to the applicant in order to facilitate general site design shall not be considered;

b. The Washington Department of Fish and Wildlife issues a Hydraulic Project Approval for the project; and

c. The applicant submits a plan prepared by a qualified professional approved by the City that shows the crossing and implementation techniques that meet the following criteria:

1) There will be no adverse impact to water quality;

2) There will be no adverse impact to fish, wildlife, and their habitat;

3) There will be no increase in the velocity of stream flow, unless approved by the City to improve fish habitat;

4) There will be no decrease in flood storage volumes;

5) The installation, existence, nor operation of the stream crossing will lead to unstable earth conditions or create erosion hazards or contribute to scouring actions; and

6) The installation, existence nor operation of the stream crossing will be detrimental to any other property or to the City as a whole.

d. The stream crossing shall be designed and constructed to allow passage of fish inhabiting the stream or that may inhabit the stream in the future. The stream crossing shall be designed to accommodate a 100-year storm event. The applicant shall at all times maintain the crossing so that debris and sediment do not interfere with free passage of water, wood and fish. The City shall require a security or perpetual maintenance agreement under KZC 90 for continued maintenance of the stream crossing.

e. A bridge is the preferred stream crossing method. If a bridge is not economically or technologically feasible, or would result in greater environmental impacts than a culvert, a proposal for a culvert may be approved if the culvert complies with the criteria in this subsection must be designed consistent with Washington Department of Fish and Wildlife's *Design of Road Culverts for Fish Passage* (2003, or as revised).

f. If a proposed project requires approval through a shoreline conditional use, the City may require that any stream in a culvert on the subject property be opened, relocated, and restored consistent with the provisions of this subsection.

12. Stream Rehabilitation - City approval is required prior to stream rehabilitation. The City may permit or require the applicant or property owner to restore and maintain a stream and/or its buffer by removing material detrimental to the stream and its surrounding area such as debris, sediment, or vegetation. The City may also permit or require the applicant to restore a stream or its buffer through the addition of native plants and other habitat features. See also KZC 83.490.3, Trees in Critical Areas or Critical Area Buffers; and KZC 83.490.4, Mitigation and Restoration Plantings in Critical Areas and Critical Area Buffers. Restoration may be required at any time that a condition detrimental to water quality or habitat exists. When the City requires stream rehabilitation, the mitigation plan and monitoring requirements of KZC 83.500.8 shall apply.

83.520 Geologically Hazardous Areas

1. General - Uses, developments, activities and shoreline modifications within geologically hazardous areas must be limited to prevent significant adverse impacts to property or public improvements and/or result in a net loss of ecological functions and ecosystem-wide processes.

2. Standards -

a. New use, development or activities or creation of new lots that would cause foreseeable risk to people or improvement from geological conditions during the life of the use, development or activities shall not be allowed.

b. New use, development or activities that would require structural shoreline stabilization over the life of the development shall not be allowed, except for the limited instances where stabilization is necessary to protect allowed uses where no alternative locations are available.

c. For protection of existing primary structures, stabilization structures or measures may be allowed when no alternatives, including relocation or reconstruction of existing structures, are found to be feasible.

d. Stabilization structures or measures must be consistent with KZC 83.300 for shoreline stabilization and with KZC 83.380 for no net loss of ecological function.

e. Uses, developments, activities and shoreline modifications within geologically hazardous areas must be consistent with Chapter 85 KZC.

f. In addition to the required information contained in KZC 85.15, any required geotechnical report shall also contain any additional information specified under the definition of Geotechnical Report contained in KZC Section 83.80.

83.530 Flood Hazard Reduction

1. General - Uses, developments, activities and shoreline modifications within channel migration zone must be limited to prevent interference with the process of channel migration that may cause significant adverse impacts to property or public improvements and/or result in a net loss of ecological functions associated with critical areas.

2. Standards

a. New uses, development or activities or expansions shall not be allowed when it would be reasonable foreseeable that the use, development or activities would require structural flood hazard reduction measures within the channel migration or floodway.

b. The uses and activities specifically identified in WAC 173-26-221(3) (c) (I) may be allowed within the channel migration zone if the City determines that they are appropriate and/or necessary.

c. Flood hazard measures shall not result in a net loss of ecological functions associated with critical areas. See KZC 83.360.

d. Flood hazard reduction measures shall only be allowed if it is determined that no other alternative is feasible to reduce flood hazard to existing development. Where feasible, non structural flood hazard reduction measures shall be utilized over structural measures.

e. When evaluating alternative flood control measures, structures in flood-prone areas shall be removed or relocated where feasible.

f. New structural flood hazard reduction measures may be allowed only when it can be demonstrated by scientific and engineering analysis that:

1) They are necessary to protect existing development;
2) Non structural measures are not feasible;
3) Impacts to ecological functions and priority species and habitats can be successfully mitigated to assure no net loss; and
4) Vegetation retention is provided consistent with KZC 83.400, KZC 83.500 and KZC 83.510 as applicable.

g. New structural flood hazard reduction measures shall be placed landward of wetlands and associated buffers areas, except for actions that increase ecological functions, such as wetland restoration.

h. For new structural flood hazard reduction measures, such as dikes and levees, improved public access walkways shall be provided, unless public access improvements would cause unavoidable health and safety hazards to the public, inherent or unavoidable security problems, or ecological impacts that are significant and cannot be mitigated.

i. Removal of gravel for flood management is not permitted, unless a biological and geomorphological study shows that extraction has a long-term benefit to flood hazard reduction, does not result in a new loss of ecological functions and is part of a comprehensive flood management solution.

j. Where feasible, stream corridors shall be returned to more natural hydrological conditions, recognizing that seasonal flooding is an essential natural process. This includes removal of

artificial restrictions to natural channel migration, restoration of off channel hydrological connections and returning stream processes to a more natural state were appropriate and feasible.

k. Associated wetland restorations must be consistent with KZC 83.490, KZC 83.500 and KZC 83.510. Stream restoration or relocations must be consistent with KZC 90.

l. The requirements of Chapter 21.56 KMC - Flood Damage Prevention, Chapter 15.52 KMC - Surface Water Management and the National Flood Insurance Program must be met.

83.540 Archaeological and Historic Resources

1. General - Uses, developments and activities on sites of historic or archeological significance or sites containing items of historic or archeological significance must not unreasonably disrupt or destroy the historic or archeological resource.

2 Standards -

a. Permits submitted for land surface modification or development activity in areas documented by the Washington State Office of Archaeology and Historic Preservation to contain archaeological resources shall include a site inspection and a draft written report prepared by a qualified professional archaeologist, approved by the City, prior to the issuance of a permit. In addition, the archaeologist will provide copies of the draft report to the affected tribe(s) and the State Office of Archaeology and Historic Preservation.

After consultation with these agencies, the archaeologist shall provide a final report that includes any recommendations from the affected tribe(s) and the State Office of Archaeology and Historic Preservation on avoidance or mitigation of the proposed project's impacts. The Planning Official shall condition project approval, based on the final report from the archaeologist, to ensure that impacts to the site are avoided or minimized consistent with federal and state law.

b. Shoreline permits shall contain provisions that require developers to immediately stop work and notify the City if any potential archaeological resources are uncovered during land surface modification or development activity. In such cases, the developer shall be required to provide for a site inspection and evaluation by a qualified professional archaeologist, approved by the City, to ensure that all feasible valuable archaeological data is properly handled. The City shall subsequently notify the affected tribe and the State Office of Archaeology and Historic Preservation. Failure to comply with this requirement shall be considered a violation of the shoreline permit.

C If identified historical or archaeological resources are present, site planning and access to such areas shall be designed and managed to give maximum protection to the resource and surrounding environment.

d. Interpretative signs, historical markers and other similar exhibits providing information about historical and archaeological features and natural areas shall be provided when appropriate.

e. In the event that unforeseen factors constituting an emergency as defined in RCW 90.58.030 that necessitate rapid action to retrieve or preserve artifacts or data identified above, the project may be exempted from the permit requirement of these regulations. The City shall notify the State Department of Ecology, the State Attorney General's Office and the State Historic Preservation Office of such a waiver in a timely manner.

f. Archaeological sites are subject to RCW 27.44 (Indian Graves and Records) and RCW 27.53 (Archaeological Sites and Records) and shall comply with WAC 25-48 or its successor as well as the provisions of this Chapter.

g. Proposed changes to historical properties that are registered on the State or National Historic Register are subject to review under the National and State Registers' review process.

83.550 Nonconformances

1. General - This section establishes when and under what circumstances nonconforming aspects of a use or development must be brought into conformance with this Chapter. The applicant needs to consult the provisions of this section if there is some aspect of the use or development on the subject property that is not permitted under this Chapter.

2. When Conformance is Required - If an aspect, element or activity of or on the subject property conformed to the applicable shoreline regulations in effect at the time the aspect, element or activity was constructed or initiated, that aspect, element or activity may continue and need not be brought into conformance with this Chapter unless a provision of KZC 83.550 requires conformance. Further, nonconforming structures may be maintained, altered, remodeled, repaired and continued; provided that nonconforming structures shall not be enlarged, intensified, increased or altered in any way that increases the extent of the nonconformity, except as specifically permitted under KZC 83.550.

3. Abatement of Nonconformance That Was Illegal When Initiated - Any nonconformance that was illegal when initiated must immediately be brought into conformance with this Chapter. The City may, using the provisions of WAC 173-27, abate any nonconformance that was illegal when initiated.

4. Special Provision for Damaged Improvements - Non-conforming structures that are damaged or destroyed by fire, explosion, flood, earthquake, storm or other casualty may be restored or replaced in kind, provided that, the following are met:

   a. The permit process is commenced within twenty-four (24) months of the date of such damage; and

   b. The reconstruction does not expand, enlarge, or otherwise increase the non-conformity, except as provided for KZC 83.550; and

   c. The reconstruction locates the structure in the same place where it was, or alternatively if moved, then the least environmentally damaging location relative to the shoreline and any critical areas; and

   d. For existing residential structures built over the water, appropriate measures are taken to mitigate adverse impacts to the maximum extent feasible while still retaining the existing residential density, including but not limited to:

      1) Reducing the overwater footprint;

      2) Reducing the number or size of pilings to the extent allowed by site-specific engineering or design considerations;

      3) Softening existing hard shoreline stabilization measures to the extent allowed by site-specific characteristics;

      4) Raising the height of the structure off the water, provided that the height of the existing building is not increased; and

      5) Incorporating grating into the re-built structure where feasible.

   e. For piers and docks, appropriate measures are taken to mitigate adverse impacts to the maximum extent feasible while still retaining the existing area and dimensions, if desired, including, but not limited to:

      1) Meeting the standards for height of piers and diving boards, minimum water depth, location of ells, fingers and deck platforms and pilings and moorage piles in KZC 83.270 through 83.290; and

      2) Installing decking materials that allow a minimum of 40% light transmittance through the material.

   ~~5)~~f. For hard shoreline stabilization measures, the applicant shall consult the provisions for emergency actions contained in KZC 83.560. If the work needed does not qualify as an

emergency action under these provisions, then the applicant shall comply with the provisions for shoreline stabilization contained within KZC 83.300.

5. Certain Nonconformances Specifically Regulated

a. General -

1) The provisions of this section specify when and under what circumstances certain nonconformances must be corrected. If a nonconformance must be corrected under KZC 83.550, the applicant must submit all information necessary for the City to review the correction as part of the application for any development permit. In addition, the City will not permit occupancy until the correction is made.

2) If KZC 83.550.4 above of KZC 83.550 applies to a specific nonconformance, then the provisions of this section do not apply to that same nonconformance.

b. Non-conforming structure –

1) A nonconforming structure that is moved any distance must be brought into conformance.

2) Any structural alteration of a roof or exterior wall that does not comply with height, shoreline setback, or view corridor standards shall be required to be brought into conformance for the nonconforming height, setback or view corridor, except as provided otherwise in this Chapter. Excepted from this subsection is the repair or maintenance of structural members, the alteration to existing windows and/or doors and the addition of new windows and/or doors or other similar features, provided that there is no increase in floor area or that the location of the exterior wall is not modified in a manner that increases the degree of non-conformance.

3) Increases in structure footprint outside of the shoreline setback or wetland or stream buffer shall be allowed, even if all or a portion of the previously approved footprint is within the shoreline setback, wetland or stream buffer.

4) If accessory structures are located within the shoreline setback, these existing nonconforming structures must be brought into conformance if the applicant is making an alteration to the primary structure, the cost of which exceeds 50 percent of the replacement cost of the structure.

5) Non-conforming structures that are expanded or enlarged within the shoreline setback must obtain a shoreline variance; provided that, a non-conforming detached dwelling unit use may be enlarged without a shoreline variance where the following provisions apply:

1) The non-conforming structure must have been constructed prior to December 1, 2006, the date of the City's *Final Shoreline Analysis Report.*

2) Before implementing this provision, the applicant shall determine whether the provisions of KZC 83.380 would allow for a reduced setback, based upon existing conditions on the subject property.

3) The structure must be located landward of the OHWM.

4) Any enlargement of the building footprint within the shoreline setback shall not exceed 10 percent of the gross floor area of the existing dwelling unit prior to the expansion. Other enlargements, such as upper floor additions, may be permitted if the addition is consistent with other provisions contained in this subsection.

5) The enlargement shall not extend further waterward than the existing primary residential structure. For purposes of this subsection, the improvements allowed within the shoreline setback as established in KZC 83.180, such as bay windows, chimneys, greenhouse windows, eaves, cornices, awnings and canopies shall not be used in determining the most waterward location of the building (see Plate XX).

6) The applicant must restore a portion of the shoreline setback area with riparian vegetation to offset the impact, such that the shoreline setback area will function at an equivalent or higher level than the existing conditions. The restoration plan shall be prepared by a qualified professional and shall be reviewed by the Planning Official and/or a consultant who may approve, approve with conditions, or deny the request.

   If the proposal is consistent with the standards provided in this subsection, the Planning Official shall approve the plan or may impose conditions to the extent necessary to make the plan consistent with the provisions. If the proposal is denied, the applicant shall be informed of the deficiencies that caused its disapproval so as to provide guidance for its revision and resubmittal. The cost of producing and implementing the restoration plan and the review by City staff and/or a consultant shall be borne by the applicant. Examples include, but are not limited to:

   i. Installation of additional native vegetation within the shoreline setback that would otherwise not be required under this Chapter. At a minimum, the area of shoreline setback restoration and/or enhancement shall be equivalent to the area impacted by the improvement.

   ii. Removal of an existing hard shoreline stabilization structure covering at least 15 linear feet of the lake frontage that is located at, below, or within 5 feet landward of the OHWM and subsequent restoration of the shoreline to a natural or semi-natural state, including creation or enhancement of nearshore shallow-water habitat.

   iii. Setting back hard shoreline stabilization structures or portions of hard shoreline stabilization structures from the OHWM and subsequent restoration of the shoreline to a natural or semi-natural state, including restoration of topography and beach/substrate composition.

   iv. Other shoreline restoration projects that are demonstrated to result in an improvement to existing shoreline ecological functions and processes.

7) The applicant must comply with the best management practices contained in KZC 83.480 addressing the use of fertilizer, herbicides and pesticides as needed to protect lake water quality.

8) The applicant shall use "fully shielded cut off" light fixtures as defined by the Illuminating Engineering Society of North America (IESNA), or other appropriate measure to conceal the light source from adjoining uses and the lake, and direct the light toward the ground for any exterior light sources located on the west façade of the residence or other façades with exterior light sources that is directed towards the lake.

9) The remodel or expansion will not cause adverse impacts to shoreline ecological functions and/or processes as described on KZC 83.360.

10) The provision contained in KZC 83.550.5.b.5 shall only be used once within any 5-year period.

6) A nonconforming detached dwelling unit that is located on a lot that has less than 3,000 square feet of building area lying landward of the required shoreline setback and upland of required wetland or stream buffers, may be rebuilt or otherwise replaced within the shoreline setback and required wetland or stream buffer without a shoreline variance, provided the following standards are met:

   1) The structure must be located landward of the OHWM.

   2) The size of the building footprint shall not be increased and the reconstructed structure shall not extend further waterward than the existing primary residential structure. For purposes of this subsection, the improvements allowed within the

shoreline setback as established in KZC 83.180, such as bay windows, chimneys, greenhouse windows, eaves, cornices, awnings and canopies shall not be used in determining the most waterward location of the building (see Plate XX)..

3) The reconstruction does not expand, enlarge, or otherwise increase the non-conformity.

4) The reconstruction locates the structure in the least environmentally damaging location relative to the shoreline and the critical areas.

5) The structure must comply with any requirements of this Chapter, zoning, building, or fire codes in effect when the structure is built, other than allowed in the subsection.

7) A primary structure that does not conform to the required shoreline setback and is located on a lot that has less than 3,000 square feet of building area lying landward of the shoreline setback, not including the area located within the required side yard setbacks and up to 10 feet of a required front yard, may be rebuilt or otherwise replaced in its current location within the shoreline setback, provided the following standards are met:

1) The structure must be located landward of the OHWM.

2) The size of the building footprint shall not be increased and the reconstructed structure shall not extend further waterward than the existing primary residential structure. For purposes of this subsection, the improvements allowed within the shoreline setback as established in KZC 83.180, such as bay windows, chimneys, greenhouse windows, eaves, cornices, awnings and canopies shall not be used in determining the most waterward location of the building (see Plate XX)..

3) The reconstruction does not expand, enlarge, or otherwise increase the non-conformity.

4) The structure must comply with any requirements of this Chapter, zoning, building, or fire codes in effect when the structure is built, other than allowed in this subsection.

c. Nonconforming Use –

1) A nonconforming use may be continued by successive owners or tenants.

2) Any nonconforming use, except for a detached dwelling, unit must be brought into conformance or discontinued if:

1) The applicant is making an alteration that increases the extent of the non-conformity, such as increasing the gross floor area of any structure that houses or supports the nonconforming use; or

2) The nonconforming use has ceased for 90 or more consecutive days. It shall not be necessary to show that the owner of the property intends to abandon such nonconforming use in order for the nonconforming rights to expire; or

3) The nonconforming use is replaced by another use. The City may allow a change from one nonconforming use to another such use if, through a shoreline conditional use process, the City determines that the proposed new use will comply with the following standards:

i. The proposed use will be consistent with the policies and provisions of the Act and this Chapter and is compatible with the uses in the area as the preexisting use;

ii. The use or activity is not enlarged, intensified, increased or altered in a manner that increases the extent of the non-conformity;

iii. The structure(s) associated with the non-conforming use shall not be expanded in a manner that increases the extent of the non-conformity, including encroachment into areas, such as setbacks, and any wetlands, streams and/or associated buffers

established by this Chapter, where new structures, development or use would not be allowed;

iv. The change in use will not create adverse impacts to shoreline ecological functions and/or processes as described in KZC 83.360; and

v. Uses that are specifically prohibited or that would thwart the intent of the Act or this Chapter shall not be authorized.

d. Non-conforming wetland or stream buffer –

1) If existing structures or other improvements are located within the wetland, stream or associated buffers, these structures and improvements must be brought into conformance if the applicant is making an alteration, change or any other work on the subject property in a consecutive 12-month period and the cost of the alteration, change or work exceeds 50 percent of the replacement cost of all existing structure and improvements on the subject property.

2) If the cost threshold of subsection d above is not exceeded, the alterations or changes may occur provided that the alterations or changes comply with this code and no exterior alterations or changes are made to the nonconforming portion of the structure or improvement, unless otherwise authorized by this Chapter.

e. Non-conforming lot size - An undeveloped lot, tract, parcel, site or division which was created or segregated pursuant to all applicable laws, ordinances and regulations in effect at the time, but that is nonconforming as to the present lot size or density standards may be developed so long as such development conforms to other requirements of this Chapter and the Act.

f. Nonconforming public pedestrian walkway -

1) If a previously installed pubic shoreline access walkway is subsequently found not installed to the property line, the walkway shall be extended to the property line consistent with conditions established in the original permit.

2) If a previously installed shoreline access trail was subsequently found to have vegetation, fencing, other improvements or accessory structures installed that block connection to an adjacent shoreline access walkway, the blockage shall be removed.

3) Nonconforming shoreline pedestrian access walkways that were legally created shall not be required to comply with the dimensional standards or setback standards of this Chapter.

4) The shoreline public access walkway requirements established in this Chapter must be brought into conformance as much as is feasible, based on available land area if the applicant completes an alteration to all primary habitable structure(s) in shoreline jurisdiction, the cost of which exceeds 50 percent of the replacement cost of all structures and improvements on the subject property.

g. Nonconforming Shoreline Setback Vegetation- The vegetation requirements of this Chapter must conform as much as is feasible, based on available land area, in either of the following situations:

1) An increase of at least 10 percent in gross floor area of any structure located in shoreline jurisdiction, excluding detached dwelling unit and public park uses; or

2) An alteration to any structure(s) in shoreline jurisdiction, the cost of which exceeds 50 percent of the replacement cost of all structures on the subject property.

h. Nonconforming Lighting - Exterior lighting must be brought into compliance with the requirements of this Chapter under the following circumstances:

1) The shielding requirements of KZC 83.470 shall be met when any nonconforming light fixture is replaced or moved.

2) All other requirements of KZC 83.470 shall be met when there is an increase in gross floor area of more than 50 percent of the primary structures on the subject property.

i. Prior approval of Shoreline Variance - A structure for which a shoreline variance has been issued shall be considered a legal nonconforming structure and the requirements of this section shall apply as they apply to preexisting nonconformities.

j. Prior approval of Shoreline Conditional Use - A use that is listed in this Chapter as a conditional use, but existed prior to adoption of this Chapter or any relevant amendment and for which a conditional use permit has not been obtained shall be considered a nonconforming use.

k. Any Other Nonconformance -

If any nonconformance exists on the subject property, other than as specifically listed in the prior subsections of this section, these must be brought into conformance if:

1) The applicant is making any alteration or change or doing any other work in a consecutive 12-month period to an improvement that is nonconforming or houses, supports or is supported by the nonconformance, and the cost of the alteration, change or other work exceeds 50 percent of the replacement cost of that improvement; or

2) The use on the subject property is changed and this Chapter establishes more stringent or different standards or requirements for the nonconforming aspect of the new use than this code establishes for the former use.

Replacement costs shall not include costs relating to non-structural interior elements, such as but not limited to appliances, heating and cooling systems, electrical systems, and interior finishes.

83.560 Emergency Actions

1. When Allowed ¬

Emergency actions are those that pose an unanticipated and imminent threat to public health, safety, or the environment and that require immediate action or within a time too short to allow full compliance with the provisions of this Chapter. ~~The Planning Official shall designate when such an action constitutes an emergency.~~

1. Standards ¬

a. Emergency actions shall meet the following standards:

1) Use reasonable methods to address the emergency;

2) Be designed to have the least possible impacts on shoreline ecological functions and processes; and

3) Be designed to comply with the provisions of this Chapter, to the extent feasible.

b. Notice ¬

1) The party undertaking the emergency action shall notify the Planning Department of the existence of the emergency and emergency action(s) within two (2) working days following commencement of the emergency action.

2) Within seven days following completion of emergency activity, the party shall provide the Planning Department a written description of the work undertaken, site plan, description of pre-emergency conditions and other information requested by the City to determine whether the action was permitted within the scope of an emergency action.

c. Decision ¬

1) The Planning Official shall evaluate the action for consistency with the provisions contained in WAC 173-27-040(2) (d).

2) The Planning Official shall determine whether the action taken, or any part of the action taken, was within the scope of the emergency actions allowed in this section. The Planning Official may require mitigation for impacts to shoreline ecological functions.

3) If the Planning Official determines that the emergency action was not warranted, he or she may require that the party obtain a permit and/or require remediation of or mitigation for the actions taken,

Chapter 141 – SHORELINE ADMINISTRATION

141.10 User guide.

This Chapter contains the provisions regarding the City's administration and enforcement of the Shoreline Management Act and Chapter 83 KZC, as well as the permit system applicable to the Shoreline Management Act and shoreline master program of the city.

141.20 Administrative responsibilities in general.

Except as otherwise specifically established in this Chapter or Chapter 83 KZC, the Department of Planning and Community Development of the City is responsible for the administration of the Shoreline Management Act and the shoreline master program of the city.

141.30 Review Required.

1. Within the shoreline jurisdiction, as described in KZC 83.90, development shall be allowed only as authorized in a shoreline substantial development permit, shoreline conditional use permit or shoreline variance permit, unless specifically exempted from obtaining such a permit under KZC Section 141.40.

2. Chapter 83 KZC specifies which permit is required. Enforcement action by the City or Department of Ecology may be taken whenever a person has violated any provision of the Shoreline Management Act or any City of Kirkland shoreline master program provision, or other regulation promulgated under the Shoreline Management Act. Procedures for enforcement action and penalties shall be as specified in WAC 173-27-240 through 173-27-310, which are hereby adopted by this reference.

3. Where a proposed development activity encompasses shoreline and non-shoreline areas, a shoreline substantial development permit or other required permit must be obtained before any part of the development, even the portion of the development activity that is entirely confined to the upland areas, can proceed.

141.40 Exemption from permit requirements.

1. General - Proposals identified under WAC 173-27-040 are exempt from obtaining a shoreline substantial development permit; however, a shoreline variance or shoreline conditional use may still be required. Proposals that are not permitted under the provisions of Chapter 83 KZC shall not be allowed under an exemption. Applicants shall have the burden to demonstrate that the proposal complies with the requirements for the exemption sought as described under WAC 173-27-040. A proposal that does not qualify as an exemption may still apply for a shoreline substantial development permit.
2. Special Provisions – The following provides additional clarification on the application of the exemptions listed in WAC 173-27-040:
   a. Residential Appurtenances - ,
      1) Normal appurtenances to a single-family residence are included in the permit exemption provided in WAC 173-27-040(2)(g). For the purposes of interpreting this provision, normal appurtenances shall include those listed under WAC 173-14-040(2)(g) as well as tool sheds, greenhouses, swimming pools, spas, accessory dwelling units and other accessory structures common to a single family residence located landward of the OHWM and the perimeter of a wetland.
      2) Normal appurtenant structures to a single-family residence are included in the permit exemption provided in WAC 173-27-040(2)(b). For the purposes of interpreting this provision, normal appurtenant shall be limited to the following structures listed under WAC 173-14-040(2)(g): a garage; deck; driveway; and utilities.
   b. Normal maintenance or repair of existing structures or developments - Normal maintenance or repair of existing structures or developments, including some replacement of existing structures, is included in the permit exemption provided in WAC 173-27-040(2)(b). For the purposes of interpreting this provision, the following replacement activities shall not be considered a substantial development:

1) Replacement of an existing hard structural shoreline stabilization measure with a soft shoreline stabilization measure consistent with the provisions contained in KZC 83.300.
2) Replacement of pier or dock materials consistent with the provisions contained in KZC 83.270 through 83.290.

3. Authority - The Planning Official shall review the proposed development activity for compliance with the shoreline regulations contained in Chapter 83 KZC. All proposed uses and development occurring within shoreline jurisdiction must conform to Chapter 90.58 RCW, the Shoreline Management Act, and the provisions of Chapter 83 KZC, whether or not a permit is required.
4. Application –
   a. As part of any request for a determination of exemption, the applicant shall show compliance with the regulations in Chapter 83 KZC by submitting an application on a form provided by the Planning Department. The application shall include all documents and exhibits listed on the application form. Alternatively, the applicant may use the joint aquatic resources permit application form and any other application forms deemed appropriate by the Planning Official. Applications may be deemed complete when required forms and attachments are provided consistent with a shoreline exemption development application checklist.
   b. The applicant shall identify whether the proposal requires an Army Corps of Engineers Section 10 or Section 404 approval. The Planning Official may waive the application for any proposal that does not require an Army Corps of Engineers Section 10 or Section 404 approval. In these circumstances, the Planning Official shall conduct a review for compliance with the shoreline regulations contained in Chapter 83 KZC in conjunction with a related development permit.
5. Decision - The Planning Official may grant, deny, or conditionally approve the shoreline exemption request. The approval or conditional approval will become conditions of approval for any related development permit, and no development permit will be issued unless it is consistent with the shoreline exemption approval or conditional approval. A copy of the City's letter of exemption shall be filed with the Department of Ecology.
6. Appeal - Any person aggrieved by the Planning Official's determination on a shoreline exemption request may be appealed using, except as stated below, the applicable appeal provisions of Chapter 145 KZC. If a proposed development activity also requires approval through Process IIA, IIB, or III (as described in Chapters 150, 152, and 155 KZC, respectively), any appeal of a shoreline exemption request will be heard as part of that other process.
7. Lapse of Approval – The lapse of approval for the shoreline exemption approval shall be the same as the expiration date of the development permit and all conditions of the approval shall be included in the conditions of approval granted for that development permit.
8. Revisions to WAC 173-27-040 - With subsequent revisions to WAC 173-27-040, the Planning Director shall determine administratively whether a letter of exemption is required and issue said decision as an administrative interpretation under KZC Section 83.50.

141.50 Pre-Submittal

1. General – Before applying for a permit or approval under this Chapter, the applicant shall attend a pre-submittal meeting with the Planning Official consistent with the provisions of this section.
2. Scheduling – The Planning Department will arrange a time for the pre-submittal meeting as soon as is reasonably practicable after the meeting is requested by the applicant.
3. Purpose – The purpose of the pre-submittal meeting is for the Planning Official to provide information to the applicant regarding what information needs to be submitted for a complete application.
4. Time Limits – The City will not process an application under this Chapter unless the applicant attended a pre-submittal meeting under this section, regarding the proposal for which application is made, within the six (6) months immediately prior to the date the application is submitted.

141.60 Applications

1. Who May Apply – Any person may, personally or through an agent, apply for a decision regarding property he/she owns.
2. How To Apply – The applicant shall file the following information with the Planning Department:

a. A complete application, with supporting affidavits, on forms provided by the Planning Department. Alternatively, the applicant may use the joint aquatic resources permit Application form;
b. Any information or material that is specified in the provisions of Chapter 83 KZC; and
c. Any additional information or material that the Planning Official specifies at the pre-submittal meeting.

3. Fee – The applicant shall submit the fee established by ordinance with the application.

141.70 Procedures

1. Substantial development permits.

a. General –
   1) Applications for a shoreline substantial development permit shall follow the procedures for a Process I Permit review pursuant to Chapter 145 KZC, except as otherwise provided in this Section.
   2) If the proposal that requires a substantial development permit is part of a proposal that requires additional approval through Process IIA or Process IIB under Chapter 150 KZC or Chapter 152 KZC, respectively, the entire proposal will be decided upon using that other process.
   3) If the proposal that requires a substantial development permit is part of a proposal that requires additional approval through the Design Review Board (DRB) under Chapter 142 KZC, the design review proceedings before the DRB shall be conducted in accordance with Chapter 142 KZC.

b. Notice of Application and Comment Period –
   1) In addition to the notice of application content established in Chapter 145 KZC, notice of applications for shoreline substantial development Permits must also contain the information required under WAC 173-27-110.
   2) The minimum notice of application comment period for shoreline substantial development permits shall be no fewer than thirty (30) days. However, the minimum comment period for applications for shoreline substantial development permits for limited utility extensions and bulkheads, as described by WAC 173-27-120, shall be twenty (20) days.

c. Burden of Proof –
   1) WAC 173-27-140 establishes general review criteria that must be met.
   2) WAC 173-27-150 establishes that a substantial development permit may only be granted when the proposed development is consistent with all of the following:
      a) The policies and procedures of the Shoreline Management Act;
      b) The provisions of Chapter 173-27 WAC;
      c) Chapter 83 KZC.

d. Decision -
   1) At the time of a final decision, the Planning Official shall mail a copy of the decision, staff advisory report, transmittal sheet and shoreline checklist to the applicant, Department of Ecology, and the Washington State Attorney General's Office, pursuant to RCW 90.58.140 and WAC 173-27-130. The permit shall state that construction pursuant to a permit shall not begin or be authorized until twenty-one (21) days from the date the permit decision was filed as provided in RCW 90.58.140(6); or until all review proceedings are terminated if the proceedings were initiated within twenty-one days from the date of filing as defined in RCW 90.58.140(5) and (6). "Date of Filing" is that date that the Department of Ecology received a copy of the decision.
   2) An appeal of a shoreline substantial development permit shall be to the State Shorelines Hearings Board and shall be filed within twenty-one (21) days of the receipt of the City's decision by the Department of Ecology as set forth in RCW 90.58.180.

e. Effect of Decision – For shoreline substantial development permits, no final action or construction shall be taken until the termination of all review proceedings initiated within twenty-one (21) days after notice of the final action taken by the City is filed with the Department of Ecology.

f. Complete Compliance Required –

1) General – Except as specified in subsection (2) of this section, the applicant must comply with all aspects, including conditions and restrictions, of an approval granted under this Chapter authorized by that approval.
2) Exception – Subsequent Modification – WAC 173-27-100 establishes the procedure and criteria under which the City may approve a revision to a permit issued under the Shoreline Management Act and the shoreline master program.

g. Time Limits – Construction and activities authorized by a shoreline substantial development permit are subject to the time limitations of WAC 173-27-090.

2. Conditional use permits.

a. General - Applications for a shoreline conditional use permit shall follow the procedures for a Process IIA Permit review pursuant to Chapter 150 KZC, except as otherwise provided in this section. If the proposal that requires a conditional use permit is part of a proposal that requires additional approval through a Process IIB, the entire proposal will be decided upon using that process.

b. Notice of Application and Comment Period –
1) In addition to the notice of application content established in Chapter 150 KZC, notice of applications for shoreline conditional use permits must also contain the information required under WAC 173-27-110.
2) The minimum notice of application comment period for shoreline conditional use permits shall be no fewer than thirty (30) days.

c. Notice of Hearing – The Planning Official shall distribute notice of the public hearing at least fifteen (15) calendar days before the public hearing.

d. Burden of Proof –
1) WAC 173-27-140 establishes general review criteria that must be met.
2) WAC 173-27-160 establishes criteria that must be met for a conditional use permit to be granted.
3) In addition, the City will not issue a conditional use permit for a use which is not listed as allowable in the shoreline master program unless the applicant can demonstrate that the proposed use has impacts on nearby uses and the environment essentially the same as the impacts that would result from a use allowed by the shoreline master program in that shoreline environment.

e. Decision -
1) Once the City has approved a conditional use permit it will be forwarded to the State Department of Ecology for its review and approval/disapproval jurisdiction under WAC 173-27-200.
2) At the time of a final decision by the State Department of Ecology for a shoreline conditional use permit, the Planning Official shall, pursuant to RCW 90.58.140 and WAC 173-27-130, mail a copy of the decision, staff advisory report, transmittal sheet, and Shoreline Checklist to the applicant, Department of Ecology, and the State of Washington's Office of the Attorney General. The permit shall state that construction pursuant to a permit shall not begin or be authorized until twenty-one (21) days from the date the permit decision was filed as provided in RCW 90.58.140(6); or until all review proceedings are terminated if the proceedings were initiated within twenty-one (21) days from the date of filing as defined in RCW 90.58.140(5) and (6). "Date of Filing" is that date that the Department of Ecology received a copy of the decision.
3) Appeals of a shoreline conditional use permit or shall be to the State Shoreline Hearings Board and shall be filed within twenty-one (21) days of the receipt of the City's decision by the Department of Ecology, as set forth in RCW 90.58.180.

f. Effect of Decision – For shoreline conditional use permits, no final action or construction shall be taken until the termination of all review proceedings initiated within twenty-one (21) days from the date Department of Ecology transmits its decision on the shoreline conditional use permit.

g. Complete Compliance Required –

1) General – Except as specified in subsection 2) below of this section, the applicant must comply with all aspects, including conditions and restrictions, of an approval granted under this Chapter in order to do everything authorized by that approval.
2) Exception – Subsequent Modification – WAC 173-27-100 establishes the procedure and criteria under which the City may approve a revision to a permit issued under the Shoreline Management Act and this Chapter.

h. Time Limits – Construction and activities authorized by a shoreline conditional use permit are subject to the time limitations under WAC 173-27-090.

3. Variances.

a. General - Applications for a shoreline variance permit shall follow the procedures for a Process IIA Permit review pursuant to Chapter 150 KZC, except as otherwise provided in this section. If the proposal that requires a shoreline variance is part of a proposal that requires additional approval through a Process IIB, the entire proposal will be decided upon using that other process.

b. Notice of Application and Comment Period –
1) In addition to the notice of application content established in KZC Chapter 150, notice of applications for shoreline variance permits must also contain the information required under WAC 173-27-110.
2) The minimum notice of application comment period for shoreline variance permits shall be no fewer than thirty (30) days.

c. Notice of Hearing – The Planning Official shall distribute notice of the public hearing at least 15 calendar days before the public hearing.

d. Burden of Proof –
1) WAC 173-27-140 establishes general review criteria that must be met.
2) WAC 173-27-170 establishes criteria that must be met for a variance permit to be granted.

e. Decision -
1) Approval by Department of Ecology. Once the City has approved a variance permit it will be forwarded to the State Department of Ecology for its review and approval/disapproval jurisdiction under WAC 173-27-200.
2) At the time of a final decision for a shoreline variance permit, the Planning Official shall, pursuant to RCW 90.58.140 and WAC 173-27-130, mail a copy of the decision, staff advisory report, transmittal sheet, and Shoreline Checklist to the applicant, Department of Ecology, and the State of Washington's Office of the Attorney General. The permit shall state that construction pursuant to a permit shall not begin or be authorized until twenty-one (21) days from the date the permit decision was filed as provided in RCW 90.58.140(6); or until all review proceedings are terminated if the proceedings were initiated within twenty-one (21) days from the date of filing as defined in RCW 90.58.140(5) and (6). "Date of Filing" is that date that the Department of Ecology received a copy of the decision.
3) Appeals of a Shoreline Variance Permit shall be to the State Shoreline Hearings Board and shall be filed within twenty-one (21) days of the receipt of the City's decision by the Department of Ecology, as set forth in RCW 90.58.180.

f. Effect of Decision – For shoreline variance permits, no final action or construction shall be taken until the termination of all review proceedings initiated within twenty-one (21) days from the date DOE transmits its decision on the shoreline variance permit.

g. Complete Compliance Required –
1) General – Except as specified in subsection (2) of this section, the applicant must comply with all aspects, including conditions and restrictions, of an approval granted under this chapter as authorized by that approval.
2) Exception – Subsequent Modification – WAC 173-27-100 establishes the procedure and criteria under which the City may approve a revision to a permit issued under the Shoreline Management Act and the shoreline master program.

h. Time Limits – Construction and activities authorized by a shoreline variance permit are subject to the time limitations under WAC 173-27-090.

4. **Request for Relief from Standards**

a. General - When shoreline stabilization measures intended to improve ecological functions result in shifting the OHWM landward of the pre-modification location, the City may propose to grant relief from additional or more restrictive standards and use regulations resulting from the shift in OHWM, such as but not limited to an increase in shoreline jurisdiction, shoreline setbacks, or lot coverage.

b. Burden of Proof – Relief may be granted when:
   1) The proposed relief is the minimum necessary to relieve the hardship;
   2) The restoration project will result in a net environmental benefit; and
   3) The proposed relief is consistent with the objectives of the City's restoration plan and shoreline master program.

c. Decision - Approval by Department of Ecology. Once the City has approved a permit it will be forwarded to the State Department of Ecology for its review and approval/disapproval. The application review must occur during the Department of Ecology's normal review of a shoreline substantial development permit, conditional use permit, or variance. If a permit is not required for the restoration project, the City shall submit separate application and necessary supporting information to the Department of Ecology.

141.80 Enforcement authority.

WAC Chapter 173-27 contains enforcement regulations, including authority for the City to issue regulatory orders to enforce the Shoreline Management Act and the shoreline master program. In addition, the City shall have any and all other powers and authority granted to or devolving upon municipal corporations to enforce ordinances, resolutions, regulations, and other laws within its territorial limits.

141.90 Annexation

The City may adopt shoreline environment pre-designations for shorelines located outside of city limits but within the urban growth area. In the event of annexation of a shoreline not pre-designated in the shoreline master program, the City shall develop or amend shoreline policies and regulations to include the annexed area. Such policies and regulations for annexed areas shall be consistent with RCW 90.58 and WAC 173-26 and shall be submitted to the Department of Ecology for approval.

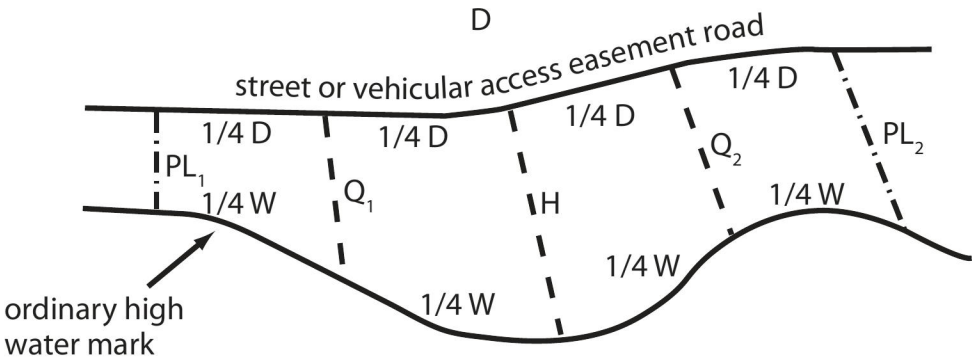
KZC
CHAPTER 180-PLATES

Revise Plate 19:	Calculating Average Parcel Depth
Delete Plate 22:	WD II North Property Line yard and Height of Structure
Revised Plate 27A-27C:	Shoreline View Corridor (currently only applies to Yarrow Bay Marina)
Delete Plate 28:	North Property Line – WD Zones
New Plate XX:	Minimum Shoreline Walkway Corridor
New Plate XX:	Measuring Shoreline Setback
New Plate XX:	Addition to Nonconforming Dwelling Unit
New Plate XX:	Story at Street or Access Easement Level (applies on in Residential – L)
New Plates A/BXX:	Options for Shoreline Stabilization Measures

Plate XX
Calculating Average Parcel Depth

Average Parcel Depth =

$$\frac{PL_1 + Q_1 + H + Q_2 + PL_2}{5}$$



D = length of property line at street or vehicular access easement

W = length of property frontage at ordinary high water mark

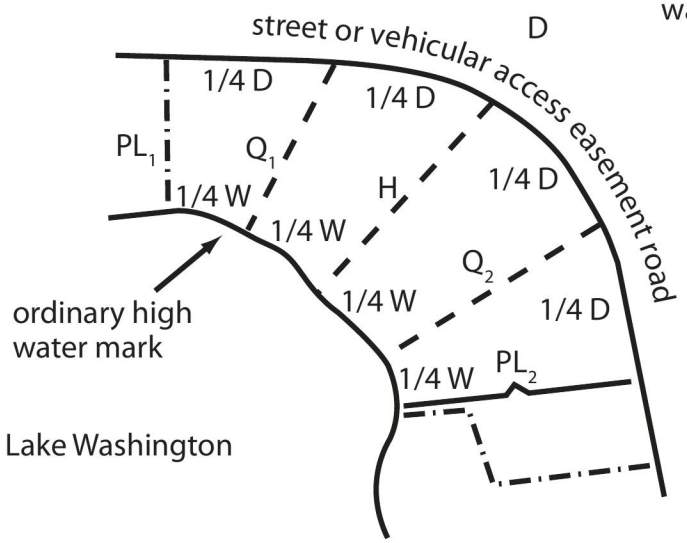


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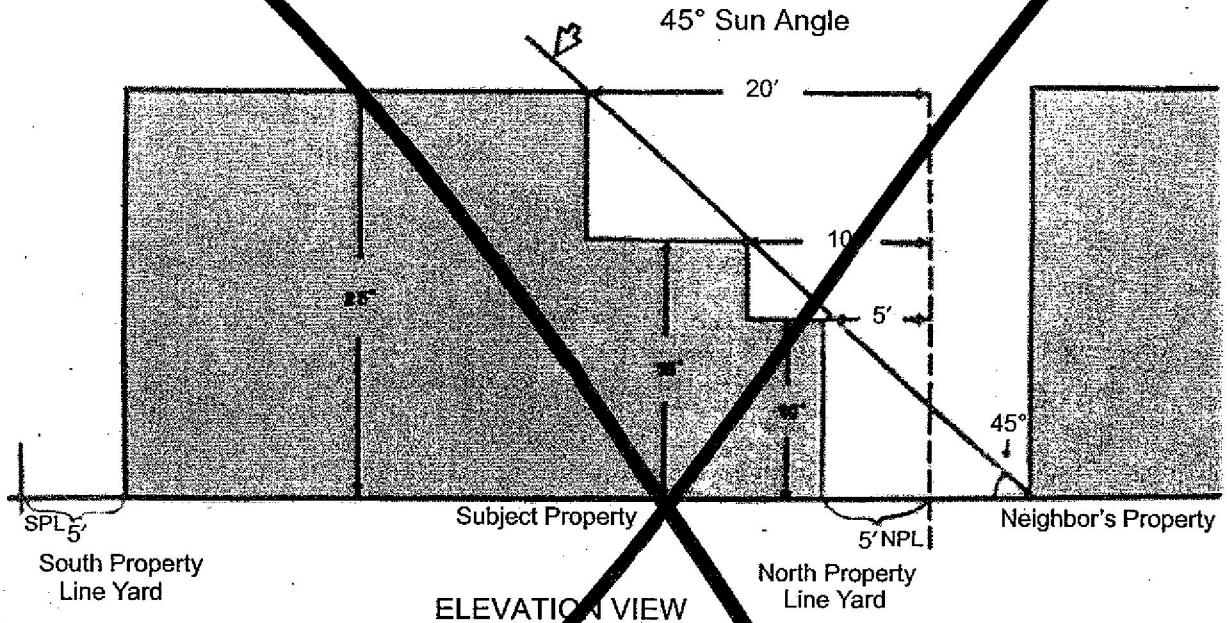
Plate 22

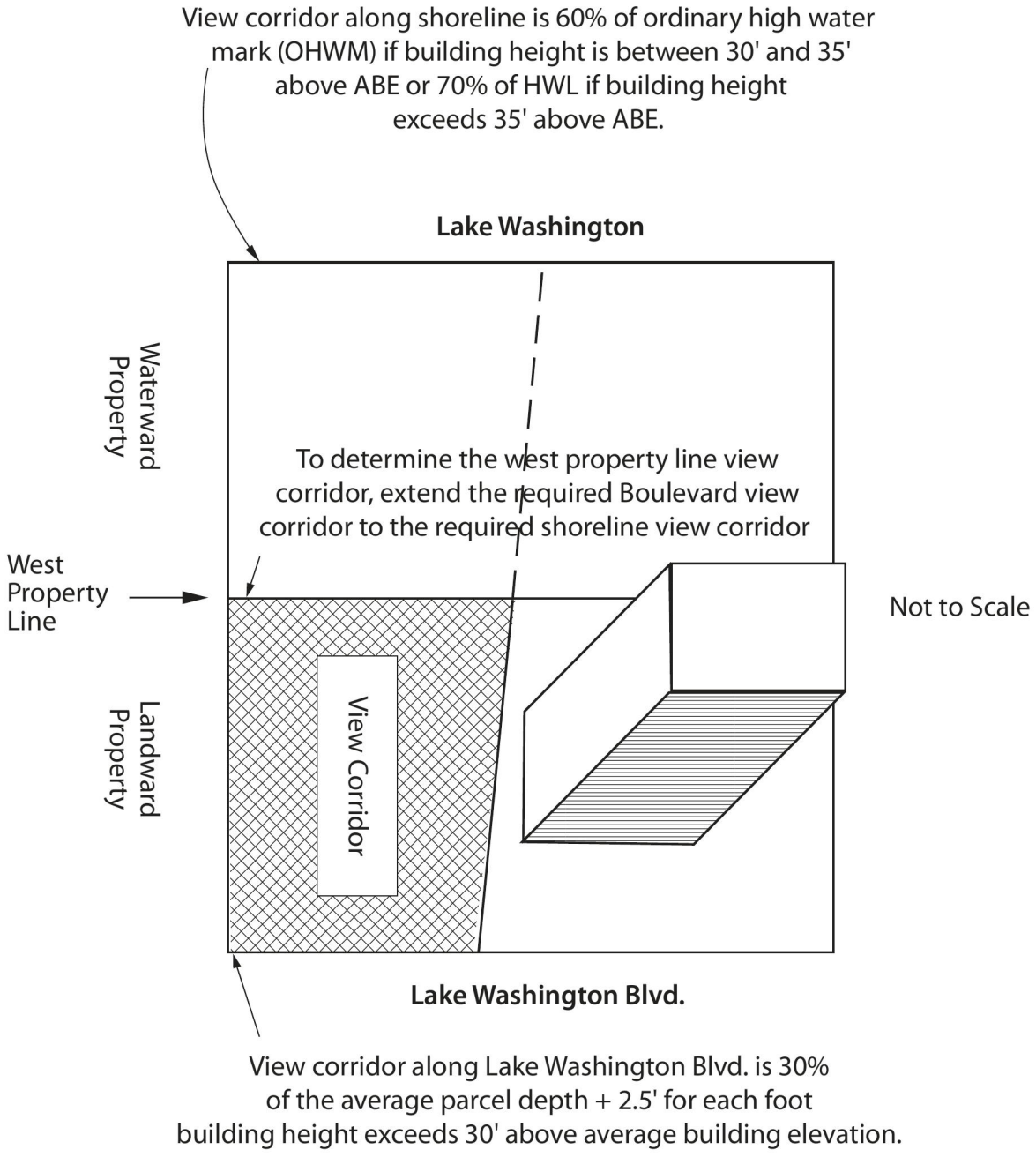
WD II NORTH PROPERTY LINE YARD AND HEIGHT OF STRUCTURE



ELEVATION VIEW

Setback = Height − 5′ from North Property Line
Scale 1″ = 10″

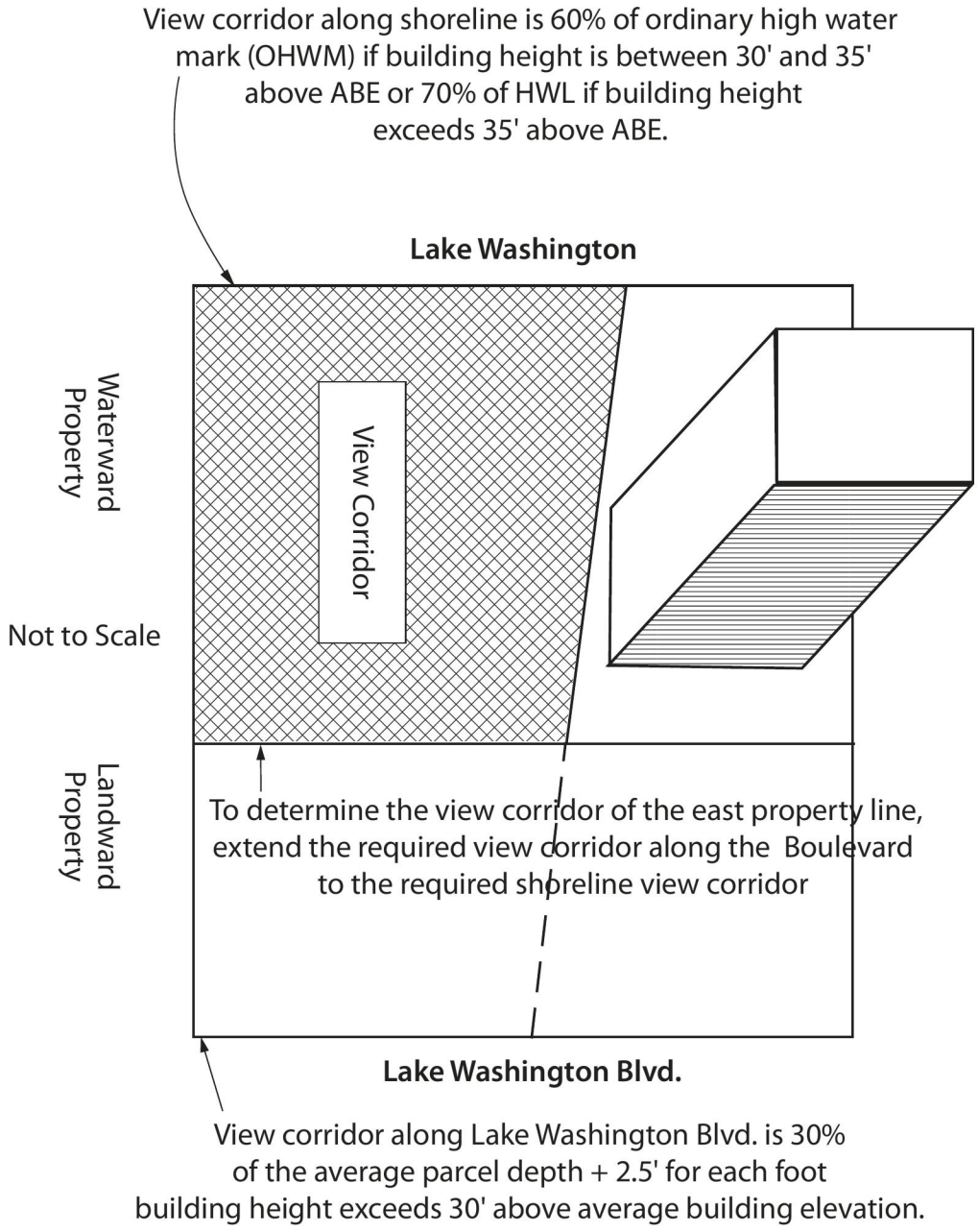
Plate 27A
Shoreline View Corridor



Required Shoreline View Corridor for Properties that only abut Lake Washington Boulevard

The *required shoreline view corridor across the property* shall be determined by taking the view corridor required along Lake Washington Boulevard (30 percent of the average parcel width plus 2.5 feet for each foot the building height exceeds 30 feet above average building elevation) and then extending the view corridor across the landward property and the waterward property to the shoreline to provide a shoreline view corridor of 60 percent if building height is greater than 30 feet, but equal to or less than 35 feet or 70 percent if building height is greater than 35 feet (see diagram above).

Plate 27B
Shoreline View Corridor

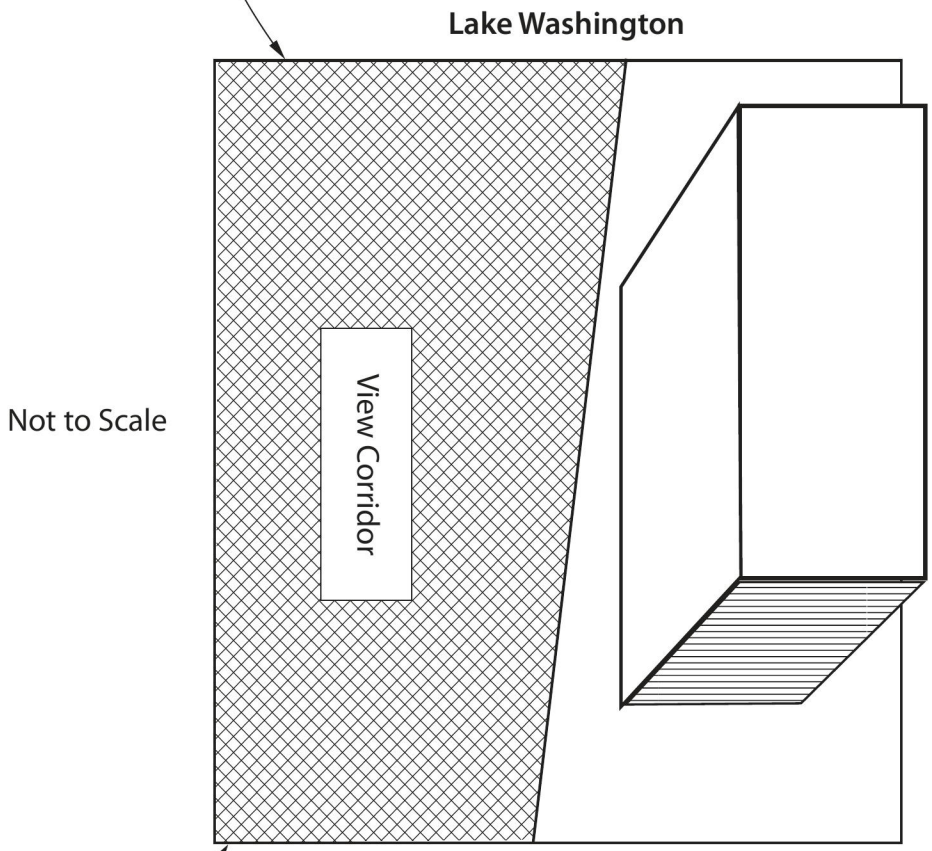


Required Shoreline View Corridor for Properties that only abut Lake Washington Boulevard

The *required shoreline view corridor across the property* shall be determined by taking the view corridor required along Lake Washington Boulevard (30 percent of the average parcel width plus 2.5 feet for each foot the building height exceeds 30 feet above average building elevation) and then extending the view corridor across the landward property and the waterward property to the shoreline to provide a shoreline view corridor of 60 percent if building height is greater than 30 feet, but equal to or less than 35 feet or 70 percent if building height is greater than 35 feet (see diagram above).

Plate 27C
Shoreline View Corridor

View corridor along shoreline is 60% of ordinary high water mark (OHWM) if building height is between 30' and 35' above ABE or 70% of OHWL if building height exceeds 35' above ABE.



Not to Scale

View corridor along Lake Washington Blvd. is 30% of the average parcel depth + 2.5' for each foot building height exceeds 30' above average building elevation.

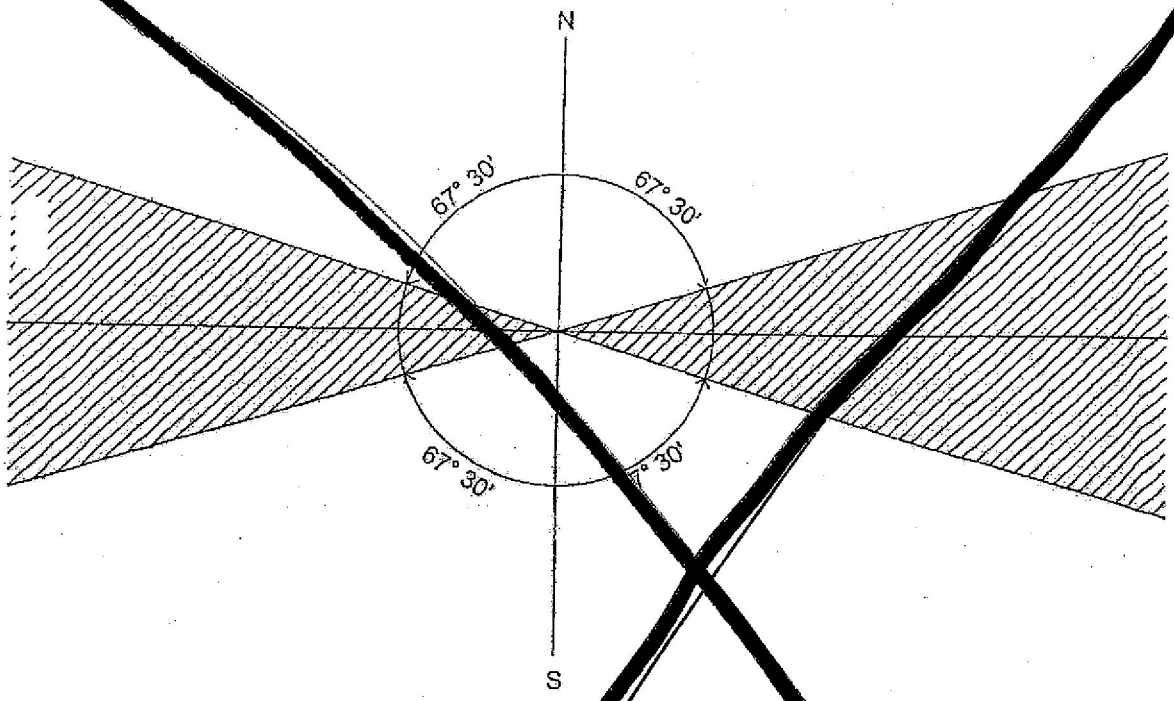
Required Shoreline View Corridor for Properties that only abut Lake Washington Boulevard

The *required shoreline view corridor across the property* shall be determined by taking the view corridor required along Lake Washington Boulevard (30 percent of the average parcel width plus 2.5 feet for each foot the building height exceeds 30 feet above average building elevation) and then extending the view corridor across the landward property and the waterward property to the shoreline to provide a shoreline view corridor of 60 percent if building height is greater than 30 feet, but equal to or less than 35 feet or 70 percent if building height is greater than 35 feet (see diagram above).

DELETE PLATE

Plate 28

North Property Line – Waterfront District (WD) Zones



A line which falls within the shaded area is a north property line.

Plate XX
Maximum Shoreline Walkway Corridor

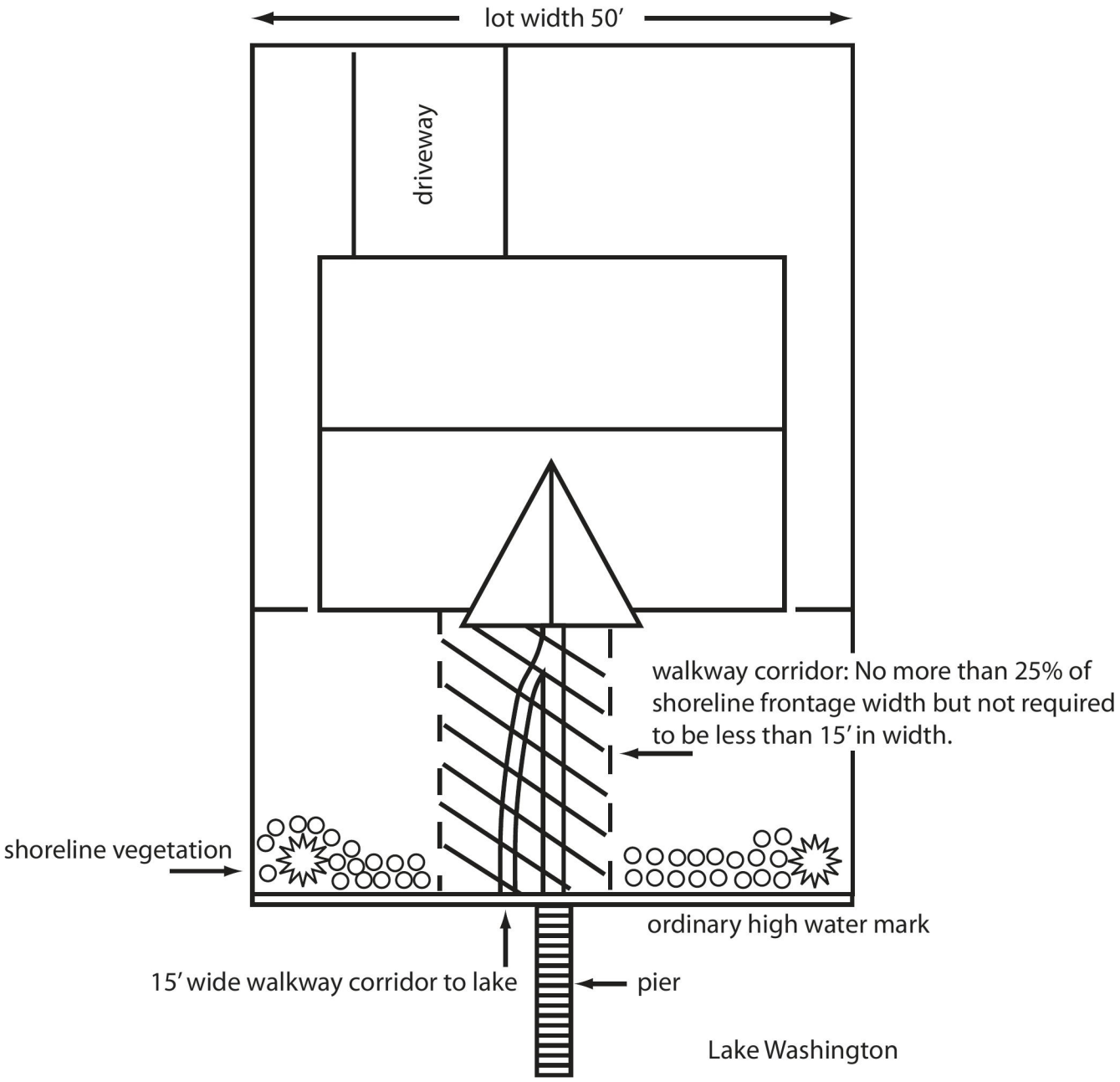


Plate XX
Measuring Shoreline Setback

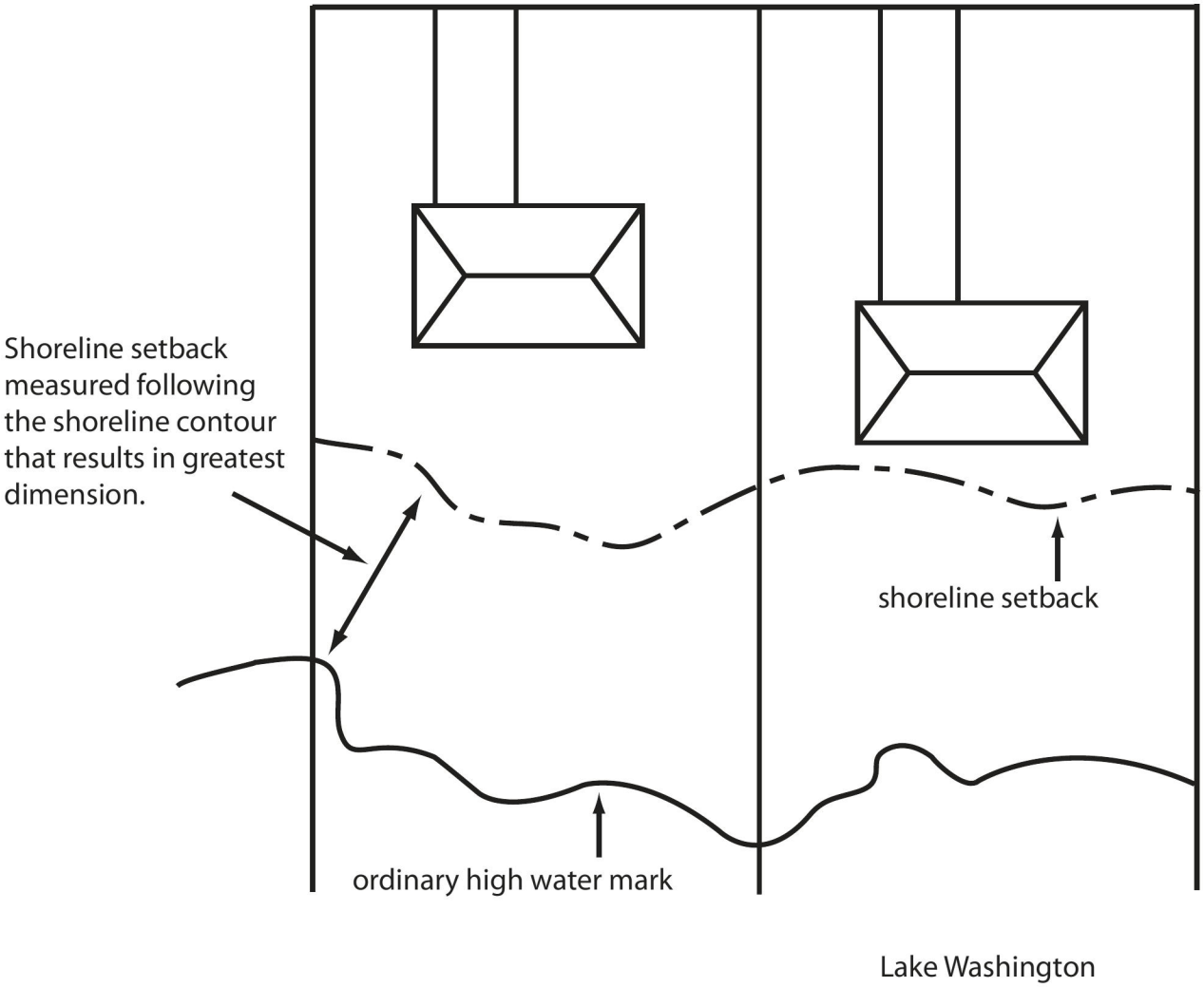


Plate XX
Addition to Nonconforming Detached Dwelling Unit

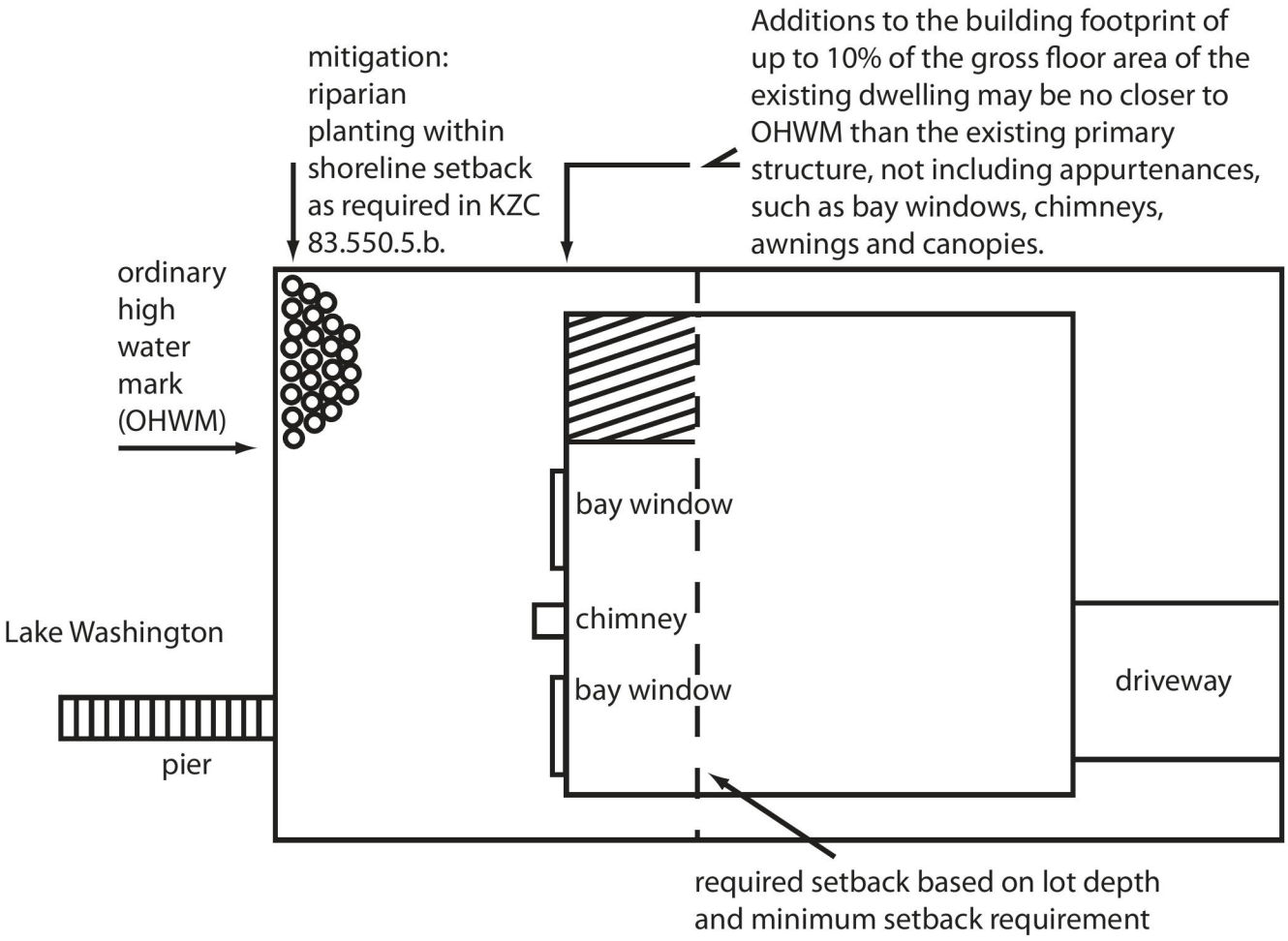
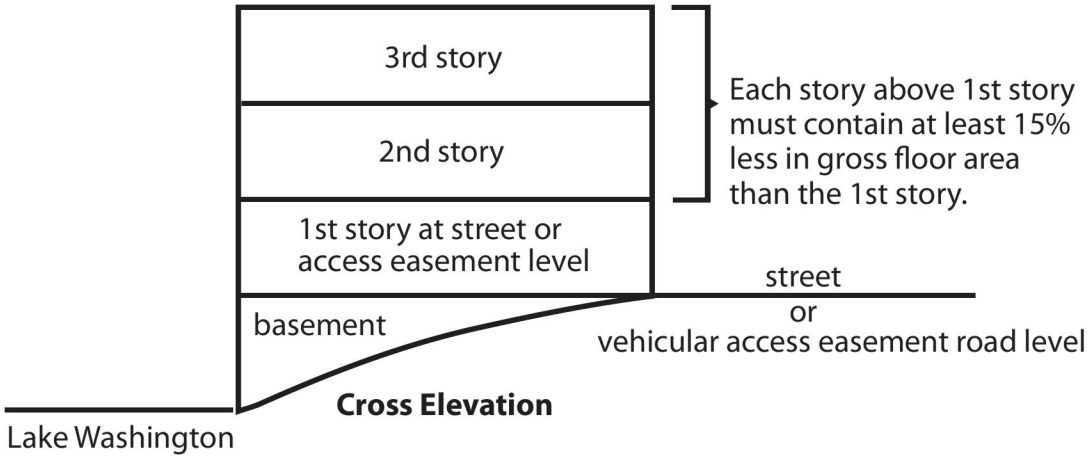
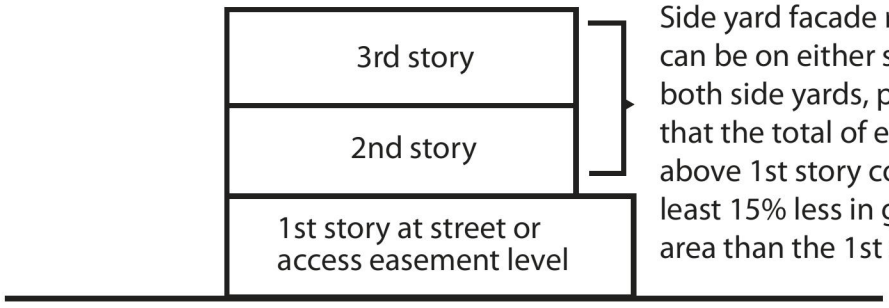


Plate XX
Story at Street or Access Easement Level

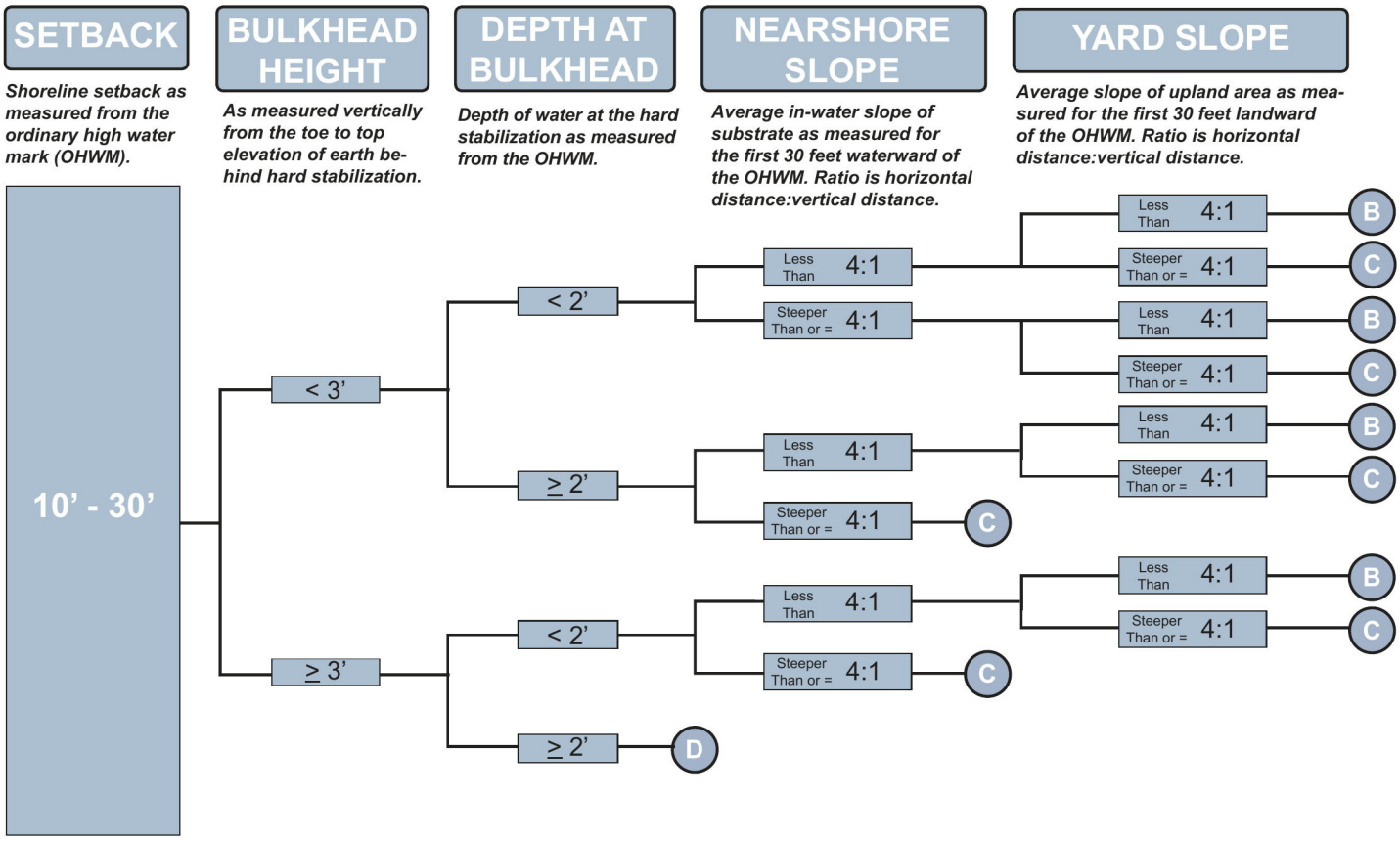


Cross Elevation



Front Elevation

Plate XXA
Options for Shorline Stabilization Measures
Building Setback 10' - 30'



Typical Options:

- A — Full beach, beach cove, pullback, bioengineering, enhancement, gradient improvement
- B — Beach cove, pullback, bioengineering, enhancement, gradient improvement
- C — Pullback, bioengineering, enhancement, gradient improvement
- D — Bioengineering, enhancement, gradient improvement

Definitions: (In Order of Restoration Preference)

Full beach: hard stabilization removal and beach restoration

Beach cove: partial hard stabilization removal and pullback to create beach cove

Hard stabilization pullback: repositioning of hard stabilization landward of existing location to improve shoreline gradient and possibly form a beach

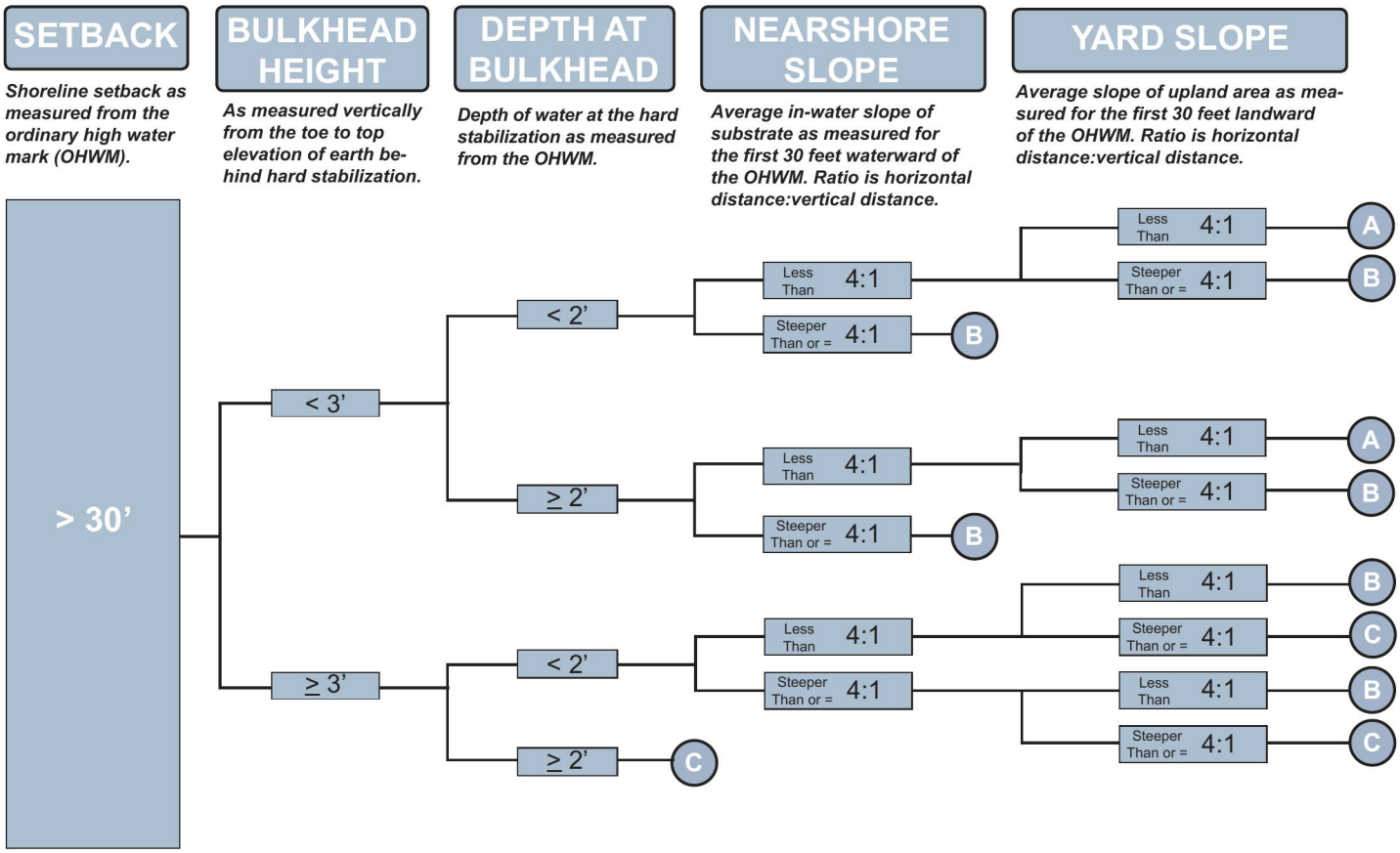
Slope bioengineering: shoreline stabilization using plant material and other biodegradable materials to hold upland soils in place

Hard stabilization enhancement: hard stabilization may stay in same general location, but modifications may include sloping back existing hard structure and/or modifying material type and layout to create potential beach cove areas

Nearshore gradient improvement: installation of gravel/cobble substrate wedge for the purposes of improving nearshore gradients

Notes: Sites with less than a 10' shoreline setback are not included with this decision tree as those sites will likely require some form of hard stabilization. However, those sites may still benefit from the addition of an in-water gravel/cobble wedge to improve shoreline gradient along with a native plant buffer.

Plate XXB
Options for Shorline Stabilization Measures
Building Setback > 30'



Typical Options:

- (A) Full beach, beach cove, pullback, bioengineering, enhancement, gradient improvement
- (B) Beach cove, pullback, bioengineering, enhancement, gradient improvement
- (C) Pullback, bioengineering, enhancement, gradient improvement
- (D) Bioengineering, enhancement, gradient improvement

Definitions: (In Order of Restoration Preference)

Full beach: hard stabilization removal and beach restoration

Beach cove: partial hard stabilization removal and pullback to create beach cove

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Slope bioengineering: shoreline stabilization using plant material and other biodegradable materials to hold upland soils in place

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Nearshore gradient improvement: installation of gravel/cobble substrate wedge for the purposes of improving nearshore gradients

Notes: Sites with less than a 10' shoreline setback are not included with this decision tree as those sites will likely require some form of hard stabilization. However, those sites may still benefit from the addition of an in-water gravel/cobble wedge to improve shoreline gradient along with a native plant buffer.

R-4786
Attachment E

City of Kirkland
Grant No. G0600236

DRAFT

Shoreline Restoration Plan Component of the Shoreline Master Program for the City of Kirkland

Prepared for:

City of Kirkland
Planning and Community Development
123 Fifth Avenue
Kirkland, Washington 98033

Prepared by:

The Watershed Company

750 Sixth Street South
Kirkland WA 98033

City of Kirkland
Planning and Community Development
123 Fifth Avenue
Kirkland, Washington 98033

June 2009

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SHORELINE MASTER PROGRAM UPDATE
SHORELINE RESTORATION PLAN

1. INTRODUCTION

Shorelines are a major feature in the City of Kirkland, providing both a valuable setting for land use and recreation and performing important ecological functions. Development along the shoreline is addressed through the City's Shoreline Master Program, the local goals and policies adopted under the guidance and provisions of the Shoreline Management Act (SMA) of 1971. Under the SMA, each city and county with "shorelines of the state" must adopt a Shoreline Master Program (SMP) that is based on state laws and rules but tailored to the specific geographic, economic and environmental needs of the community. The goal of the SMA is "to prevent the inherent harm in an uncoordinated and piecemeal development of the state's shorelines." To implement this goal, the SMA and its implementing guidelines, provide guidance and requirements to local governments addressing how shorelines should be developed, protected, and restored. The SMA has three broad policies:

1) encourage water-dependent uses,
2) protect shoreline natural resources, and
3) promote public access.

The City's SMP was developed in 1974 to help regulate shoreline development in an ecologically sensitive manner with special attention given to public access. These policy objectives are reflected in today's protection of significant natural areas within the City's shoreline area as open space, as well as the extensive shoreline trail system and network of shoreline parks which have been established over time.

Over the time that has spanned since the original adoption of the City's SMP, there have been substantial changes to the lakefront environment. Industrial uses, such as the shipyard previously located at Carillon Point, have left Kirkland's environment. The City has added publicly owned properties to its waterfront park system, most significantly the Yarrow Bay Wetlands, Juanita Bay Park, Juanita Beach Park, and David E. Brink Park. Water quality within Lake Washington, once severely impacted by nutrient loading from sewage, has remarkably improved since regional wastewater treatment plants were constructed and the final plant discharging from the lake was closed.

The lake environment has also been impacted by new challenges. The shoreline character has continued to change over time, as additional docks and bulkheads have been built, contributing to a loss of woody debris, riparian vegetation, and other complex habitat features along the shoreline. Impervious surfaces have increased both within the shoreline area and in adjacent watersheds, and this, together with the consequent reduction in soil infiltration, have been correlated with increased velocity, volume, and frequency of surface water flows into the lake. These and other changes have impacted the habitat for salmonids. In 1999, chinook salmon and bull trout were listed as Threatened species under the Federal Endangered Species Act. The region's response to this listing has resulted in new scientific data and research that has improved our understanding of shoreline ecological functions and their value in terms of fish and wildlife, water quality and human health.

Kirkland's SMP is being updated to comply with the SMA requirements (RCW 90.58), and new SMP Guidelines (Washington Administrative Code [WAC] 173-26, Part III), which went into effect in 2003. One of the key objectives that the SMP must address is "no net loss of ecological shoreline functions necessary to sustain shoreline natural resources" (Ecology 2004). The no net loss goal, if carried out successfully, would maintain the existing ecological condition of shorelines within the City of Kirkland. However, SMP updates seek not only to maintain conditions, but to improve them:

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

The SMP Guidelines require that local governments develop SMP goals that promote restoration of impaired shoreline ecological functions and a "real and meaningful" strategy to implement restoration objectives. Local governments are also encouraged to contribute to restoration by planning for and supporting restoration of shoreline functions through the SMP and other regulatory and non-regulatory programs.

Restoration planning is an important component of the environmental protection policy of the Act. The City of Kirkland's SMP includes shoreline protection and restoration elements achieved through planning, regulation, preservation of high quality shoreline areas, and the provisions established in this Restoration Plan, which provides the framework for the community's efforts to restore degraded portions of the City's shorelines.

The City's Shoreline Inventory and Characterization (The Watershed Company, December 2006) describes how natural shoreline processes have been modified and identifies the restoration potential and opportunities within each shoreline reach. This Shoreline Restoration Plan builds on that analysis to further identify overall goals and priorities for restoration, as well as projects and programs that are designed to contribute to local restoration goals, and mechanisms or strategies to ensure that restoration projects and programs will be implemented.

This document represents the Restoration Plan that, done in conjunction with mitigation resulting from implementation of the new regulations and policies, will result in improvements to the shoreline ecology along the Kirkland shoreline. This plan represents a long-term vision for restoration that will be implemented over time, resulting in incremental improvement over the existing conditions.

2. PURPOSE OF RESTORATION PLAN

A jurisdiction's Shoreline Master Program applies to uses and activities in the jurisdiction's shoreline zone. To assure no net loss of shoreline ecological functions, master programs are required to include provisions that require proposed individual uses and developments to analyze environmental impacts of the proposal and include measures to mitigate environmental impacts not otherwise avoided or mitigated by compliance with the master program and other applicable regulations. Despite these efforts, it is recognized that the impacts from all reasonably anticipated activities and uses cannot be fully mitigated under the SMP regulations. For instance, some allowed uses and developments, such as a new pier, cannot always be mitigated fully, resulting in incremental and unavoidable degradation of the baseline condition.

How then can the shoreline be improved over time in areas where the baseline condition is severely, or even marginally, degraded?

Section 173-26-201(2)(f) of the State Guidelines says:

> "master programs shall include goals and policies that provide for restoration of such impaired ecological functions. These master program provisions shall identify existing policies and programs that contribute to planned restoration goals and identify any additional policies and programs that local government will implement to achieve its goals. These master program elements regarding restoration should make real and meaningful use of established or funded nonregulatory policies and programs that contribute to restoration of ecological functions, and should appropriately consider the direct or indirect effects of other regulatory or nonregulatory programs under other local, state, and federal laws, as well as any restoration effects that may flow indirectly from shoreline development regulations and mitigation standards."

However, degraded shorelines are not just a result of pre-Shoreline Master Program activities or allowed uses or activities that cannot be fully mitigated, but also of unregulated activities and exempt development. The new Guidelines also require that "[l]ocal master programs shall include regulations ensuring that exempt development in the aggregate will not cause a net loss of ecological functions of the shoreline." While some actions within shoreline jurisdiction are exempt from a permit, the Shoreline Master Program should clearly state that those uses and actions are not exempt from compliance with the Shoreline Management Act or the local Shoreline Master Program. Because the shoreline environment is also affected by uses and activities taking place outside of a specific local master program's jurisdiction (e.g., outside of city limits and outside of the shoreline zone within the city), review of actions, programs and policies that affect the greater area outside of the shoreline jurisdiction is essential for understanding how the City overall fits into the larger watershed context. The latter is critical when establishing realistic goals and objectives for improving the dynamic and highly inter-connected environments.

As directed by the State Guidelines, the following Restoration Plan provides a summary of baseline shoreline conditions, lists restoration goals and objectives, discusses existing or potential programs and projects that positively impact the shoreline environment, and provide a ranking analysis of designated projects based on both ecological benefit and overall feasibility. Finally, funding options and a monitoring plan of these various comprehensive restoration projects and programs are provided. In total, implementation of the Shoreline Master Program (with mitigation of project-related impacts) in combination with this Restoration Plan (for restoration of lost ecological functions that occurred either prior to a specific project or as part of a project that cannot fully mitigate its own impacts) should result in a net improvement in the City of Kirkland's shoreline environment in the long term.

In addition to meeting the requirements of the Guidelines, this Restoration Plan is also intended to support the City's or other non-governmental organizations' applications for grant funding, and to provide the interested public with contact information for the various entities working within the City to enhance the environment.

3. SHORELINE INVENTORY SUMMARY

3.1 Introduction

The City conducted a comprehensive inventory of its Lake Washington shoreline in 2006. The purpose of the shoreline inventory was to facilitate the City of Kirkland's compliance with the SMA and updated SMP Guidelines. The inventory describes existing physical and biological conditions in the Lake Washington shoreline zone within City limits, including recommendations for restoration of ecological functions where they are degraded. The *Final Shoreline Analysis Report* is summarized below.

3.2 Shoreline Boundary

As defined by the Shoreline Management Act of 1971, shorelines include certain waters of the state plus their associated "shorelands." Shorelands are defined as:

> "those lands extending landward for 200 feet in all directions as measured on a horizontal plane from the ordinary high water mark; floodways and contiguous floodplain areas landward 200 feet from such floodways; and all wetlands and river deltas associated with the streams, lakes, and tidal waters which are subject to the provisions of this chapter…Any county or city may determine that portion of a one-hundred-year-floodplain[1] to be included in its master program as long as such portion includes, as a minimum, the floodway and the adjacent land extending landward two hundred feet therefrom (RCW 90.58.030)"

Shorelands in the City of Kirkland include only areas within 200 feet of the ordinary high water mark, as established by the U.S. Army Corps of Engineers for Lake Washington, and any associated wetlands within shoreline jurisdiction. Lake Washington does not have a floodway or floodplain. As part of the shoreline jurisdiction assessment, Forbes Creek, Juanita Creek, and Yarrow Creek were reviewed. All features were found to have mean annual flows of less than 20 cubic feet per second and thus are not subject to regulation under the Shoreline Management Act. Two areas of known associated wetlands were identified, one contained within Juanita Bay and extending up the lower Forbes Creek riparian corridor, and the second within the lower Yarrow Bay wetlands. The shoreline jurisdiction extends up to the wetland boundary in these two areas and up to 200 feet from the Lake Washington ordinary high water mark in all other areas.

3.3 Shoreline Inventory

The shoreline inventory is divided into five main sections: Introduction, Current Regulatory Framework Summary, Shoreline Inventory, Conditions by Inventory Segment, and Analysis of Ecological Functions and Ecosystem-wide Processes. Four segments were established (A through D), and have been delineated based on existing land use and current location within either the City or the Potential Annexation Area (PAA). For the purposes of this Restoration

[1] According to RCW 173-220-030, 100-year floodplain is "that land area susceptible to being inundated by stream derived waters with a one percent chance of being equaled or exceeded in any given year. The limit of this area shall be based upon flood ordinance regulation maps or a reasonable method which meets the objectives of the act;"

Plan, the City has not included the PAA (Segment A), which has been separately addressed by King County.

3.3.1 Land Use and Physical Conditions

1. Existing Land Use: The City of Kirkland shoreline area is fully developed, with existing land uses largely consistent with planned land uses as illustrated in the Comprehensive Plan. Areas not occupied by residential or commercial/office developments are either formal and informal City parks and open spaces, or large wetland areas. The City's shoreline contains a total of 336 lots. Of these, only 32 undeveloped lots remain within shoreline jurisdiction. The majority of these undeveloped lots are located within Segment B (24); two are located in Segment C and six in Segment D. In Segment B, the relatively large number of undeveloped lots is due to a number of lots along the southwest corner of the Yarrow Bay wetlands. These figures indicate that only 10 percent of all properties within the shoreline area are vacant. This also illustrates that if future development occurs, it will likely be in the form of redevelopment consistent with adopted plans and regulations. Except for a few properties held in private ownership, the high-functioning portions of the shoreline have been appropriately designated and preserved as park/open space. The privately held properties have been protected through critical areas provisions, including buffers. Land uses along the shoreline are only expected to change minimally, if at all, although re-builds, substantial remodels, and some redevelopment of one type of commercial into another type of commercial, multi-family or mixed-use are anticipated.

2. Parks and Open Space/Public Access: Developing public shoreline access is a priority of the City, as evidenced by the goals and policies included in the Public Access element of the City's SMP, prepared in the early 1970s and last amended in 1989. Except for single-family residential areas or environmentally sensitive areas, the prior SMP required that all development provide public access to the water's edge and along the shoreline as much as possible. As a result of this requirement, the City has made significant progress towards establishing continuous pedestrian access along the water's edge in Segment D as many of the multi-family and commercial properties have redeveloped. Overall, the City has approximately 6.8 miles of trails within shoreline jurisdiction. The trails and parks combined provide 2.5 miles of public waterfront access. The SMP continues these provisions in order to allow for any gaps in this system to be infilled as redevelopment occurs.

   The City contains twelve designated parks or street-ends, some with extended areas of open space, such as the Forbes Creek riparian corridor. Juanita Beach Park is one of the City's largest multi-use parks located on the Lake Washington waterfront. The City commissioned the *Juanita Beach Park Draft Master Plan Report* (J.A. Brennan Associates, PLLC 2005) after assuming ownership from King County in 2002. The *Master Plan Report* includes goals for a number of areas, including environmental stewardship and recreation. The plan addresses potential day boat moorage, swimming beach improvements (to address water and sediment quality and excessive sediment deposition), a new non-motorized boat rental facility, hand-carried boat launch, and restoration of Juanita Creek, its buffer, and wetlands.

3. Shoreline Modifications: A combination of recent aerial photographs and a field inventory conducted by boat in March 2006 were used to collect information about shoreline

modifications in the City. The Kirkland shoreline is heavily modified with approximately 60 percent of the overall shoreline armored at or near the ordinary high water mark and an overall pier density of approximately 26 piers per mile. However, these numbers include the undeveloped shorelines in Segment B. Considering just Segments C and D, these numbers would rise to 86 percent armoring and 39 piers per mile. Comparatively, an evaluation of the entire Lake Washington shoreline found 71 percent of the shoreline armored and with approximately 36 piers per mile (Toft 2001). Thus, for Kirkland overall, both pier density and shoreline armoring are slightly lower than the lake-wide figures. However, when evaluating the developed shorelines of Segments C and D, these figures exceed the lake-wide average. Many of the piers have one or more boatlifts, and approximately one-quarter of the boatlifts have canopies.

As expected, the urban segment (Segment D) has the most altered shoreline, with 90 percent armored with either vertical or boulder bulkheads, and Juanita and Yarrow Bays (Segment B) have the least altered shorelines, with only 7 percent armoring. The residential segments (Segments A and C) are 76 and 83 percent armored, respectively. It is not uncommon around Lake Washington for some historic fills to be associated with the original bulkhead construction, usually to create a more level or larger yard. Most of these shoreline fills occurred at the time that the lake elevation was lowered during construction of the Hiram Chittenden Locks.

Also as expected, the highest amount of overwater cover per lineal foot of shoreline can be found in Segment D, which is nearly triple the amount of cover found in the residential segment (C). This can be attributed to the presence of several marinas, large park-associated piers, multiple large piers that serve condominiums, and a couple of over-water condominiums. However, the total number of individual pier/dock structures in the urban segment is about half of that in the residential segments, due to the abundance of single-family residential pier structures. Segment B had the lowest area of overwater cover and the lowest number of overwater structures.

The full shoreline inventory includes a more in-depth of discussion of the above topics, as well as information about transportation, stormwater and wastewater utilities, impervious surfaces, and historical/archaeological sites, among others.

3.3.2 Biological Resources and Critical Areas

With the exception of the Yarrow Bay wetlands and the Forbes Creek/Juanita Bay wetlands, the shoreline zone itself within the City of Kirkland is generally deficient in high-quality biological resources and critical areas, primarily because of the extensive residential and commercial development and their associated shoreline modifications. There are numerous City parks, but these are mostly well manicured and include extensive shoreline armoring and large pier and dock structures. There are few forested areas along the lakeshore, as most forested areas are surrounded by development and are not generally contiguous with Lake Washington. Landslide hazard areas are located within the shoreline zone along Segment C, between the south end of Rose Point Lane and Heritage Park. Wetlands mapped within shoreline jurisdiction include both the Yarrow Bay wetlands and the Forbes Creek/Juanita Bay wetlands. Additional unmapped areas of wetland fringe may also exist. Important fish-bearing streams in the shoreline zone include Juanita Creek, Forbes Creek, and Yarrow Creek. These streams are used by salmon, but have been impacted extensively by basin development, resulting in increased peak flows,

unstable and eroding banks, loss of riparian vegetation, and fish and debris passage barriers. These changes have altered their contributions of sediment, organic debris, and invertebrates into Lake Washington. Each of these systems continues to be targeted for restoration by one or more local or regional restoration groups. There are also other mapped smaller streams in the shoreline zone, including Carillon Creek and Cochran Springs.

WDFW mapping of Priority Habitat and Species (WDFW 2006) also indicates the presence of other Fish and Wildlife Habitat Conservation Areas and Priority Habitats within and adjacent to the shoreline zone. These include pileated woodpecker breeding areas, historic and current bald eagle nest locations, great blue heron nest colony, wetlands, urban natural open space, and riparian zones.

4. RESTORATION GOALS AND OBJECTIVES

4.1 Introduction

The City of Kirkland is located within the Lake Washington/Cedar/Sammamish Watershed. The Lake Washington/Cedar/Sammamish Watershed is home to three populations of Chinook salmon: Cedar River, North Lake Washington, and Issaquah. Studies indicate that Chinook salmon in this watershed are in trouble; they are far less abundant now than they were even in recent decades, and all three populations are at high risk of extinction. In March 1999, the federal government listed Puget Sound Chinook salmon as threatened under the Endangered Species Act (ESA).

The salmon's decline is an indicator of the overall health of the watershed. Concerned about the need to protect and restore habitat for Chinook salmon for future generations, 27 local governments in the watershed, including Kirkland, signed an interlocal agreement in 2001 to jointly fund the development of a conservation plan to protect and restore salmon habitat. The Final Chinook Salmon Conservation Plan is the result of this collaborative effort and is the conservation strategies and implementation efforts are referenced herein as a result of the City's commitment to this conservation strategy.

According to the *Lake Washington/Cedar/Sammamish Watershed (WRIA) Near-Term Action Agenda For Salmon Habitat Conservation*, Lake Washington suffers from "Altered trophic interactions (predation, competition), degradation of riparian shoreline conditions, altered hydrology, invasive exotic plants, poor water quality (phosphorus, alkalinity, pH), [and] poor sediment quality" (WRIA 8 Steering Committee 2002). Kirkland's *Final Shoreline Analysis Report* (The Watershed Company 2006) provides supporting information that validates these claims specifically in the City's shoreline jurisdiction. The *WRIA 8 Action Agenda* established four "ecosystem objectives," which are intended to guide development and prioritization of restoration actions and strategies. The objectives are as follows:

- "Maintain, restore, or enhance watershed processes that create habitat characteristics favorable to salmon.
- Maintain or enhance habitat required by salmon during all life stages and maintain functional corridors linking these habitats.

- Maintain a well-dispersed network of high-quality refuge habitats to serve as centers of population expansion.

- Maintain connectivity between high-quality habitats to allow for population expansion into recovered habitat as degraded systems recover."

The WRIA 8 restoration objectives, in combination with the results of the City's *Final Shoreline Analysis Report*, the direction of Ecology's *Shoreline Master Program Guidelines*, and the City's commitment (Appendix A) to support the *Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan*, are the foundation for the following goals and objectives of the City of Kirkland's restoration strategy. Although the *WRIA 8 Action Agenda* and the *Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan* are salmon-centered, pursuit of ecosystem-wide processes and ecological functions performance that favors salmon generally captures those processes and functions that benefit all fish and wildlife. Therefore, the results of these efforts are appropriate tools for Kirkland, and are consistent with the intent of the Shoreline Management Act

4.2 Goals and Objectives

The Goals and Objectives of the Restoration Plan are as follows:

Goal 1 – Maintain, restore or enhance watershed processes, including sediment, water, wood, light and nutrient delivery, movement and loss.

Goal 2 – Maintain or enhance fish and wildlife habitat during all life stages and maintain functional corridors linking these habitats.

Goal 3 – Contribute to conservation and recovery of chinook salmon and other anadromous fish, focusing on preserving, protecting and restoring habitat with the intent to recover listed species, including sustainable, genetically diverse, harvestable populations of naturally spawning chinook salmon.

4.2.1 System-wide Restoration Objectives

- Continue to work collaboratively with other jurisdictions and stakeholders in WRIA 8 to implement the Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan.

- Use the scientific foundation and the conservation strategy as the basis for local actions recommended in the Chinook Salmon Conservation Plan and as one source of best available science for future projects, ordinances, and other appropriate local government activities.

- Use the comprehensive list of actions, and other actions consistent with the Chinook Salmon Conservation Plan, as a source of potential site-specific projects and land use and public outreach recommendations.

- Use the start-list to guide priorities for regional funding in the first ten years of Chinook Salmon Conservation Plan implementation, and implementing start-list actions through local capital improvement projects, ordinances, and other activities.

- Continue to work to implement the goals and recommended actions for flood reduction, water quality improvement and aquatic habitat restoration contained within the City of Kirkland Surface Water Master Plan.

- Seek funding for various restoration actions and programs from local sources and by working with other WRIA 8 jurisdictions and stakeholders to seek federal, state, grant and other funding opportunities.

- Continue the City's efforts to develop and implement a public education plan to inform private property owners in the shoreline zone and in the remainder of the City about the effects of land management practices and other unregulated activities (such as vegetation removal, pesticide/herbicide use, car washing) on fish and wildlife habitats.

4.2.2 Lake Washington Restoration Objectives

- Improve Lake Washington and Lake Washington tributary stream health by managing the quality and quantity of stormwater runoff, consistent at a minimum with the latest Washington Department of Ecology *Stormwater Management Manual for Western Washington*. Make any additional efforts to meet and maintain state and county water quality standards in Lake Washington tributary streams.

- Improve Lake Washington tributary stream health by eliminating man-made barriers to anadromous fish passage, preventing the creation of new barriers, and providing for transport of water, sediment and organic matter at all stream crossings.

- Improve Lake Washington and Lake Washington tributary stream health by identifying hardened and eroding lakeshores and streambanks, and correcting to the extent feasible with bioengineered stabilization solutions.

- Improve Lake Washington and Lake Washington tributary stream health by increasing large woody debris recruitment potential through plantings of trees in the riparian corridors, particularly conifers. Where feasible, install large woody debris to meet short-term needs.

- Increase quality, width and diversity of native vegetation in protected corridors adjacent to stream and lake habitats to provide safe migration pathways for fish and wildlife, food, nest sites, shade, perches, and organic debris. Strive to control non-indigenous plants or weeds that are proven harmful to native vegetation or habitats.

- Reconnect and enhance small creek mouths as juvenile rearing areas.

- Habitat in small Lake Washington tributaries, such as those in the City of Kirkland, should be restored for coho so that production of cutthroat trout, which prey on juvenile chinook salmon in Lake Washington, is reduced.

- Decrease the amount and impact of overwater and in-water structures through minimization of structure size and use of innovative materials such as grated decking.

- Participate in lake-wide efforts to reduce populations of non-native aquatic vegetation.

4.2.3 Restoration Objectives for Properties owned by City of Kirkland

The following projects (Table 1) are developed from a list of opportunity areas that are described in more detail as part of Section 6.2 of this report. These programs are currently or have previously been listed as funded or unfunded projects in the Parks Capital Improvement Program.

- By 2016, initiate and, where possible, complete the following restoration activities on properties managed by the City of Kirkland:

Table 1. List of potential shoreline restoration projects on City property

Site Number	Park	Restoration Type	Description
1	Juanita Beach Park	Redesign breakwater	Remove or redesign the breakwater in order to improve migratory conditions for juvenile salmonids and water circulation.
2	Juanita Beach Park	In-stream habitat improvement	Potential in-stream habitat improvements to Juanita Creek, including large woody debris installation and improvements to native vegetative cover.
3	Forbes Creek - Juanita Bay Park	Remove invasive vegetation	Invasive vegetation, primarily reed canarygrass, purple and garden loosestrife, and Himalayan blackberry in the terrestrial zones.
9	Waverly Beach Park	Reduce shoreline armoring	Removing or minimizing the impacts of shoreline armoring.
10	Waverly Beach Park	Enhance shoreline vegetation	Supplementation of nearshore native vegetation to improve habitat conditions for juvenile salmonids.
11	Waverly Beach Park	Reduce stormwater runoff	The impact of existing impervious surfaces (paved parking areas) could be reduced through the use of pervious materials, relocation, or minimization.
17	David Brink Park	Reduce shoreline armoring	Removing or minimizing the impacts of shoreline armoring.
Various	Various	Reduce overwater cover	Reducing overwater cover through the installation of deck grating on the existing piers and removing pier skirting

Site Number	Park	Restoration Type	Description
			as feasible.
Various	Various	Enhance shoreline vegetation	Improving nearshore native vegetation.

As these projects are completed, the City will look for opportunities to promote the value of the improvements in benefitting shoreline conditions, as well as demonstrate potential techniques for reducing bank hardening, restoring overhanging riparian vegetation, and for incorporating deck grating into pier surfaces.

5. LIST OF EXISTING AND ONGOING PROJECTS AND PROGRAMS

The following series of existing projects and programs are generally organized from the larger watershed scale to the City-scale, including City projects and programs and finally non-profit organizations that are also active in the Kirkland area.

5.1 Water Resource Inventory Area (WRIA) 8 Participation

The City was one of 27 members of the WRIA 8 Forum, which participated in financing and developing the *Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan*. The *Chinook Salmon Conservation Plan* includes the City of Kirkland's implementation commitment in the form of City Council Resolution R-4510, approved 21 June 2005 (Appendix A).

The City's preparation of the *Shoreline Analysis Report Including Shoreline Inventory and Characterization of the City of Kirkland's Lake Washington Shoreline* (The Watershed Company 2006) and this *Shoreline Restoration Plan* are important steps toward furthering the goals and objectives of the WRIA 8 *Chinook Salmon Conservation Plan*. In its Resolution, the City committed to, among other things, "using the scientific foundation and the conservation strategy as the basis for local actions recommended in the plan and as one source of best available science for future projects, ordinances, and other appropriate local government activities." The City's Resolution also states that the City will use the "comprehensive list of actions, and other actions consistent with the *Chinook Salmon Conservation Plan*, as a source of potential site specific projects and land use and public outreach recommendations." The City's Shoreline Master Program update products rely heavily on the science included in the WRIA 8 products, and incorporate recommended projects and actions from the WRIA 8 products (Table 2).

Table 2. WRIA 8 Action Start-List for Lake Washington and Status of Implementation in Kirkland

Action Item	Kirkland Implementation
Reduce predation to outmigrating juvenile Chinook by: reducing bank hardening, restoring overhanging riparian vegetation, replacing bulkhead and rip-rap with sandy beaches with gentle slopes, and use of mesh dock surfaces and/or community docks.	
• Encourage salmon friendly shoreline design during new construction or redevelopment by offering incentives and regulatory flexibility to improve bulkhead and dock design and revegetate shorelines.	The SMP includes incentives for homeowners to improve nearshore ecological functions.
• Increase enforcement and address nonconforming structures over long run by requiring that major redevelopment projects meet current standards.	Code enforcement is responsible for enforcing regulations which address public health and safety issues, including regulations related to rubbish, garbage, specific nuisances, removal of vegetation, zoning, housing, dangerous buildings, and inoperable and unlicensed vehicles on private property. Enforcement actions are taken both proactively and in response to requests for action received from citizens.
• Discourage construction of new bulkheads; offer incentives (e.g., provide expertise, expedite permitting) for voluntary removal of bulkheads, beach improvement, riparian revegetation.	The SMP includes limitations on construction of new bulkheads and promotes voluntary improvements to nearshore ecological functions.
• Support joint effort by NOAA Fisheries and other agencies to develop dock/pier specifications to streamline federal/state/local permitting; encourage similar effort for bulkhead specifications.	The SMP includes dimensional and material standards which are intended to be in-line with state and federal permitting guidelines.
• Promote value of light-permeable docks, smaller piling sizes, and community docks to both salmon and landowners through direct mailings to lakeshore landowners or registered boat owners sent with property tax notice or boat registration tab renewal.	Kirkland has implemented this Action Item through development of its updated Shoreline Master Program, both in public outreach conducted during the update process and in the pier regulations.
• Offer financial incentives for community docks in terms of reduced permit fees, loan fees/percentage rates, taxes, and permitting time, in addition to construction cost savings.	Currently, incentives are not a tool used by the City to encourage community docks.
• Develop workshop series specifically for lakeshore property owners on lakeside living: natural yard care, alternatives to vertical wall bulkheads, fish friendly dock design, best management practices for aquatic weed control, porous paving, and environmentally friendly methods of maintaining boats, docks, and decks.	King County has led this effort Kirkland has also implemented training as part of the shoreline tour conducted as part of the SMP update process.
Protect and restore water quality in tributaries and along shoreline. Restore coho runs in smaller tributaries as control mechanism to reduce the cutthroat population. Reconnect and enhance small creek mouths as juvenile rearing areas.	

Action Item	Kirkland Implementation
• Address water quality and high flow impacts from creeks and shoreline development through NPDES Phase 1 and Phase 2 permit updates, consistent with Washington Department of Ecology's 2001 Stormwater Management Manual, including low impact development techniques, on-site stormwater detention for new and redeveloped projects, and control of point sources that discharge directly into the lakes.	The City implements Ecology's 2005 *Stormwater Management Manual for Western Washington* through its NPDES Phase II permit. The NPDES Phase II permit is required to cover the City's stormwater discharges into regulated lakes and streams. Under the conditions of the permit, the City must protect and improve water quality through public education and outreach, detection and elimination of illicit non-stormwater discharges (e.g., spills, illegal dumping, wastewater), management and regulation of construction site runoff, management and regulation of runoff from new development and redevelopment, and pollution prevention and maintenance for municipal operations.
• Encourage low impact development through regulations, incentives, education/training, and demonstration projects.	The Comprehensive Plan and the SMP contain provisions which promote LID. Implementation of the 2005 *Stormwater Management Manual for Western Washington* also places greater emphasis on LID strategies. The City has incorporating LID techniques in a number of demonstration projects and has completed education/training for both homeowners and developers. The City's Planning Department coordinates the implementation of the *Natural Resource Management Plan,* which recognizes the complexity of the interaction of its water, land and air systems and identifies action items intended protect Kirkland's environmentally sensitive areas.
• Protect and restore water quality and other ecological functions in tributaries to reduce effects of urbanization and reduce conditions which encourage cutthroat. Protect and restore forest cover, riparian buffers, wetlands, and creek mouths by revising and enforcing critical areas ordinances and Shoreline Master Programs, incentives, and flexible development tools.	The City updated the Critical Areas Ordinance in 2003, and revised it further as part of the SMP update process for application in shoreline jurisdiction. Management of the City's critical areas using these regulations should help insure that ecological functions and values are not degraded, and impacts to critical areas are mitigated.

Action Item	Kirkland Implementation
	The City will also update its Critical Areas Ordinance, as needed. The next current update is scheduled to be completed by December, 2011.
• Promote through design competitions and media coverage the use of "rain gardens" and other low impact development practices that mimic natural hydrology.	The City's *Currently Kirkland* cable program airs a show of local residents installing a rain garden at the Forbes House located at Juanita Beach Park. The City offers educational seminars and events on LID practices as part of its Green Building Program and Developer's Forum series. The City has also prepared a brochure highlighting different LID techniques as well as a map of different installations that are available for viewing.

5.2 Comprehensive Plan Policies

In 1995 and again in 2004, the City completed major updates of the Kirkland Comprehensive Plan pursuant to Growth Management Act requirements. Additional amendments have been made to the Comprehensive Plan since 2004, most recently in 2008 which included amendments to the *Natural Environment Element*. The updated Comprehensive Plan contains a number of general and specific goals and policies that direct the City to permit and condition development in such a way that the natural environment is preserved and enhanced. The specific goals in the *Natural Environment Element* include:

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

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.

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

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

Goal NE-5: Improve air quality and reduce Kirkland's contribution to climate change.

Techniques suggested by the various policies to protect the natural environment include requiring setbacks from sensitive areas, preserving habitats for sensitive species, preventing adverse alterations to water quality and quantity, promoting low impact development,

preserving existing native vegetation, educating the public, and mitigating necessary sensitive area impacts, among others.

5.3 Natural Resources Management Plan

In 2003, the City adopted its Natural Resource Management Plan that calls for strategies intended to comprehensively manage Kirkland's natural resources. The Plan identifies three compelling reasons for managing natural resources in Kirkland: (1) the community's vision could not be attained without it, (2) the law requires it, and (3) without it, community assets become liabilities. The Plan recognizes the complexity of the interaction of its water, land and air systems and identifies action items intended protect Kirkland's environmentally sensitive areas.

The Natural Resources Management Plan contains a number of general and specific goals and policies that address the shoreline, such as:

Look for opportunities to enhance the ecological functions of the Lake Washington shoreline wherever feasible. Actions that would aid recovery of the salmonids in Lake Washington include:

- Identify areas where it will be feasible to protect and restore natural lake shorelines and shallow water habitat and to remove bank armoring and docks.
- Identify, protect, and restore tributary mouths entering the lake. Studies show that juvenile chinook salmon hold and feed near the mouths of tributaries, even very small streams and drainages, during rearing and migration.
- Construct demonstration projects on public lands at key locations, such as at the mouth of Juanita Creek in Juanita Beach Park or where street ends meet the shoreline. Remove bulkheads, regrade shorelines, improve substrate, and plant overhanging vegetation in order to enhance rearing and refuge habitat for juvenile Chinook. Monitor to evaluate stability, sedimentation rates, and juvenile/adult use and predation. Consideration of containment issues in site selections is important.
- Identify opportunities to preserve, enhance, or restore lakeshore wetlands.
- Identify opportunities to treat stormwater entering Lake Washington through biofiltration or other water quality techniques. Consider experimental projects.
- Explore alternative dock design/migration packages that use bank softening to replace docks and bank armoring.
- Identify critical areas of juvenile and adult Chinook salmon migration for aquatic weeds management; control invasive aquatic weeds in those parts of the lake.

The Plan also addresses the need to integrate local, state and federal regulations for lakes, shorelines, streams, wetlands and aquifer recharge areas.

5.4 Critical Areas Regulations

The City of Kirkland critical areas regulations are found in Kirkland Zoning Code Chapter 90. In the early 1990s, Kirkland adopted regulations to designate and protect critical areas pursuant to the Washington State Growth Management Act (GMA) (RCW 36.70A). In response to later GMA amendments, the City adopted in 2002 a revised Critical Areas Ordinance (CAO) contained in the KZC consistent with best available science and all other requirements of the GMA. All activities which require a substantial development permit, conditional use or variance under the SMP or are exempt from a permit under the SMP are reviewed under the City's CAO for consistency. As stated above, if there is a conflict between the CAO and SMP, the regulations that offer the greatest environmental protection apply.

The regulations categorize streams based on salmonid use and duration of flow, with standard buffers ranging from 25 feet to 75 feet. Wetlands are classified into three categories based on size, presence of habitat for listed species or the species themselves, relationship to Lake Washington, general habitat function and value, and soils. Buffers range from 25 to 100 feet; all wetlands contiguous with Lake Washington have a 100-foot buffer.

As part of the SMP update, the critical areas regulations that apply in shoreline jurisdiction were updated to include Ecology's wetland rating system, increased wetland buffers and mitigation ratios, and other changes consistent with the latest scientific information.

Management of the City's critical areas both inside and outside of shoreline jurisdiction using these regulations should help insure that ecological functions and values are not degraded, and impacts to critical areas are mitigated. These critical areas regulations are one important tool that will help the City meet its restoration goals.

5.5 Stormwater Management and Planning

Although much of the City of Kirkland's Surface Water Utility's jurisdiction is outside of the shoreline zone, all of the regulated surface waters, both natural and piped, are discharged ultimately into Lake Washington and thus affect shoreline conditions. There are more than 70 outfalls directly into the shoreline area, and many more that discharge just outside of shoreline jurisdiction, but subsequently flow into the shoreline area (The Watershed Company 2006). The City's 2005 *Surface Water Master Plan* contains the following goals:

> Flood Reduction – minimize existing flooding and prevent increase in future flooding through construction of projects that address existing problems, increased inspection and rehabilitation of the existing system, and increased public education.
>
> Water Quality Improvement - increase efforts to maintain and improve water quality by increasing public education (source control), identifying pollution "hot spots" for possible water quality treatment and by examining City practices and facilities to identify where water quality improvements could be achieved.
>
> Aquatic Habitat – increase efforts to slow the decline of aquatic habitat and create improved conditions that will sustain existing fish populations. Combine hydrological controls, such as regional detention, with in-stream habitat improvement projects in Juanita and Forbes creeks watersheds that currently support fish populations.

Since preparation of the first *Surface Water Master Plan* in 1994, the Utility has accomplished a number of actions that further achieve its goals (excerpted from the 2005 *Surface Water Master Plan*).

Flood Reduction

- Eliminated most major flooding problems.
- Mapped surface water infrastructure.
- Implemented a program to inspect and clear flooding "hot spots" during storm events

Water Quality

- Adopted an ordinance to prohibit illicit discharges (spills and dumping), require use of pollution prevention practices, require maintenance of private drainage facilities, and require pre- and post-development control of stormwater runoff.
- Established a water quality monitoring program.
- Implemented a volunteer program to conduct water quality monitoring, planting of native vegetation, and other activities.
- Increased frequency of system cleaning, resulting in removal of an average of 200 cubic yards of sediment per year
- Conducted regional water quality related outreach programs in Kirkland, including "Natural Yard Care" and "Horses for Clean Water."
- Distributed educational brochures regarding pollution prevention, car washing practices, and leaf blower use.
- Conducted storm drain stenciling with community groups.

The City applied for coverage under the Western Washington permit which was issued by Ecology and became effective on February 16, 2007. The NPDES Phase II permit is required to cover the City's stormwater discharges into regulated lakes and streams. Under the conditions of the permit, the City must protect and improve water quality through public education and outreach, detection and elimination of illicit non-stormwater discharges (e.g., spills, illegal dumping, wastewater), management and regulation of construction site runoff, management and regulation of runoff from new development and redevelopment, and pollution prevention and maintenance for municipal operations.

The City subsequently released a Stormwater Management Program (SWMP) in February 2008 (City of Kirkland 2008-a) which details implementation of the NPDES Phase II permit. The SWMP identifies programs to reduce pollutants in stormwater to the "maximum extent possible" by conducting programs and activities in the following program areas:

- Public Education and Outreach

- Public Involvement
- Illicit Discharge Detection and Elimination
- Construction and Post-construction runoff controls
- Pollution Prevention and Municipal Operations and Maintenance
- Monitoring

In 2007, the Department of Ecology published information about toxics levels in fish, including fish sampled in Lake Washington (Department of Ecology 2007). Lake Washington ranked second only to the Wenatchee River near Leavenworth for a site contaminant score. Although this report does not identify specific point sources, it represents a clear need to better understand contaminant sources and control.

5.6 Kirkland's Green Building Program

Kirkland's Green Building pilot program offers a priority permit processing incentive designed to encourage sustainable building in the construction of new single family residential development. Additionally, the program offers educational resources, such as this website, and hosts seminars on green building topics to help educate builders and the public about the benefits of sustainable building.

The goal of the Green Building Program, through certain design and construction techniques, is to reduce the environmental impact of buildings by:

- Protecting environmentally sensitive lands and plant species
- Minimizing the size of the building footprint
- Incorporating energy efficiency in the design and construction
- Using environmentally-friendly building materials that will create a healthy indoor and outdoor environment
- Providing for efficient water use
- Reducing the generation of solid waste

5.7 Comprehensive Park, Open Space and Recreation Plan 2001

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.

The three primary goals of the Parks and Community Services Department are to:

- acquire, develop, and renovate a system of parks, recreational facilities, and open spaces that is attractive, safe, functional, and available to all segments of the population,

- enhance the quality of life in the community by providing services and programs that offer positive opportunities for building healthy productive lives, and

- protect and preserve publicly-owned natural resource areas.

The Plan contains policies and goals that address waterfront access and waterfront parks, including the following:

> Policy 1.4 (KCP Policy 2.2): Small craft water-oriented activities/programs should be encouraged along the shoreline where appropriate and consistent with public interest and needs.
>
> Policy 1.11 (KCP Policy 3.1): The City should work cooperatively with numerous resource management agencies and citizens to care for streams, enhance degraded forests and wetlands, improve wildlife habitat, and provide limited public access.
>
> Policy 1.12 (KCP Policy 3.2): The City should preserve opportunities for people to observe and enjoy wildlife and wildlife habitats.

5.8 Green Kirkland Partnership

The Green Kirkland Partnership is an alliance between the City, the Cascade Land Conservancy, and the local community focused on restoring natural areas within the City, including many City parks located along Lake Washington. This partnership aims to remove invasive plants in City parks and replant with native species, while enhancing community stewardship by coordinating volunteer efforts to restore natural open spaces.

This partnership includes a 20-year Forest Restoration Plan (City of Kirkland 2008b), which focuses on protecting Kirkland's forests for a sustainable future. Implementation of this plan includes coordination of volunteers to remove ivy and other invasive plants and replant with native plants. In 2008, the Green Kirkland Partnership had 36 volunteer restoration events held in the following City parks: Carillon Woods, Everest, Heritage, Juanita Bay, Kiwanis, McAuliffe, North Rose Hill Woodlands, South Rose Hill and Watershed parks. This work included Kiwanis and Juanita Bay Parks, which are located within the shoreline jurisdiction, but also other upland parks which contain streams and wetlands that drain into Lake Washington.

As part of the Green Kirkland Partnership, the City is also embarking on a multi-year habitat restoration project focusing on improving wildlife habitat in the extensive wetland and forest complex at Juanita Bay Park. Invasive and noxious species such as Himalayan blackberry are a large problem within the park. A Restoration Action Plan has been developed by the Seattle Urban Nature (SUN) that identified restoration priorities and a menu of specific tasks along with planting plans and maintenance schedules necessary to implement these tasks. This action plan is available on their website at: http://www.seattleurbannature.org/Resources/publications.html. In Spring 2009, the City of Kirkland hired EarthCorps to organize volunteer events in conjunction with trained crews to implement the projects identified in the Action Plan. This project will remove Himalayan blackberry, English ivy, and Scot's broom (which are all classified as noxious weeds in King County) and replace these with native plants to improved habitat to native and migrating birds and wildlife. Implementation of the plan also relies on the work of five Stewards trained by the Washington Native Plant Society who will lead volunteer

events and involve the community to clear Himalayan blackberry from the trail and wetland buffer.

5.9 Other Parks & Community Services Department Activities

5.9.1 Parks & Community Services Department Planning and Management

The City commissioned the *Juanita Beach Park Master Plan Report* (J.A. Brennan Associates, PLLC 2005) after assuming ownership from King County in 2002. The *Master Plan Report* includes goals for a number of areas, including environmental stewardship and recreation. The plan's Environmental Stewardship goals include:

- Enhance Juanita Creek to create a healthy stream environment. (This could include the reach within the park and up-stream reaches)
- Create a salmon and wildlife friendly shoreline
- Enhance and restore wetlands
- Educate the visitors about habitat values

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 efficient maintenance of the City's park system.

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 being provided with irrigation water from the City's potable water system. In conjunction with this project, the Parks Department plans to install vegetation along the shoreline edge.

The Kirkland Parks Department undertakes aquatic vegetation efforts at Houghton and Waverly Beach Parks, as well as Juanita Bay Park.

The City's Parks and Community Services Department has several other programs that could be leveraged to enact additional restoration projects to benefit shoreline conditions, including Juanita Bay Park Rangers, Eagle Scout/Capstone Projects, and the Youth Tree Education Program. All of these programs enable volunteers to donate time and energy to improving the park system.

Contact Information: City of Kirkland Parks & Community Services, (425) 587-3300

5.9.2 Juanita Bay Park Rangers

Juanita Bay Park Rangers provide educational and interpretative services at Juanita Bay Park. Rangers greet visitors, answer questions, monitor park usage, record wildlife activity, perform minor maintenance, and lead park tours.

5.9.3 Eagle Scouts

Eagle Scouts, the highest advancement rank in Scouting, have provided many services to the City's parks system. The Parks and Community Services Department provides project ideas that Eagle Scout candidates may choose from. Potential projects include the installation of park benches, fencing, boardwalks, trail improvements, and landscaping improvements.

5.10 Public Education

The City of Kirkland's Comprehensive Plan, *Natural Environment Element*, identifies the following policy statement based on the goal of protecting natural systems from human impacts (excerpted below). This helps guide City staff and local citizen groups in developing mechanisms to educate the public and broaden the interest in protecting and enhancing local environmental resources.

> 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-1.5: 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.

As part of the City of Kirkland's efforts to abide by this goal and policy, the City supports several volunteer efforts, such as the Green Kirkland Partnership and Eastside Audubon (see description below). Additional specific education efforts are described in other sections of Chapter 5.

5.11 Public Works Programs

The Public Works Department periodically produces educational materials for local citizens, including the quarterly "Reuse – Recycle - Conserve" publication, which is produced in both single-family and multi-family focused issues, and brochures, such as the "Low Impact Development Elements for Residential Stormwater Management." The Department also administers the Adopt a Storm Drain program based on volunteer involvement to reduce flooding by keeping storm drain covers clear of leaves and debris.

Contact Information: City of Kirkland Public Works, (425) 587-3800

5.12 Capital Improvement Program (CIP)

5.12.1 Surface Water Management Utility

The Public Works Department funds a number of Surface Water Management Utility projects through the Capital Improvement Program, including improvements to the City's storm drain system and streambed mitigation on public and private property. The CIP contains both funded and unfunded projects that range in size and scope from maintenance and replacement of aging infrastructure or damaged improvements, planting of riparian understory vegetation along

stream edges to provide shading, as well as maintenance to prevent flooding and property damage, and installation of regional detention in the Forbes and Juanita Creek Basins.

The CIP contains several funded and unfunded projects addressing Juanita Creek to provide flood relief and habitat improvement.

The CIP also funds the annual streambank stabilization program. Goals of the streambank stabilization program are to provide the public benefits of improved water quality and decreased flooding by stabilizing and restoring stream channels which may in many cases be located on private property. Most common stabilization methods funded through this program will be upstream detention and in-stream stabilization/restoration using bioengineering techniques.

Contact Information: City of Kirkland Public Works, (425) 587-3800

5.12.2 Parks

The City of Kirkland Parks & Community Services completes park renovation projects through the Capital Improvement Program. The CIP contains both funded and unfunded projects that range in size and scope from dock renovations, to park renovation, and park and open space acquisition.

The CIP helps to fund the Open Space and Park Land Acquisition Grant Match Program, which assists with or provides funding for acquisition of key sites as they become available. Acquiring more sites would fill gaps in the City's park system, provide open space contiguous to existing parks or provide important linkages. This project also allows the City to remain eligible for State-funded grant programs.

Shoreline Park renovation projects provide an opportunity to complete shoreline or stream restoration, new landscaping, and to implement Low Impact Development (LID) practices within the shoreline parks.

Dock renovations funded through the CIP offer the opportunity to replace dock decking material and conform to environmental regulations pertaining to decking material and construction.

The City of Kirkland Parks & Community Services plans to incorporate the recommended projects provided in Section 6.2 of this report into the CIP as either funded or unfunded projects, in order to assure that these projects are considered for funding as the CIP program is updated in the future.

Contact Information: City of Kirkland Parks & Community Services, (425) 587-3300

5.13 Cascade Land Conservancy

The Cascade Land Conservancy (CLC) has been actively working with the City of Kirkland, partnering with CLC on implementing the Cascade Agenda Vision – a 100-year vision focused on sustaining the local community, natural environment, and economy through the future growth of Puget Sound. The CLC also works with the City through the Green Kirkland Partnership (described above).

Contact Information: http://www.cascadeland.org/

5.14 Eastside Audubon

The Eastside Audubon (formerly the East Lake Washington Audubon Society) was formed in 1980 dedicated to the appreciation, study and conservation of birds and their habitats, primarily along the east side of Lake Washington. Volunteers have been instrumental in preserving many areas for birds, including Juanita Bay Park in Kirkland, Lake Hills Greenbelt in Bellevue, and Hazel Wolf Wetlands in King County. Recently, Eastside Audubon has been working with the Green Kirkland Partnership with invasive plant removal at Kirkland's Watershed Park.

Contact Information: http://www.eastsideaudubon.org/

5.15 Moss Bay Diving Club

The Moss Bay Diving Club, located in Kirkland, periodically performs in-water SCUBA cleanup events to remove submerged debris from Lake Washington.

Contact Information: http://www.mossbaydiveclub.org/

6. LIST OF FUTURE PROJECTS AND PROGRAMS TO ACHIEVE LOCAL RESTORATION GOALS

The following are potential projects and programs that would contribute to achieving the local restoration goals. The potential projects and programs are generally organized from the larger watershed scale to the City-scale, including City projects and programs and WRIA 8 Public Education/Outreach programs.

6.1 Unfunded WRIA 8 Projects

The *Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan* (WRIA 8 Steering Committee 2005) includes potential restoration of the mouth of Juanita Creek through the removal of bank armoring and returning the mouth to a more natural outlet as Project C296 on the "Lake Washington - Tier I - Initial Habitat Project List." It is identified as a low-priority project, however, because of its limited benefit to chinook salmon and perceived low feasibility.

6.2 Recommended Projects - Public

The following list of recommended projects (Table 3) is developed from a list of opportunity areas identified within the *Final Shoreline Analysis Report* (The Watershed Company 2006) and is intended to contribute to improvement of impaired functions on public property. The list of potential projects was created after assessing field conditions during the shoreline inventory and characterization phase and later evaluated on a project specific basis during the development of this Restoration Plan. The projects are listed in order from North to South.

Table 3. List of Recommended Projects - Public.

Site Number	Park	Restoration Type	Description
1	Juanita	Reduce	The large overwater boardwalk with skirting, which forms

Site Number	Park	Restoration Type	Description
	Beach Park	overwater cover	the designated swimming area, has the potential for impact reduction by installing deck grating in the pier decking and potentially removing or redesigning the breakwater in order to improve migratory conditions for juvenile salmonids and water circulation.
2	Juanita Beach Park	In-stream habitat improvement	Potential in-stream habitat improvements exist at the mouth of Juanita Creek (delta), including large woody debris installation and improvements to native vegetative cover. The *WRIA 8 Chinook Salmon Conservation Plan* includes potential restoration of the mouth of Juanita Creek through the removal of bank armoring and returning the mouth to a more natural outlet.
3	Forbes Creek - Juanita Bay Park	Remove invasive vegetation	Invasive vegetation, primarily reed canarygrass, purple and garden loosestrife, and Himalayan blackberry in the terrestrial zones and white water lily in the aquatic zone, is currently growing throughout the Forbes Creek riparian corridor and Juanita Bay Park. 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.
4	Forbes Creek - Juanita Bay Park	Reduce overwater cover	The pedestrian trail/trestle across Juanita Bay to the west of 98th Street covers the mouth of Forbes Creek, potentially inhibiting salmon migration. The surface of the walkway could be re-decked with a grated material to reduce shading impacts to the aquatic environment.
5	Forbes Creek - Juanita Bay Park	Reduce in-water structures	Many remnant pier piles located within Juanita Bay could be removed.
6	Lake Ave W Street End Park	Remove invasive vegetation	This small street-end park consists of primarily lawn area with a moderate amount of shoreline vegetation (trees and shrubs). An abundance of invasive vegetation (ivy/reed canarygrass) could be removed and replaced with additional native vegetation to improve shoreline conditions for juvenile salmonids.
7	Lake Ave W Street End Park	Reduce in-water structures	An old remnant moorage slip located near the south property line that is not connected to shore could be removed to reduce in- and overwater structures.
8	Waverly Beach Park	Reduce overwater cover	Reduction of overwater cover by the existing pier through the installation of deck grating and removing pier skirting as feasible.
9	Waverly Beach Park	Reduce shoreline armoring	Removing or minimizing the impacts of shoreline armoring.
10	Waverly Beach Park	Enhance shoreline vegetation	Supplementation of nearshore native vegetation to improve habitat conditions for juvenile salmonids.
11	Waverly	Reduce stormwater	The impact of existing impervious surfaces (paved parking areas) could be reduced through the use of pervious

Site Number	Park	Restoration Type	Description
	Beach Park	runoff	materials, relocation, or minimization.
12	Marina Park	Reduce overwater cover	Reducing overwater cover through the installation of deck grating on the existing piers.
13	Marina Park	Reduce shoreline armoring	Removing or minimizing the impacts of shoreline armoring.
14	Marina Park	Enhance shoreline vegetation	Improving nearshore native vegetation.
15	Street-End Park	Reduce stormwater runoff	This small street-end park consists of an adjacent parking area located within the shoreline jurisdiction that likely drains surface runoff directly to Lake Washington. Future use of pervious material should be explored any time repairs are proposed.
16	David Brink Park	Reduce overwater cover	Reducing overwater cover through the installation of deck grating on the existing piers.
17	David Brink Park	Reduce shoreline armoring	Removing or minimizing the impacts of shoreline armoring.
18	David Brink Park	Reduce in-water structures	Removing unused remnant pier piles.
19	David Brink Park	Enhance shoreline vegetation	Improving nearshore native vegetation.
20	Settler's Landing	Enhance shoreline vegetation	This small street-end park contains the opportunity to improve shoreline habitat by improving native vegetative cover.
21	Settler's Landing	Reduce overwater cover	The existing shared use pier (public and private) could potentially be re-decked with grated materials to reduce shading impacts.
22	Marsh Park	Reduce overwater cover	Reduction of overwater cover by the existing pier through the installation of deck grating.
23	Marsh Park	Reduce shoreline armoring	Removal or minimization of shoreline armoring.
24	Marsh Park	Enhance shoreline vegetation	Improvement of nearshore native vegetation.
25	Marsh Park	Reduce stormwater runoff	The impact of existing impervious surfaces (paved parking areas) could be reduced through the use of pervious materials, relocation, or minimization.
26	Houghton Beach Park	Reduce overwater cover	Reducing overwater cover through the installation of deck grating on the existing piers and removing pier skirting as feasible.
27	Houghton Beach Park	Reduce shoreline armoring	Removing or minimizing the impacts of shoreline armoring.
28	Houghton Beach Park	Enhance shoreline vegetation	Improving nearshore native vegetation.
29	Yarrow Bay	Remove invasive	The biological need for control of aquatic invasive species

Site Number	Park	Restoration Type	Description
		vegetation	in Yarrow Bay should be assessed. Both Yarrow Shores Condominiums and the Carillon Point Marina and condominiums have permits from Ecology to use chemical controls on milfoil and white water lily, which have become a nuisance to boaters and swimmers.

After identifying and describing these projects, each proposed action was ranked using evaluation criteria developed for this study and compiled on a questionnaire form. Evaluation criteria were grouped into two sections: (A) ecological considerations and (B) feasibility/public benefit considerations. Scoring was based on assumptions and project understanding within the context of conceptual-level project elements, needs, and requirements. A weighting factor was included, where appropriate, to give certain criteria more or less emphasis than others.

A sample ranking form (Appendix B) is included to show the varying levels of consideration and their respective weighting factors. Notes were developed (Appendix B) to assist with completing the form and ensuring consistency between sites. The ecological considerations were completed with the aid of GIS mapping and best professional judgment. Feasibility/public benefit considerations were completed based on experience with shoreline design and construction projects, familiarity with permit processes, and public input over time. The individual ranking forms with tallied scores for each project are included in Appendix C of this report.

Numerical results from the project ranking are summarized in Table 4 from highest to lowest total score. Based on these results, projects with in-water habitat improvement, reduction of shoreline armoring, and large-scale invasive vegetation removal generally ranked highest in total score. However, it should be noted that the ranking of potential projects is intended to serve as a guide to developing restoration priorities and implementation targets, and does not necessarily require completion in the order presented. Some projects, due to their simplicity, rank high in terms of feasibility, and subsequently may be easier to implement than larger projects which may have high scores for ecological benefit. In general, ecological considerations have been given more weight than feasibility/public benefit considerations and, as a result, larger, more complex projects tend to have higher total scores.

Table 4. Project Ranking Results.

Site Number	Park	Restoration Type	Ecological Score	Feasibility Score	Total Score
2	Juanita Beach Park	In-stream habitat improvement	34.5	6.0	**40.5**
1	Juanita Beach Park	Reduce overwater cover	23.0	8.0	**31.0**
27	Houghton Beach Park	Reduce shoreline armoring	22.3	7.5	**29.8**
29	Yarrow Bay	Remove invasive vegetation	20.0	9.5	**29.5**
3	Forbes Creek -	Remove invasive	20.0	9.0	**29.0**

Site Number	Park	Restoration Type	Ecological Score	Feasibility Score	Total Score
	Juanita Bay Park	vegetation			
17	David Brink Park	Reduce shoreline armoring	20.0	7.5	**27.5**
23	Marsh Park	Reduce shoreline armoring	20.0	7.5	**27.5**
9	Waverly Beach Park	Reduce shoreline armoring	19.0	8.0	**27.0**
13	Marina Park	Reduce shoreline armoring	19.0	7.0	**26.0**
5	Forbes Creek - Juanita Bay Park	Reduce in-water structures	17.5	6.5	**24.0**
28	Houghton Beach Park	Enhance shoreline vegetation	12.3	11.5	**23.8**
4	Forbes Creek - Juanita Bay Park	Reduce overwater cover	14.0	9.5	**23.5**
10	Waverly Beach Park	Enhance shoreline vegetation	10.0	11.5	**21.5**
19	David Brink Park	Enhance shoreline vegetation	10.0	11.5	**21.5**
24	Marsh Park	Enhance shoreline vegetation	10.0	11.5	**21.5**
12	Marina Park	Reduce overwater cover	13.5	7.5	**21.0**
6	Lake Ave W Street End Park	Remove invasive vegetation	8.8	11.0	**19.8**
14	Marina Park	Enhance shoreline vegetation	6.5	11.5	**18.0**
26	Houghton Beach Park	Reduce overwater cover	8.3	8.5	**16.8**
8	Waverly Beach Park	Reduce overwater cover	7.0	7.5	**14.5**
16	David Brink Park	Reduce overwater cover	5.0	9.0	**14.0**
22	Marsh Park	Reduce overwater cover	5.0	8.5	**13.5**
21	Settler's Landing	Reduce overwater cover	4.8	8.5	**13.3**
20	Settler's Landing	Enhance shoreline vegetation	2.8	10.0	**12.8**
7	Lake Ave W Street End Park	Reduce in-water structures	3.0	9.5	**12.5**
25	Marsh Park	Reduce stormwater runoff	3.0	9.0	**12.0**
18	David Brink Park	Reduce in-water structures	2.6	9.0	**11.6**
11	Waverly Beach	Reduce stormwater	3.0	8.5	**11.5**

Site Number	Park	Restoration Type	Ecological Score	Feasibility Score	Total Score
	Park	runoff			
15	Street-End Park	Reduce stormwater runoff	2.0	6.0	**8.0**

6.3 Recommended Projects - Private

General: Many shoreline properties have the potential for improvement of ecological functions through: 1) reduction or modification of shoreline armoring, 2) reduction of overwater cover and in-water structures (grated pier decking, pier size reduction, pile size and quantity reduction, moorage cover removal), 3) improvements to nearshore native vegetative cover, and/or 4) reductions in impervious surface coverage. Similar opportunities would also apply to undeveloped lots which may be used as community lots for upland properties or local street-ends and utility corridors. Other opportunities may exist to improve either fish habitat or fish passage for those properties which have streams discharging to Lake Washington.

An example of how shoreline armoring might be reduced on some lots along the City's residential areas is depicted in Figure 1 below. This example displays before and after images of a typical lot in which the existing bulkhead is partially pulled back to create a shallow cove beach combined with natural materials. This example combines the effort to improve habitat conditions with improved access and aesthetics.

The SMP includes incentives for removing bulkheads and similar hard shoreline structures. The incentives allow property owners to reduced buffer widths when they agree to use alternative (soft-shore) armoring. The City could also explore additional development incentives for restoration, such as waiving some or all permit fees when shoreline restoration is included in a project. Further, the City could develop resource materials for property owners that want to be involved in restoration that would provide guidance with permitting and design issues. Examples could include the development of pre-approved plans.

Another potential incentive to encourage property owners to protect habitat and retain forest on their property is the Public Benefit Rating Program (PBRS), a current-use taxation program that reduces property taxes in exchange for property owners protecting habitat beyond what is required by regulations.

Expanded use of incentives programs to achieve restoration on privately owned shorelines should be considered whenever feasible and beneficial.

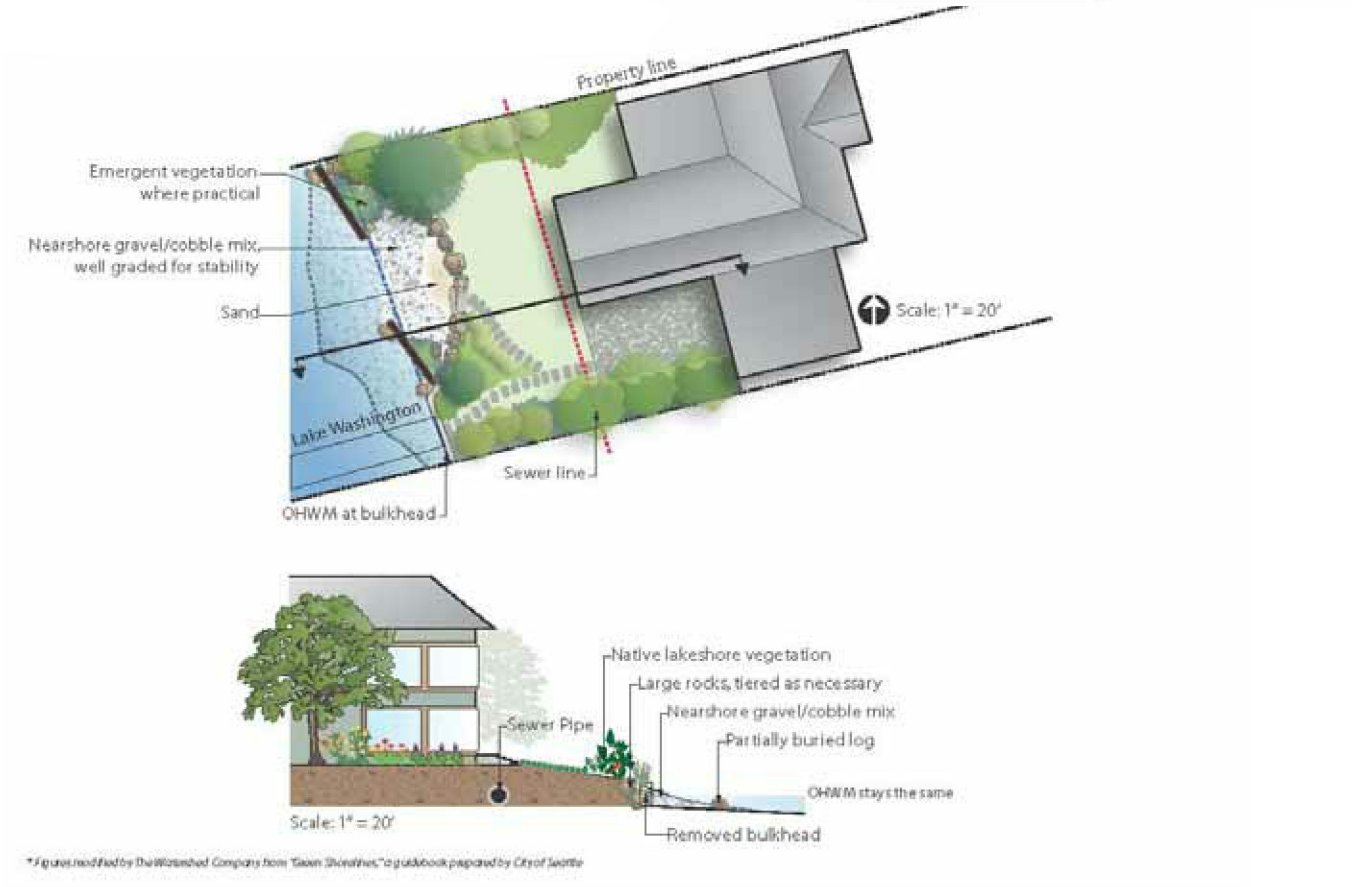
Restoration of Multiple Contiguous Properties: Through grant funding sources, restoration opportunities may be available to multiple contiguous shoreline properties, including residential lots that are interested in improving shoreline function. Restoring shoreline properties that are connected to one another would provide significantly more benefits than a more piecemeal approach. Therefore, priority should be given to restoration projects which involve multiple lots (such as accelerated permit processes).

Figure 1

Before



After



*Figures modified by The Watershed Company from "Seven Shorelines," a guidebook prepared by City of Seattle

6.4 Public Education/Outreach

The *Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan* includes a table outlining 53 "Outreach and Education Actions" with target audiences for each action ranging from the general public, to shoreline property owners in general, to lakeshore property owners specifically, to businesses, to youth, and others. The complete list of WRIA 8 "Outreach and Education Actions" is included as Appendix D.

The City could also work with other local jurisdictions and the County to establish a Shore Stewards program within King County. Shore Stewards is a program operating in several counties throughout the State and provides a forum for waterfront and stream-side property owners to share ideas, information and resources and sets up guidelines for shoreline residents to preserve and enhance the shoreline environment.

7. PROPOSED IMPLEMENTATION TARGETS AND MONITORING METHODS

As previously noted, the City's shoreline area is occupied by multi- and single-family residences, commercial, and public recreation/open space areas. Therefore, efforts should be made to improve shoreline ecological function through the promotion of restoration and healthy practices at all levels, from large-scale marina users to single-family property owners. The City of Kirkland already has a very active environmental community with a restoration and education focus. Continued improvement of shoreline ecological functions on the shoreline requires a more comprehensive watershed approach, which combines upland and shoreline projects and programs.

7.1 Implementation Targets

The following table (Table 5) outlines a possible schedule and funding sources for implementation of a variety of efforts that could improve shoreline ecological function, and are described in previous sections of this report.

Table 5. Implementation Schedule and Funding for Restoration Projects, Programs and Plans.

Restoration Project/Program	Schedule	Funding Source or Commitment
5.1 WRIA 8 Participation	Ongoing	The City is an active member of the WRIA 8 Forum and has membership on the Salmon Recovery Council. Membership at this time entails a commitment of staff and Council member time. In addition, the City contributes funding to support watershed salmon habitat recovery.
5.2 Comprehensive Plan Policies	Ongoing	The City makes a substantial commitment of staff time in the course of project and program reviews to determine consistency and compliance with the recently updated Comprehensive Plan. The next full GMA update to the Comprehensive Plan will occur in 2011, but other amendments will be made on an annual basis.

Restoration Project/Program	Schedule	Funding Source or Commitment
5.3 Natural Resources Management Plan	Ongoing	As an implementation measure for this plan, the City has established an interdepartmental team to focus on natural resource issues, requiring a commitment of staff time.
5.4 Critical Areas Regulations	Ongoing with update in 2011	The City makes a substantial commitment of staff time in the course of project and program reviews to determine consistency and compliance with their Critical Areas Regulations. In addition, the City is scheduled to update its Critical Area Regulations in 2011.
5.5 Stormwater Planning	Ongoing	Currently, the City commits to staff time, materials, and projects in its CIP. The City currently follows its *2008 Stormwater Management Program* which implements the City's Phase II NPDES permit and reports annually to Ecology. The City is also involved in the implementation of the 2005 *Surface Water Master Plan*, which goals includes flood reduction, water quality improvements and aquatic habitat improvements.
5.6 Green Building Program	Ongoing	Currently, staff time and materials support these programs. A Green Shoreline component may be added to the program to encourage shoreline mitigation beyond what the shoreline regulations could require for building permits. The City is also working with the Master Builders Association to determine whether shoreline restoration strategies could be added to the BuiltGreen certification program.
5.7 Comprehensive Park, Open Space and Recreation Plan 2001	Ongoing, with update underway	Currently, the City commits to staff time, materials, and projects in its CIP.
5.8 Green Kirkland Partnership	Ongoing	Currently, the City commits staff time, materials, and funding through the CIP to support these programs.
5.9 Other Kirkland Parks and Community Services Department Activities	Ongoing, with demonstration projects as funds and opportunity allow	Currently, staff time, materials and funding support these programs. The public parks along the shoreline provide a unique opportunity to create a restoration strategy demonstration area, which can serve as a valuable education tool, providing property owners with information to restore their own property. As the City considers implementation of CIP projects in shoreline parks, it should consider restoration strategies as well as interpretative signage and materials.

Restoration Project/Program	Schedule	Funding Source or Commitment
5.10 Public Education	Ongoing	Currently, staff time and materials are provided in developing public education and outreach efforts, which are highlighted in the Comprehensive Plan policy statement based on the goal of natural resource protection. These items help guide City staff and local citizen groups in developing mechanisms to educate the public and broaden the interest in protecting and enhancing local environmental resources.
5.11 Public Works Programs	Ongoing	Currently, staff time, materials and an unspecified amount of funding support these programs.
5.12 Capital Improvement Program	Ongoing	The City funds a number of projects through its Capital Improvement Program that will minimize impacts to and enhance the shoreline environment, including work within the larger drainage basin to improve water quality as well as park renovation and acquisitions to protect and restore shoreline functions.
5.13 Cascade Land Conservancy	As funds and opportunity allow	These private organizations are either a source of grant funds for restoration projects, an advocate for specific restoration projects, independently obtains grants for restoration projects, or a partner in implementing restoration or education projects.
5.14 Eastside Audubon		
5.15 Moss Bay Diving Club	As volunteer opportunity allow	This organization periodically performs volunteer cleanup services in Lake Washington.
6.1 Unfunded WRIA 8 Projects	As funds and opportunity allow	The City Council passed a resolution in 2005 expressing its approval and support for the *Chinook Salmon Conservation Plan* (Steering Committee 2005). Projects will be funded by the City, partnering agencies and non-profit organizations, and grants as projects and funding opportunities arise. The City continues to identify funds for the implementation of the WRIA 8 projects in the City of Kirkland
6.2 Recommended Projects - Public	As funds and opportunity allow	Projects identified in this section would likely be implemented either when grant funds are obtained, when partnerships are formed between the City and other agencies or non-profit groups, or as may be required by the critical areas regulations and the Shoreline Master Program during project-level reviews by the City.
6.3 Recommended Projects - Private		
6.4 Public Education/ Outreach	As funds and opportunity allow	On-going and future education efforts should be coordinated with the City and partnering agencies, including funding sources (grant funding, monetary donations, volunteer hours)

7.2 Potential Additional Funding Sources

Potential funding opportunities for restoration projects could include both federal and state grants and legislative funds administered by state agencies, private non-governmental grant

funding, as well as funding through participation in the WRIA 8 Steering Committee, and/or strategic partnering with King County agencies. A list of potential funding sources is included in Appendix E. While this list does not contain an exhaustive review of potential funding opportunities, it is a resource that can continually be maintained and updated.

7.3 Monitoring

In the context of the SMP update, restoration planning is a long-term effort. The SMP guidelines include the general goal that local master programs "include planning elements that, when implemented, serve to improve the overall condition of habitat and resources within the shoreline area" (WAC 173-26-201(c)).

The legislature has provided an overall timeframe for future amendments to the SMP. In 2003, Substitute Senate Bill 6012 amended the Shoreline Management Act (RCW 90.58.080) to establish an amendment schedule for all jurisdictions in the state. Once the City of Kirkland amends its SMP (on or before December 1, 2009), the City is required to review, and amend if necessary, its SMP once every seven years (RCW 90.58.080(4)). During this review period, the City should document progress toward achieving shoreline restoration goals. The review could include:

- Re-evaluating adopted restoration goals, objectives, and policies;
- Summarizing both planning efforts (including application for and securing grant funds) and on-the-ground actions undertaken in the interim to meet those goals, including action on the specific projects identified in Section 4.2.3; and
- Revising the SMP restoration planning element to reflect changes in priorities or objectives.

In preparation and as part of its Shoreline Master Program updates, the City will review project monitoring information and shoreline conditions, and reevaluate restoration goals, priorities and opportunities.

In order to accomplish this task, City planning staff will track all land use and development activity, including exemptions, within shoreline jurisdiction, and shoreline actions and programs of the Parks and Public Works departments as well development activity on private property. A tracking system will be established that provides basic project information, including location, permit type issued, project description, impacts, mitigation (if any), and monitoring outcomes as appropriate. Examples of data categories might include square feet of non-native vegetation removed, square feet of native vegetation planted or maintained, reductions in chemical usage to maintain turf in City parks, linear feet of eroding bank stabilized through plantings, linear feet of shoreline armoring removed, square feet of overwater cover reduced or converted to grating, or number of fish passage barriers corrected.

A staff report will be prepared, on a seven (7) year cycle of adoption of the SMP, that summarizes the information from the tracking system, updates Tables 2 and 5 above, and outlines implementation of various programs and restoration actions (by the City or other groups) that relate to watershed health. The staff report will be used, in light of the goals and objectives of the Shoreline Master Program, to determine whether implementation of the SMP is

meeting the basic goal of no net loss of ecological functions relative to the baseline condition established in the *Shoreline Analysis Report* (The Watershed Company 2006). In the long term, the City should be able to demonstrate a net improvement in the City of Kirkland's shoreline environment.

Based on the results of the assessment in the staff report, the City may make recommendations for changes to the SMP.

8. RESTORATION PRIORITIES

The process of prioritizing actions that are geared toward restoration of Kirkland's shoreline areas involves balancing ecological goals with a variety of site-specific constraints. Briefly restated, the City's environmental protection and restoration goals include: 1) protecting watershed processes, 2) protecting fish and wildlife habitat, and 3) contributing to chinook conservation efforts. Constraints that are specific to Kirkland include a highly developed residential shoreline along Lake Washington with large percentage of public open space/access. While some areas may already offer fairly good ecological functions (Juanita Bay/Forbes Creek wetland and Yarrow Bay wetland), they tend to include some additional opportunities to further enhance ecological functions. These goals and constraints were used to develop a hierarchy of restoration actions to rank different types of projects or programs associated with shoreline restoration.

Programmatic actions, like continuing WRIA 8 involvement and conducting outreach programs to local residents, tend to receive relatively high priority opposed to restoration actions involving private landowners. Other factors that influenced the hierarchy are based on scientific recommendations specific to WRIA 8, potential funding sources, and the projected level of public benefit. Restoration projects on public property, such as those identified in Section 6.2, have received a high priority ranking due to their availability to be funded by a variety of sources, such as CIP program, Parks Department, grants, and non-profit groups.

Although restoration project/program scheduling is summarized in the previous section (Table 5), the actual order of implementation may not always correspond with the priority level assigned to that project/program. This results from the balancing of various interests that must occur with limited funds and staff time. Some projects, such as those associated with riparian planting, are *relatively* inexpensive and easy to permit and should be implemented over the short and intermediate term despite the perception of lower priority than projects involving extensive shoreline restoration or large-scale capital improvement projects. Straightforward projects with available funding should be initiated immediately for the worthwhile benefits they provide and to preserve a sense of momentum while permitting, design, site access authorization, and funding for the larger, more complicated, and more expensive projects are under way.

8.1 Priority 1 – Continue Water Resource Inventory Area (WRIA) 8 Participation

Of basic importance is the continuation of ongoing, programmatic, basin-wide programs and initiatives such as the WRIA 8 Forum. Continue to work collaboratively with other jurisdictions and stakeholders in WRIA 8 to implement the *Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan*. This process provides an opportunity

for the City to keep in touch with its role on a basin-wide scale and to influence habitat conditions beyond its borders, which, in turn, come back to influence water quality and quantity and habitat issues within the City.

8.2 Priority 2 – Public Education and Involvement

Public education and involvement has a high priority in the City of Kirkland due to the predominance of residential development along the shoreline. Recent outreach efforts by other jurisdictions, such as the handbook *Green Shorelines: Bulkhead Alternatives for a Healthier Lake Washington* (City of Seattle 2008), have begun to change the perception of shoreline aesthetics, use, and ecological health. This and other outreach efforts (i.e. workshops, websites, example projects) are clear motivating and contributing factors for restoration activities on private property.

While many opportunities for shoreline restoration exist within City parks (see Section 6.2), multiple other opportunities also exist along community-owned properties and commercial development. Whether the focus is on single-family residential, community-owned, or commercial properties, providing education opportunities and involving the public is key to success, and would possibly entail coordinating the development of a long-term Public Education and Outreach Plan (Section 6.2). This could also include focusing on gaining public support for restoration along City parks.

Specific projects from the Action Start List include developing a workshop series and website that is tailored to lakeshore property owners, and that promotes natural yard care, alternatives to vertical bulkheads, fish-friendly dock design, best management practices for aquatic weed control, porous paving, and environmentally friendly methods of maintaining boats, docks, and decks. Collaborative efforts with other jurisdictions (i.e City of Seattle and Bellevue) could be completed to meet the Action Start List goals. Additionally, design competitions and media coverage could be used to promote the use of "rain gardens" and other low impact development practices that mimic natural hydrology. A home/garden tour or "Street of Dreams" type event might serve to showcase these landscape/engineering treatments.

8.3 Priority 3 – Reduce Shoreline Armoring along Lake Washington, Create or Enhance Natural Shoreline Conditions

The preponderance of shoreline armoring and its association with impaired habitat conditions, specifically for juvenile chinook salmon, has been identified as one of the key limiting factors along Lake Washington (Kerwin 2001). Nearly 86 percent of the developed shoreline within the City of Kirkland (not including Juanita Bay and Yarrow Creek Wetland) is armored at or below the ordinary high water mark (The Watershed Company 2006). While there are no specifically identified projects in the *Final Lake Washington/ Cedar/ Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan* that are located within Kirkland, there are many opportunities listed in this Restoration Plan which focus on the potential reduction in shoreline armoring and subsequent restoration and enhancement of shoreline ecological functions. Examples of opportunities to reduce shoreline armoring on public property, in order of priority rank, include (see Section 6.2 and Appendix C):

Site Number	Location
27	Houghton Beach Park

17	David Brink Park
23	Marsh Park
9	Waverly Park
13	Marina Park

However, emphasis should also be given to future project proposals that involve or have the potential to restore privately-owned shoreline areas to more natural conditions. The City should explore ways in which to assist local property owners, whether through technical or financial assistance, permit expediting, or guidance, to team together with restoration of multiple contiguous lots.

Recommendations from the Action Start List reflect this focus and encourage salmon friendly shoreline design during new construction or redevelopment by offering incentives and regulatory flexibility to improve bulkhead and dock design and revegetate shorelines. Other recommendations from the List that support this priority include: 1) increasing enforcement that addresses nonconforming structures over the long run by requiring that major redevelopment projects meet current standards; 2) discouraging construction of new bulkheads and offer incentives (e.g., provide expertise, expedite permitting) for voluntary removal of bulkheads, beach improvement, riparian revegetation; 3) utilizing interpretive signage where possible to explain restoration efforts.

8.4 Priority 4 – Reduction of In-water and Over-water Structures

Similar to Priority 3 listed above, in-water and over-water structures, particularly piers, docks, and covered moorages, have been identified as one of the key limiting factors in Lake Washington (Kerwin 2001). Pier density along the City's developed shoreline is 39 piers per mile – very similar to a lake-wide average of 36 piers per mile. The density of residential development along the City's lakeshore is the main reason for the slightly higher-than-average pier density. While the pier density along residential shorelines is much higher than what is typically found along City-owned park property, the overall footprint of each public pier is generally much greater than is found along single-family residential sites. Opportunities exist for reduction in pier size and overall shading impacts through pier modifications on public sites. Examples, in order of priority rank, include (see Section 6.2 and Appendix C):

Site Number	Location
1	Juanita Beach Park
4	Forbes Creek/Juanita Bay Park
13	Marina Park
27	Houghton Beach Park
9	Waverly Park
17	David Brink Park
23	Marsh Park
21	Settler's Landing

Although no specific privately-owned project sites to reduce in-water and over-water structures within residential areas are identified here, future project proposals involving reductions in the size and/or quantity of such structures should be emphasized. Such future projects may involve joint-use pier proposals or pier reconstruction and may be allowed an expedited permit process.

Action Start List Recommendations in support of Priority 4 above include: 1) supporting the joint effort by NOAA Fisheries and other agencies to develop consistent and standardized dock/pier specifications that streamline federal/state/local permitting; 2) promoting the value of light-permeable docks, smaller piling sizes, and community docks to both salmon and landowners through direct mailings to lakeshore landowners or registered boat owners sent with property tax notice or boat registration tab renewal; and 3) offering financial incentives for community docks in terms of reduced permit fees and permitting time, in addition to construction cost savings. Similarly, the *WRIA 8 Conservation Plan* identified a future project (C302) to explore opportunities to reduce the number of docks by working with private property owners.

8.5 Priority 5 – Restore Mouths of Tributary Streams, Reduce Sediment and Pollutant Delivery to Lake Washington

Although most of the streams and their basins located within the City are outside of shoreline jurisdiction, except the lower sections of Yarrow Creek and Forbes Creek which are both within the boundaries of shoreline associated wetlands, their impacts to shoreline areas should not be discounted. Many of these streams have the potential to provide fish and wildlife habitat. Specific projects in this category include the unfunded WRIA 8 project (C296) listed in Section 5.1 to restore the downstream section and mouth of Juanita Creek which feeds into Lake Washington. This would include working closely with the City's Park Department to provide revegetation, installation of habitat features, and other habitat modifications.

For juvenile chinook, once they enter Lake Washington, they often congregate near the mouths of tributary streams, and prefer low gradient, shallow-water habitats with small substrates (Tabor and Piaskowski 2002; Tabor et al. 2004b; Tabor et al. 2006). Chinook fry entering Lake Washington early in the emigration period (February and March) are still relatively small, typically do not disperse far from the mouth of their natal stream, and are largely dependent upon shallow-water habitats in the littoral zone with overhanging vegetation and complex cover (Tabor and Piaskowski 2002; Tabor et al 2004b). The mouths of creeks entering Lake Washington (whether they support salmon spawning or not), as well as undeveloped lakeshore riparian habitats associated with these confluence areas, attract juvenile chinook salmon and provide important rearing habitat during this critical life stage (Tabor et al. 2004b; Tabor et al. 2006).

Later in the emigration period (May and June), most chinook juveniles have grown to fingerling size and begin utilizing limnetic areas of the Lake more heavily (Koehler et al. 2006). As the juvenile chinook salmon mature to fingerlings and move offshore, their distribution extends throughout Lake Washington. Although early emigrating chinook fry from the Cedar River and North Lake Washington tributaries (primary production areas) initially do not disperse to shoreline areas in Kirkland, any salmon fry from smaller tributaries such as Juanita Creek, Forbes Creek, or Yarrow Creek, would depend on nearshore habitats of the Kirkland waterfront. Later in the spring (May and June), however, juvenile chinook are known to be well distributed throughout both limnetic and littoral areas of Lake Washington, and certainly utilize shoreline habitats in Kirkland.

Action Start List Recommendations in support of Priority 5 above include: 1) addressing water quality and high flow impacts from creeks and shoreline development through NPDES Phase 1 and Phase 2 permit updates, consistent with Washington Department of Ecology's 2005

Stormwater Management Manual, including low impact development techniques, on-site stormwater detention for new and redeveloped projects, and control of point sources that discharge directly into the lakes; and 2) Protecting and restoring water quality and other ecological functions in tributaries to reduce effects of urbanization. This involves protecting and restoring forest cover, riparian buffers, wetlands, and creek mouths by revising and enforcing critical areas ordinances and Shoreline Master Programs, incentives, and flexible development tools.

Priority 6 – Improve Riparian Vegetation, Reduce Impervious Coverage

Similar to the priorities listed above, improved riparian vegetation and reduction in impervious surfaces are emphasized in the *WRIA 8 Conservation Plan*. Nearly all of the specific project sites listed in Tables 3 and 4 include some form of protecting and improving riparian vegetation and several include reduction in impervious surface coverage. Examples of opportunities on public property, in order of priority rank, include (see Section 6.2 and Appendix C):

Site Number	Location
27	Houghton Beach Park (vegetation)
9	Waverly Park (vegetation)
17	David Brink Park (vegetation)
23	Marsh Park (vegetation)
13	Marina Park (vegetation)
21	Settler's Landing (vegetation)
23	Marsh Park (impervious surfaces)
11	Waverly Park (impervious surfaces)
15	Street-end Park (impervious surfaces)

8.6 Priority 7 – Reduce Aquatic Non-Native Invasive Weeds

While not specifically listed in the *WRIA 8 Conservation Plan*, reduction of aquatic invasive weeds from Lake Washington, particularly Eurasian watermilfoil and white water lily, is emphasized in Section 6.2. In particular, the nearshore areas surrounding both Juanita Bay and Yarrow Bay have large monocultures of these invasive aquatic plants. Growth of white water lily is particularly troublesome near the mouth of Forbes Creek, extending south along the shoreline of Juanita Bay Park.

Additionally, many other areas along the City's waterfront have also been subject to extensive growth of Eurasian watermilfoil. Not only are aquatic weeds a problem for boats and swimmers, but they also tend to reduce dissolved oxygen to lethal levels for fish, hampering foraging opportunities. As noted previously, nuisance-motivated control of invasive vegetation using herbicides has been approved by Ecology for the Yarrow Shores Condominiums, and the Carillon Point Marina and condominiums through 2011 (The Watershed Company 2006). Long-term control of aquatic non-native invasive plants in Lake Washington will be very difficult to achieve without coordinated inter-jurisdictional collaboration, including involvement and leadership from Washington State..

8.7 Priority 8 –Improve Water Quality and Reduce Sediment and Pollutant Delivery

Although most of the streams and their basins located within the City are outside of shoreline jurisdiction, except the lower sections of Yarrow Creek and Forbes Creek which are both within the boundaries of shoreline associated wetlands, their impacts to shoreline areas should not be discounted. Many of these streams have the potential to provide fish and wildlife habitat. They are also a common receiving body for non-point source pollution, which in turn delivers those contaminants to shoreline waterbodies.

Several actions focused on addressing water quality and stormwater controls include (derived from WRIA 8 watershed-wide actions list).

- Expand/Improve Incentives Programs
- Improve Enforcement of Existing Land Use and Other Regulations
- Increase Use of Low Impact Development and Porous Concrete
- Provide Incentives for Developers to Follow Built Green™ Checklist Sections Benefiting Salmon

These recommendations emphasize the use of low impact development techniques, on-site stormwater detention for new and redeveloped projects, and control of point sources that discharge directly into surface waters. They involve protecting and restoring forest cover, riparian buffers, wetlands, and creek mouths by revising and enforcing critical areas ordinances and Shoreline Master Programs, incentives, and flexible development tools.

8.9 Priority 9 – Acquisition of Shoreline Property for Preservation, Restoration, or Enhancement Purposes

The City should explore opportunities to protect natural areas or other areas with high ecological value or restoration potential via property acquisition. Mechanisms to purchase property would likely include collaboration with other stakeholder groups including representatives from local government, businesses and the general public in order to develop a prioritized list of actions. Many of the undeveloped properties located along the western edge of the Yarrow Bay wetland, which are highly encumbered by the presence of this high quality wetland, may be available for acquisition geared at preserving their overall function. Other properties throughout the more developed shoreline areas within the City may be available for acquisition both for preservation but also to act as a showcase for restoration potential.

8.10 Priority 10 – City Zoning, Regulatory, and Planning Policies

City Zoning, Regulatory, and Planning Policies are listed as being of lower priority in this case simply because they have been the subject of a thorough review and have recently been updated accordingly. Notably, the City's Critical Areas Ordinance was updated (April 2003) consistent with the Best Available Science for critical areas, including those within the shoreline area. For the time being, it is considered more important to capitalize on this Restoration Plan by focusing on implementing projects consistent with the updated SMP policies.

Unimplemented or unused policies, by themselves, will not improve habitat. As time goes by, further review and potential updating of these policies may increase in priority. Policy-related items in this category as listed in previous sections include Comprehensive Plan Policies (Section 5.2), Critical Areas Regulations (Section 4.3), and Stormwater Planning (Section 5.4).

The City received its final NPDES Phase II permit in February 2007 from Ecology. The NPDES Phase II permit is required to cover the City's stormwater discharges into regulated lakes and streams. Under the conditions of the permit, the City must protect and improve water quality through public education and outreach, detection and elimination of illicit non-stormwater discharges (e.g., spills, illegal dumping, wastewater), management and regulation of construction site runoff, management and regulation of runoff from new development and redevelopment, and pollution prevention and maintenance for municipal operations.

The City conducts all of the above at some level already, but significant additional effort may be needed to document activities and to alter or upgrade programs. 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. Monitoring may be required as part of an illicit discharge detection and elimination program, for certain construction sites, or in waterbodies with a Total Maximum Daily Load (TMDL) Plan for particular pollutants. General water quality monitoring concerns include: a) stormwater quality; b) effectiveness of best management practices; and c) effectiveness of the stormwater management program.

9. CONCLUSIONS

This plan provides multiple programmatic and site-specific opportunities for restoring the City's shoreline areas that outline opportunities to achieve a net benefit in ecological conditions. The *Final Shoreline Analysis Report* has documented the following as key ecological impairments within the Kirkland shoreline areas: Lack of riparian vegetation and large woody debris, extensive shoreline armoring, extensive overwater coverage, nutrient and toxic inputs from runoff, and invasive aquatic vegetation. Ecological benefits that would be realized by implementing this plan include: increased use of soft approaches for shoreline stability and corresponding reductions in low-functioning hard shorelines; increased organic inputs, habitat, and filtration from shoreline riparian vegetation; improved wildlife corridor connectivity; improved habitat for salmon; displacement of noxious vegetation; and eventual introduction of woody debris.

Restoration planning is a new element of the SMP. As such, implementation of this plan will require additional City efforts and resources to implement the policies of this plan.

10. REFERENCES

City of Kirkland. 2008a. 2008 Stormwater Management Program (SWMP). February 2008.

City of Kirkland. 2008b. 20-year Forest Restoration Plan. March 2008.

City of Seattle. 2008. Green Shorelines: Bulkhead Alternatives for a Healthier Lake Washington. City of Seattle, Department of Planning and Development. 35pp.

Koehler, M.E., K.L. Fresh, D.A. Beauchamp, J.R. Cordell, C.A. Simenstad, and D.E. Seiler. 2006. Diet and bioenergetics of Lake-rearing juvenile chinook salmon in Lake Washington. Transactions of the American Fisheries Society 135:1580-1591.

Toft, J. D. 2001. Shoreline and dock modifications in Lake Washington. Prepared for King County Department of Natural Resources. October 2001. SAFS-UW-0106.

Tabor, R.A. and R.M. Piaskowski. 2002. Nearshore habitat use by juvenile chinook salmon in lentic systems of the Lake Washington Basin, Annual Report, 2001. U.S. Fish and Wildlife Service, Lacey, WA.

Tabor, R.A., H.A. Gearns, C.M. McCoy III, and S. Camacho. 2006. Nearshore habitat use by juvenile chinook salmon in lentic systems of the Lake Washington Basin, Annual Report, 2003 and 2004. U.S. Fish and Wildlife Service, Lacey, WA.

Tabor, R.A., J.A. Schuerer, H.A. Gearns, and E.P. Bixler. 2004. Nearshore habitat use by juvenile chinook salmon in lentic systems of the Lake Washington basin, annual report, 2002. U.S. Fish and Wildlife Service, Western Washington Fish and Wildlife Office, Lacey, Washington.

The Watershed Company. 2006. Final Shoreline Analysis Report Including Shoreline Inventory and Characterization for the City of Kirklands's Lake Washington Shoreline. Prepared for City of Kirkland.

Washington Department of Ecology. 2007. Washington State Toxics Monitoring Program: Contaminants in Fish Tissue from Freshwater Environments in 2004 and 2005. Publication No. 07-03-024. June 2007. http://www.ecy.wa.gov/pubs/0703024.pdf

Washington Department of Fish and Wildlife (WDFW). 2006. Priority Habitats and Species database search results prepared for The Watershed Company, 17 March 2006.

WRIA 8 Steering Committee. 2002. Lake Washington/Cedar/Sammamish Watershed (WRIA) Near-Term Action Agenda For Salmon Habitat Conservation. August, 2002. http://dnr.metrokc.gov/wrias/8/near-term-action-agenda.htm.

WRIA 8 Steering Committee. 2005. Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan. July 2005.

APPENDIX A

CITY OF KIRKLAND RESOLUTION R-4510
RATIFYING THE WRIA 8 CHINOOK SALMON CONSERVATION PLAN

RESOLUTION NO. R-4510

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF KIRKLAND RATIFYING THE WATER RESOURCE INVENTORY AREA (WRIA) 8 CHINOOK SALMON CONSERVATION PLAN

WHEREAS, in March 1999, the National Oceanic and Atmospheric Administration (NOAA) Fisheries listed the Puget Sound Chinook salmon evolutionary significant unit as a threatened species under the Endangered Species Act (ESA); and

WHEREAS, in November 1999, the United States Fish and Wildlife Service (USFWS) listed the Puget Sound bull trout distinct population segment as a threatened species under the ESA; and

WHEREAS, under the ESA, it is illegal to take a listed species, and the ESA defines the term "take" to include actions that could harm listed species or their habitat; and

WHEREAS, actions that are directly or indirectly authorized by local governments could potentially expose local governments to civil or criminal penalties under the ESA; and

WHEREAS, under the ESA, Section 4(f), NOAA Fisheries (for Chinook salmon) and USFWS (for bull trout) are required to develop and implement recovery plans to address the recovery of the species; and

WHEREAS, an essential ingredient for the development and implementation of an effective recovery program is coordination and cooperation among federal, state, and local agencies, tribes, businesses, researchers, non-governmental organizations, landowners, citizens, and other stakeholders as required; and

WHEREAS, Shared Strategy for Puget Sound, a regional non-profit organization, has assumed a lead role in the Puget Sound response to developing a recovery plan for submittal to NOAA Fisheries and the USFWS; and

WHEREAS, Shared Strategy intends that its recovery plan will include commitments from participating jurisdictions and stakeholders; and

WHEREAS, local jurisdictions have authority over some habitat-based aspects of Chinook survival through land use and other policies and programs; and the state and tribes, who are the legal co-managers of the fishery resource, are responsible for addressing harvest and hatchery management in WRIA 8; and

WHEREAS, in WRIA 8, habitat actions to significantly increase Chinook productivity trends are necessary, in conjunction with other recovery efforts, to

avoid extinction in the near term and restore WRIA 8 Chinook to viability in the long term; and

WHEREAS, the City values ecosystem health; water quality improvement; flood hazard reduction; open space protection; and maintaining a legacy for future generations, including commercial, tribal, and sport fishing, quality of life, and cultural heritage; and

WHEREAS, the City supports cooperation at the WRIA level to set common priorities for actions among partners, efficient use of resources and investments, and distribution of responsibility for actions and expenditures;

WHEREAS, 27 local governments in WRIA 8 jointly funded development of *The WRIA 8 Steering Committee Proposed Lake Washington/Cedar/Sammamish Watershed Chinook Salmon Conservation Plan* (the Plan), published February 25, 2005, following public input and review; and

WHEREAS, while the Plan recognizes that salmon recovery is a long-term effort, it focuses on the next ten years and includes a scientific framework, a start-list of priority actions and comprehensive action lists, an adaptive management approach, and a funding strategy; and

WHEREAS, the City has consistently implemented habitat restoration and protection projects, and addressed salmon habitat through its land use and public outreach policies and programs over the past five years; and

WHEREAS, it is important to provide jurisdictions, the private sector and the public with certainty and predictability regarding the course of salmon recovery actions that the region will be taking in the Lake Washington/Cedar/Sammamish Watershed, including the Puget Sound nearshore; and

WHEREAS, if insufficient action is taken at the local and regional level, it is possible that the federal government could list Puget Sound Chinook salmon as an endangered species, thereby decreasing local flexibility.

BE IT RESOLVED by the City Council of the City of Kirkland as follows:

Section A: The City hereby ratifies *The WRIA 8 Steering Committee Proposed Lake Washington/Cedar/Sammamish Watershed Chinook Salmon Conservation Plan,* dated February 25, 2005 (the Plan). Ratification is intended to convey the City's approval and support for the following:

1. The following goals for the Plan:
    a) The Plan mission statement to conserve and recover Chinook salmon and other anadromous fish, focusing on preserving, protecting and restoring habitat with the intent to recover listed species, including sustainable, genetically diverse, harvestable populations of naturally spawning Chinook salmon.

b) The multiple benefits to people and fish of Plan implementation including water quality improvement; flood hazard reduction; open space protection; and maintaining a legacy for future generations, including commercial, tribal and sport fishing, quality of life, and cultural heritage.

2. Continuing to work collaboratively with other jurisdictions and stakeholders in the Lake Washington/Cedar/Sammamish Watershed (WRIA 8) to implement the Plan.

3. Using the scientific foundation and the conservation strategy as the basis for local actions recommended in the plan and as one source of best available science for future projects, ordinances, and other appropriate local government activities.

4. Adopting an adaptive management approach to Plan implementation and funding to address uncertainties and ensure cost-effectiveness by tracking actions, assessing action effectiveness, learning from results of actions, reviewing assumptions and strategies, making corrections where needed, and communicating progress. Developing and implementing a cost-effective regional monitoring program as part of the adaptive management approach.

5. Using the comprehensive list of actions, and other actions consistent with the Plan, as a source of potential site specific projects and land use and public outreach recommendations. Jurisdictions, agencies, and stakeholders can implement these actions at any time.

6. Using the start-list to guide priorities for regional funding in the first ten years of Plan implementation, and implementing start-list actions through local capital improvement projects, ordinances, and other activities. The start-list will be revised over time, as new opportunities arise and as more is learned through adaptive management.

7. Using an adaptive approach to funding the Plan through both local sources and by working together (within WRIA 8 and Puget Sound) to seek federal, state, grant, and other funding opportunities. The long-term ultimate goal is to fund the Plan through a variety of sources at the current 2004 level plus 50 percent, recognizing that this resolution cannot obligate future councils to financial commitment and that the funding assumptions, strategies, and options will be revisited periodically.

8. Forwarding the Plan to appropriate federal and state agencies through Shared Strategy for Puget Sound, to be included in the Puget Sound Chinook salmon recovery plan.

Section B: The City recognizes that negotiation of commitments and assurances/conditions with appropriate federal and state agencies will be an iterative process. Full implementation of this Plan is dependent on the following:

1. NOAA Fisheries will adopt the Plan, as an operative element of its ESA Section 4(f) recovery plan for Puget Sound Chinook salmon.

2. NOAA Fisheries and USFWS will:
   a) take no direct enforcement actions against the City under the ESA for implementation of actions recommended in or consistent with the Plan,
   b) endorse the Plan and its actions, and defend the City against legal challenges by third parties, and
   c) reduce the regulatory burden for City activities recommended in or consistent with the Plan that require an ESA Section 7 consultation.

3. Federal and state governments will:
   a) provide funding and other monetary incentives to support Plan actions and monitoring activities,
   b) streamline permitting for projects implemented primarily to restore salmonid habitat or where the actions are mitigation that further Plan implementation,
   c) offer programmatic permitting for local jurisdiction actions that are consistent with the Plan,
   d) accept the science that is the foundation of the Plan and support the monitoring and evaluation framework,
   e) incorporate actions and guidance from the Plan in future federal and state transportation and infrastructure planning and improvement projects, and
   f) direct mitigation resources toward Plan priorities.

Section C: This resolution does not obligate the City Council to future appropriations beyond current authority.

Passed by majority vote of the Kirkland City Council in open meeting this 21st day of June, 2005.

Mayor

ATTEST:

Acting City Clerk

APPENDIX B

BLANK RESTORATION PROJECT RANKING FORM

Ranking Form

Number
Site
Activity

Description

Section A: Ecological Considerations		**Area or Distance**	**Rating**	**Weighting Factor**	**Total**
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)			1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)			1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)			2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)			1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).			0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)			1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)			0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).			0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).			0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)			1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)			1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)			1	0.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).			1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter			1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)			0.5	0
	Section A Subtotal				0.0
Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)			0.5	0
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)			0.5	0
B3	Cost of the project (high cost = 0, low cost = 5)			0.5	0
B4	Maintenance/repair costs (low = 5, high = 0)			0.5	0
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)			0.5	0
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)			0.5	0
	Section B Subtotal				0
	Grand Total				0.0

	Notes
A1	Enter the square footage of riparian buffer area that will be enhanced with native vegetation. If the enhancement area is greater than 4,000 square feet, enter 4,000.
A2	Enter the linear footage of shoreline where gradient will be restored. If the project restores gradient over a distance greater than 100 feet, enter 100 feet)
A3	Enter the linear footage of shoreline where armoring will be removed. If the project removes armoring over a distance greater than 100 feet, enter 100 feet)
A4	Enter the square footage of overwater cover that will be removed near the shoreline (0 to 30 feet from the OHWM). If more than 200 square feet of overwater cover will be removed, enter 200.
A5	Enter the square footage of overwater cover that will be removed more than 30 feet from shore. If more than 300 square feet of overwater cover will be removed, enter 300.
A6	Enter the number of piles that will be removed near the shoreline (0 to 30 feet from the OHWM). If more than 20 , enter 20.
A7	Enter the number of piles that will be removed more than 30 feet from shore. If more than 30, enter 30.
A8	If the project increases light transmission through an existing nearshore structure (pier) without reducing its overwater footprint (i.e. by replacing wooden decking with grating), enter the square footage of overwater cover that will be daylighted (0 to 30 feet from the OHWM). If more than 200 square feet of nearshore overwater cover will be daylighted, enter 200.
A9	If the project increases light transmission through an existing off-shore structure (pier) without reducing its overwater footprint (i.e. by replacing wooden decking with grating), enter the square footage of overwater cover that will be daylighted (More than 30 feet from the OHWM). If more than 300 square feet of off-shore overwater cover will be daylighted, enter
A10	Enter the straight-line distance (in feet) to the nearest tributary. If the project is more than 1/4 mile (1,320 feet) from the nearest tributary, enter "0" in the rating column.
A11	Enter the distance, measured along the shoreline in feet, to the edge of the nearest high-quality shoreline habitat. If the project is more than 1/4 mile (1,320 feet) from the nearest high-quality shoreline habitat, enter "0" in the rating column.
A12	Enter 5 if the project has a high liklihood of improving ecological functions in the local area, 3 if the project may improve local ecological functions but there is some uncertainty of success, and 0 if there is little chance of improvement or there is a great deal of uncertainty associated with the success of the project.
A13	Enter "1" if there is some active environmental problem that will be addressed by the project, such as shoreline erosion or flooding.
A14	Enter the number of the shoreline segment where the project is located. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; if it is in Segment C, enter 2; if it is in Segment D, enter 1.

APPENDIX C

PROJECT RANKING FORMS

Number 1
Site Juanita Beach Park
Activity Install deck grating
Description The large overwater boardwalk with skirting, which forms the designated swimming area, has the potential for impact reduction by installing deck grating in the pier decking and potentially removing or redesigning the breakwater in order to improve migratory conditions for juvenile salmonids and water circulation.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)	20	1	1	5.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)	30	1	0.5	2.5
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).	200	1	0.4	2.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).	300	1	0.2	1.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)	300	1	1	3.9
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)	100	1	1	4.6
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	4	1	4.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				23.0

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	4	0.5	2
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	2	0.5	1
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	0	0.5	0
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	5	0.5	2.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	5	0.5	2.5
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				8
	Grand Total				31.0

Number 2
Site Juanita Beach Park
Activity In-stream habitat improvement
Description Potential in-stream habitat improvements exist at the mouth of Juanita Creek (delta), including large woody debris installation and improvements to native vegetative cover. The WRIA 8 Chinook Salmon Conservation Plan includes potential restoration of the mouth of Juanita Creek through the removal of bank armoring and returning the mouth to a more natural outlet.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)	4000	1	1.4	7.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)	100	1	2	10.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)	0	1	1	5.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)	0	1	1	5.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	5	1	5.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	5	0.5	2.5
	Section A Subtotal				34.5

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	3	0.5	1.5
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	3	0.5	1.5
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	0	0.5	0
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	2	0.5	1
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	1	0.5	0.5
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	3	0.5	1.5
	Section B Subtotal				6
	Grand Total				40.5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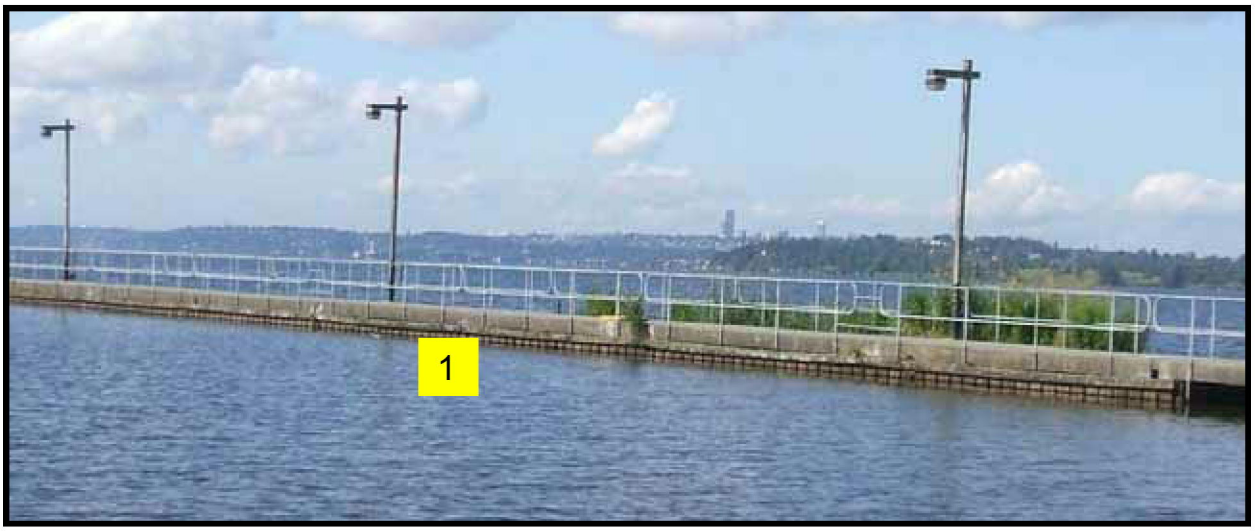
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Number 3
Site Forbes Creek - Juanita Bay Park
Activity Remove invasive vegetation
Description Invasive vegetation, primarily reed canarygrass, purple and garden loosestrife, and Himalayan blackberry in the terrestrial zones and white water lily in the aquatic zone, is currently growing throughout the Forbes Creek riparian corridor and Juanita Bay Park. 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.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)	4000	1	1.4	7.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)	1	1	1	5.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)	0	1	1	5.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	3	1	3.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				20.0

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	2	0.5	1
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	4	0.5	2
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	2	0.5	1
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	2	0.5	1
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	5	0.5	2.5
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	3	0.5	1.5
	Section B Subtotal				9
	Grand Total				29.0

Number 4
Site Forbes Creek - Juanita Bay Park
Activity Improve fish passage and habitat
Description The pedestrian trail/trestle across Juanita Bay to the west of 98th Street covers the mouth of Forbes Creek, potentially inhibiting salmon migration. The surface of the walkway could be re-decked with a grated material to reduce shading impacts to the aquatic environment.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).	200	1	0.4	2.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)	0	1	1	5.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)	0	1	1	5.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	2	1	2.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				14.0

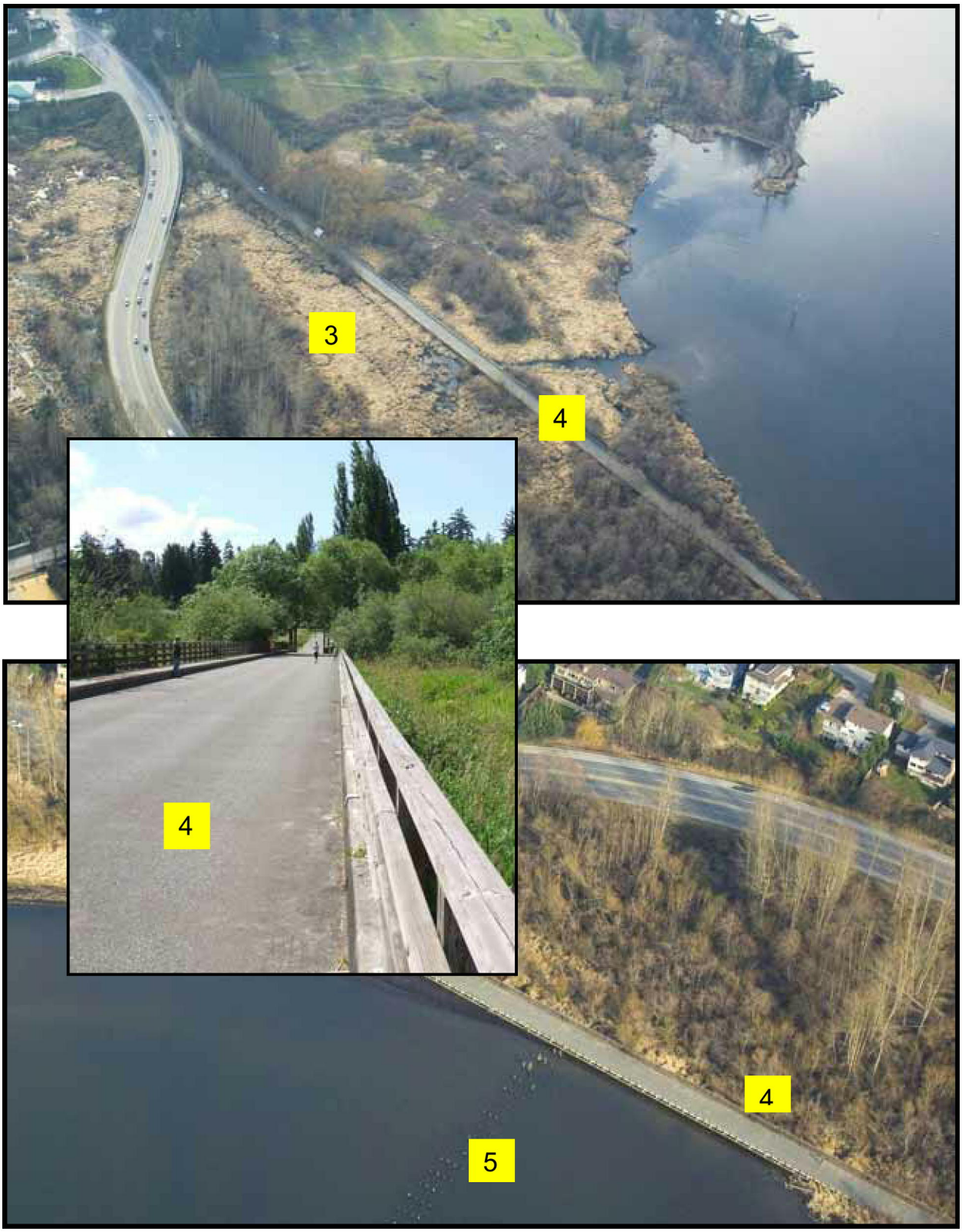
Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	4	0.5	2
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	4	0.5	2
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	3	0.5	1.5
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	5	0.5	2.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	3	0.5	1.5
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				9.5
	Grand Total				23.5

Number 5
Site Forbes Creek - Juanita Bay Park
Activity Old pier pile removal

Description Many remnant pier piles located within Juanita Bay could be removed.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)	20	1	1	5.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)	30	1	0.5	2.5
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)	800	1	1	2.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)	0	1	1	5.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	3	1	3.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				17.5

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	0	0.5	0
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	3	0.5	1.5
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	0	0.5	0
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	5	0.5	2.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	5	0.5	2.5
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				6.5
	Grand Total				24.0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Number 6
Site Lake Ave W Street End Park
Activity Remove invasive vegetation
Description This small street-end park consists of primarily lawn area with a moderate amount of shoreline vegetation (trees and shrubs). An abundance of invasive vegetation (ivy/reed canarygrass) could be removed and replaced with additional native vegetation to improve shoreline conditions for juvenile salmonids.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)	1000	1	1.4	1.8
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)			0	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	3	1	3.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A	4	1	4.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				8.8

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	5	0.5	2.5
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	5	0.5	2.5
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	5	0.5	2.5
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	3	0.5	1.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	4	0.5	2
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				11
	Grand Total				19.8

Number 7
Site Lake Ave W Street End Park
Activity Reduce in-water structures

Description An old remnant moorage slip located near the south property line that is not connected to shore could be removed to reduce in- and overwater structures.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)	30	1	1	0.8
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).	56	1	0.5	0.5
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)	2	1	1	0.5
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)	3	1	0.5	0.3
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	1	1	1.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				3.0

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	3	0.5	1.5
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	3	0.5	1.5
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	3	0.5	1.5
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	5	0.5	2.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	5	0.5	2.5
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				9.5
	Grand Total				12.5


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WELCOME TO KIRKLAND
LAKE AVENUE WEST PARK
CLOSED FROM 10:00 PM - DAWN


6

Number 8
Site Waverly Beach Park
Activity Reduce overwater cover

Description Reduction of overwater cover by the existing pier through the installation of deck grating and removing pier skirting as feasible.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).	200	1	0.4	2.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).	300	1	0.2	1.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	4	1	4.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				7.0

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	2	0.5	1
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	4	0.5	2
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	2	0.5	1
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	4	0.5	2
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	3	0.5	1.5
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				7.5
	Grand Total				14.5

Number 9
Site Waverly Beach Park
Activity Reduce shoreline armoring

Description Removing or minimizing the impacts of shoreline armoring.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)	100	1	1	5.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)	100	1	2	10.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	4	1	4.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				19.0

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	4	0.5	2
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	3	0.5	1.5
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	0	0.5	0
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	5	0.5	2.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	4	0.5	2
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				8
	Grand Total				27.0

Number 10
Site Waverly Beach Park
Activity Enhance shoreline vegetation

Description Supplementation of nearshore native vegetation to improve habitat conditions for juvenile salmonids.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)	4000	1	1.4	7.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	3	1	3.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				10.0

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	5	0.5	2.5
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	5	0.5	2.5
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	5	0.5	2.5
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	3	0.5	1.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	3	0.5	1.5
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	2	0.5	1
	Section B Subtotal				11.5
	Grand Total				21.5

Number 11
Site Waverly Beach Park
Activity Reduce stormwater runoff

Description The impact of existing impervious surfaces (paved parking areas) could be reduced through the use of pervious materials, relocation, or minimization.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	3	1	3.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				3.0

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	2	0.5	1
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	3	0.5	1.5
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	3	0.5	1.5
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	5	0.5	2.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	4	0.5	2
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				8.5
	Grand Total				11.5


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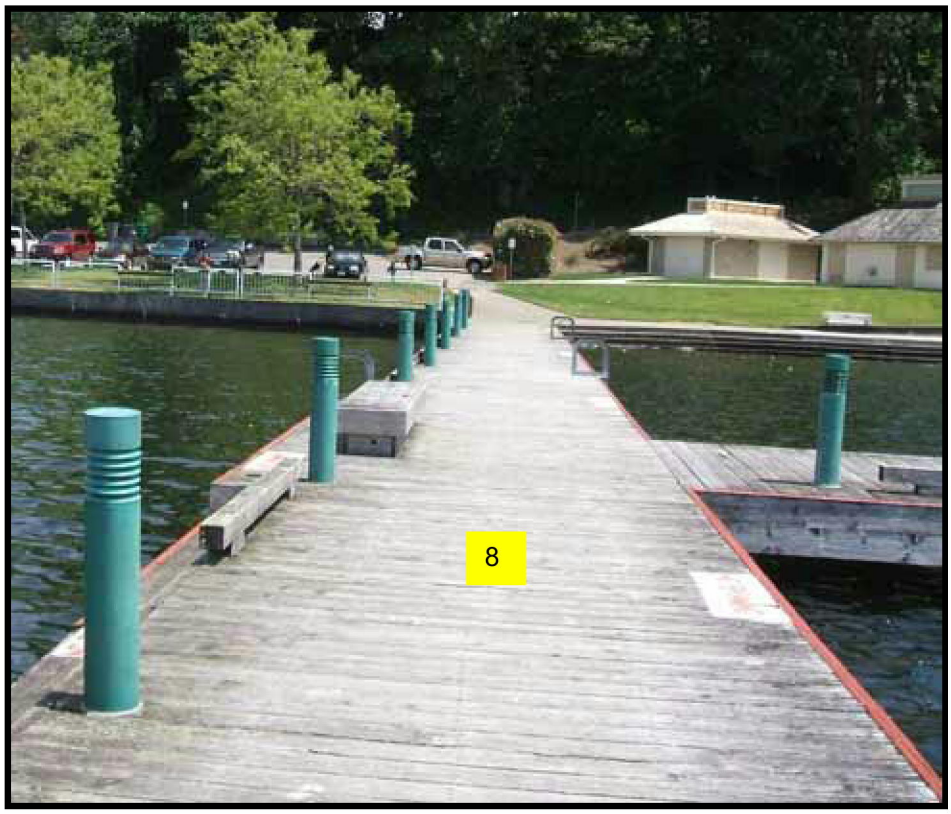
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Number 12
Site Marina Park
Activity Reduce overwater cover

Description Reducing overwater cover through the installation of deck grating on the existing piers.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)	200	1	1	5.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).	300	1	0.5	2.5
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).	200	1	0.4	2.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).	300	1	0.2	1.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	3	1	3.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				13.5

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	2	0.5	1
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	4	0.5	2
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	2	0.5	1
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	4	0.5	2
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	3	0.5	1.5
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				7.5
	Grand Total				21.0

Number 13
Site Marina Park
Activity Reduce shoreline armoring

Description Removing or minimizing the impacts of shoreline armoring.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)	100	1	1	5.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)	100	1	2	10.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	4	1	4.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				19.0

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	3	0.5	1.5
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	2	0.5	1
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	0	0.5	0
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	5	0.5	2.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	4	0.5	2
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				7
	Grand Total				26.0

Number 14
Site Marina Park
Activity Enhance shoreline vegetation

Description Improving nearshore native vegetation.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)	2000	1	1.4	3.5
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	3	1	3.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				6.5

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	5	0.5	2.5
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	5	0.5	2.5
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	5	0.5	2.5
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	3	0.5	1.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	3	0.5	1.5
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	2	0.5	1
	Section B Subtotal				11.5
	Grand Total				18.0


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Number 15
Site Street-End Park
Activity Reduce stormwater runoff

Description This small street-end park consists of an adjacent parking area located within the shoreline jurisdiction that likely drains surface runoff directly to Lake Washington. Future use of pervious material should be explored any time repairs are proposed.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	2	1	2.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				2.0

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	2	0.5	1
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	3	0.5	1.5
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	1	0.5	0.5
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	3	0.5	1.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	3	0.5	1.5
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				6
	Grand Total				8.0


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Number 16
Site David Brink Park
Activity Install deck grating

Description Reducing overwater cover through the installation of deck grating on the existing piers.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).	200	1	0.4	2.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).	300	1	0.2	1.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	2	1	2.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				5.0

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	2	0.5	1
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	4	0.5	2
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	4	0.5	2
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	4	0.5	2
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	4	0.5	2
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				9
	Grand Total				14.0

Number 17
Site David Brink Park
Activity Reduce shoreline armoring

Description Removing or minimizing the impacts of shoreline armoring.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)	100	1	1	5.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)	100	1	2	10.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	5	1	5.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				20.0

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	3	0.5	1.5
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	3	0.5	1.5
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	0	0.5	0
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	5	0.5	2.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	4	0.5	2
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				7.5
	Grand Total				27.5

Number 18
Site David Brink Park
Activity Reduce in-water structures

Description Removing unused remnant pier piles.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)	5	1	1	1.3
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)	4	1	0.5	0.3
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	1	1	1.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A	0	1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				2.6

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	2	0.5	1
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	4	0.5	2
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	2	0.5	1
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	5	0.5	2.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	5	0.5	2.5
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				9
	Grand Total				11.6

Number 19
Site David Brink Park
Activity Enhance shoreline vegetation

Description Improving nearshore native vegetation.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)	4000	1	1.4	7.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	3	1	3.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				10.0

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	5	0.5	2.5
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	5	0.5	2.5
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	5	0.5	2.5
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	3	0.5	1.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	3	0.5	1.5
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	2	0.5	1
	Section B Subtotal				11.5
	Grand Total				21.5


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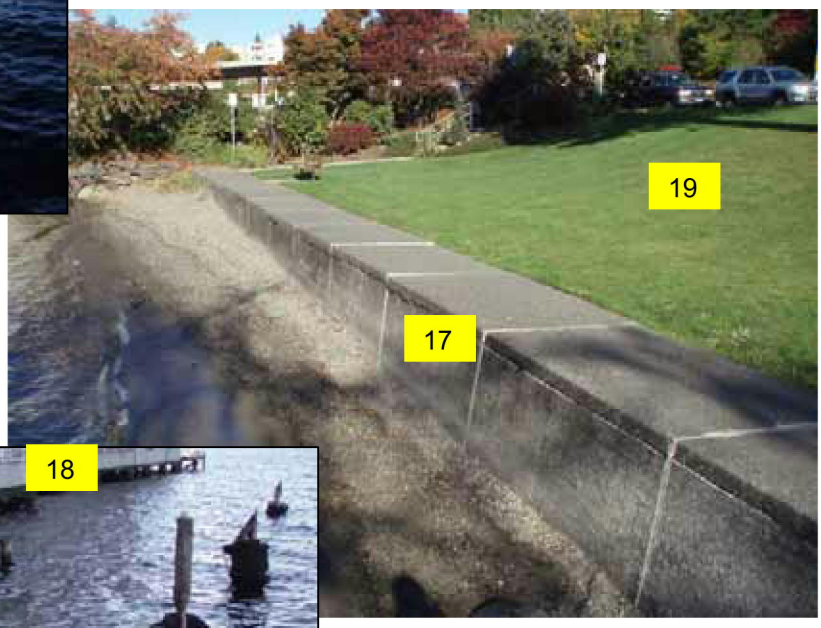
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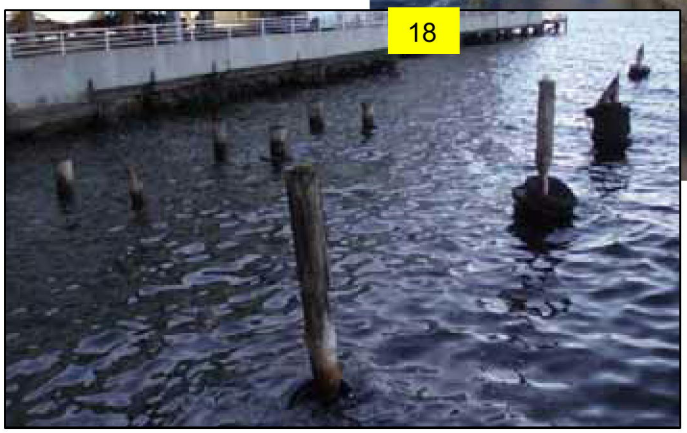
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Number 20
Site Settler's Landing
Activity Enhance shoreline vegetation

Description This small street-end park contains the opportunity to improve shoreline habitat by improving native vegetative cover.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)	1000	1	1.4	1.8
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	1	1	1.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				2.8

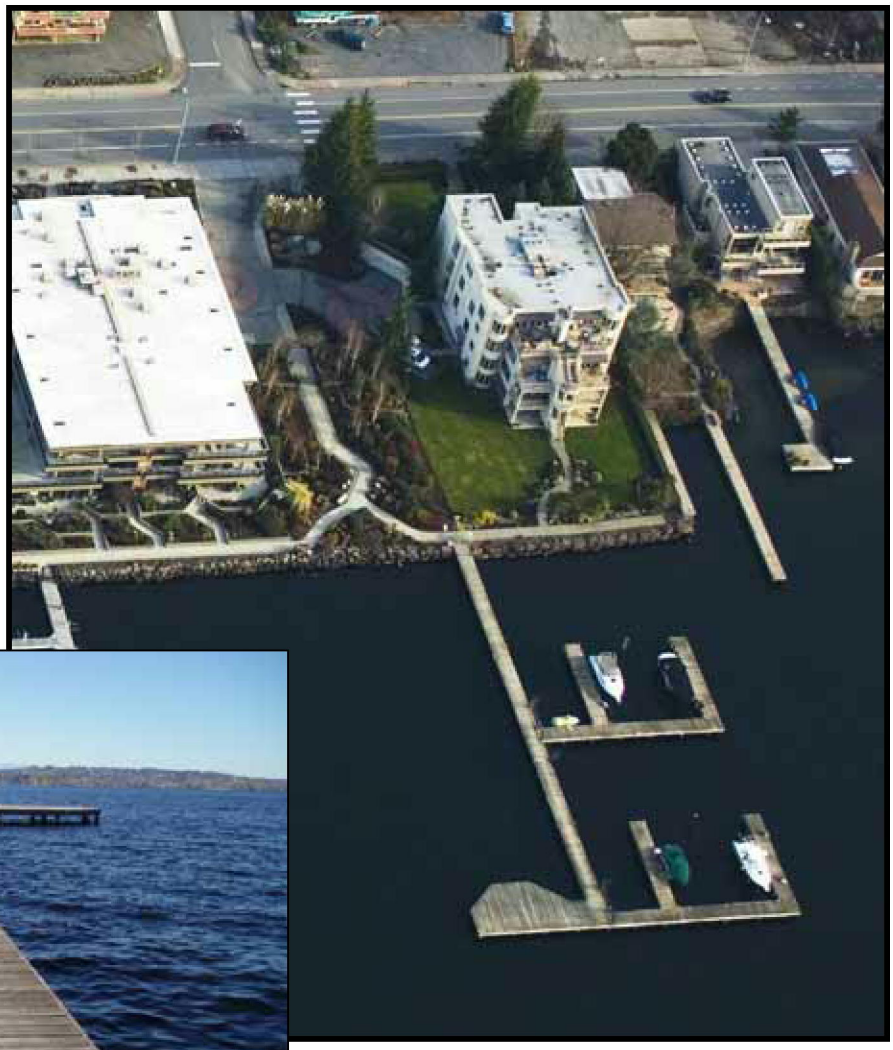
Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	5	0.5	2.5
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	5	0.5	2.5
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	5	0.5	2.5
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	3	0.5	1.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	2	0.5	1
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				10
	Grand Total				12.8

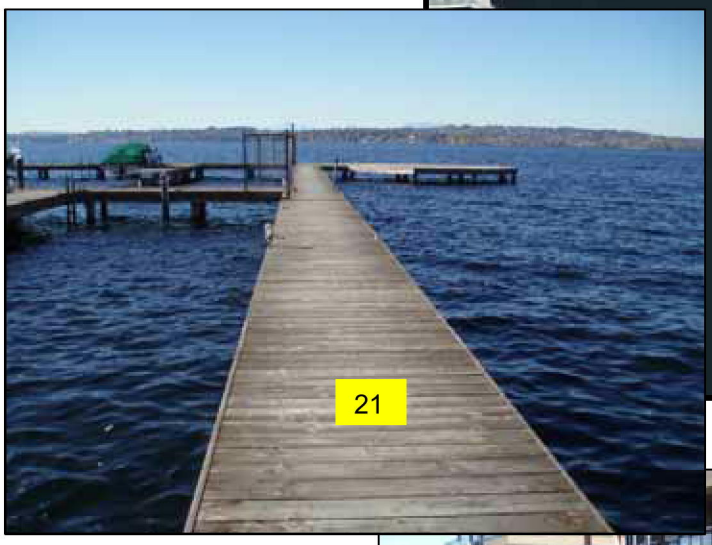
Number 21
Site Settler's Landing
Activity Install deck grating

Description The existing shared use pier (public and private) could potentially be re-decked with grated materials to reduce shading impacts.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).	180	1	0.4	1.8
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).	300	1	0.2	1.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	2	1	2.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				4.8

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	2	0.5	1
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	4	0.5	2
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	3	0.5	1.5
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	4	0.5	2
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	4	0.5	2
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				8.5
	Grand Total				13.3

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Number 22
Site Marsh Park
Activity Install deck grating

Description Reduction of overwater cover by the existing pier through the installation of deck grating.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).	200	1	0.4	2.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).	300	1	0.2	1.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	2	1	2.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				5.0

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	2	0.5	1
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	4	0.5	2
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	3	0.5	1.5
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	4	0.5	2
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	4	0.5	2
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				8.5
	Grand Total				13.5

Number 23
Site Marsh Park
Activity Reduce shoreline armoring

Description Removal or minimization of shoreline armoring.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)	100	1	1	5.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)	100	1	2	10.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	5	1	5.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				20.0

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	3	0.5	1.5
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	3	0.5	1.5
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	0	0.5	0
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	5	0.5	2.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	4	0.5	2
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				7.5
	Grand Total				27.5

Number 24
Site Marsh Park
Activity Enhance shoreline vegetation

Description Improvement of nearshore native vegetation.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)	4000	1	1.4	7.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	3	1	3.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				10.0

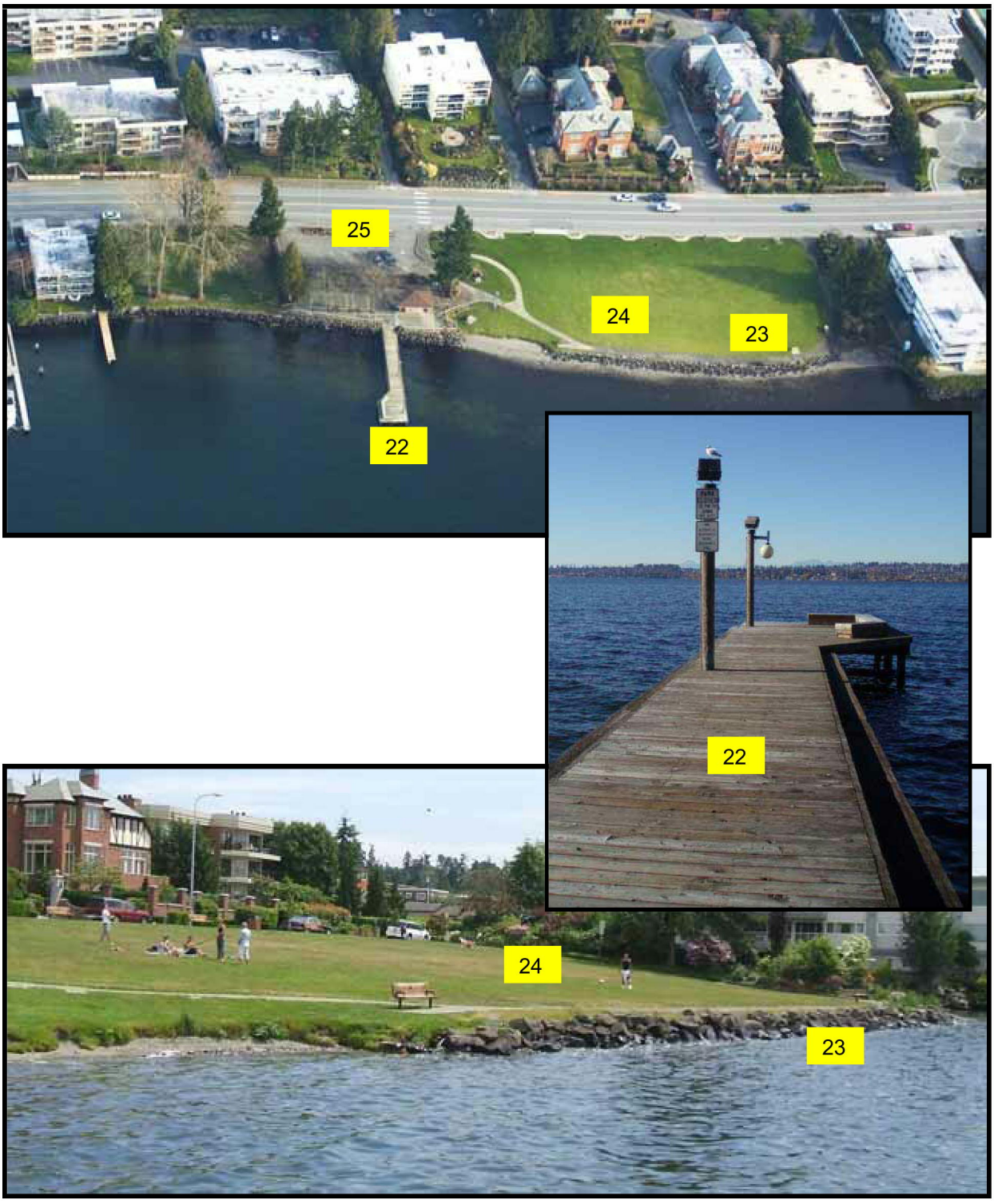
Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	5	0.5	2.5
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	5	0.5	2.5
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	5	0.5	2.5
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	3	0.5	1.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	3	0.5	1.5
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	2	0.5	1
	Section B Subtotal				11.5
	Grand Total				21.5

Number 25
Site Marsh Park
Activity Reduce stormwater runoff

Description The impact of existing impervious surfaces (paved parking areas) could be reduced through the use of pervious materials, relocation, or minimization.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)		0	1	0.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	3	1	3.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				3.0

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	3	0.5	1.5
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	3	0.5	1.5
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	3	0.5	1.5
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	5	0.5	2.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	4	0.5	2
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				9
	Grand Total				12.0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Number 26
Site Houghton Beach Park
Activity Install deck grating

Description Reducing overwater cover through the installation of deck grating on the existing piers and removing pier skirting as feasible.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).	200	1	0.4	2.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).	300	1	0.2	1.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)	700	1	1	2.3
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	3	1	3.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				8.3

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	2	0.5	1
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	4	0.5	2
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	3	0.5	1.5
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	4	0.5	2
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	4	0.5	2
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				8.5
	Grand Total				16.8

Number 27
Site Houghton Beach Park
Activity Reduce shoreline armoring

Description Removing or minimizing the impacts of shoreline armoring.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)		0	1.4	0.0
A2	Project restores shoreline gradient (yes=1, no=0)	100	1	1	5.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)	100	1	2	10.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)	700	1	1	2.3
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	5	1	5.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				22.3

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	3	0.5	1.5
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	3	0.5	1.5
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	0	0.5	0
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	5	0.5	2.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	4	0.5	2
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	0	0.5	0
	Section B Subtotal				7.5
	Grand Total				29.8

Number 28
Site Houghton Beach Park
Activity Enhance shoreline vegetation

Description Improving nearshore native vegetation.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)	4000	1	1.4	7.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)	700	1	1	2.3
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)		0	1	0.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	3	1	3.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				12.3

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	5	0.5	2.5
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	5	0.5	2.5
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	5	0.5	2.5
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	3	0.5	1.5
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	3	0.5	1.5
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	2	0.5	1
	Section B Subtotal				11.5
	Grand Total				23.8


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Number 29
Site Yarrow Bay
Activity Remove invasive vegetation
Description The biological need for control of aquatic invasive species in Yarrow Bay should be assessed. Both Yarrow Shores Condominiums and the Carillon Point Marina and condominiums have permits from Ecology to use chemical controls on milfoil and white water lily, which have become a nuisance to boaters and swimmers.

Section A: Ecological Considerations		Area or Distance	Rating	Weighting Factor	Total
A1	Project enhances native riparian vegetation, either nearshore emergent or upland plants within the buffer zone (yes=1, no=0)	4000	1	1.4	7.0
A2	Project restores shoreline gradient (yes=1, no=0)		0	1	0.0
A3	Project reduces artificial shoreline armoring (yes=1, no=0)		0	2	0.0
A4	Project reduces artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A5	Project reduces artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.5	0.0
A6	Project removes in-water structure (i.e. pier piles) from the nearshore (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0)		0	1	0.0
A7	Project removes in-water structure (i.e. pier piles) from off-shore areas (Anywhere beyond 30 feet waterward of OHW; yes=1, no=0)		0	0.5	0.0
A8	Project increases light transmission through an existing artificial overwater cover near the shoreline (Anywhere from 0 to 30 feet waterward of OHW; yes=1, no=0).		0	0.4	0.0
A9	Project increases light transmission through an existing artificial overwater cover in off-shore areas (Areas more than 30 feet from OHW; yes=1, no=0).		0	0.2	0.0
A10	Project is within 1/4 mile of the mouth of a tributary (yes=1, no=0)	0	1	1	5.0
A11	Project is within 1/4 mile of other high-quality shoreline habitats (yes=1, no=0)	0	1	1	5.0
A12	Likelihood of improving local ecological functions (high=5, medium=3, low=0)	N/A	3	1	3.0
A13	Is there some ecological risk associated with not conducting restoration at the site (yes=1, no=0).	N/A	0	1	0.0
A14	Urbanization within overall shoreline segment. If the project is in Segment A, enter 4; if it is in Segment B, enter 5; in Segment C, enter 2; in Segment D, enter	N/A		1	0.0
A15	Project identified in, or is consistent with, adopted watershed restoration plans & policies (regional WRIA 8 high priority = 5, local high priority = 3, low priority =1, no previous reference = 0)	N/A	0	0.5	0
	Section A Subtotal				20.0

Section B: Feasibility Considerations					
B1	Access and/or constructability (easy = 5, difficult = 0)	N/A	2	0.5	1
B2	Regulatory requirements (simple permitting = 5, difficult permitting = 0)	N/A	4	0.5	2
B3	Cost of the project (high cost = 0, low cost = 5)	N/A	3	0.5	1.5
B4	Maintenance/repair costs (low = 5, high = 0)	N/A	2	0.5	1
B5	Project will be consistent with or enhance existing public access, recreation & aesthetic values (high = 5, low = 0)	N/A	5	0.5	2.5
B6	Possibility of cost sharing w/ other funding sources (grants/mitigation) (high = 5, low = 0)	N/A	3	0.5	1.5
	Section B Subtotal				9.5
	Grand Total				29.5


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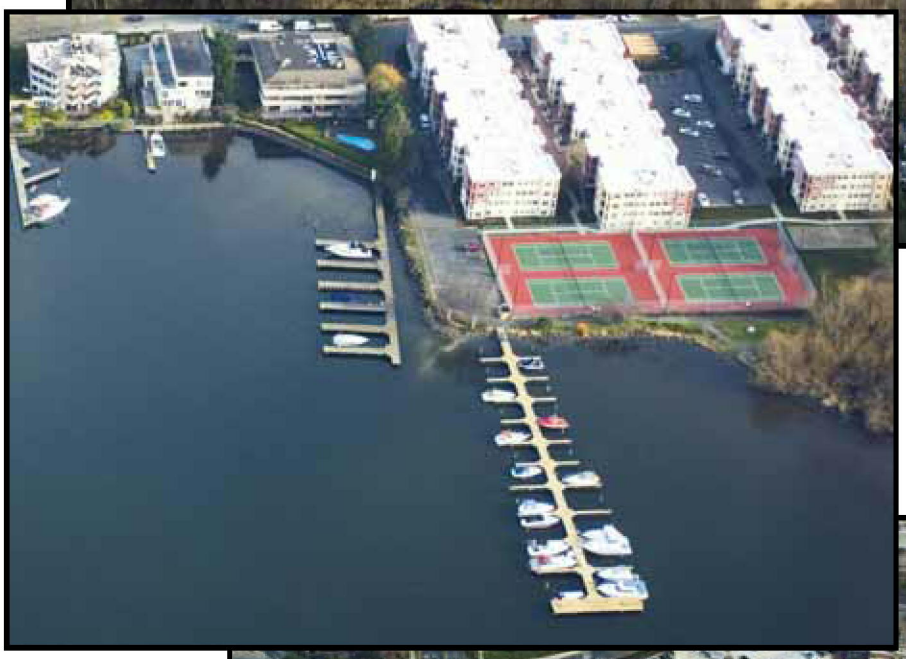



APPENDIX D

PROPOSED OUTREACH AND EDUCATION ACTIONS

Draft Proposed Outreach & Education Actions for the Cedar Population (Tier 1 and 2 Subareas) (by WRIA 8 Public Outreach Committee)

Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
C701	Riparian vegetation displaced by lawn, invasives, or exotics; water quality compromised by garden chemicals, metals, sediment.; higher water use at times when flows lowest.	Protect & restore riparian vegetation to provide sources of large woody debris/pools/riffles; protect& restore water quality, maintain instream flows	Shoreline property owners and general public	Update and distribute streamside living materials such as *Streamside Savvy*, *Salmon Friendly Gardening Practices, or Going Native*. Distribute to all shoreline property owners and make available at City Hall, libraries, and retail establishments such as home & garden centers.	High	Ongoing or have been distributed in past.	Low-Medium
C702	Riparian vegetation displaced by lawn, invasives, or exotics; water quality compromised by landscape practices; higher water use at times when flows lowest.	Protect & restore riparian vegetation to provide sources of large woody debris/pools; protect& restore water quality, maintain instream flows	Shoreline property owners	Offer shoreline property owners a workshop in streamside living. Include tips on landscape design/maintenance appropriate for riverside properties and shoreline stabilization (alternatives to vertical wall bulkhead design). Feature designers and contractors who have both experience and recognition in salmon friendly design.	High	Seattle Public Utilities and Snohomish County Streamside Stewardship Courses, Issaquah's Creekside Living workshops	Low
C703	Smaller parcels lost to development or possible habitat degradation without financial incentives to conserve that are offered to owners of larger parcels	Protect good salmon habitat that could provide source of shelter, pools, riffles, food	Shoreline property owners	Expand use tax credit incentives to encourage protection of smaller properties not currently eligible for existing programs.	High	Public Benefits Rating System, Open Space Current Use Tax (CUT)	Variable (Low budget
C704	Channel confinement from bulkheads, levees, and armoring; loss of riparian vegetation	Soften shorelines, restore floodplain connectivity and channel complexity	Shoreline property owners	Reduce permit fees for shoreline stabilization if design is salmon friendly (employing alternatives to dikes, levees, revetments, and vertical wall bulkheads). Also reduce permit fees (where applicable) for streamside restoration and removal & replacement of non-native vegetation.	High		Low

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Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
C705	Riparian vegetation displaced by lawn, invasives, or exotics; water quality compromised by garden chemicals, metals, sediment. Higher water use at times when flows lowest.	Protect & restore riparian vegetation; protect& restore water quality, maintain instream flows, stabilize slopes with native riparian vegetation. Increase likelihood of achieving these goals by bringing on board industry with a large influence over the landscapes within watershed.	Landscape Contractors	Offer educational opportunities to landscape designers/contractors on riparian design/naturescaping, local plant sourcing, proper installation techniques, invasive species, efficient watering techniques and use of compost to build healthy soils, control erosion and reduce need for supplemental irrigation. Augment training to accommodate English as Second Language participants.	High	Washington Assoc. of Landscape Professionals (WALP) trainings	Low - Medium (industry supported)
C706	Reduced forest cover; increased impervious areas/lack of infiltration/ground water recharge	Protect forest cover, reduce impervious surface area, increase infiltration back into soil and ground water recharge, decrease water use.	Design & Building Profession-als	Provide education to architects, landscape architects, engineers, and developers on sustainable building/design practices. Work with professional associations to highlight building practices that maintain watershed health. Include Low Impact Development, importance of maintaining canopy cover and limiting impervious surfaces.	High	City of Seattle Business & Industry Venture, King County Green Building, LEEDS, Construction Works and other Solid Waste Division outreach programs	Low – Medium
C707	Reduced forest cover; increased impervious areas/lack of infiltration/ground water recharge	Control stormwater runoff to more closely mimic natural hydrology, reduce paving and impervious areas, increase infiltration, protect forest cover	Design & Building Profession-als	Use recognition as a means to encourage more salmon sustainable designs and construction. In addition to professional association awards, expand recognition to include merit awards celebrated by popular magazines read by a broader sector of the general public. Promote through design competitions and media coverage the use of “rain gardens” and other low impact development practices that mimic natural hydrology. Combine a home/garden tour or “Street of Dreams” type event featuring these landscape	High	AIA, ASLA, Sunset Magazine, and Seattle Times Home and Garden awards, King County EnviroStars	R-4786 Attachment E

Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
				/engineering treatments			
C708	Insufficient flow	Maintain instream flows	High-end water users, general public	Extend availability of water conservation incentive programs (such as rebates for efficient toilets, appliances, free indoor conservation kits, or free landscape irrigation audits) to decrease household and commercial water consumption.	High	Smart & Healthy Landscapes, Water Cents	Low
C709	Water quality compromised by garden chemicals, metals, sediment. Higher water use at times when flows lowest.	Protect water quality from degradation by pesticides and soil erosion, maintain instream flows by reducing water used for irrigation, increase organic content in soils to increase water holding capacity	General public	Target Natural Yardcare Neighborhoods Program to include more communities in the Cedar sub-basin. Expand curricula to offer more landscaping guidelines specific to shoreline residences.	High	Ongoing program	Medium - High
C710	Water quality degraded by cleaners, oils, grit, and paint; stream flows reduced by excessive water use	Protect and restore water quality and maintain flows	General Public	Coordinate with local business community to encourage the use of commercial car washes. (Water quality and salmon conservation could provide a new marketing angle; car dealerships could offer car wash coupons as bonus with car purchase.). Require that car kits be used for all parking lot fund raiser car washes, or offer carwash coupons or as more eco-friendly alternative funding source.	High	Puget Sound CarWash Association Coupon Program.	Variable - Low
C711	All conditions listed above Water quality degraded by toxics and garden chemicals; channel confinement; loss of riparian buffer; use of large woody debris, pools, riffles, reduced channel complexity; riparian vegetation displaced by lawn; high water use when flows lowest.	Increase public watershed literacy awareness of effects on water quality and habitat conditions.	General Public, but in particular, residents of Cedar sub-basin who may not be aware of existence of salmon right within urban area	Support and encourage efforts of Cedar River Naturalist Program to promote voluntary stewardship by focusing on education, monitoring, and maintenance of restoration sites (e.g. Cavanaugh Pond). Continue and expand messaging about how everyday personal actions affect salmon, the Cedar River, and entire watershed.	High	Ongoing program with successful track record since l998	Low-Medium

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Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
C712	Water quality degraded by toxics	Keep toxics out of water by providing safer alternative	General Public	Increase outreach about availability and locations of Hazardous Waste Collection sites and special collection events.	High	King County Local Hazardous Waste Management Program	Low (cheaper than dealing with illegal dumping)
C713	Water quality degraded by toxics, pesticides, metals, increased nutrient loads, sediments, loss of riparian buffer	Protect and restore water quality	General Public	Publicize emergency call numbers for public to report water quality and quantity problems, non-permitted vegetation clearing, non-permitted in-stream grading, and wood removal incidents.	High	Seattle Public Utilities Surface Water Pollution Prevention Hotline and website	Low
C714	Riparian vegetation displaced by lawn, invasives, and exotics, providing little food value, no source of LWD, or soil stability (sedimentation of gravel beds). Increased water use when flows lowest; increased use of pesticides on less resistant exotics	Restore native riparian vegetation to provide cover and terrestrial food source, reduce soil erosion and sedimentation in gravel beds, protect and restore water quality, maintain instream flows	Shoreline Property Owners and Community	Increase number of native plant salvages. Integrate these salvage opportunities into naturscaping classes; class participants can take home native plants for immediate use both within and surrounding sensitive areas.	High	King and Snohomish County Native Plant Salvage Programs, WSU Cooperative Extension Native Plant Salvage Project partnership with Puget Sound Action Team, Thruston & Mason Counties.	Low
C715	Channel confinement and loss of channel complexity from bulkheads, levees, and armoring; loss of riparian vegetation	Reduce channel confinement, restore riparian vegetation, and floodplain connectivity and channel complexity	Shoreline property owners, general Public	Demonstration Project. Locate property owner in publicly accessible (or viewable) area willing to remove bulkhead, levee, or stream bank armoring and replace it with more ecologically friendly design. Publicize efforts through various means. Demonstration project should contain elements that can be done by average shoreline property owner. Provide information on costs and advantages of alternate treatments.	High – Medium-		Variable
C716	Lack of large woody debris	Overcome public fear and resistance to providing and	Shoreline property owners,	Increase public awareness about the value of large woody debris and native vegetation for flood protection, salmon habitat, and healthy streams. Convey through	High-Medium	Existing King County and US Forest	Low

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Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
		maintaining woody debris along shorelines and subsequent source of cover, pools, riffles	general public	media (local newspapers, community newsletters); signage along publicly accessible "model" shoreline; and brochures such as King *County's Large Woody Debris and River Safety* and US Forest *Service Large Woody Material: The Backbone of a Stream*. Distribute to all shoreline property owners and to more of general public, especially recreational boaters. Brochures on LWD and boater safety could be made available at appropriate locations such as: the Renton Community Center (where some tubers put in or pull out), the Henry Moses Pool and Water Park, the Renton Public Library (also on the river), and retail locations where inner-tubes, canoes, and kayaks are sold or rented. *Where there is right-of-way or permission from private owners, consider installing kid-friendly signage which addresses the potential dangers that LWD can pose to boaters – along with the value it provides to salmon and the health of the river.. Where possible, locate signs at popular "put-in" and " take-out" spots along the river.*		Service brochures	
C717	All conditions listed above.	Reduce channel confinement, restore riparian vegetation, and floodplain connectivity and channel complexity	Shoreline property owners	Explore possibility of adding a disclosure to Real Estate Sales Agreement describing shorelines as sensitive areas, subject to rules and regulations of City and County. Look to model set by King County.	High – Medium	King County Dept. of Development and Environmental Services	Medium
C718	Water quality compromised by toxics, pesticides, metal fines, and nutrient overloads	Protect and restore water quality.	General Public	Work with auto parts retailers and gas stations to increase potential for collection of used motor oil/transmission fluids. Distribute Water Quality poster series which depicts impacts of everyday practices: washing car, driving car without maintenance, leaving pet wastes unattended, and improperly using lawn chemicals. Promote	High-Medium	Yes, King County Local Hazardous Waste Management *EnviroStars* program	Medium

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Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
				stormwater best management practices related to parking lot cleaning, storm drain maintenance, and road cleaning. Make printed material available in other languages.		Water Quality Consortium, Businesses for Clean Water	
C719	Channel confinement reduced channel complexity, loss of riparian vegetation	Increase public watershed literacy awareness of effects on water quality and habitat conditions,	Community	Increase citizen involvement in voluntary stewardship programs, focusing on restoration projects to meet the needs of the conservation plan through restoration, education, monitoring and restoration site maintenance	High – Medium	Various: Cedar River Naturalists, Sammamish ReLeaf, Stream Team; Water Tenders	Medium
C720	Water quality degraded by sediment, diminished ground water recharge, flashiness of floods and resultant bed scour	Protect and restore forest cover, increase infiltration, decrease intensity of flood conditions, protect water quality from sediment	General public	Increase outreach efforts about the benefits of trees and basin-wide forest coverage to protect water quality. Clarify issues about hazard trees. Offer seedlings (perhaps provided by a timber company) to replant after potentially hazardous trees are removed. Enlist the help of nurseries/home & garden centers on this education campaign. (Potential new Fathers' Day gift idea: Buy and plant a tree each year for a dad who loves salmon).	High in rural areas; Medium in urban/suburban areas.	Yes, Sammamish ReLeaf; Mountains-to-Sound Greenway; City tree ordinances.	Variable - Medium
C721	All conditions listed.	Protect forest cover, wetlands, headwaters, critical salmon habitat; increase public support for land acquisition and restoration projects, as well as landuse policies.	Shoreline property owners, general public	Identify and encourage shoreline neighborhood and community stewardship associations to foster the ethic of voluntary stewardship. Use these groups to build a bridge between property owners, agencies, and locals governments. Promote watershed health through grassroots messaging. Increased potential for media coverage when efforts initiated at community level.	Medium	Friends of Rock Creek Valley, Friends of Cedar River Watershed, Cedar River Council, Lake Forest Park Stewardship Foundation,	Low
C722	Loss of forest cover, organic content in soils, increase in impervious areas and increased run-off, degraded water quality flashiness during flood conditions.	Protect forest cover, reduce impervious area and runoff, increase infiltration, protect and restore water quality, maintain instream flows	Design/ Build Industry	Create a campaign that tracks demand among community residents for purchasing green homes and remodeling with green building strategies.	Medium	Green Car Program	Low
C723	Degraded water	Cultivate ethic of	Youth	Link education and community service stewardship	Medium	Environmental	Low

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Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
	quality, instream flows, habitat quality	environmental stewardship; increase watershed awareness and links between manmade habitat and environmental health.		projects. Expand to community outreach to community/technical colleges & universities.		Portal Seattle, Mercer Slough Interns, N. Shore Utility Tour, Water Tenders.	
C724	Riparian vegetation displaced by lawn, invasives, or exotics, providing little food value, source of large woody debris, or soil stability. Water quality compromised by garden chemicals, metals, sediment. Higher water use at times when flows lowest.	Replace lawn and other lower ecological value plantings with riparian buffers and native plants	General public	Encourage neighborhood garden tours of salmon friendly gardens. Help residents visualize alternatives to traditional (and often less eco-friendly) landscape treatments. Offer neighbors assistance with publicity, signage, and volunteer docents. Coordinate with neighborhood garden clubs.	Medium	Existing neighborhood garden tours. Volunteer docents by King County Master Recycler Composters and WSU Master Gardeners.	Low
C725	All conditions discussed above.	Increase awareness about effects of habitat on salmon and watershed health; increase support for land acquisition and restoration efforts as well as landuse policies; inspire shoreline property owners to make changes on their own property.	General public, but in particular Shoreline property owners	Create local informational TV spots that could run on the government cable channels. Focus on those habitat conditions threatening salmon that are affected by our daily personal practices, landscape design and management practices. Showcase good designs to provide models to emulate.	Medium – Low	Salmon Information TV, C-TV,	Variable
C726	All conditions discussed above.	Encourage Design/Build industry professionals to offer more salmon friendly/eco-friendly	Design & Building Profession-als	Use recognition as a means to encourage more salmon sustainable designs and construction. Coordinate with professional association awards in addition to popular magazine merit awards. Continue to recognize businesses that carry out procedures or use products	Medium – Low	American Institute of Architects, American Society of	Low

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Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
		design solutions.		that protect watershed health.		Landscape Architects, Sunset Magazine, and Seattle Times Home and Garden awards, King County Enviro. Stars.	
C727	All conditions discussed above	Increase watershed literacy and understanding of effects of habitat on salmon	Business Community and General Public	Coordinate with businesses along Cedar that can help with outreach goals. For example, Ivar's Seafoods could promote key messages about salmon conservation on their menus or though game cards. This seafood chain also has other restaurants located within WRIA 8 so it could be cost effective for them to do such a promotion.	Medium	Yes	Low
C728	Water quality degraded by toxics and metal fines.	Reinforce to students and the community the relationship between what goes down storm drain and watershed health via an affordable and easily implemented program.	General Public	Expand storm-drain stenciling program locally and basin-wide. Track locations and dates in a Cedar Basin database.	Medium - Low	Yes	Low
C729	Channel confinement, loss of riparian buffer: sources of large woody debris, pools, riffles; reduced channel complexity,	Inspire shoreline property owners to make changes on their own property by providing good examples; increase public support for land acquisition and restoration efforts as well as landuse policies.	Shoreline property owners and general public	Use government cable channels to follow progress of the site specific restoration projects. Use of video to document projects before, during, and after restoration. Distribute resulting programs to libraries, schools, and communities groups.	Low	Salmon Information TV	Variable
C730	All conditions discussed above.	Improve watershed awareness and	Youth	Focus environmental/science curricula on local watershed issues, with particular emphasis on key	Low-Future	Yes	Medium

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Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
		possibly prevent future habitat degradation by instilling a better understanding of interrelationship between habitat, daily actions, and watershed health.		factors limiting the Cedar Chinook population.			

Draft Proposed Outreach & Education Actions for Lake Washington
(by WRIA 8 Public Outreach Committee)

Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/Model	Level of Financial Commit.
C729	Shoreline hardening, riparian vegetation displaced by lawn, invasives, or exotics with low ecological value, overwater structures creating sharp light contrast, water quality degraded by effects of landscape practices	Increase awareness that the lakeshore is also a nursery for juvenile salmon. It's possible to make "home improvements" that can benefit both property owner and salmon. [people pets, and planet]	Lakeshore property owners	Promote concept of living with the lake, instead of just on it through public messaging. Foster idea of sharing the shoreline with other species that inhabit the lakeshore. Carry out through workshops, literature, and development of education and marketing campaigns	High	Lakeside Living Workshop Series; King County Lake Stewardship Program	Variable
C730	Shoreline hardening, riparian vegetation displaced by lawn, invasives, or exotics with low ecological value, overwater structures creating sharp light contrast, water quality degraded by effects of landscape practices	Reduce conditions favored by predator species; protect & restore water quality.	Lakeshore property owners	Offer lakeshore property owners a series of workshops on lakeshore living: natural yard care; reduction of lawn size, shoreline buffer planting design/noxious weed management; alternatives to vertical wall bulkheads; salmon friendly dock design; aquatic weed management; environmentally friendly methods of maintaining boats, docks, decks; porous paving options	High	WRIA 8/KCD Lakeside Living Lakeshore Property Owner Workshops, Seattle Public Utilities and Snohomish County Creek Stewardship Programs, City of Issaquah's Creekside Living Program, Natural Yard Care Neighborhoods	Medium-High

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Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/Model	Level of Financial Commit.
C731	Forested parcels threatened by development, (even though difficult to build on); creek mouths degraded or unrecognizable (culverted); riparian vegetation replaced by invasives infested along shoreline	Protect and/or restore forest land, critical areas such as wetlands and shallow water rearing habitat. Promote watershed health through grassroots messaging.	Community, but especially lakeshore property owners.	Identify and encourage shoreline neighborhood and community stewardship associations. Use to foster the ethic of voluntary stewardship, set examples for other neighbors to follow, enlist community support to acquire and restore habitat, and to build a bridge between property owners, agencies, and local governments. Increase potential for media coverage when efforts initiated at community level.	High	Lake Forest Park Stewardship Foundation, Save Lake Sammamish, Denny Creek Neighborhood Association	Low
C732	Riparian vegetation displaced by lawn, invasives, or exotics; water quality compromised by garden chemicals, metals, sediment; elevated water temperatures due to increased water use at times when flows lowest.	Protect and improve rearing and migratory habitat; protect and restore water quality	Lakeshore property owners, general public	Update where necessary salmon-friendly educational materials such as *Salmon Friendly Gardening Practices, Going Native, Watershed Waltz and Sammamish Swing* booklets. Print and distribute to the following prioritized audiences: 1)lakeshore property owners 2) Public places such as libraries, city halls, community centers and where permitted, at home improvement centers and other major retail establishments.	Medium - High	Yes	Low-Medium
C733	Riparian vegetation displaced by lawn, invasives, or exotics; water quality compromised by garden chemicals, metals, sediment.; elevated water temperatures due to increased water use at times when flows lowest.	Protect & restore shoreline buffer plantings to provide source of food & shelter; protect& restore water quality, maintain baseflows of feeder streams in order to provide source of cooler water	Lakeshore property owners	Modify more for “lakeshore living” the existing “Streamside Living Welcome Wagon” program in which residents welcome new homeowners to the neighborhood and provide information concerning “salmon friendly” yard care, lakeshore planting tips, water-wise gardening.	Medium	WaterTenders Streamside Living Welcome Wagon	Low-Medium
C734	Solid overwater surfaces that create sharp light contrast and dark shadows,	Reduce severity of predation on juveniles	Lakeshore property owners	Explain about mutual value of mesh docks, smaller piling sizes, and community docks to salmon and property owners: Reduced predation for fish; reduced maintenance for homeowners, opportunity to watch small	High		Medium

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Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/Model	Level of Financial Commit.
	conditions favored by predators.			fish swimming under the dock, and architectural interest provided by new salmon-friendly elevated dock bridges. Outreach could be carried out, for example, by creating a boat owner education campaign. Mailings could be sent with boat registration tab renewal or with property tax notice for shoreline property owners; by literature at marine, sporting goods and hardware stores, at boat shows; and through workshops to homeowners and marine construction industry. Coordinate outreach through appropriate licensing agencies.			
C735	Sharp light contrast and dark hiding spots created by overwater structures, conditions favored by predators	Reduce severity of predation on juveniles by reducing number of docks.	Lakeshore property owners	Offer financial incentives for community docks in terms of reduced: permit fees, loan fees/percentage rates, taxes and permitting time, in addition to reduced construction costs	High		low
C736	Steep shoreline gradient with coarse aggregate caused by wave action on vertical wall bulkheads	Create sandy, shallow water habitat needed by juveniles.	Lakeshore property owners	Utilize niche marketing to promote a "Build a Beach" campaign. Clarify how hardened shorelines prevent the development of shallow, sandy beaches and how alternative treatments can provide these amenities. Of benefit to salmon and to homeowners desiring more easily accessible shallow beach and aesthetics of a cove. Work with media (including design and lifestyle magazines) and real estate community (articles in real estate sections of papers) as well as construction, and design industry professionals	High	Pro Bono advertising campaign development – The Coalition for Drug Free America ad campaign). Bert the Salmon ads	Variable, but low able to get Pro Bono assistance .
C737	Lack of shelter provided by large and small woody debris due to lack of shoreline vegetation; steep dropoffs from shoreline hardening	Reduce conditions favored by predator species.; increase shoreline buffer vegetation and sources for large and small woody debris	Lakeshore property owners	Alternative marketing campaign: work with advertising industry and media. Do a play on "Child Haven" promotion. *Fry Haven*? Contrast picture of a sandy shallow shoreline containing woody debris hiding Chinook juveniles with that of a deep gravelly shoreline with evil looking predator species lurking, gobbling up young Chinook. [A "Chinook need safe places too" idea]. Possibly graphics in style of *Finding Nemo*. Create a marketing niche with landscape related industries to inform property owners about feeding requirements of out-migrating salmon off their beach. Validate need for native vegetation along the shoreline in	High	Various Bert the Salmon Ad campaigns	

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Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/Model	Level of Financial Commit.
				how it provides food source for fish and other wildlife. Perhaps an "Are you starving your neighborhood salmon?" campaign that addresses impacts of denuding shorelines of woody and emergent vegetation could be developed. Or maybe flip to more positive "Have you fed your neighborhood salmon today?" Heighten awareness that it is the young juvenile fish that are at risk. (Humans are often more receptive to saving children). Possibly do a play on *Save the Children* charity campaign, showing stressed conditions for juvenile Chinook trying to rear and migrate through lake.			
C738	Lack of appropriate shoreline vegetation, shoreline hardening by vertical wall bulkheads and rip rap walls; docks that create stark light contrast and hiding spots for predators	Reduce conditions favored by predator species by "softening" shoreline; increase shoreline buffer vegetation and sources for large and small woody debris, replace the many docks with more salmon friendly designs	Lakeshore property owners	Demonstration Project. Locate property owner in publicly accessible (or viewable) area willing to remove bulkhead, or shoreline armoring and replace it with more ecologically friendly design. Similarly, renovate existing dock with more salmon-friendly design. Publicize efforts through various means. Demonstration project should contain elements that can be done by average shoreline property owner. Provide information on costs and advantages of alternate treatments.	Medium – High	Redmond River Walk, Juanita Beach, Classic Nursery, Lark Forest Park Stewardship projects	Medium
C739	Coarse substrate, steep slope, dark hiding spots for predators caused by bulkheads and solid surface docks.	Reduce conditions favored by predator species; increase shoreline buffer vegetation and sources for large and small woody debris	Lakeshore property owners, general public	Document video progress on a range of restoration projects from planning to post-construction. Air on government cable channels, in shoreline property owner classes and for libraries, schools, communities groups.	Medium		Variable
C740	Coarse substrate, steep slope, dark hiding spots for	Overcome resistance of shoreline property	Lakeshore property owners,	Combine recreation and education. Organize a Bulkhead Alternatives and Salmon Friendly Dock Design tour to see good examples of design on a residential scale.	Low	King County and People for Puget Sound	Variable

Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/Model	Level of Financial Commit.
	predators caused by bulkheads and solid surface docks.	owners to make such drastic changes to their shorelines by offering local examples of alternative treatments. Ultimate goal is to reduce conditions favored by predator species	general public	Organize as boat tour so properties can be viewed from water (less invasive to property owner). Alternatively, create a self-guided water tour (most shoreline property owners have their own boats) with GPS coordinates to help locate example property.		shoreline homeowner workshops (pilot programs)	
C741	Shoreline hardening, riparian vegetation displaced by lawn, ivasives, or exotics with low ecological value, overwater structures creating sharp light contrast, water quality degraded by effects of landscape practices	Protect and improve water quality; habitat quality - or- Protect & restore riparian vegetation to provide terrestrial food source and shelter; protect& restore water quality, maintain instream flows upstream to provide source of cooler water	Landscape Contractors	Offer professional workshops to landscape designers & contractors on environmentally-friendly lakeshore landscaping. Include topics such as shoreline buffer function and design, native plant selection, installation techniques, use of compost to build healthy soils, and noxious weed control. Determine need for training for non-English speaking participants	Medium – High	Washington Assoc of Landscape Professionals (WALP) Trainings by King County Local Hazardous Waste Management Program	Low
C742	Riparian vegetation displaced by lawn. Water quality compromised by garden chemicals, metals, sediment.	Increase shoreline planting; reduce lawn size to at least have buffer between lawn and shore.	Lakeshore property owners	Work with landscape, design, and real estate industries to sell benefit of "privacy" to homeowners. With restoration of shoreline buffer planting homeowners can increase privacy without sacrificing views. Promote idea of "framed views" as a more sophisticated landscape aesthetic.	Medium - High	1998 Lake Sammamish Shoreline Prop owners workshop Pilot Program	
C743	Lack of shoreline buffer vegetation, increased water use when levels lowest;	Increase native vegetation and source of shelter and food for fish;	Lakeshore property owners , Community	Increase number of native plant salvages where landowners can take plants back to their yards. Publicize opportunity to drop off unwanted native plants at various parks surrounding the lake.	Low – Lake Washin gton	King County Native Plant Salvage Program	

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Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/Model	Level of Financial Commit.
	increased perceived need for pesticides	reduce erosion and need for supplemental irrigation (once established)			Low-Med Sammamish		
C744	Lack of appropriate shoreline vegetation	Increase shoreline vegetation and reduce non-native vegetation & spread of invasives	Lakeshore property owners	Reduce permit fees (where applicable) for shoreline restoration, removal & replacement of non-native vegetation	Medium		Low
C745	Water quality degraded by toxics, pesticides, increased nutrient loads, sediment from construction sites; loss of riparian vegetation	Protect and improve water quality	General Public	Publicize emergency call numbers for public to report water quality problems, water diversion from lake for irrigation, , non-permitted vegetation clearing, or tree overspray (pesticide) related incidents.	High	King County Water & Land Division, Seattle Public Utilities Hotlines	Low
C746	Reduced forest and canopy cover; increased impervious areas, decreased infiltration; more flashiness of floods due to intensity of runoff	Protect and improve water quality; reduce quantity of water entering lake: during flood conditions can mix with sanitary sewer flows and enter lake.	General public, but property owners in particular	Increase outreach concerning the benefits of trees and basin-wide forest coverage to protect water quality. Include such actions as significant tree ordinance and information that links canopy cover to storm water issues. Provide clarification on hazardous tree issues. Offer seedlings to replant after hazard trees are removed. Coordinate with commercial nurseries to expand outreach about benefits of trees to salmon.	Medium-High	Sammamish ReLeaf; Mountains-to-Sound Greenway; City tree ordinances, King County Forestry Program	Low
C747	Elevated lake temperatures, lack of cool water sources from feeder streams, insufficient flows in feeder streams to provide source of cooler water, lack of ground water recharge, water	Protect forest cover, reduce paving an d impervious areas, increase infiltration and conditions that mimic natural hydrology, protect water quality	Design, engineering, and construction industries	Provide education to architects, landscape architects, engineers, and developers on sustainable building/design practices. Work with professional associations to highlight building practices that maintain watershed health, importance of maintaining canopy cover and limiting impervious surfaces. Provide incentives to builders that demonstrate a use ecologically sensitive designs and/or techniques. Provide professional workshop and tours focusing on	Medium - High	WALP Trainings by King County Local Hazardous Waste Management Program. Stoneway	Variable

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Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/Model	Level of Financial Commit.
	quality, habitat quality			sustainable building/design practices to architects, landscape architects, engineers and developers. Build partnerships with professional associations to highlight the benefits of practices that maintain watershed health. Promote through design competitions and media coverage the use of "rain gardens" and other low impact development practices that mimic natural hydrology. Combine a home & garden tour or "Street of Dreams" type event featuring these landscape and engineering treatments.		Concrete Council for Sustainable Development outreach on pervious pavement. Port Blakely Communities, Issaquah partnerships, Built Green, Sustainable Seattle, LEEDS	
C748	Reduced forest cover, increased impervious area, decreased infiltration and ground water recharge, water quality degraded by runoff	Protect and improve water quality and quantity to more closely mimic natural hydrology	Developers, Architects, Engineers Building Professionals	Use recognition as a means to encourage more salmon sustainable designs and construction. Coordinate with professional association awards, in addition to popular magazine merit awards. Continue to recognize businesses that carry out procedures or use products that protect watershed health. Promote through design competitions and media coverage the use of "rain gardens" and other low impact development practices that mimic natural hydrology. Combine a home/garden tour or "Street of Dreams" type event featuring these landscape /engineering treatments	Medium	AIA, ASLA, Sunset Magazine, and Seattle Times Home and Garden awards, King County Enviro Stars.	Low
C749	Water quality degraded by metals, toxins, pesticides, and nutrient overloads	Protect and improve water quality	General Public	Create a program that addresses impact of car maintenance and offers alternatives that help protect watershed health and water quality. More actively distribute – poster series developed by multi-jurisdictional Water Quality Consortium. Series depict water quality implications of everyday activities such as car washing, ignoring car maintenance, pet wastes. Work with auto parts retailers and gas stations to increase potential for collection of used motor oil/transmission fluids.	Medium	King County Local Hazardous Waste Mgmt Program Water Quality Consortium, Businesses for Clean Water	variable

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Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/Model	Level of Financial Commit.
				Make outreach materials available to non-English speakers.			
C750	Water Quality degraded by toxics and metal fines	Protect and restore water quality	General Public	Build partnerships and seek outreach opportunities with commute trip reduction programs to convey the impacts of automobiles on water quality and salmon habitat. Encourage alternative transportation choices.	Medium	Commute Trip Reduction Programs	Low - Medium
C751	Water Quality degraded by toxics and metal fines degraded by metals and toxins	Protect and restore water quality	General Public, schools/non-profits and Charity groups – and business that offer to host a carwash.	Coordinate with local business community to encourage the use of commercial car washes over washing at home on street or in parking lots. Encourage alternatives to charity cash washes via commercial car wash coupon books or extend car wash kits throughout entire watershed. Make requirement that all charity car washes use coupons or car wash storm drain kit. Distribute "alternative community fundraising idea" brochure to volunteer fundraisers.	Medium - High	Yes, various cities' car wash kit programs. Puget Sound Carwash Association	Low
C752	Water quality degraded by metals and toxins	Protect and restore water quality	Businesses, property management companies, homeowners associations.	Educate and support retail business and homeowner associations on stormwater best management practices specifically related to parking lot cleaning, storm drain maintenance, and boat cleaning.	Medium	Ongoing programs by various jurisdictions within WIRA, e.g. Issaquah, Redmond	Low
C753	Reduced baseflows from streams that feed into lake and subsequent elevated water temperatures in lake	Protect and restore sources of cool water	High end water users and general public	Extend availability of water conservation incentive programs such as rebates for efficient toilets, appliances, soaker hoses, free indoor conservation kits, or free landscape irrigation audits to decrease household and commercial water consumption.	High	Smart & Healthy Landscapes, Water Cents, and other utility incentive programs	Low

APPENDIX E

FUNDING OPPORTUNITIES

Grant Name	Allocating Entity	Web-Site
Acorn Foundation	Acorn Foundation	http://www.commoncounsel.org/Acorn%20Foundation
Allen Family Foundation, Paul G. – Science and Technology Program	Paul G. Allen Family Foundation	http://www.pgafamilyfoundation.org/
Aquatic Lands Enhancement Account (ALEA)	Washington Recreation and Conservation Office	http://www.rco.wa.gov/rcfb/grants/alea.htm
Salmon Recovery Grant Program	Washington Recreation and Conservation Office	http://www.rco.wa.gov/srfb/grants/salmon_recovery.htm
Freshwater Fish Conservation Initiative and other various programs	National Fish and Wildlife Foundation	http://www.nfwf.org/AM/Template.cfm?Section=Fish_Conservation2
Bullitt Foundation	Bullitt Foundation	http://www.bullitt.org/
Water Quality Program	Washington State Department of Ecology	http://www.ecy.wa.gov/programs/wq/funding/FundingPrograms.html
Sea Program	Washington State Department of Ecology	http://www.ecy.wa.gov/programs/sea/sea-grants.htm
Coastal Protection Account	Washington Department of Ecology	
Washington CZM 309 Improvement Grants Program	Washington Department of Ecology	http://www.ecy.wa.gov/programs/sea/czm/309-improv.html
NOAA Restoration Center Partnerships	NOAA Fisheries: Restoration Center	http://www.nmfs.noaa.gov/habitat/restoration/funding_opportunities/funding_nwr.html
Cooperative Endangered Species Conservation Fund	US Fish and Wildlife Service	http://www.fws.gov/endangered/grants/index.html
Doris Duke Charitable Foundation	Doris Duke Charitable Foundation	http://www.ddcf.org/
Fish America Grant Program	Fish America Foundation	http://www.fishamerica.org/grants/
Various	Environmental Protection Agency	http://www.epa.gov/epahome/grants.htm
Landowner incentive program	Washington State Department of Fish and Wildlife	http://wdfw.wa.gov/grants/lip/
King Conservation District Funds	King Conservation District	http://www.kingcd.org/pro_gra.htm

Grant Name	Allocating Entity	Web-Site
The King County Water Quality Block Grant Fund	King County	http://www.kingcounty.gov/environment/grants-and-awards/grant-exchange/waterworks.aspx
King County Community Salmon Fund	National Fish and Wildlife Foundation	http://www.kingcounty.gov/environment/grants-and-awards/grant-exchange/waterworks.aspx
King County Flood Control District	King County	http://www.kingcounty.gov/environment/waterandland/flooding/flood-control-zone-district.aspx

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Attachment F

SHORELINE CUMULATIVE IMPACTS ANALYSIS

for the City of Kirkland Shoreline Master Program

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June 2009

Printed on 30% recycled paper.

The Watershed Company Reference Number:
051011

The Watershed Company Contact Person:
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Cite this document as:
The Watershed Company. June 2009. Shoreline Cumulative Impacts Analysis for City of Kirkland Shoreline Master Program. Prepared for the City of Kirkland: Planning and Community Development.

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SHORELINE CUMULATIVE IMPACTS ANALYSIS

FOR CITY OF KIRKLAND
SHORELINE MASTER PROGRAM

1 INTRODUCTION

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

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

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

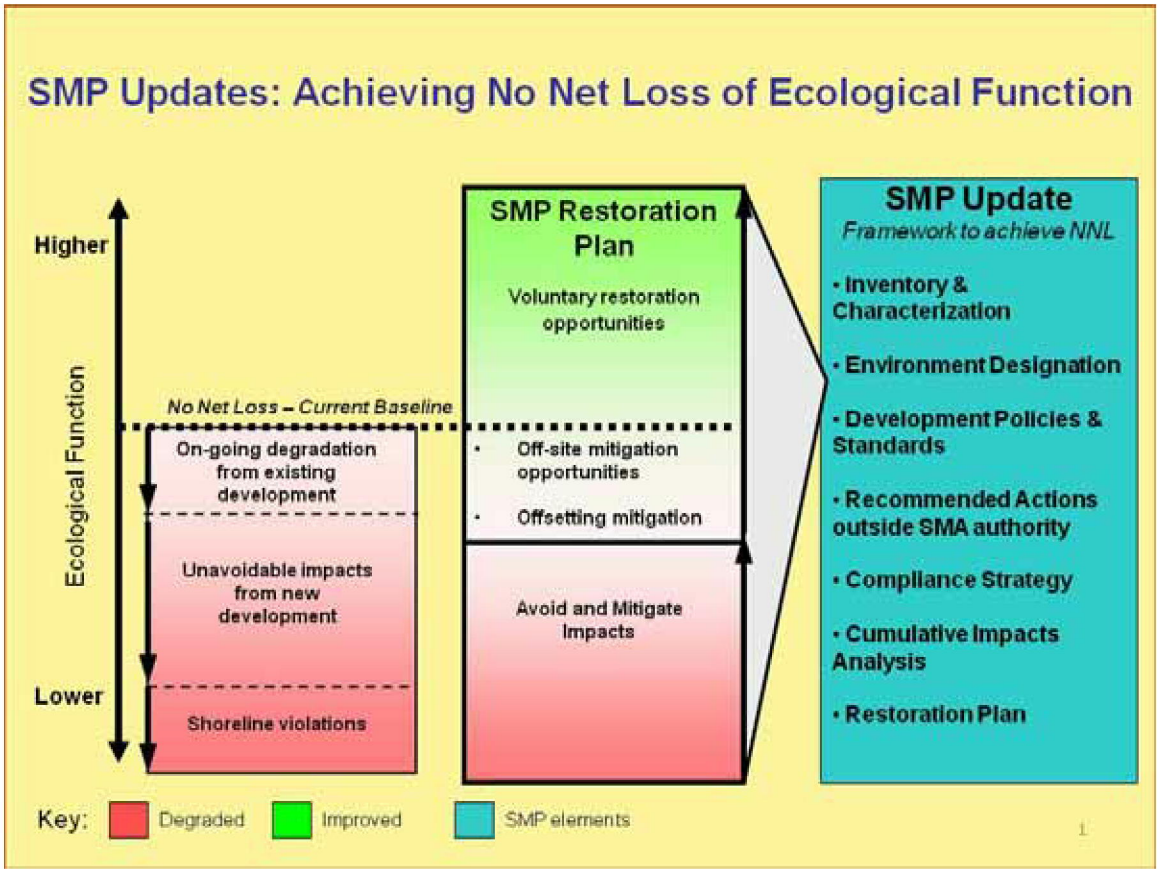
In short, updated SMPs shall contain goals, policies and regulations that prevent degradation of ecological functions relative to the existing conditions as documented in that jurisdiction's characterization and analysis report. For those projects that result in degradation of ecological functions, the required mitigation must return the resultant ecological function back to the baseline. This is illustrated in Exhibit 1 below. The jurisdiction must be able to demonstrate that it has accomplished that goal through an

analysis of cumulative impacts that might occur through implementation of the updated SMP. Evaluation of such cumulative impacts should consider:

(i) current circumstances affecting the shorelines and relevant natural processes;

(ii) reasonably foreseeable future development and use of the shoreline; and

(iii) beneficial effects of any established regulatory programs under other local, state, and federal laws."



Source: Department of Ecology

Exhibit 1. Department of Ecology Illustration to Achieve "No Net Loss"

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

The following information and analysis provided in this report provides an overview by proposed environment designation of existing conditions, anticipated development, relevant Shoreline Master Program (SMP) and other regulatory provisions, and the expected net impact on ecological function.

2 EXISTING CONDITIONS

The following summary of existing conditions is based on the Final Shoreline Analysis Report (The Watershed Company 2006) and additional analysis needed to perform this assessment. This discussion has been divided by proposed shoreline environment designations. As shown in Figure 1 in Appendix A, these include Residential – L, Residential M/H, Urban Mixed, Urban Conservancy, Natural, and Aquatic designations. The Shoreline Analysis Report includes an in-depth discussion of the topics below, as well as information about transportation, stormwater and wastewater utilities, impervious surfaces, and historical/archaeological sites, among others.

As shown in Table 1, nearly 40 percent of the City's shoreline frontage and over 60 percent of the City's total shoreline area is designated Natural or Urban Conservancy, the designations assigned to those lands that have higher levels of ecological function and the lower levels of existing and allowed alteration. The majority of the City's shoreline development is concentrated in the remaining 60 percent of the shoreline frontage and 40 percent of the shoreline area, in areas that generally have lower level of ecological function as a result of that development.

Table 1. Length of Shoreline Frontage and Shoreline Area by Environment Designation

Environment Designation	Waterfront Length	Percent of Total Shoreline Frontage	Area in Shoreline Jurisdiction	Percent of Total Shoreline Area
Natural (N)	8,312 Feet (1.57 Miles)	26%	143 acres	58%
Urban Conservancy (UC)	4,514 Feet (0.85 Miles)	14%	18 acres	7%
Residential – Low (R-L)	8,123 Feet (1.54 Miles)	25%	31 acres	13%
Residential – Medium/High (R-M/H)	6,204 Feet (1.18 Miles)	19%	30 acres	12%
Urban Mixed (UM)	5,043 Feet (0.96 Miles)	16%	24 acres	10%
TOTAL	**32,196 Feet (6.1 Miles)**	**100%**	**245**	**100%**

It is important to note that overall Kirkland's shoreline zone is generally deficient in high-quality biological resources and critical areas, with the exception of the wetlands and shoreline areas within and adjacent to Yarrow Bay and Juanita Bay.

2.1 Residential – L Environment

Approximately 13 percent of the City's upland shoreline jurisdiction is in the Residential – L environment. Results from Kirkland's Shoreline Analysis Report (The Watershed Company 2006) show that the majority of the Residential – L environment contains Medium functioning shoreline. Two small areas of Residential – L environment are located along Lake Washington Boulevard, in an area rated as Low functioning. These shoreline analysis results are based on a relative scale of shoreline conditions throughout Kirkland, including the information provided below.

2.1.1 Existing Land Use

The shoreline within the Residential – L environment is exclusively single-family residential. In general, the land area designated as Residential – L is fully developed, containing approximately 35 percent impervious surface. Expansion, redevelopment or alteration to existing single-family units will occur over time (see Figures 1a-d in Appendix B). The Residential – L environment contains 117 lots, 97 of which abut the water. Two lots are vacant, including one waterfront lot (see Figure 2 in Appendix B).

The existing median residential structure setback in the Residential – L environment is approximately 43 feet from the ordinary high water mark (OHWM) (see Figures 3a-f in Appendix B). However, the median distance from the OHWM to improvements (either paved surfaces or other accessory structures) is approximately 36 feet. Table 2 presents data on existing residential structure setbacks on parcels within the Residential – L environment. As Table 2 shows, 23 (24%) of the 97 waterfront parcels have residential structures located less than 30 feet (non-conforming structures) from the OHWM. Of the remaining developed lots, 53 (55%) have residential structures between 30 and 60 feet from OHWM, and 22 (23%) have residential structures greater than 60 feet from the OHWM.

Table 2. Existing shoreline residential structure setback data for the Residential – L environment.

Measure of residential structure setback	Number of Waterfront Parcels
Total Waterfront Parcels	**97**
Structures < 30 ft from OHWM	23
Structures 30 - 60 ft. from OHWM	53
Structures > 60 ft. from OHWM	22

In general, setbacks ranged widely from essentially 0 feet to 232 feet. Setbacks at individual properties seem to be based on several factors, including local topography, lot depth (see Exhibit 2), and location of the sewer line. A cluster of very shallow lots corresponding to very small existing structure setbacks is located south of the Heritage Park street end to just north of Marina Park.

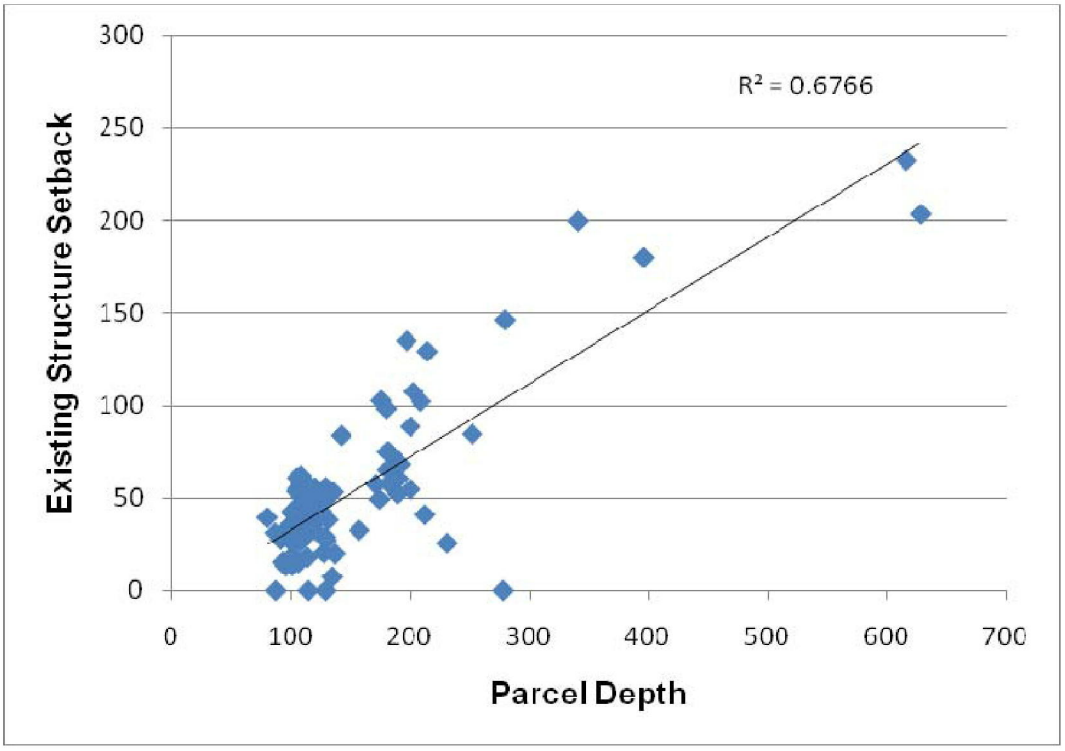


Exhibit 2. Relationship between Parcel Depth and Existing Structure Setback in the Residential – Low Shoreline Environment.

2.1.2 Parks and Open Space/Public Access

There are no formal public parks or open spaces within the Residential – L environment. However, there are several waterfront street ends, though these are presently not developed or used for public purposes.

2.1.3 Shoreline Modifications

The Residential – L environment is heavily modified with just over 88 percent of the shoreline armored at or near the OHWM (Table 3) (see Figures 7a-7e in the Shoreline Analysis Report) and a pier density of approximately 56 piers per mile (Table 4). This compares to 71 percent armored and 36 piers per mile for the entire Lake Washington shoreline (Toft 2001). Thus, for Kirkland's Residential – L environment, pier density and shoreline armoring are much higher than the lake-wide figures.

Table 3. Shoreline armoring in the Residential – L environment.

Shoreline Condition (feet / % of shoreline)	
Armored[1]	Natural / Semi-Natural[2]
7,148 (88%)	975 (12%)

[1] "Armored" shorelines encompass angular or rounded granite or basalt boulder, concrete, and wood armoring types.

[2] "Natural/Semi-Natural" shorelines captures those areas that are not solidly armored at the ordinary high water line; they may include some scattered boulders or woody debris at or near the ordinary high water line.

Table 4. In-water structures in the Residential – L environment.

Total Number of Piers	Average Number of Piers per Mile	Total Overwater Cover (square feet)
90	56	73,947

It is not uncommon around Lake Washington for some historic fills to be associated with the original bulkhead construction, usually to create a more level or larger yard. Most of these shoreline fills occurred at the time that the lake elevation was lowered during construction of the Hiram Chittenden Locks.

2.2 Residential – M/H Environment

Approximately 12 percent of the City's upland shoreline jurisdiction is in the Residential – M/H environment. Results from Kirkland's Shoreline Analysis Report (The Watershed Company 2006) show that the majority of the Residential – M/H environment contains Low functioning shoreline. However, one small area of Residential – M/H environment is located just west of Juanita Beach Park, in an area rated as High functioning. A second area of Residential – M/H environment is located just north of Marina Park, in an area rated as Medium functioning. These shoreline analysis results are based on a relative scale of shoreline conditions throughout Kirkland, including the information provided below.

2.2.1 Existing Land Use

The shoreline within the Residential – M/H environment is comprised of both single- and multi-family residential uses. In general, the land area is fully developed, containing approximately 54 percent impervious surface. Expansion, redevelopment or alteration to existing multi-family units will occur over time (see Figures 1a-d in

Appendix B). The Residential – M/H environment contains 92 lots, 57 of which abut the water. Five lots are vacant, including four waterfront lots (see Figure 2 in Appendix B).

The existing median residential structure setback in the Residential – M/H environment is approximately 24 feet from the ordinary high water mark (OHWM) (see Figures 3a-f in Appendix B). However, the median distance from the OHWM to improvements (either paved surfaces or other accessory structures) is approximately 15 feet. Table 5 presents data on existing residential structure setbacks on parcels within the Residential – M/H environment. As Table 5 shows, 28 (50%) of the 56 waterfront parcels have residential structures located less than 25 feet from the OHWM. Of these, six residential condominium structures were built out over the water. Of the remaining developed lots, 15 (27%) have residential structures between 25 and 40 feet from OHWM, and 13 (23%) have residential structures greater than 40 feet from OHWM.

Table 5. Existing shoreline residential structure setback data for the Residential – M/H environment.

Measure of primary structure setback	Number of Waterfront Parcels
Total Waterfront Parcels	**56**
Structures < 25 ft from OHWM	28
Structures 25 - 40 ft. from OHWM	15
Structures > 40 ft. from OHWM	13

In general, setbacks ranged widely from essentially 0 feet to 134 feet. This environment also contains several buildings constructed over the water and supported on pilings. Similar to the Residential – L environment, setbacks at individual properties seem to be based on several factors, including lot depth (see Exhibit 3) and location of the sewer line. However, the correlation is not as strong. This is likely because most of the existing multi-family developments attempt to maximize number of units on a given parcel, making it a higher priority to push the development closer to the water.

2.2.2 Parks and Open Space/Public Access

There are no formal public parks or open spaces within the Residential – M/H environment.

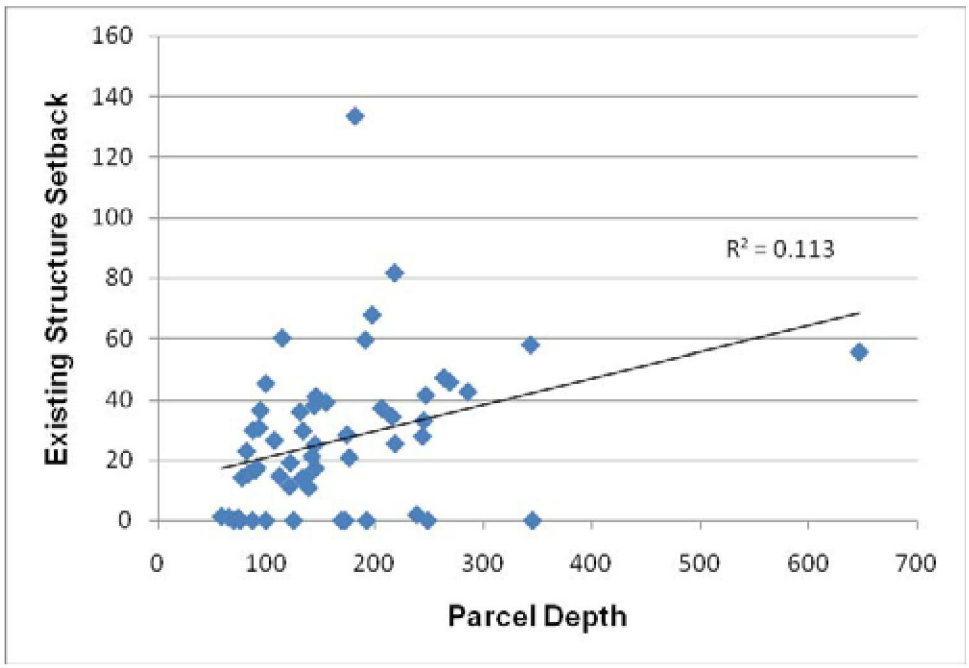


Exhibit 3. Relationship between Parcel Depth and Existing Structure Setback in the Residential – Medium/High Shoreline Environment.

2.2.3 Shoreline Modifications

The Residential – M/H environment is heavily modified with just over 89 percent of the shoreline armored at or near the OHWM (Table 6) (see Figures 7a-7e in the Shoreline Analysis Report) and a pier density of approximately 42 piers per mile (Table 7). This compares to 71 percent armored and 36 piers per mile for the entire Lake Washington shoreline (Toft 2001). Thus, for Kirkland's Residential – M/H environment, pier density and shoreline armoring are both higher than the lake-wide figures, although pier density is lower than the Residential –L environment.

Table 6. Shoreline armoring in the Residential – M/H environment.

Shoreline Condition (feet / % of shoreline)	
Armored[1]	**Natural / Semi-Natural[2]**
5,522 (89%)	682 (11%)

[1] "Armored" shorelines encompass angular or rounded granite or basalt boulder, concrete, and wood armoring types.

[2] "Natural/Semi-Natural" shorelines captures those areas that are not solidly armored at the ordinary high water line; they may include some scattered boulders or woody debris at or near the ordinary high water line.

Table 7. In-water structures in the Residential – M/H environment.

Total Number of Piers	Average Number of Piers per Mile	Total Overwater Cover (square feet)
49	42	145,571

2.3 Urban Conservancy

Approximately 7 percent of the City's shoreline jurisdiction is in the Urban Conservancy environment. Results from Kirkland's Shoreline Analysis Report (The Watershed Company 2006) show that the Urban Conservancy environment contains areas rated at all three levels of shoreline ecological function (Low, Medium, and High). The area just west of the Juanita Beach Park swimming beach is rated as High. Kiwanis Park, Waverly Park, and the Lave Avenue West Street-end Park are each rated as Medium. Finally, the parks/open spaces located south of Marina Park and north of the Yarrow Bay Wetlands are rated as Low. These shoreline analysis results are based on a relative scale of shoreline conditions throughout Kirkland, including the information provided below.

2.3.1 Existing Land Use

The Urban Conservancy environment is comprised entirely of City-owned parks and street-ends designated as Park/Open Space per the City's Comprehensive Plan. The land area contains approximately 23 percent impervious surface. The existing median primary structure setback in the Urban Conservancy environment is 31 feet, and the mean is 37 feet (see Figures 3a-f in Appendix B). There are 14 parcels in the Urban Conservancy environment, 10 of which abut the water. Nine lots are vacant (likely undeveloped street-ends or parks), including six waterfront lots (see Figure 2 in Appendix B).

2.3.2 Parks and Open Space/Public Access

The City parks listed below provide public access to Lake Washington, as well as provide opportunities for water-dependent, water-related, and water-enjoyment recreational uses.

- Houghton Beach Park
- Marsh Park
- Settler's Landing
- David Brink Park
- Street-end Park
- Lake Avenue West Street-end Park
- Kiwanis Park

- Waverly Beach Park
- Juanita Beach Park

The western portion of Juanita Beach Park, containing Juanita Creek and its associated stream buffer, is designated as Urban Conservancy. However, the heavily used beach area is designated as Urban Mixed (see below).

2.3.3 Shoreline Modifications

The Kirkland shoreline in the Urban Conservancy environment has been modified with approximately 60 percent of the shoreline armored (Table 8) (see Figures 7a -7e in the Shoreline Analysis Report) at or near the OHWM and a total of approximately 7 piers per mile (Table 9). As expected, pier density and shoreline armoring along Kirkland's Urban Conservancy environment is significantly lower than the lake-wide figures.

Table 8. Shoreline armoring in the Urban Conservancy environment.

Shoreline Condition (feet / % of shoreline)	
Armored[1]	Natural / Semi-Natural[2]
2,708 (60%)	1,806 (40%)

1 "Armored" shorelines encompass angular or rounded granite or basalt boulder, concrete, and wood armoring types.

2 "Natural/Semi-Natural" shorelines captures those areas that are not solidly armored at the ordinary high water line; they may include some scattered boulders or woody debris at or near the ordinary high water line.

Table 9. In-water structures in the Urban Conservancy environment.

Total Number of Piers	Average Number of Piers per Mile	Total Overwater Cover (square feet)
18	24	23,206

2.4 Urban Mixed

Approximately 10 percent of the City's upland shoreline jurisdiction is in the Urban Mixed environment. Results from Kirkland's Shoreline Analysis Report (The Watershed Company 2006) show that the majority of the Urban Mixed environment contains Low functioning shoreline. However, the majority of Juanita Beach Park and the adjoining multi-family uses to the east are included in an area rated as High functioning. These shoreline analysis results are based on a relative scale of shoreline conditions throughout Kirkland, including the information provided below.

2.4.1 Existing Land Use

The shoreline within the Urban Mixed environment is comprised of a variety of uses including higher-intensity park/open space (relative to Urban Conservancy or Natural parks), some multi-family residential, and commercial. In general, the land area is fully developed, containing approximately 56 percent impervious surface. The Urban Mixed environment contains 40 lots, 15 of which abut the water. Four lots are vacant, including two waterfront lots (see Figure 2 in Appendix B).

The existing median primary structure setback in the Urban Mixed environment is 28 feet from the ordinary high water mark (OHWM) (see Figures 3a-f in Appendix B). However, the median distance from the OHWM to improvements (either paved surfaces or other accessory structures) is approximately 11 feet. Table 10 presents data on existing residential structure setbacks on parcels within the Urban Mixed environment. As Table 10 shows, 4 (31%) of the 13 waterfront parcels have primary structures located less than 25 feet from the OHWM. Of the remaining developed lots, 5 (38%) have primary structures between 25 and 40 feet from OHWM, and 4 (31%) have primary structures greater than 40 feet from OHWM.

Table 10. Existing shoreline primary structure setback data for the Urban Mixed environment.

Measure of Primary Structure Setback	Number of Waterfront Parcels
Total Developed Waterfront Parcels	**13**
Structures < 25 ft from OHWM	4
Structures 25 - 40 ft. from OHWM	5
Structures > 40 ft from OHWM	4

2.4.2 Parks and Open Space/Public Access

Both Marina Park, located in downtown Kirkland, and the swimming beach at Juanita Beach Park are designated as Urban Mixed.

2.4.3 Shoreline Modifications

The Urban Mixed environment is heavily modified with just over 80 percent of the shoreline armored at or near the OHWM (Table 11) (see Figures 7a-7e in the Shoreline Analysis Report) and a pier density of approximately 14 piers per mile (Table 12). Thus, for Kirkland's Urban Mixed environment, pier density is lower but shoreline armoring is higher than the lake-wide figures.

Table 11. Shoreline armoring in the Urban Mixed environment.

Shoreline Condition (feet / % of shoreline)	
Armored[1]	Natural / Semi-Natural[2]
4,034 (80%)	1,009 (20%)

[1] "Armored" shorelines encompass angular or rounded granite or basalt boulder, concrete, and wood armoring types.

[2] "Natural/Semi-Natural" shorelines captures those areas that are not solidly armored at the ordinary high water line; they may include some scattered boulders or woody debris at or near the ordinary high water line.

Table 12. In-water structures in the Urban Mixed environment.

Total Number of Piers	Average Number of Piers per Mile	Total Overwater Cover (square feet)
13	14	157,824

2.5 Natural Environment

Approximately 58 percent of the City's upland shoreline jurisdiction is in the Natural environment. These areas all rate as High for existing shoreline ecological function (The Watershed Company 2006).

2.5.1 Existing Land Use

The shoreline within the Natural environment is predominately park/open space, though there are some privately held undeveloped properties located in both the Yarrow Bay and Juanita Bay wetland complexes. The Natural environment contains only 1 percent impervious surface. There are a number of existing, undeveloped lots located within this environment. The Natural environment contains all or portions of 73 lots, 16 of which abut the water. Forty-one lots are vacant, though many of these are in public ownership. Of those privately held, fourteen lots are vacant, including three waterfront lots (see Figure 2 in Appendix B). However, only one of these lots has the potential for development within shoreline jurisdiction due to critical area restrictions (see Figures 1a and 1d in Appendix B). The remaining lots are either owned by the City, or are encumbered by associated wetlands but have upland area outside of shoreline jurisdiction that may accommodate new development.

2.5.2 Parks and Open Space/Public Access

Yarrow Bay Park, Juanita Bay Park and their associated wetlands are designated as Natural.

2.5.3 Shoreline Modifications

The Natural environment contains no shoreline armoring at or near the OHWM (see Figures 7a-7e in the Shoreline Analysis Report) and a very low pier density of approximately 1 pier per mile. Two piers are located within Juanita Bay Park. Thus, as expected, pier density and shoreline armoring within Kirkland's Natural environment are both extremely low compared to the lake-wide figures.

2.6 Aquatic Environment

The Aquatic environment encompasses all areas waterward of the ordinary high water mark of Lake Washington contained within the City limits. The purpose of this designation is to protect, restore, and manage the unique characteristics and resources of the areas waterward of the ordinary high water mark. Regulations and performance standards that apply to individual uses and developments are evaluated under the above designations and uses.

2.7 Biological Resources and Critical Areas

With the exception of the wetlands and shoreline areas within and adjacent to Yarrow Bay and Juanita Bay, Kirkland's shoreline zone itself is generally deficient in high-quality biological resources and critical areas, primarily because of the extensive residential and commercial development and their associated shoreline modifications. Outside of the shoreline associated wetlands, the highest functioning shoreline areas are primarily along city-owned parks and open spaces. Although not specifically separated as a distinct unit during the shoreline inventory, Kiwanis Park represents the highest quality City-owned shoreline, in terms of existing ecological functions, not including the Yarrow Bay and Juanita Bay wetland areas. Many of the parks in both the Urban Conservancy and Urban Mixed environment have the potential for the improvement of ecological functions.

There are a number of streams along the Kirkland shoreline that discharge into Lake Washington. Several, including Juanita Creek, Forbes Creek, Carillon Creek, and Yarrow Creek, are known to support fish use. Adult salmon have been documented in each of these creeks. Many of the smaller tributaries to Lake Washington, including streams that flow seasonally or during periods of heavy rains, are piped at some point and discharge directly to Lake Washington via a closed system.

3 ANTICIPATED DEVELOPMENT AND POTENTIAL EFFECT ON FUNCTION

3.1 Patterns of Shoreline Activity

The City reviewed its shoreline permitting records for the 16 years between 1991 and 2006 (Table 13). Several projects had multiple components and obtained multiple permits; the available permit summary did not consistently indicate which permit type was granted so there are a number of "unknowns." This summary underestimates shoreline activity, as not all shoreline exemptions were tracked.

Table 13. Shoreline Permit History in the City of Kirkland Since 1991.

Year	# of Cases	Pier		Bulkhead Mod.	Upland Structure	Upland Park Mod.	Utilities	Permit Type			
		Extension/ Mod.	New/ Replacement					SDP	SCUP	Variance	Unknown
1991	1				1					1	
1992	5	2	1	1	1	1	1	4	1	1	1
1993	4		3		1			3		1	
1994	3	1	1	1	1			1	1		1
1995	9	1	1		4	1	2	4			5
1996	4		2	1	1		1	2		1	1
1997	4	2			1		1	4			
1998	5	1	1	1	4			3		3	1
1999	6	1	4		1			4		1	1
2000	4	1	1		1		1	2			2
2001	3				3					1	2
2002	2				1		1			1	1
2003	2				2						2
2004	5		2		2		1	3			2
2005	4	1	1	1		1		1			3
2006	3	3			1			1			
TOTAL	**64**	**13**	**17**	**5**	**25**	**3**	**8**	**32**	**2**	**9**	**22**

SDP = Shoreline Substantial Development, SCUP = Shoreline Conditional Use Permit

In addition, a number of shoreline exemptions, not included in the summary table above, have been issued for pier repairs, pier replacements, pier extensions, and bulkhead construction or repair meeting the standards contained in WAC 173-27-040. Also, the numbers below do not include single-family residential development that met the exemption standard contained in WAC 173-27-040.

No trends in shoreline activity or permit type are apparent. Over the past 16 years, 26 percent of permitted shoreline projects included a new or replacement pier component, 20 percent a pier extension or modification component, 8 percent a bulkhead modification component, 39 percent an upland structure component (for new commercial or residential construction, setback variances, etc.), 13 percent a utilities component (sewer lines, sewer lift stations, storm drain outfall dredging, etc.), and 5 percent a parks component (trails, hard landscape elements, benches, etc.). Case notes indicate that pier proposals began to include impact minimization measures, such as deck grating and narrow walkways, prescribed by state and federal agencies in 2000. Although not indicated, it is likely that several of the 1999 pier proposals included minimization measures as well, consistent with the listing of chinook salmon and bull trout as Threatened under the federal Endangered Species Act in 1999.

As indicated by the data presented above, new or replacement piers were very infrequent. Pier extensions or modifications were even less common. Bulkhead modifications were also extremely low, with only 5 applications during the 16 year review period. However, it is expected that the number of these types of proposals, except for new piers, will exceed these rates in coming years as the existing structures and modifications reach their life expectancy.

3.2 Residential Development (Residential – L and Residential M/H)

With the possible exception of limited additional residential lands being acquired for public open space (in the Natural environment of Yarrow Bay wetland complex), residential uses are limited to the Residential –L and Residential – M/H environments. While the single-family nature of Residential – L is not expected to change over the next 20 years, the mix of single- and multi-family developments may change and new development will occur in the Residential – M/H environment. On the whole, a substantial amount of re-builds and remodels are anticipated in both environments.

Typically, development of vacant lots into residential uses would result in replacement of pervious, vegetated areas with impervious surfaces and a landscape management regime that often includes chemical treatments of lawn and landscaping along with increased exterior lighting. These actions can have multiple effects on shoreline ecological functions, including:

1. Increase in surface water runoff due to reduced infiltration area and increased impervious surfaces, which can lead to excessive soil erosion and subsequent in-lake sediment deposition. This can affect the following:

   Hydrologic Functions

   Storing water and sediment

2. Reduction in ability of site to improve quality of waters passing through the untreated vegetation and healthy soils. This can affect the following:

Hydrologic Functions
Removing excess nutrients and toxic compounds

Vegetation Functions
Water quality improvement

3. Potential contamination of surface water from chemical and nutrient applications. This can affect the following:
   Vegetation Functions
   Water quality improvement
4. Elimination of upland habitat occupied by wildlife that use riparian areas. This can affect the following:
   Habitat Functions
   Physical space and conditions for life history
   Food production and delivery
5. Lighting is known to affect both fish and wildlife in nearshore areas. This can affect the following:
   Habitat Functions
   Physical space and conditions for life history

Expansions and remodels of existing residences are likely to occur relatively frequently during the future. Many of these activities would not change the baseline condition of ecological function, although expansions that increase impervious surfaces may occur. Runoff from most expanded residences is clean, however, and water quantity is not an issue in the Lake Washington environment. The significance of impervious surfaces on a lake environment where water quantity is not really a factor is very diminished given the residential uses. Single-family or multi-family homes generally have clean roof and sidewalk runoff, and driveways whether 50 square feet or 5,000 square feet are typically pollution-generating surfaces only to the extent that vehicle-related pollutants are deposited on them. Most single-family homes have between two and four vehicles, regardless of the driveway area and thus the correlation between driveway area and amount of pollution is not strong. However, improperly managed runoff during and post construction could increase erosion, and could cause sediments and pollutants to enter the lake.

In the Residential – L environment, there are four lots that have capacity for further subdivision to create additional building lots, with a total capacity of approximately 17 lots. In addition, in the Residential – L environment, approximately 54 waterfront lots (roughly 56% percent) are considered to have strong redevelopment potential (see Figures 1a-d in Appendix B). Redevelopment potential was based on assumptions made for each lot related to age of the home and the ratio of improvement value to land value. As mentioned above, the existing median setback in the Residential – L environment is 43 feet. The SMP proposes a residential setback of 30 percent of the proposed lot depth, with a 30-foot minimum and a 60-foot maximum (see Figures 6a-d in Appendix B),

except for an area along Lake Avenue West south of the Lake Avenue West street end park. The latter area would have a setback based on the average of the adjacent properties, but no less than 15 feet (see Figure 4 in Appendix B). Based on the City's analysis of redevelopment potential, the resultant median setback in the Residential – L environment would be approximately 36 feet. This reduction in the median setback results in a conversion of a maximum of 1.79 acres of space between the primary structure and the OHWM to a greater level of development. As previously mentioned, two lots in Residential - L are vacant, including one waterfront lot (see Figure 2 in Appendix B). However, the waterfront lot is owned by a private utility company and the upland lot has no development potential.

In the Residential – M/H environment, approximately 20 waterfront lots (roughly 35% percent, including the vacant lots) and approximately 25 overall lots within the shoreline jurisdiction are considered to have strong redevelopment potential (see Figures 1a-d in Appendix B). Redevelopment potential was based on assumptions made for each lot related to the allowed density permitted in the underlying zone and the ratio of improvement value to land value. Expansion (of structure size as well as number of multi-family dwelling units), redevelopment or alteration to existing developments will occur over time, but the majority of this environment will remain functionally unchanged.

As previously mentioned, five lots are vacant, including four waterfront lots (see Figure 2 in Appendix B). Each of these four lots has potential for new multi-family development. However, two of the lots are already altered. One lot has paved parking that appears to be used by the adjacent lot to the north, and a path to the water's edge with a bulkhead and a pier. The second lot has a substantial overwater structure paralleling the nearshore. All of the lots are narrow, between 25 and 50 feet wide; armored; and sandwiched between developments to the north and south and busy Lake Washington Boulevard/Lake Street South to the east. These lots are mostly well vegetated, with one or more trees each, but several also appear to include substantial patches of Himalayan blackberry. The small size of these low-functioning habitat areas and proximity to intensive development and roadways limits their value.

The existing median setback in the Residential – M/H environment is 24 feet. The SMP proposes a residential setback of 15 percent of the proposed lot depth, with a 25-foot minimum (see Figures 5a-e in Appendix B). Based on the City's analysis of redevelopment potential, the resultant median setback in the Residential – M/H environment would be approximately 25 feet, with the average dropping from 27 to 21 feet. This reduction in the average setback results in a conversion of a maximum of 0.74 acre of space between the primary structure and the OHWM to a greater level of development.

These conversion numbers are likely an overestimate, both in area and assumed corresponding function, as primary structures are never as wide as the lot. It also does

not factor in that much of that "lost" space is already occupied by decks, paved surfaces, lawn or other improvements that have reduced or eliminated the function of that space (see Shoreline Vegetation Detail for the Residential – L Environment and Residential M/H in Appendix D). Finally, because of the staggered distribution of lot depths and primary structure locations, some of that space landward of a primary structure currently set back far from the water's edge may be greatly impacted by activities on shallower adjacent lots where the structure is located closer to the water's edge.

However, that space, while perhaps not providing direct habitat to fish and wildlife species, did provide attenuation of exterior and interior lighting with respect to illumination of the water and immediately adjacent shorelands (Rich and Longcore 2006; Rich and Longcore 2004; Mazur and Beauchamp 2006). To offset the reduction in lighting attenuation, the SMP includes provisions in Section 83.470.4 regarding lighting shielding, direction, levels, height, and other standards.

To address the other less direct losses to shoreline function resulting from reduction in the space between primary structures and their attendant activities and the water's edge, the SMP contains a native landscape standard in SMP 83. 400 (Tree Management and Vegetation in Shoreline Setback) that requires native plantings, including trees, in at least 75 percent of the nearshore riparian area located along the water's edge, an average of 10 feet wide in Residential – L and 15 feet wide in Residential – M/H. When a development proposal includes an increase of at least 10 percent in gross floor area of any structure located in shoreline jurisdiction or an alteration to any structure(s) in shoreline jurisdiction, the cost of which exceeds 50 percent of the replacement cost of the structure(s), the development must come into conformity with the landscape standard. Based on the anticipated level of redevelopment in the Residential – L and Residential – M/H environments, approximately 0.85 acre of native vegetation, including trees, will be installed along the water's edge.

Although it is difficult to estimate how many property owners might take advantage of different buffer reduction options, those that do will be required to implement one or more additional ecological function improvements on the site. The amount of reduction allowed for a given improvement is at least proportional to the amount of function lost by allowing the reduction. Further, several of the improvements, such as shoreline armoring removal, would have positive effects on shoreline processes, not just improvements in function.

3.3 Higher Intensity Development (Urban Mixed)

Typically, development of vacant lots would result in replacement of pervious, vegetated areas with impervious surfaces and a landscape management regime that often includes chemical treatments of landscaping along with increased exterior lighting. These actions in the Urban Mixed environment would have identical impacts to those in the Residential – L and M/H environments as discussed above in Section 3.2.

In the Urban Mixed environment, approximately 11 lots in the Urban Mixed environment have additional capacity for development within the shoreline jurisdiction. Most of this potential redevelopment would occur in areas that are separated from the waterfront by major roads or intervening properties. Along the waterfront area, which contained 15 existing lots, only two (roughly 13% percent) are considered to have strong redevelopment potential (see Figures 1a-d in Appendix B). One of the properties has redeveloped since the inventory was completed (Yarrow Bay Marina). The redevelopment resulted in a net increase in shoreline functions, as buildings were relocated back from the shoreline and native plantings were installed along a portion of the shoreline riparian area. Lighting was also shielded in order to limit impacts.

Redevelopment potential was based on assumptions made for each lot related to the allowed intensity of uses, the allowed density permitted in the underlying zone, and the ratio of improvement value to land value. The majority of this environment will functionally remain unchanged, particularly as a large portion of Urban Mixed is occupied by Carillon, which has already been fully developed consistent with its Master Plan. The other major Urban Mixed areas include the core downtown area, including the more intensely utilized Marina Park, and portions of Juanita Beach Park and some adjacent commercial or multi-family developments. Juanita Beach Park was not identified as having "redevelopment potential," but it is actually the subject of a Master Plan that will effectively result in the next 20 years in ecological function improvements. Wetlands and their buffers will be enhanced, and other vegetation improvements will be made.

As mentioned above, the existing median setback in the Urban Mixed environment is 29 feet and the average setback is 38 feet. The SMP proposes a setback of 15 percent of the lot depth, with a 25-foot minimum, except for the Carillon Master Plan area which has a 20-foot setback (see Figures 1a-d in Appendix B). Based on the City's analysis of redevelopment potential, the resultant median setback in the Urban Mixed environment would remain 29 feet, with a slight increase in the average setback to 40 feet. Maintenance of the median setback and a slight increase in the average results in maintenance of the acres of space between the primary structure and the OHWM. As previously mentioned, two waterfront lots in Urban Mixed are vacant; however, these lots are located entirely waterward of the OHWM, and as such have no development potential.

Ecological functions are not expected to change, except to improve, as a result of upland development. However, similar protective provisions that apply to residential development also apply to developments in the Urban Mixed environment. These include restrictions on lighting and a landscape standard, which may result in approximately 0.04 acres of native shoreline vegetation at the redevelopment lots. Further, developments in the Urban Mixed environment may also take advantage of setback reduction incentives that would yield function and process improvements.

3.4 Parks and Open Space Development (Natural and Urban Conservancy)

The Natural environment contains 73 lots (partially and full), 16 of which are waterfront lots. Forty-one of the lots are vacant (open space, parks, critical areas), and 13 of those abut the water's edge. In the Urban Conservancy environment, there are only 14 lots and 10 of those abut the water. Six vacant lots abut the water, and three vacant lots are not contiguous with the water. Although the total number of vacant lots is high in these environments, the actual potential for new and redevelopment in the Natural and Urban Conservancy environments is extremely limited (see Figures 1a-d in Appendix B). First, because most of these properties are public park lands, and second, because many of the remaining properties are completely or substantially encumbered by critical areas (primarily wetlands). The lots in the Urban Conservancy environment are entirely public park property, and no major developments are anticipated. In the Natural environment, the City does not anticipate any new development. On many of the parcels, the portions of the parcel in shoreline jurisdiction are wetland. However, most of these parcels are anticipated to have sufficient upland area (outside of shoreline jurisdiction) to accommodate a single-family house.

Most of the anticipated activities within the City's Natural and Urban Conservancy parks would include routine maintenance and upkeep of existing facilities or restoration elements – replacement of pier decking with grating, removal or enhancement of shoreline armoring, increases in native shoreline vegetation, and restoration of Juanita Creek within shoreline jurisdiction, for example.

In shoreline jurisdiction, ecological functions are not expected to change, except to improve, as a result of shoreland activities.

3.5 Overwater Structures

Piers can adversely affect ecological functions and habitat in the following ways:

1. Alter patterns of natural light transmission to the water column, affecting macrophyte growth and altering habitat for and behavior of aquatic organisms, including juvenile salmon. This can affect the following:
   Habitat Functions
   Physical space and conditions for life history
   Food production and delivery

2. Interfere with long-shore movement of sediments, altering substrate composition and development. This can affect the following:
   Hydrologic Functions
   Attenuating wave energy

3. Contribute to contamination of surface water from chemical treatments of structural materials. This can affect the following:

   Hydrologic Functions

   Removing excess nutrients and toxic compounds

4. Pier lighting is known to affect fish movement and predation. This can affect the following:

   Habitat Functions

   Physical space and conditions for life

Overwater structures encompass a variety of uses, from in-water structures, such as fixed-pile piers and floating docks, to moorage covers, such as canopies and boathouses with associated boatlifts. This discussion does not include overwater multi-family residential structures. It is difficult to determine exactly how many waterfront properties do not have a pier or pier access, particularly as many piers are located near property lines and thus it is possible that those may be shared with the adjacent property. However, Table 14 provides some indication of the potential for new piers based on existing conditions and trends.

Table 14. Anticipated Quantity of New Piers in the City of Kirkland by Environment Designation.

Shoreline Environment	# of Lots with Pier(s)	# of Lots without Pier(s)	Probable New Piers
Residential – L	90 (with approximately 2 existing joint piers)	9 (including three waterfront street ends)	6 (5 single-family and 1 joint-use)
Residential – M/H	45 (with approximately 3 existing joint piers)	11 (including one waterfront street end)	5 (assume community)
Urban Mixed	10 (includes public piers)	3	1
Urban Conservancy	5 (at park, rather than a single lot and includes public piers)	2 (including community-owned property near Juanita Beach)	0
			12

Under the proposed SMP, new piers will be smaller and narrower than piers approved under the original SMP. New and replacement piers will also include light-transmitting decking material, which will reduce the impact of the overwater cover. Nevertheless, if new piers were the only pier-related activity, ecological function would still decline. The decline would be due to an unavoidable net increase in in-water structures and overwater cover that can be minimized but not entirely mitigated.

However, pier repair and pier maintenance activities are more common, and it is anticipated that pier replacement proposals may become even more common as existing piers degrade or do not meet the property owner's needs in their current configuration

or location. Under the proposed SMP, replacement piers are considered new moorage structures and must meet the dimensional criteria for new private piers or be otherwise approved by State and Federal agencies (Washington Department of Fish and Wildlife and the U.S. Army Corps of Engineers) (KZC 83.270.4.b). Any pier repair which involves the replacement of more than 50 percent of the pier support piles along with pier decking or sub-structure must also meet the dimensional criteria of new private piers. Pier repairs (KZC 83.270.8) would include decking and/or sub-structure replacement and up to 50 percent pile replacement. Repairs which involve full deck replacement must install grated surfaces within the nearshore 30 feet.

A summary of the quantitative analysis is provided below (Table 15, full analysis provided in Appendix C), based on City trends and assumptions. Based on the trends and assumptions made regarding new piers, pier replacement, pier repairs, and pier additions, the total area of effective[1] overwater cover would decline by 4.0 percent over a 20-year time period.

Table 15. Summary of Pier Analysis

Existing Overwater Coverage	
Total existing overwater coverage - single-family	93,384
Total existing overwater coverage - multi-family	59,867
Total existing overwater coverage – commercial	133,516
Total existing overwater coverage – public	32,218
Total existing overwater coverage (square footage)	**318,985**
Effective Overwater Coverage at Buildout	
Total overwater cover at buildout - single-family	86,340
Total overwater cover at buildout - multi-family	65,747
Total overwater cover at buildout - commercial	133,199
Total overwater cover at buildout - public	20,820
Total effective overwater coverage at buildout (square footage)	**306,107**
Change in Effective Overwater Coverage at Buildout	
Net change in overwater cover - single-family	-7,044
Net change in overwater cover - multi-family	5,880
Net change in overwater cover - commercial	-317
Net change in overwater cover - public	-11,398
TOTAL CHANGE IN EFFECTIVE OVERWATER COVER AT BUILDOUT	**-12,878**
PERCENTAGE DECREASE IN OVERWATER COVER AT BUILDOUT	**-4.0%**

[1] Note: "Effective" overwater cover is a measure of the actual solid footprint that shades the water, rather than the structure's total footprint. Use of grated decking with a minimum of 40% open space reduces the adverse impacts of the overwater structure, even though the traditional structure footprint may increase.

The proposed regulations (**SMP 83.270 and 83.280**) have specifically been crafted to avoid and minimize the following specific potential impacts as outlined below:

1. Growth of aquatic vegetation: Overwater cover is minimized through size and height restrictions for new piers (**SMP 83.270(4)**), restricting size of replacement structures (**SMP 83.270(6))**), and requiring grated decking (**SMP 83.270** and **SMP 83.280**).

2. Juvenile salmon migration: Impacts to juvenile salmon migration are mitigated via the same provisions listed under #1 above. Additionally, new piers must be mitigated through the addition of shoreline vegetation (**SMP 83.270(5))**).

3. Sediment movement. Piles and floats are restricted in the nearshore area (**SMP 83.270(4)**). The use of jetties or groins are prohibited in most environments, except they are allowed only with a Conditional Use Permit in the Urban Mixed and Aquatic environments unless they are part of a restoration project (**SMP 83.170**).

4. Chemical contamination: Piers and other structures shall be constructed of materials that will not adversely affect water quality (**SMP 83.270(3)** and **SMP 83.280(4)**).

5. External lighting impacts: Placement and direction of external lighting is restricted to minimize impacts (**SMP 83.470**).

3.6 Shoreline Stabilization

Bulkheads typically have the following effects on ecological functions:

1. Reduction in nearshore habitat quality for juvenile salmonids and other aquatic organisms. Specifically, shoreline complexity and emergent vegetation that provides forage and cover may be reduced or eliminated. Elimination of shallow-water habitat may also increase vulnerability of juvenile salmonids to aquatic predators. This can affect the following:

   Habitat Functions
   Physical space and conditions for life history
   Food production and delivery

2. Reduction of natural sediment recruitment from the shoreline. This recruitment is necessary to replenish substrate and preserve shallow water conditions. This can affect the following:

   Habitat Functions
   Physical space and conditions for life history

3. Increase in wave energy at the shoreline if shallow water is eliminated, resulting in increased nearshore turbulence that can be disruptive to juvenile fish and other organisms. This can affect the following:

   Hydrologic Functions
   Attenuating wave energy

Habitat Functions

Physical space and conditions for life history

Repairs and replacements of existing bulkheads perpetuate those conditions. There have been no new bulkhead permit applications, and only five bulkhead modification permits issued in the last 16 years. Future proposals are likely to be bulkhead repairs and replacements rather than new bulkheads.

The updated SMP states that new shoreline stabilization would only be allowed when "conclusive evidence, documented by a geotechnical analysis, is provided that the structure is in danger from shoreline erosion caused by waves…" It must be demonstrated in a study prepared by a qualified professional that the proposed stabilization is the least harmful method to the environment. Replacement bulkheads must be installed in the same location as the existing bulkhead, or farther landward, and must also demonstrate some level of need for a hardened shoreline stabilization measure. Under no circumstances would a replacement bulkhead be allowed to encroach farther waterward. Finally, all shoreline stabilization and modification proposals must avoid impacts to the maximum extent practicable; use the "softest" stabilization approach feasible; and, when impacts are unavoidable, mitigate those impacts to achieve no net loss of ecological functions. Independent of regulations by other regulatory agencies, the proposed SMP ensures that shoreline stabilization projects will not degrade the baseline condition. Further, the proposed SMP includes incentives for the removal or function enhancement of existing bulkheads in exchange for buffer reduction.

1. The proposed regulations (**SMP 83.400**), as an incentive option in exchange for a shoreline setback reduction (**SMP 83.380**), as well as new pier proposals (**SMP 83.270(5) and SMP 83.280(6)**). Implementation of soft shoreline stabilization techniques (defined in **SMP 83.80**) will also improve shoreline complexity (**SMP 83.300**).

2. Lack of wave attenuation: Wave attenuation should be improved through the implementation of soft shoreline stabilization techniques as identified in #1 above. Some fill waterward of OHWM may occur to enhance nearshore functions (**SMP 83.300**).

Over time, the combined effects of the City's proposed SMP will likely result in a reduction over time of the net amount of hardened shoreline at the ordinary high water mark and an increase in shallow-water habitat.

4 PROTECTIVE SMP PROVISIONS

4.1 Environment Designations

The first line of protection of the City's shorelines is the environment designation assignments. The Natural environment, which comprises nearly 60 percent of the total shoreline area, is the most restrictive, but closely followed by the Urban Conservancy environments. In some respects, the Residential – L, Residential – M/H and Urban Mixed environments are as, or more, restrictive than the other two environments.

Table 16 below identifies the prohibited and allowed uses and modifications in each of the shoreline environments, and clearly shows a hierarchy of higher-impacting uses and modifications being allowed in the already highly altered shoreline environments. This strategy helps to minimize cumulative impacts by concentrating development activity in lower functioning areas that are not likely to experience function degradation with incremental increases in new development.

Table 16. Shoreline Use and Activities Matrix

The chart is coded according to the following legend. SD = Substantial Development[2] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
SHORELINE USE						
Resource Land Uses						
Agriculture	X	X	X	X	X	X
Aquaculture	X	X	X	X	X	X
Forest practices	X	X	X	X	X	X
Mining	X	X	X	X	X	X
Commercial Uses						
Water-dependent uses						

[2] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemptions. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this Chapter 83.

The chart is coded according to the following legend. SD = Substantial Development[2] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
Float plane landing and mooring facilities[3]	X	X	X	X	CU	See adjacent upland environments
Any water-dependent Retail Establishment other than those specifically listed in this chart, selling goods or providing services.	X	SD[2]	X	X	SD	See adjacent upland environments
Water-related, water-enjoyment commercial uses						
Any water-oriented Retail Establishment other than those specifically listed in this chart, selling goods or providing services.	X	SD[4]	X	X	SD	X

[1] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemption. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this Chapter.

[2] Limited to water-based aircraft facilities for air charter operations.

[4] Permitted as an accessory use to a Public Park.

The chart is coded according to the following legend. SD = Substantial Development[2] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
Retail Establishment providing new or used Boat Sales or Rental	X	SD[3]	X	CU[5,6]	SD[6]	See adjacent upland environments
Retail establishment providing gas and oil sale for boats	X	X	X	CU[4,6]	CU[7]	See adjacent upland environments
Retail establishment providing boat and motor repair and service	X	X	X	CU[4,6]	CU[6]	X
Restaurant or Tavern[8]	X	X	X	CU[4]	SD	X
Concession Stand	X	SD[3]	X	X	SD[3]	X
Entertainment or cultural facility	X	CU[9]	X	X	SD	X

[1] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemption. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this Chapter.

[3] Permitted as an accessory use to a Public Park.

[5] Permitted if located on the west side of Lake Washington Lake Blvd NE/Lake St S south of Lake Avenue West and north of NE 52nd Street.

[6] Permitted in the Juanita Business District or as an accessory use to a marina.

[7] Accessory to a marina only.

[8] Drive-in or drive-through facilities are prohibited.

[9] Use must be open to the general public.

The chart is coded according to the following legend. SD = Substantial Development[2] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
Hotel or Motel	X	X	X	CU[10]/X	SD	X
Nonwater-oriented uses						
Any Retail Establishment other than those specifically listed in this chart, selling goods, or providing services including banking and related services	X	X	X	X	SD[11]	X
Office Uses	X	X	X	X	SD[10]	X
Neighborhood-oriented Retail Establishment	X	X	X	CU[12]	SD[10]	X
Private Lodge or Club	X	X	X	X	SD[10]	X
Vehicle Service Station	X	X	X	X	X	X
Automotive Service Center	X	X	X	X	X	X

[1] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemption. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this Chapter.

[10] Permitted in Planned Area 3B if allowed through the Lakeview Neighborhood Plan.

[11] Permitted as part of mixed-use development containing water-dependent uses, where there is intervening development between the shoreline and the use, or if located on the east side of Lake Washington Blvd NE/Lake St S or the east side of 98th Avenue NE.

[12] Permitted if located on the east side of Lake Washington Blvd NE between NE 60th Street and 7th Ave S.

The chart is coded according to the following legend. SD = Substantial Development[2] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
Dry land boat storage	X	X	X	X	X	X
Industrial Uses						
Water-dependent uses	X	X	X	X	X	X
Water-related uses	X	X	X	X	X	X
Nonwater-oriented uses	X	X	X	X	X	X
Recreational Uses						
Water-dependent uses						
Marina[13]	X	CU	X	SD	SD	See adjacent upland environments
Piers, docks, boat lifts and canopies serving Detached Dwelling Unit[13]	X	X	SD	SD	SD[13]	

[1] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemption. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this chapter.

[13] No boat shall be used as a place of habitation.

[13] Permitted if located south of NE 60th Street only.

The chart is coded according to the following legend. SD = Substantial Development[2] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
Piers, docks, boat lifts and canopies serving Detached, Attached or Stacked Dwelling Units **Error! Bookmark not defined.**	X	X	X	SD	SD	
Float	X	SD[3]	X	X	SD[3]	
Tour Boat Facility	X	X	X	X	SD[14]	
Moorage buoy[14]	X	SD	SD	SD	SD	
Public Access Pier or Boardwalk	CU	SD	SD	SD	SD	
Boat launch (for motorized boats)	X	X	X	X	CU	
Boat launch (for non-motorized boats)	SD	SD	SD	SD	SD	
Boat houses or other covered moorage not specifically listed	X	X	X	X	X	
Swimming beach and other public recreational use	CU	SD	SD	SD	SD	

[3] Permitted as an accessory use to a Public Park.

[14] Permitted if located south of NE 60th Street only.

[14] Permitted as an accessory use to a Marina or Public Park only.

[1] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemption. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this Chapter.

The chart is coded according to the following legend. SD = Substantial Development[2] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
Any water-dependent recreational development other than those specifically listed in this chart	CU	SD	SD	SD	SD	
Water-related, water-enjoyment uses						
Any water-oriented recreational development other than those specifically listed in this chart	X	CU	CU	CU	SD	X
Other Public Park Improvements[15]	CU	SD	SD	SD	SD	X
Public Access Facility	SD[16]	SD	SD	SD	SD	See adjacent upland environments
Nonwater-oriented uses						
Nonwater-oriented recreational development.	X	X	X	X	SD[10]	X
Residential Uses						

[1] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemption. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this Chapter.

[15] This use does not include other public recreational uses or facilities specifically listed in this chart.

[16] Limited to trails, viewpoints, interpretative signage and similar passive and low-impact facilities.

The chart is coded according to the following legend. SD = Substantial Development[2] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
Detached dwelling unit	CU	CU	SD	SD	SD[13]	X
Accessory dwelling unit[17]	X	X	SD	SD	SD[13]	X
Detached, Attached or Stacked Dwelling Units (multi-family units on one lot)	X	X	X	SD	SD	X
Houseboats	X	X	X	X	X	X
Assisted Living Facility[18]	X	X	X	CU	SD	X
Convalescent Center or Nursing Home	X	X	X	CU[19]	SD[20]	X
Land division	SD[21]	SD[21]	SD	SD	SD	X

[10] Permitted as part of mixed-use development containing water-dependent uses, where there is intervening development between the shoreline and the use, or if located on the east side of Lake Washington Blvd NE/Lake St S or the east side of 98th Avenue NE.

[13] Permitted if located south of NE 60th Street only.

[17] One accessory dwelling unity (ADU) is permitted subordinate to a detached dwelling unit.

[1] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemption. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this Chapter.

[10] Permitted as part of mixed-use development containing water-dependent uses, where there is intervening development between the shoreline and the use, or if located on the east side of Lake Washington Blvd NE/Lake St S or the east side of 98th Avenue NE.

[18] A nursing home use may be permitted as part of an assisted living facility use.

[19] Permitted if located on the east side of Lake Washington Blvd NE/Lake St S, or the east side of 98th Avenue NE.

[20] Not permitted in the Central Business District. Otherwise, permitted if located on the east side of Lake Washington Blvd NE/Lake St S, the east side of 98th Avenue NE or on the south side of NE Juanita Drive.

[21] May not create any new lot that would be wholly contained within shoreland area in this shoreline environment.

The chart is coded according to the following legend. SD = Substantial Development[2] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
Institutional Uses						
Government Facility	X	SD	SD	SD	SD	X
Community Facility	X	X	X	X	SD	X
Church	X	X	X	CU[19]	SD[20]	X
School or Day-Care Center	X	X	X	CU[19]	SD[10]	X
Mini-School or Mini-Day-Care Center	X	X	X	SD[19]	SD[10]	X
Transportation						
Water-dependent						
Bridges	CU	CU	SD	SD	SD	See adjacent upland environments
Passenger-only Ferry terminal	X	X	X	X	CU	
Water Taxi	X	SD[22]	SD[22]	SD[22]	SD[22]	
Nonwater-oriented						
Arterials, Collectors, and neighborhood access streets	CU	SD[23]/CU	SD	SD	SD	X
Helipad	X	X	X	X	X	X
Utilities						

[22] Permitted as an accessory use to a marina or a public park.

[23] Construction of pedestrian and bicycle facilities only.

The chart is coded according to the following legend. SD = Substantial Development[2] CU = Conditional Use X = Prohibited; the use is not eligible for a Variance or Conditional Use Permit	Natural	Urban Conservancy	Residential - L	Residential – M/H	Urban Mixed	Aquatic
Utility production and processing facilities	X	CU[24]	CU[24]	CU[24]	CU[24]	X
Utility transmission facilities	CU[25]	SD[24]	SD[24]	SD[24]	SD[24]	CU[24]
Personal Wireless Service Facilities[25]	X	SD	SD	SD	SD	X
Radio Towers	X	X	X	X	X	X
SHORELINE MODIFICATIONS						
Breakwaters/jetties/rock weirs/groins	X	X	X	SD[26]/CU	SD[26/]CU	See adjacent upland environments
Dredging and dredge materials disposal	SD[26]/CU	SD[26]/CU	SD[26]/CU	SD[26]/CU	SD[26]/CU	
Fill waterward of the OHWM	SD[26]/CU	SD[26]/CU	SD[26]/CU	SD[26]/CU	SD[26]/CU	
Land surface modification	SD[26]/CU	SD	SD	SD	SD	
Shoreline habitat and natural systems enhancement projects	SD	SD	SD	SD	SD	
Hard Structural Shoreline Stabilization	X	CU	SD	SD	SD	
Soft Structural Shoreline Stabilization Measures	X	SD	SD	SD	SD	

[24] This use may be allowed provided there is no other feasible route or location. Must be underground unless not feasible.

[25] Wireless towers are not permitted.

[1] A development activity may also be exempt from the requirement to obtain a substantial development permit. See Chapter 141 KZC addressing exemption. If a development activity is determined to be exempt, it must otherwise comply with applicable provisions of the Act and this Chapter.

[26] Permitted under a substantial development permit when associated with a restoration or enhancement project.

4.2 General Goals, Policies and Regulations

The SMP contains numerous general policies, with supporting regulations (see SMP), intended to protect the ecological functions of the shoreline, prevent adverse cumulative impacts, and encourage restoration. Some key policies substantially contributing to prevention of adverse cumulative impacts are summarized below.

- **Policy SMP-1.2**: Preserve and enhance the natural and aesthetic quality of important shoreline areas while allowing for reasonable development to meet the needs of the city and its residents.
- **Policy SMP-3.1**: Establish development regulations that avoid, minimize and mitigate impacts to the ecological functions associated with the shoreline zone.
- **Policy SMP-3.2**: Provide adequate setbacks and buffers from the water and ample open space and pervious areas to protect natural features and minimize use conflicts.
- **Policy SMP-3.3**: Require new development or redevelopment to include establishment or preservation of appropriate shoreline vegetation to contribute to the ecological functions of the shoreline area.
- **Policy SMP-3.4**: Incorporate low-impact development practices, where feasible, to reduce the amount of impervious surface area.
- **Policy SMP-3.6**: Limit outdoor lighting levels in the shoreline to the minimum necessary for safe and effective use.
- **Policy SMP-3.8**: Encourage the development of joint-use overwater structures, such as joint use piers, to reduce impacts to the shoreline environment.
- **Policy SMP-3.9**: Allow variations to development standards that are compatible with surrounding development in order to facilitate restoration opportunities along the shoreline.
- **Policy SMP-6.4:** Evaluate new single-family development within areas impacted by critical areas to protect ecological functions and ensure some reasonable economic use for all property within Kirkland's shoreline.
- **Policy SMP-10.1:** Assure that shoreline modifications individually and cumulatively do not result in a net loss of ecological functions.
- **Policy SMP-10.2:** Limit fill waterward of the ordinary high water mark to support ecological restoration or to facilitate water-dependent or public access uses.
- **Policy SMP-10.6:** Limit use of hard structural stabilization measures to reduce shoreline damage.
- **Policy SMP-10.7:** 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.
- **Policy SMP-10.9:** 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.

- **Policy SMP-11.2:** Design and construct new or expanded piers and their accessory components, such as boatlifts and canopies, to minimize impacts on native fish and wildlife and their habitat.
- **Policy SMP-12.1:** Include provisions for shoreline vegetation restoration, fish and wildlife habitat enhancement, and low impact development techniques in projects located within the shoreline, where feasible.
- **Policy SMP-13.1:** Conserve and protect critical areas within the shoreline area from loss or degradation.
- **Policy SMP-15.2:** Prevent impacts to water quality.
- **Policy SMP-16.1:** Plan and design new development or substantial reconstruction to retain or provide shoreline vegetation.
- **Policy SMP-19.1:** Manage natural areas within the shoreline parks to protect and restore ecological functions, values and features.
- **Policy SMP-19.2:** Promote habitat and natural resource conservation through acquisition, preservation, and rehabilitation of important natural areas, and continuing development of interpretive education programs.

5 Effect of Other Programs

5.1 Washington Department of Fish and Wildlife

The Washington Department of Fish and Wildlife (WDFW) has jurisdiction over in- and over-water activities up to and including the ordinary high water mark, as well as any other activities that could "use, divert, obstruct, or change the bed or flow of state waters" (http://www.wdfw. wa.gov/hab/hpapage.htm). Practically speaking, these activities in the City of Kirkland include, but are not limited to, installation or modification of shoreline stabilization measures, piers and accessory structures such as boatlifts, culverts, and bridges and footbridges. These types of projects must obtain a Hydraulic Project Approval from WDFW, which will contain conditions intended to prevent damage to fish and other aquatic life, and their habitats. In some cases, the project may be denied if significant impacts would occur that could not be adequately mitigated.

5.2 Washington Department of Ecology

The Washington Department of Ecology may review and condition a variety of project types in Kirkland, including any project that needs a permit from the U.S. Army Corps of Engineers (see below), any project that requires a shoreline Conditional Use Permit or Shoreline Variance, and any project that disturbs more than 1 acre of land. Project types that may trigger Ecology involvement include pier and shoreline modification proposals and wetland or stream modification proposals, among others. Ecology's three primary goals are to: 1) prevent pollution, 2) clean up pollution, and 3) support sustainable

communities and natural resources (http://www.ecy.wa.gov/about.html). Their authority comes from the State Shoreline Management Act, Section 401 of the Federal Clean Water Act, the Federal Water Pollution Control Act, the Federal Coastal Zone Management Act of 1972, the State Environmental Policy Act, the Growth Management Act, and various RCWs and WACs of the State of Washington.

5.3 U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers has jurisdiction over any work in or over navigable waters (including Lake Washington) under Section 10 of the Federal Rivers and Harbors Act of 1899, and discharges of dredged or fill material into waters of the United States (including Lake Washington, streams, and non-isolated wetlands) under Section 404 of the Federal Clean Water Act.

As a federal agency, any activity within Corps jurisdiction that could affect species listed under the Federal Endangered Species Act must be consulted on with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service. These agencies ensure that the project includes impact minimization and compensation measures for protection of listed species and their habitats. Since salmon were first listed in Puget Sound, the Corps and the other federal agencies have been working closely to streamline the permitting process, particularly for new pier and pier modification projects. The result of those efforts for Lake Washington has culminated in Regional General Permit (RGP) 3 and a Programmatic Biological Evaluation for Bank Stabilization in Lake Washington. As mentioned above, RGP 3 has been the partial basis for the pier dimensional standards included in the proposed Kirkland SMP.

6 RESTORATION OPPORTUNITIES

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

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

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

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

The Shoreline Restoration Plan identifies a number of project-specific opportunities for restoration on both public and private properties inside and outside of shoreline jurisdiction (see Figure 15 in the Final Shoreline Analysis Report), and also identifies ongoing City programs and activities, non-governmental organization programs and activities, and other recommended actions consistent with the *Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan*.

7 Assessment of Cumulative Impacts

The following table (Table 17) summarizes for each environment designation the existing conditions (Chapter 2 above), anticipated development (Chapter 3 above), relevant Shoreline Master Program (SMP) and other regulatory provisions, and the expected net impact on ecological function. The complete assessment of overwater structure impacts is presented in Section 3.5, organized by pier type rather than environment designation. The discussion of existing conditions is based on the *Final Shoreline Analysis Report* (The Watershed Company 2006), and additional analysis conducted to perform this assessment. The Analysis Report includes a more in-depth discussion of the topics below, as well as information about transportation, stormwater and wastewater utilities, impervious surfaces, and historical/archaeological sites, *among others.*

A distinct discussion of the Aquatic environment designation is not included, as any developments waterward of the OHWM are associated with and discussed under either Section 3.5 above or in the corresponding upland environment designation section.

Table 17. Qualitative Assessment of Cumulative Impacts

Existing Conditions	Likely Development / Functions or Processes Potentially Impacted	Effect of SMP Provisions	Effect of Other Regulatory Programs and Non-Regulatory Restoration Actions
Residential – L			
This segment is dominated by single-family homes and is almost entirely built out. Nearly the entire shoreline has been altered with a variety of armoring and alteration types, including piers, boatlifts, boathouses, and moorage covers. Approximately 93 percent of all residences already have a pier and the shoreline is approximately 88 percent armored.	**FUTURE DEVELOPMENT** in the Residential – L environment will likely be restricted to remodeled or expanded residences since only two vacant lots (2 percent) exist in shoreline jurisdiction, and both have no development potential. Based on a ratio of land value to structure value and age of existing structure (35+ years old), the City anticipates that approximately 54 (56 percent) of existing developed lots will likely redevelop. No change in uses is anticipated. **FUNCTIONS/PROCESSES IMPACTED:** As described in Section 3.2, new and re-development may be accompanied by: 1. *Impervious surface increases* 2. *Vegetation removal* 3. *Chemical contaminant increases* 4. *External lighting impacts* Additional impacts could occur with associated new pier development and shoreline modification; these are cumulatively discussed in Sections 3.5 and 3.6. These impacts may affect: 5. *Growth of aquatic vegetation* 6. *Juvenile salmon migration and behavior* 7. *Sediment movement* 8. *Chemical contamination* 9. *External lighting impacts on overwater structures* 10. *Shoreline complexity* 11. *Wave attenuation*	Several facets of the SMP development standards for the Residential – L environment are aimed at minimizing potential impacts to shoreline ecological functions that are discussed in Sections 3.2, 3.5, and 3.6. Residential setbacks are one of the key components to assess overall impacts to ecological function as they relate to many of the items listed below. Structure setbacks are regulated under **SMP 83.180** and **SMP 83.380**. Under these scenarios and an anticipated redevelopment of up to 54 lots, the median residential setback would change from 43 feet to 36 feet. 1. *Impervious surface increases* No change in impervious surface requirements is proposed under the new SMP. However, with the anticipated level of redevelopment, expansion of impervious surfaces is anticipated. Based on the 54 lot redevelopment potential mentioned above, approximately 1.79 acres of land area between existing primary structures and the water's edge would become impervious while 0.55 acres of nearshore area would be revegetated with native plants. The proposed SMP requires that all new and redeveloped lots include provisions to control stormwater runoff which will minimize erosion and sediment and pollutant delivery (**SMP 83.480**). Additional restrictions may be chosen by applicants reducing their setbacks, such as inclusion of biofiltration/ infiltration mechanisms and use of pervious material (**SMP 83.380**). 2. *Vegetation Removal* Retention of existing vegetation is regulated by **SMP 83.400** which requires applicants to plant at least 75 percent of the nearshore area with native vegetation. Removal of significant trees within the shoreline setback shall be mitigated at a 1:1 ratio plus riparian	**Other Regulatory Programs:** Any in- or over-water proposals, primarily piers and shoreline reconstruction, would require review not only by the City of Kirkland, but also by the WDFW, the U.S. Army Corps of Engineers (Corps), and/or Ecology. Each of these agencies is charged with regulating and/or protecting streams, lakes, and wetlands, and would impose certain design or mitigation requirements on applicants. Due to Endangered Species Act consultation requirements with the U.S. Fish and Wildlife Service and National Marine Fisheries Service, the Corps has developed recommendations to minimize project impacts. These include Regional General Permit 3 (RGP-3) for overwater structures and a Programmatic Biological Evaluation for shoreline stabilization. WDFW also follows similar design standards as the Corps and the City of Kirkland has included many of these standards within the proposed SMP. These agencies would also impose certain design and mitigation requirements on a proposed project to minimize adverse impacts. Outside of the immediate shoreline zone, short- and long-term stormwater management per the latest Ecology Stormwater Manual would minimize/eliminate construction-related stormwater runoff impacts and may slowly improve the quality of any waters reaching the shoreline. **Non-Regulatory Restoration Actions** Although no specific restoration projects have been identified in the Residential – L environment, the City's Shoreline Restoration Plan does include goals and objectives with an emphasis on public education and involvement intended to promote voluntary shoreline enhancement and restoration on private land. Examples of specific items include: • Encourage salmon friendly shoreline design during new construction or redevelopment • Offer incentives for voluntary removal of bulkheads, beach improvement, riparian revegetation • Encourage low impact development through regulations, incentives, education/training, and demonstration projects • Through grant funding sources, restoration opportunities may be available to multiple contiguous shoreline properties, including residential lots that are interested in improving shoreline function.

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Attachment F

Existing Conditions	Likely Development / Functions or Processes Potentially Impacted	Effect of SMP Provisions	Effect of Other Regulatory Programs and Non-Regulatory Restoration Actions
		vegetation for trees up to 24 inches in diameter and 2:1 ratio for trees greater than 24 inches in diameter. In addition, trees greater than 24 inches in diameter may only be removed if nuisance and hazardous as determined by the City. 3. *Chemical contaminant increases* No new development is anticipated, and potential redevelopment is unlikely to result in an increased level of chemical contaminants (pesticides/herbicides etc). Reductions in existing chemical usage may occur with redevelopment if applicants chose to utilize shoreline setback reduction alternatives (**SMP 83.380**) which implement landscape best management practices and may limit lawn area. Further, under **SMP 83.480**, developments will need to follow the City's adopted surface water design manual with respect to treatment and stormwater conveyance. 4. *External lighting impacts* Lighting shall be controlled to minimize adverse effects on fish and wildlife and their habitats (**SMP 83.470**) (Note: items 5-11 addressed in Sections 3.5 and 3.6)	
Residential – M/H			
This segment is almost entirely built out and dominated by multi-family housing with some single-family uses spread throughout. Nearly the entire shoreline has been altered with a variety of armoring and alteration types, including piers, boatlifts, boathouses, and moorage covers. 81 percent of all lots already have a pier and the shoreline is approximately 89 percent armored.	**FUTURE DEVELOPMENT** in the Residential – M/H environment will likely be restricted to remodeled or expanded single- and multi-family residences since only 4 vacant lots (7 percent) exist in shoreline jurisdiction. Based on residential development capacity and a ratio of land value to structure value, the City anticipates that approximately 20 (36 percent) of existing waterfront developed lots will likely redevelop. Although some change in use may occur from property to property, no net	Several facets of the SMP development standards for the Residential – M/H environment are aimed at minimizing potential impacts to shoreline ecological functions that are discussed in sections 3.2, 3.5, and 3.6. Structure setbacks are one of the key components to assess overall impacts to ecological function as they relate to many of the items listed below. Structure setbacks are regulated under **SMP 83.180** and **SMP 83.380.** Under these scenarios and an anticipated redevelopment of up to 20 lots, the median setback would increase from 24 feet to 25 feet. See discussion above under Residential – L	**Other Regulatory Programs:** As described above under the Residential – L environment, any in- or over-water proposals, primarily piers and shoreline reconstruction, would require review not only by the City of Kirkland, but also by the WDFW, the U.S. Army Corps of Engineers (Corps), and/or Ecology. The Corps would use RGP-3 to review small residential pier projects or joint-use proposals involving no more than three residences. Projects which involve larger overwater structures would likely require a Biological Assessment for consultation with the federal Services. The programmatic Biological Evaluation for shoreline stabilization would likely apply to both single- and multi-family property within the City. As mentioned above, these agencies would also impose certain design and mitigation requirements on a proposed project to minimize adverse impacts. Stormwater management, as described above under Residential – L environment, would likely minimize/eliminate construction-related stormwater runoff impacts and may slowly improve the quality of any waters reaching the shoreline. **Non-Regulatory Restoration Actions**

Existing Conditions	Likely Development / Functions or Processes Potentially Impacted	Effect of SMP Provisions	Effect of Other Regulatory Programs and Non-Regulatory Restoration Actions
	change in functional uses are anticipated throughout the Residential – M/H environment. **FUNCTIONS/PROCESSES IMPACTED:** The functions and processes affected by future development within the Residential – M/H environment are very similar to those described above for the Residential – L environment. However, given the existing built out condition (impervious surfaces already total over 54 percent of the total shoreline jurisdiction for Residential –M/H) impacts on ecological functions from future expansion are anticipated to be less. Regardless, development impacts may include: 1. *Impervious surface increases* 2. *Vegetation removal* 3. *Chemical contaminant increases* 4. *External lighting impacts* 5. *Growth of aquatic vegetation* 6. *Juvenile salmon migration and behavior* 7. *Sediment movement* 8. *Chemical contamination* 9. *External lighting impacts on overwater structures* 10. *Shoreline complexity* 11. *Wave attenuation*	environment for expanded details as to how the SMP Provisions address the following impacts. 1. *Impervious surface increases* No change in impervious surface requirements are proposed under the new SMP. Based on the redevelopment potential mentioned above, approximately 0.74 acres of land area between existing primary structures and the water's edge would become impervious while 0.3 acre of nearshore area would be revegetated with native plants. Stormwater provisions are included in **SMP 83.480**. Additional impact reductions are listed in **SMP 83.380**. 2. *Vegetation Removal* Retention of existing vegetation is regulated by **SMP 83.400**. For the Residential – M/H environment, this also requires an average of 15 feet of riparian vegetation planted from the OHWM (**SMP 83.400**). Removal of significant trees in the setback shall be mitigated at a 1:1 ratio plus riparian vegetation for trees up to 24 inches in diameter and 2:1 ratio for trees greater than 24 inches in diameter. In addition, trees greater than 24 inches in diameter may only be removed if nuisance and hazardous as determined by the City. 3. *Chemical contaminant increases* Shoreline setback reduction alternatives (**SMP 83.380**) include landscape best management practices and may limit lawn area. 4. *External lighting impacts* Lighting shall be controlled to minimize adverse effects on fish and wildlife and their habitats (**SMP 83.470**). However, several exemptions from the lighting standards are included, such as emergency lighting, public rights-of-way (i.e. trails), and seasonal lighting (**SMP 83.470(2)(a)**). (Note: items 5-11 addressed in Sections 3.5 and 3.6)	Although no specific restoration projects have been identified in the Residential – M/H environment, the City's Shoreline Restoration Plan does include goals and objectives with an emphasis on public education and involvement intended to promote voluntary shoreline enhancement and restoration on private land. See the Residential – L discussion above for examples.

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Existing Conditions	Likely Development / Functions or Processes Potentially Impacted	Effect of SMP Provisions	Effect of Other Regulatory Programs and Non-Regulatory Restoration Actions
Urban Conservancy			
This segment contains land areas in shoreline jurisdiction generally dominated by City parks and open spaces. These areas include, the western portion of Juanita Beach Park, Kiwanis Park, Waverly Park, Lake Ave West Street-end Park, Street-end Park, David Brink Park, Settler's Landing, Marsh Park, and Houghton Beach Park.	**FUTURE DEVELOPMENT** in the Urban Conservancy environment will be very limited. As discussed above in Section 3.4, the "vacant' lots are all public property managed for parks and open space. There will be a number of park improvements, including implementation of the Juanita Beach Park Master Plan (which includes stream and wetland restoration), repairs to overwater structures (including conversions to grated decking), and enhancements to armored shorelines. No change in uses is anticipated. **FUNCTIONS/PROCESSES IMPACTED:** The anticipated alterations to parks are expected to alter, in most cases beneficially, the following upland functions. 1. *Impervious surface* 2. *Vegetation/habitat* Additional impacts could occur with associated overwater structure development and shoreline modification; these are cumulatively discussed in Sections 3.5 and 3.6. These impacts may affect: 3. *Growth of aquatic vegetation* 4. *Juvenile salmon migration and behavior* 5. *Sediment movement* 6. *Chemical contamination* 7. *External lighting impacts on overwater structures* 8. *Shoreline complexity* 9. *Wave attenuation*	Several facets of the SMP development standards for the Urban Conservancy environment are aimed at minimizing potential impacts to shoreline ecological functions that are discussed in sections 3.4, 3.5, and 3.6. Structure setbacks are one of the key components to assess overall impacts to ecological function as they relate the items listed below. Structure setbacks are regulated under **SMP 83.180** and **SMP 83.380**. In the Urban Conservancy environment, the SMP establishes that structures and developments should be located outside of shoreline jurisdiction if possible, and otherwise be no less than 60 feet (**SMP 83.180.3**). As already mentioned, new developments within the parks are not anticipated and redevelopment is not likely to result in structures being located closer to the water's edge than the current condition, so the existing average setback would not change. Several of the parks have streams and wetlands, which have additional protections under **SMP 83.500** and **SMP 83.510**. 1. *Impervious surface* No change in impervious surface requirements are proposed under the new SMP. Based on the redevelopment potential mentioned above, impervious surface areas are not expected to change. 2. *Vegetation/Habitat* As previously mentioned, many of the activities in the parks are intended to improve ecological functions, and would be conducted voluntarily beyond the SMP requirements for mitigation tied to any development. (Note: items 3-9 addressed in Sections 3.5 and 3.6)	**Other Regulatory Programs:** Any in- or over-water proposals, primarily piers and shoreline reconstruction, would require review not only by the City of Kirkland, but also by the WDFW, the U.S. Army Corps of Engineers (Corps), and/or Ecology. Each of these agencies is charged with regulating and/or protecting streams, lakes, and wetlands, and would impose certain design or mitigation requirements on applicants. Due to Endangered Species Act consultation requirements with the U.S. Fish and Wildlife Service and National Marine Fisheries Service, the Corps has developed recommendations to minimize project impacts. These include Regional General Permit 3 (RGP-3) for overwater structures and a Programmatic Biological Evaluation for shoreline stabilization. WDFW also follows similar design standards as the Corps and the City of Kirkland has included many of these standards within the proposed SMP. These agencies would also impose certain design and mitigation requirements on a proposed project to minimize adverse impacts. Outside of the immediate shoreline zone, short- and long-term stormwater management per the latest Ecology Stormwater Manual would minimize/eliminate construction-related stormwater runoff impacts and may slowly improve the quality of any waters reaching the shoreline. **Non-Regulatory Restoration Actions** The *Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan* (WRIA 8 Steering Committee 2005) includes potential restoration of the mouth of Juanita Creek through the removal of bank armoring and returning the mouth to a more natural outlet as Project C296 on the "Lake Washington - Tier I - Initial Habitat Project List." It is identified as a low-priority project, however, because of its limited benefit to chinook salmon and perceived low feasibility. Nevertheless, the City is currently planning to implement this project, including riparian wetland enhancement, as part of its Juanita Beach Park Master Plan. This activity is described in the Shoreline Restoration Plan. The City's Shoreline Restoration Plan includes goals and objectives with an emphasis on public education and involvement intended to promote voluntary shoreline enhancement and restoration on private land. See the Residential – L discussion above for examples. In addition, Projects 2, 6-11, and 15-28 in the Shoreline Restoration Plan (see Table 3) are located in and just waterward of the City's Urban Conservancy-designated parks. Invasive vegetation species management, reductions in overwater cover and inwater structure, reductions in shoreline armoring, and improvements in stormwater discharges would improve shoreline processes and ecological functions for fish and wildlife. (note: effects of pier modifications in the Aquatic environment are more fully evaluated in Section 3.5). The City is also planning to resurface all of its public piers with grated decking, not just because of requirements to do so in **SMP 83.290(3)**, but because of other maintenance and public safety benefits. The City's parks are also maintained using Integrated Pest Management (IPM) techniques, which dramatically minimize the amount of chemical treatments that lawn and landscaping require. Other enhancements to the shoreline parks are possible through Capital Improvement Program funds, which help complete shoreline or stream restoration, install new landscaping, and to implement Low Impact Development (LID) practices. Open Space and Park Land Acquisition Grant Match Program, which assists with or provides funding for acquisition of key sites as they become available.

Existing Conditions	Likely Development / Functions or Processes Potentially Impacted	Effect of SMP Provisions	Effect of Other Regulatory Programs and Non-Regulatory Restoration Actions
			The City's Parks Department also has a number of other partnerships or efforts that will likely result in additional improvements to parks that improve ecological function, including Juanita Bay Park Rangers, Eagle Scout/Capstone Projects, and the Youth Tree Education Program.
Urban Mixed			
The shoreline within the Urban Mixed environment is comprised of a variety of uses including park/open space, residential, and commercial. In general, the land area is fully developed.	**FUTURE DEVELOPMENT** in the Urban Mixed environment will likely be restricted to redevelopment of two waterfront properties, and implementation of the Urban Mixed portion of Juanita Beach Park Master Plan. Although some change in use may occur from property to property, no net change in functional uses are anticipated throughout the Urban Mixed environment. **FUNCTIONS/PROCESSES IMPACTED:** The functions and processes potentially affected by future development within the Urban Mixed environment are very similar to those described above for the Residential – L environment. However, given the existing built out condition (impervious surfaces already total over 56 percent of the total shoreline jurisdiction for Urban Mixed) and the maintenance of the existing setback, impacts on ecological functions from future expansion are anticipated to be less. Regardless, development impacts may include: 1. *Impervious surface alterations* 2. *Vegetation alteration* 3. *Chemical contaminant alterations* 4. *External lighting impacts* 5. *Growth of aquatic vegetation* 6. *Juvenile salmon migration and behavior* 7. *Sediment movement* 8. *Chemical contamination* 9. *External lighting impacts on*	Several facets of the SMP development standards for the Urban Mixed environment are aimed at minimizing potential impacts to shoreline ecological functions that are discussed in Sections 3.3, 3.5, and 3.6. Structure setbacks are one of the key components to assess overall impacts to ecological function as they relate to many of the items listed below. Structure setbacks are regulated under **SMP 83.180** and **SMP 83.380**. Under these scenarios and an anticipated redevelopment of up to 2 lots, the median setback would remain the same (~29 feet) and the average setback would actually increase from approximately 38 to approximately 40 feet. See discussion above under Residential – L environment for expanded details as to how the SMP Provisions address the following impacts. 1. *Impervious surface alterations* In the Urban Mixed environment, allowed impervious surface has been slightly decreased for waterfront lots in order to recognize the area devoted to the shoreline riparian planting required under **SMP 83.400**. Based on the redevelopment potential mentioned above, approximately 0 acres of land area between existing primary structures and the water's edge would become impervious while 0.04 acre of nearshore area would be revegetated with native plants. Stormwater provisions are included in **SMP 83.480**. Additional impact reductions are listed in **SMP 83.380**. 2. *Vegetation alteration* Retention of existing vegetation is regulated by **SMP 83.400**. For the Urban Mixed	**Other Regulatory Programs:** Any in- or over-water proposals, primarily piers and shoreline reconstruction, would require review not only by the City of Kirkland, but also by the WDFW, the U.S. Army Corps of Engineers (Corps), and/or Ecology. Each of these agencies is charged with regulating and/or protecting streams, lakes, and wetlands, and would impose certain design or mitigation requirements on applicants. Due to Endangered Species Act consultation requirements with the U.S. Fish and Wildlife Service and National Marine Fisheries Service, the Corps has developed recommendations to minimize project impacts. These include Regional General Permit 3 (RGP-3) for overwater structures and a Programmatic Biological Evaluation for shoreline stabilization. WDFW also follows similar design standards as the Corps and the City of Kirkland has included many of these standards within the proposed SMP. These agencies would also impose certain design and mitigation requirements on a proposed project to minimize adverse impacts. Outside of the immediate shoreline zone, short- and long-term stormwater management per the latest Ecology Stormwater Manual would minimize/eliminate construction-related stormwater runoff impacts and may slowly improve the quality of any waters reaching the shoreline. **Non-Regulatory Restoration Actions** The City's Shoreline Restoration Plan includes goals and objectives with an emphasis on public education and involvement intended to promote voluntary shoreline enhancement and restoration on private land. See the Residential – L discussion above for examples. In addition, Projects 1 and 12-14 in the Shoreline Restoration Plan (see Table 3) are located in and just waterward of Juanita Beach Park or Marina Park. Reductions in overwater cover and inwater structure and reductions in shoreline armoring would improve shoreline processes and ecological functions for fish and wildlife. (note: effects of pier modifications in the Aquatic environment are more fully evaluated in Section 3.5). The City is also planning to resurface all of its public piers with grated decking, not just because of requirements to do so in **SMP 83.290(3)**, but because of other maintenance and public safety benefits. The City's parks are also maintained using Integrated Pest Management (IPM) techniques, which dramatically minimize the amount of chemical treatments that lawn and landscaping require. Other enhancements to the shoreline parks are possible through Capital Improvement Program funds, which help complete shoreline or stream restoration, install new landscaping, and to implement Low Impact Development (LID) practices.

Existing Conditions	Likely Development / Functions or Processes Potentially Impacted	Effect of SMP Provisions	Effect of Other Regulatory Programs and Non-Regulatory Restoration Actions
	overwater structures *10. Shoreline complexity* *11. Wave attenuation*	environment, this also requires an average of 10 feet of riparian vegetation planted from the OHWM (**SMP 83.400**). Removal of significant trees in the setback shall be mitigated at a 1:1 ratio plus riparian vegetation for trees up to 24 inches in diameter and 2:1 ratio for trees greater than 24 inches in diameter. In addition, trees greater than 24 inches in diameter may only be removed if nuisance and hazardous as determined by the City. 3. *Chemical contaminant increases* Shoreline setback reduction alternatives (**SMP 83.380**) include landscape best management practices and may limit lawn area. 4. *External lighting impacts* Lighting shall be controlled to minimize adverse effects on fish and wildlife and their habitats (**SMP 83.470**). However, several exemptions from the lighting standards are included, such as emergency lighting, public rights-of-way (i.e. trails), and seasonal lighting (**SMP 83.470(2)(a)**). (Note: items 5-11 addressed in Sections 3.5 and 3.6)	
Natural			
The shoreline within the Natural environment is entirely park/open space with no existing development, containing only 1 percent impervious surface. It is comprised entirely of the Yarrow Bay wetlands and Juanita Bay Park and Forbes Creek wetland corridors.	**FUTURE DEVELOPMENT** in the Natural environment will be very limited. As discussed above in Section 3.4, the "vacant' lots are all either public property managed for parks and open space, or are lots highly encumbered (in several cases completely) by wetlands. No change in uses is anticipated. **FUNCTIONS/PROCESSES IMPACTED:** Activities anticipated to occur within the Natural environment are almost exclusively related to management of invasive vegetation, installation of native plantings, and perhaps some	Several facets of the SMP development standards for the Natural environment are aimed at minimizing potential impacts to shoreline ecological functions that are discussed in Sections 3.4, 3.5, and 3.6 above. Setbacks are not a relevant issue in the Natural environment, as no new structures, other than potentially public trails, will ever be proposed. Most of the Natural environment consists of streams and wetlands, which have additional protections under **SMP 83.500** and **SMP 83.510**. 1. *Vegetation/Habitat* As previously mentioned, many of the activities in the parks are intended to improve ecological functions, and would be conducted	**Other Regulatory Programs:** Any in- or over-water proposals, primarily piers and shoreline reconstruction, would require review not only by the City of Kirkland, but also by the WDFW, the U.S. Army Corps of Engineers (Corps), and/or Ecology. Each of these agencies is charged with regulating and/or protecting streams, lakes, and wetlands, and would impose certain design or mitigation requirements on applicants. Due to Endangered Species Act consultation requirements with the U.S. Fish and Wildlife Service and National Marine Fisheries Service, the Corps has developed recommendations to minimize project impacts. These include Regional General Permit 3 (RGP-3) for overwater structures and a Programmatic Biological Evaluation for shoreline stabilization. WDFW also follows similar design standards as the Corps and the City of Kirkland has included many of these standards within the proposed SMP. These agencies would also impose certain design and mitigation requirements on a proposed project to minimize adverse impacts. Outside of the immediate shoreline zone, short- and long-term stormwater management per the latest Ecology Stormwater Manual would minimize/eliminate construction-related stormwater runoff impacts and may slowly improve the quality of any waters reaching the shoreline. **Non-Regulatory Restoration Actions**

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Existing Conditions	Likely Development / Functions or Processes Potentially Impacted	Effect of SMP Provisions	Effect of Other Regulatory Programs and Non-Regulatory Restoration Actions
	improvements to public trails. *1. Vegetation/habitat*	voluntarily beyond the SMP requirements for mitigation tied to development.	The City's Shoreline Restoration Plan includes goals and objectives with an emphasis on public education and involvement intended to promote voluntary shoreline enhancement and restoration on private land. See the Residential – L discussion above for examples. In addition, Projects 3-5 and 29 in the Shoreline Restoration Plan (see Table 3) are located in and just waterward of Juanita Bay Park or Yarrow Bay Wetlands. Invasive vegetation species management and possible reductions in overwater cover and inwater structure would improve ecological functions for fish and wildlife. (note: effects of pier modifications in the Aquatic environment are more fully evaluated in Section 3.5). The City's parks are also maintained using Integrated Pest Management (IPM) techniques, which dramatically minimize the amount of chemical treatments that lawn and landscaping require. Other enhancements to the shoreline parks are possible through Capital Improvement Program funds, which help complete shoreline or stream restoration, install new landscaping, and to implement Low Impact Development (LID) practices. The Open Space and Park Land Acquisition Grant Match Program, which assists with or provides funding for acquisition of key sites as they become available, may be used to purchase additional private parcels located in wetlands associated with Yarrow Bay Park. The City's Parks Department also has a number of other partnerships or efforts that will likely result in additional improvements to parks that improve ecological function, including Juanita Bay Park Rangers, Eagle Scout/Capstone Projects, and the Youth Tree Education Program.

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8 NET EFFECT ON ECOLOGICAL FUNCTION

Table 17 above examines development and redevelopment potential by environment designation, except for piers and shoreline armoring which are addressed collectively in Section 3.5 and 3.6. It is clear from Table 17 that the City is already highly developed, and has limited potential for new development on just a few vacant lots. A large number of other vacant lots are encumbered by wetlands and are not expected to be developed. The vacant lots with potential for new development are vegetated, and even contain a few trees, but much of the vegetation is invasive and the lots are so narrow that their habitat value is quite limited by the proximity of roads and other developments.

Collectively, the redevelopment potential may shift development closer to the water's edge, but the condition of the remaining space will be improved overall by installations of native landscaping and compliance with lighting standards. Further, the allowances for non-structural developments in the setbacks are more limited than the existing condition. In the long term, impervious surfaces currently located in the existing and proposed setbacks may be removed.

The effective overwater coverage (but not the actual footprints) should also decrease over the next 20 years, even with installation of new piers and pier additions. Because of the increased requirements to demonstrate need for new shoreline armoring and the requirements to consider soft solutions for new and replacement shoreline armoring, the City's overall shoreline hardening condition will at worst remain the same, and realistically will improve over time.

Potential for improvement of shoreline ecological functions is currently greatest on City park properties, with substantial conversions of solid to grated decking, installation of native vegetation and removal of invasive vegetation, restoration of wetlands and a stream, and enhancement of currently armored shoreline.

Even without implementation of the Restoration Plan, the proposed Shoreline Master Program should result in maintenance of the current level of ecological function, and possibly even improvements over time. However, when paired with the Restoration Plan, ecological function of the City's Lake Washington shoreline is certain to improve.

Therefore, **no net loss of shoreline ecological functions is anticipated.**

9 REFERENCES

Longcore, T. and C. Rich. 2004. Ecological Light Pollution. Frontiers in Ecology and the Environment. 2(4):191-198

Mazur, M. and D. Beauchamp. 2006. Linking piscivory to spatial-temporal distributions of pelagic prey fishes with a visual foraging model. Journal of Fish Biology.

Rich, C. and T. Longcore. 2006. Ecological Consequences of Artificial Night Lighting. Island Press. Washington.

The Watershed Company. 2006. Final Shoreline Analysis Report Including Shoreline Inventory and Characterization for the City of Kirkland's Lake Washington Shoreline. Prepared for City of Kirkland.

10 List of Acronyms and Abbreviations

Corps ..... U.S. Army Corps of Engineers

Ecology..... Washington Department of Ecology

OHWM..... ordinary high water mark

SMP..... Shoreline Master Program

WDFW..... Washington Department of Fish and Wildlife

APPENDIX A – ENVIRONMENT DESIGNATION MAPS


R-M/H
UC
UM
UM
R-M/H
N
N
N
N
R-L
UC
R-L
UC
0 250 500 Feet
NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands, as amended, shall apply, superseding the incorrect or outdated map.
Kenmore
Bothell
Woodinville
Seattle
Redmond
Bellevue
Proposed Shoreline Environment Designations
Shoreline Master Program - City of Kirkland
A Aquatic
R-L Residential - Low
N Natural
UC Urban Conservancy
UM Urban Mixed
R-M/H Residential - Medium/High
Shoreline Management Area
Figure Xa

EXHIBIT G


R-L
UC
R-L
UC
R-L
A
UC
R-L
R-M/H
UH
NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands, as amended, shall apply, superseding the incorrect or outdated map.
Proposed Shoreline Environment Designations
Shoreline Master Program - City of Kirkland
A Aquatic
RL Residential - Low
N Natural
UC Urban Conservancy
UM Urban Mixed
R-M/H Residential - Medium/High
Shoreline Management Area
Figure Xb

EXHIBIT G


UC
R-L
R-M/H
UM
A
0 250 500 Feet
NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands, as amended, shall apply, superseding the incorrect or outdated map.
Proposed Shoreline Environment Designations
Shoreline Master Program - City of Kirkland
A Aquatic
R-L Residential - Low
N Natural
UC Urban Conservancy
UM Urban Mixed
R-M/H Residential - Medium/High
Shoreline Management Area
Figure Xc

EXHIBIT G


UM
UC
R-M/H
UM
A
R-M/H
R-L
A
N
N
Yarrow Point
Clyde Hill
Bellevue
NE 60th St
NE 40th St
NE 30th St
NE 20th St
NE 10th St
NE Point Dr
0 250 500 Feet
NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands, as amended, shall apply, superseding the incorrect or outdated map.
Kenmore
Bothell
Woodinville
Seattle
Redmond
Clyde Hill
Bellevue
Proposed Shoreline Environment Designations
Shoreline Master Program - City of Kirkland
A Aquatic
R-L Residential - Low
N Natural
UC Urban Conservancy
UM Urban Mixed
R-M/H Residential - Medium/High
Shoreline Management Area
Figure Xd

EXHIBIT G

APPENDIX B – FIGURES

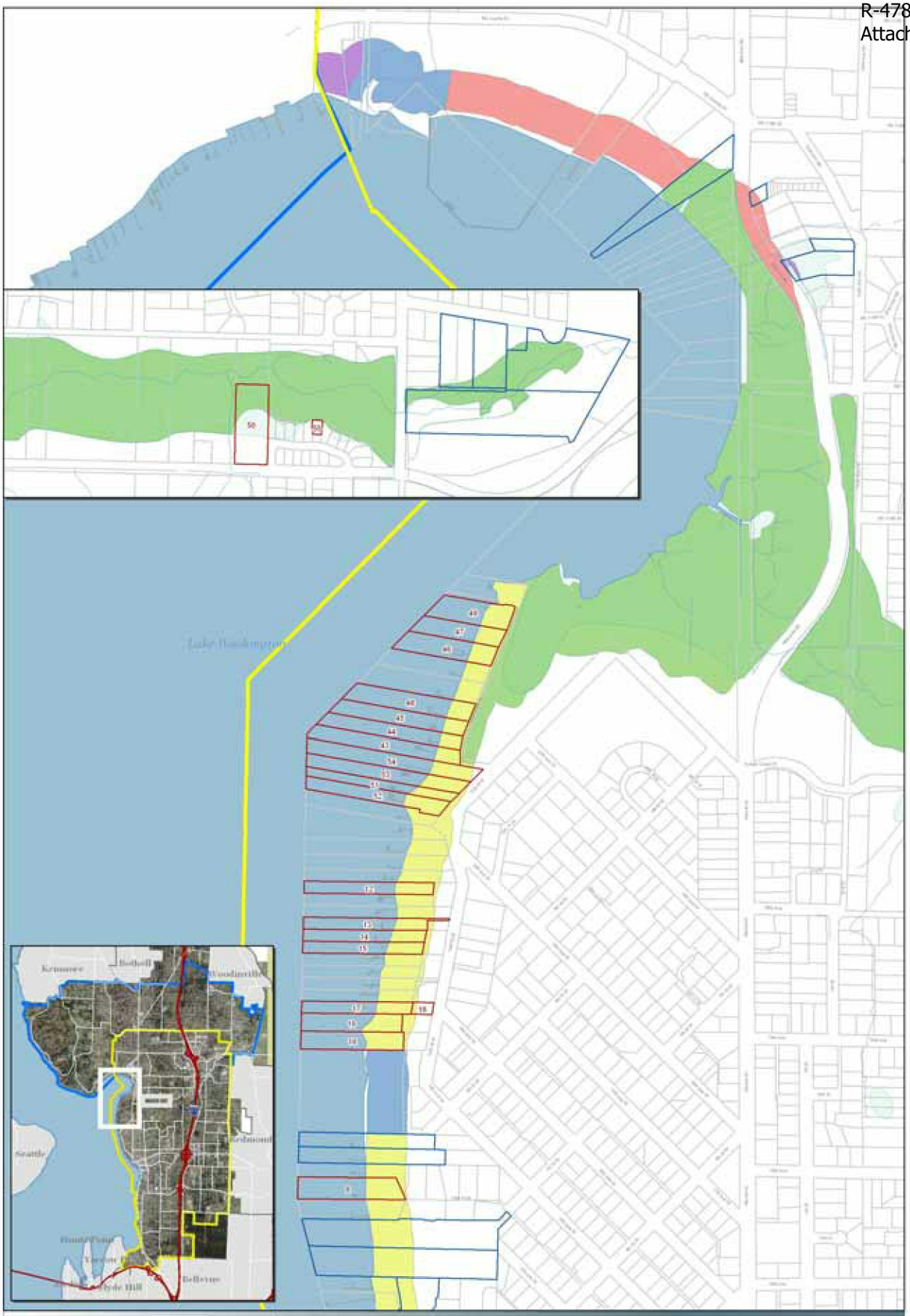

Kirkland Shoreline - Redevelopable Parcels
Shoreline Master Program - City of Kirkland
Redevelopable Parcels*
Stream in Pipe
Open Stream
Wetlands
*Based on 2006 Assessor's Data
Natural
Residential - Low
Urban Conservancy
Urban Mixed
NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands as amended, shall apply, superseding the incorrect or outdated map.
CIA - 1a

EXHIBIT G


Kirkland Shoreline - Redevelopable Parcels
Shoreline Master Program - City of Kirkland
Redevelopable Parcels*
Stream in Pipe
Open Stream
Wetlands
*Based on 2006 Assessor's Data
Natural
Residential - Low
Residential - Medium/High
Urban Conservancy
Urban Mixed
Kenmore
Bothell
Woodinville
Redmond
Seattle
Bellevue
Clyde Hill
Lake Washington
NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands, as amended, shall apply, superseding the incorrect or outdated map.
CIA - 1b

EXHIBIT G

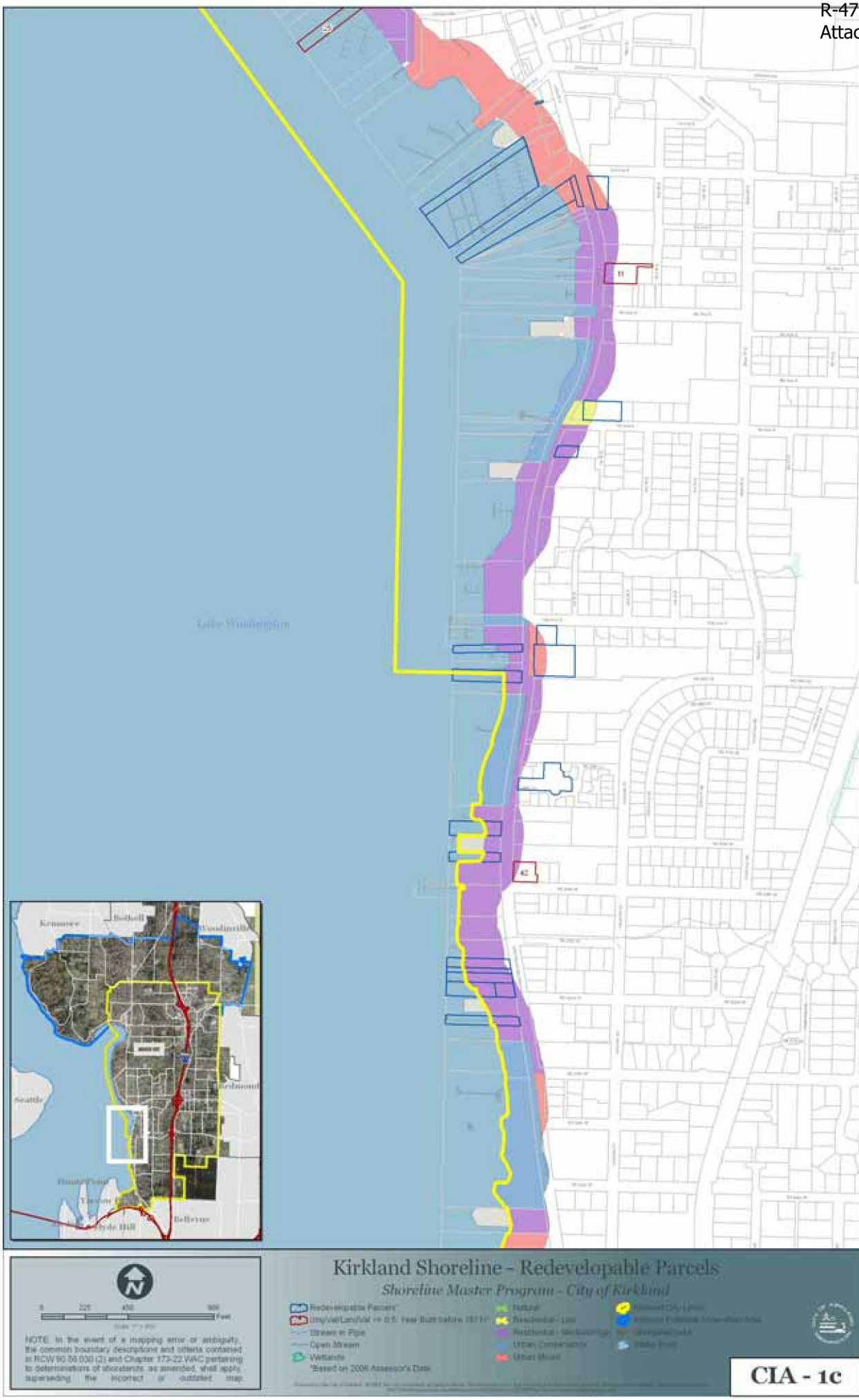

Lake Washington
Kirkland Shoreline - Redevelopable Parcels
Shoreline Master Program - City of Kirkland
Redevelopable Parcels*
Stream in Pipe
Open Stream
Wetlands
*Based on 2006 Assessor's Data
Natural
Residential - Low
Residential - Medium/High
Urban Conservancy
Urban Mixed
Kenmore
Bothell
Woodinville
Redmond
Seattle
Bellevue
Hunts Point
Yarrow
Clyde Hill
0
225
450
900
Feet
NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands, as amended, shall apply, superseding the incorrect or outdated map.
CIA - 1c

EXHIBIT G

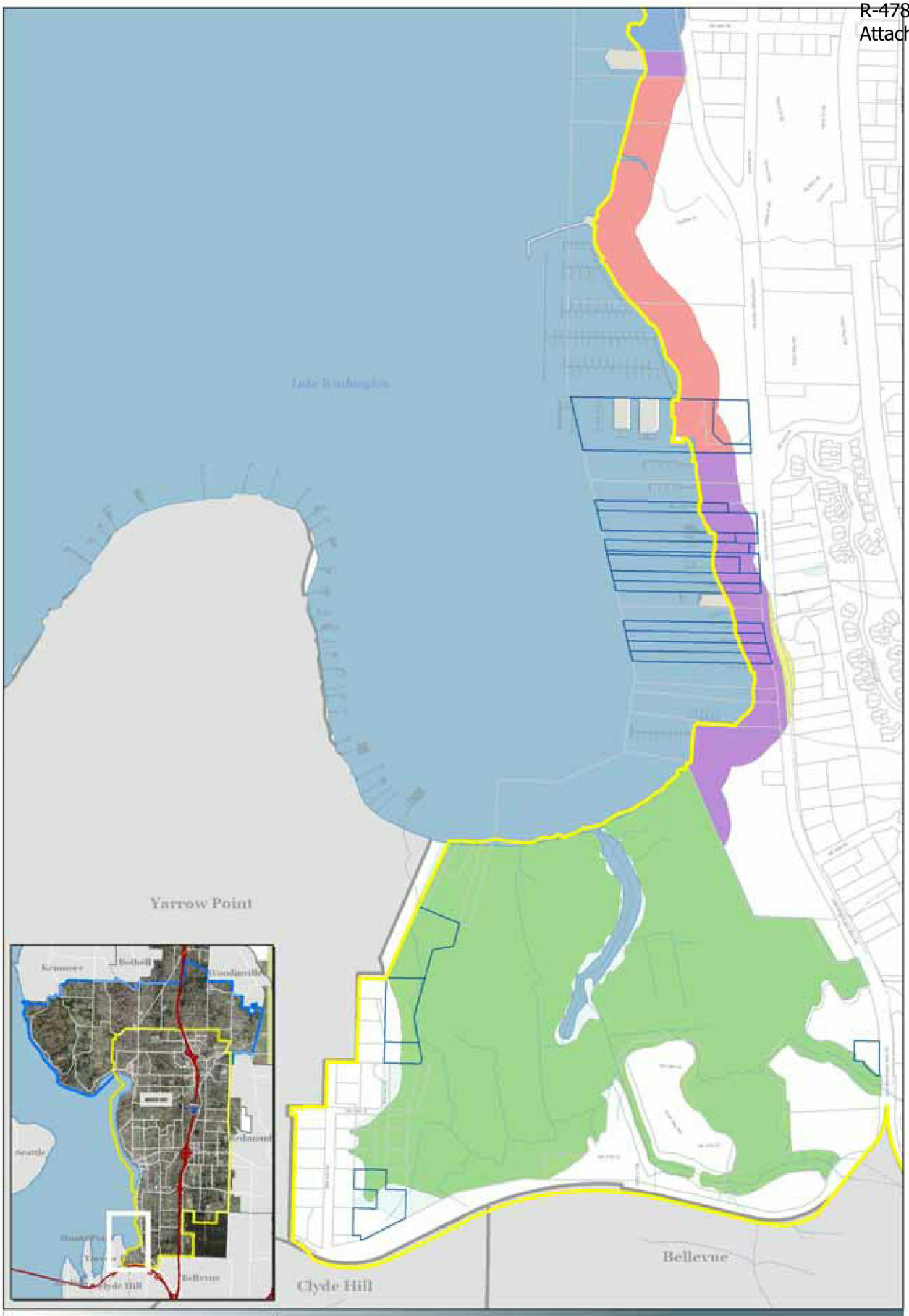
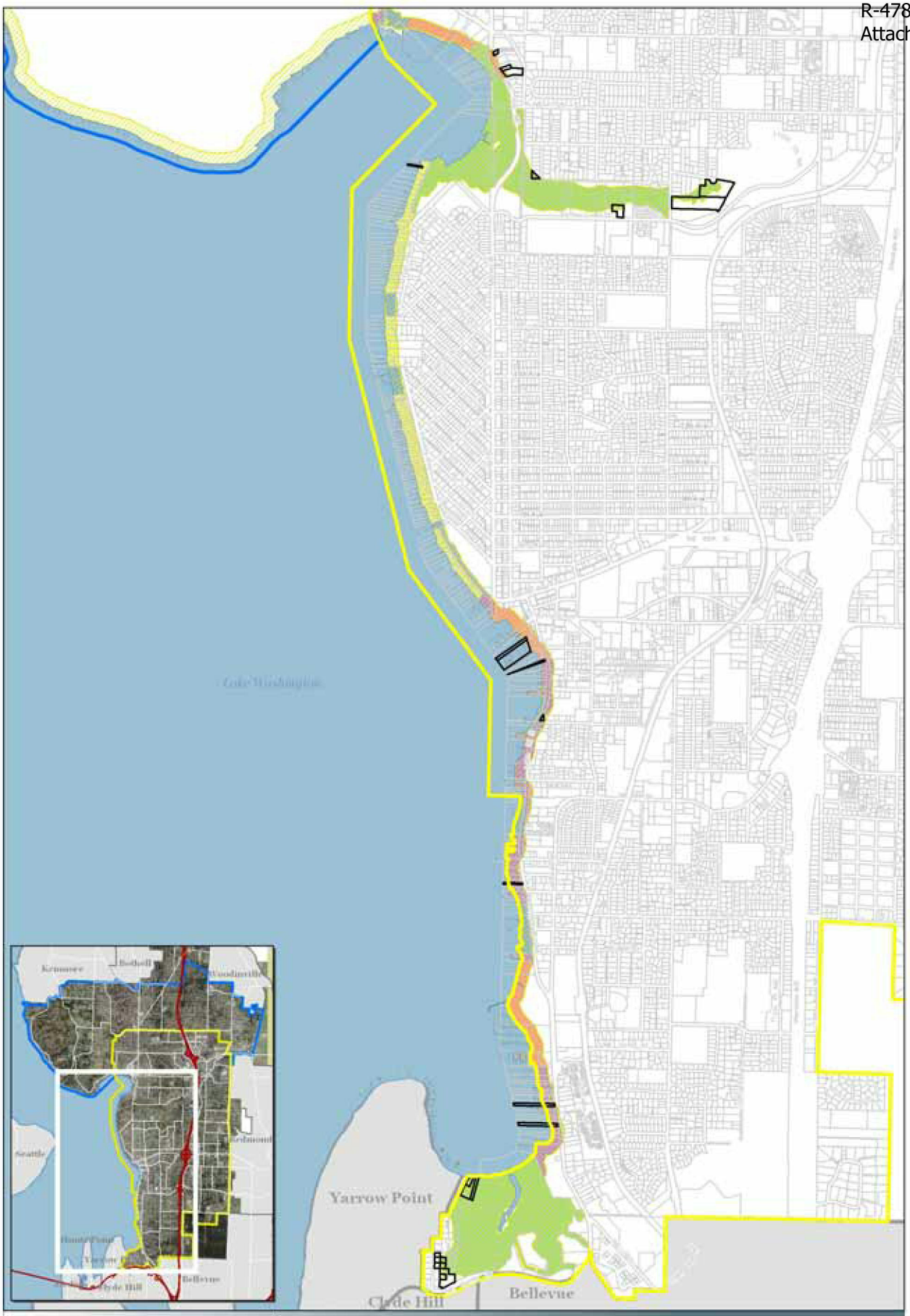

Lake Washington
Yarrow Point
Clyde Hill
Bellevue
Kenmore
Bothell
Woodinville
Redmond
Seattle
Mercer Island
Kirkland Shoreline - Redevelopable Parcels
Shoreline Master Program - City of Kirkland
Redevelopable Parcels*
Stream in Pipe
Open Stream
Wetlands
*Based on 2006 Assessor's Data
Natural
Residential - Low
Urban Conservancy
Urban Mixed
0
225
450
900
Feet
NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands as amended, shall apply, superseding the incorrect or outdated map.
CIA - 1d

EXHIBIT G



NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands, as amended, shall apply, superseding the incorrect or outdated map.

Kirkland Shoreline - Vacant Parcels

Shoreline Master Program - City of Kirkland

Vacant Lots*
Shoreline Management Area
Tax Parcels
*May 2000 Data

Natural
Residential - Low
Residential - Medium/High
Urban Conservancy
Urban Mixed

Kirkland City Limits
Kirkland Potential Annexation Area
Shoreline Overlay
Water Body

CIA - 2

EXHIBIT G

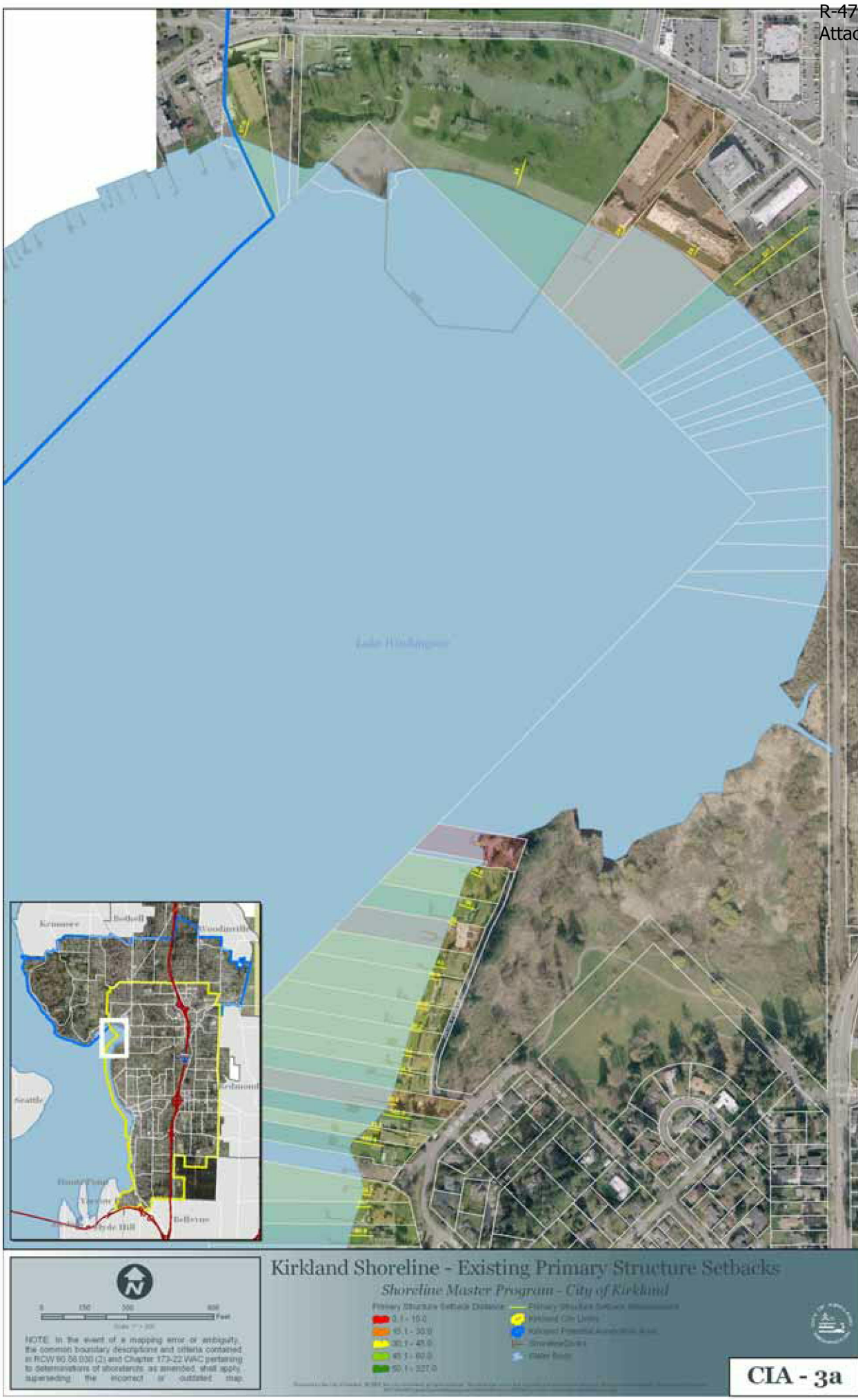

Kirkland Shoreline - Existing Primary Structure Setbacks
Shoreline Master Program - City of Kirkland
Primary Structure Setback Distance
0.1 - 15.0
15.1 - 30.0
30.1 - 45.0
45.1 - 60.0
60.1 - 327.0
Primary Structure Setback Measurement
Kirkland City Limits
Kirkland Potential Annexation Area
Shoreline Limits
Water Body
0 150 300 600 Feet
NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands, as amended, shall apply, superseding the incorrect or outdated map.
Lake Washington
Kenmore
Bothell
Woodinville
Seattle
Redmond
Bellevue
Clyde Hill
CIA - 3a

EXHIBIT G



NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands as amended, shall apply, superseding the incorrect or outdated map.

Kirkland Shoreline - Existing Primary Structure Setbacks

Shoreline Master Program – City of Kirkland

Primary Structure Setback Distance
- 5.1 - 15.0
- 15.1 - 30.0
- 30.1 - 45.0
- 45.1 - 60.0
- 60.1 - 327.0

Primary Structure Setback Measurement
- Kirkland City Limits
- Kirkland Potential Annexation Area
- Shoreline District
- Water Body

EXHIBIT G

CIA - 3b


Kirkland Shoreline - Existing Primary Structure Setbacks
Shoreline Master Program - City of Kirkland
Primary Structure Setback Distance
0.1 - 15.0
15.1 - 30.0
30.1 - 45.0
45.1 - 60.0
60.1 - 327.0
Primary Structure Setback Measurement
Kirkland City Limits
Kirkland Potential Annexation Area
Shoreline Divers
Water Body
0
150
300
600
Feet
NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands, as amended, shall apply, superseding the incorrect or outdated map.
Kenmore
Bothell
Woodinville
Seattle
Redmond
Bellevue
Clyde Hill
CIA - 3c

EXHIBIT G

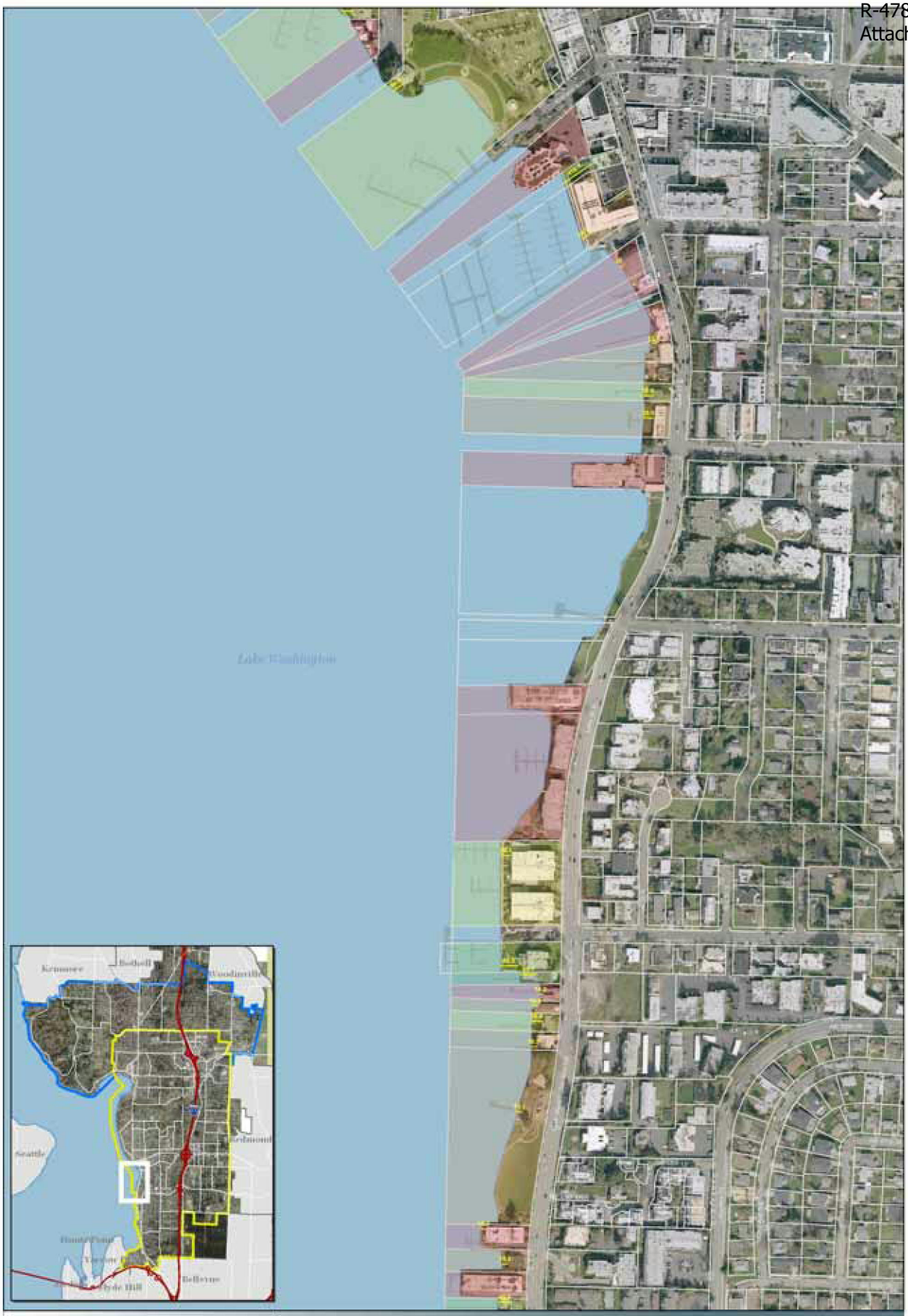
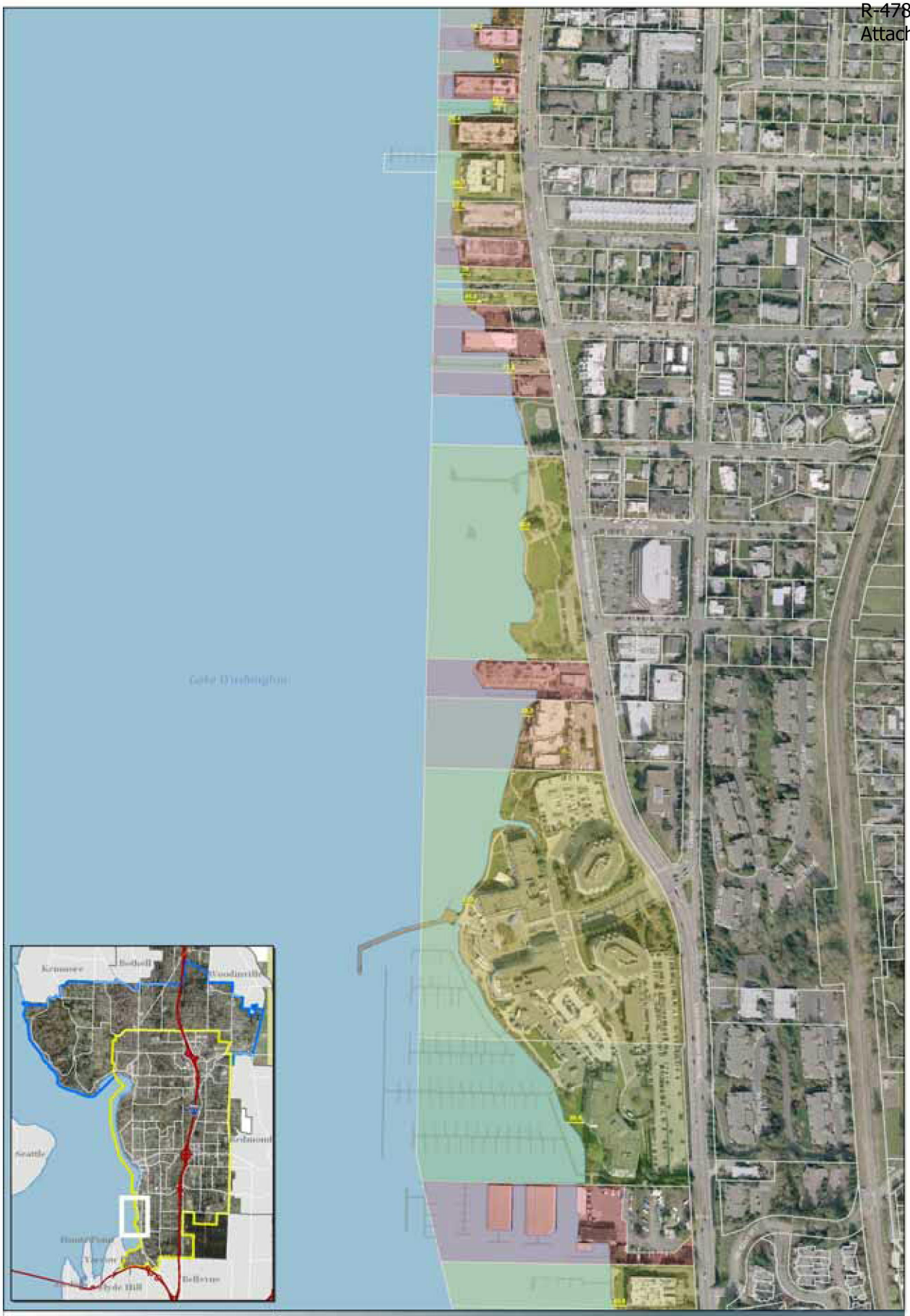

Lake Washington
Kenmore
Bothell
Woodinville
Redmond
Seattle
Bellevue
Clyde Hill
NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands as amended, shall apply, superseding the incorrect or outdated map.
Kirkland Shoreline - Existing Primary Structure Setbacks
Shoreline Master Program - City of Kirkland
Primary Structure Setback Distance
0.1 - 15.0
15.1 - 30.0
30.1 - 45.0
45.1 - 60.0
60.1 - 327.0
Kirkland City Limits
Shoreline District
Water Body
CIA - 3d

EXHIBIT G



Kirkland Shoreline - Existing Primary Structure Setbacks

Shoreline Master Program - City of Kirkland

CIA - 3e

EXHIBIT G

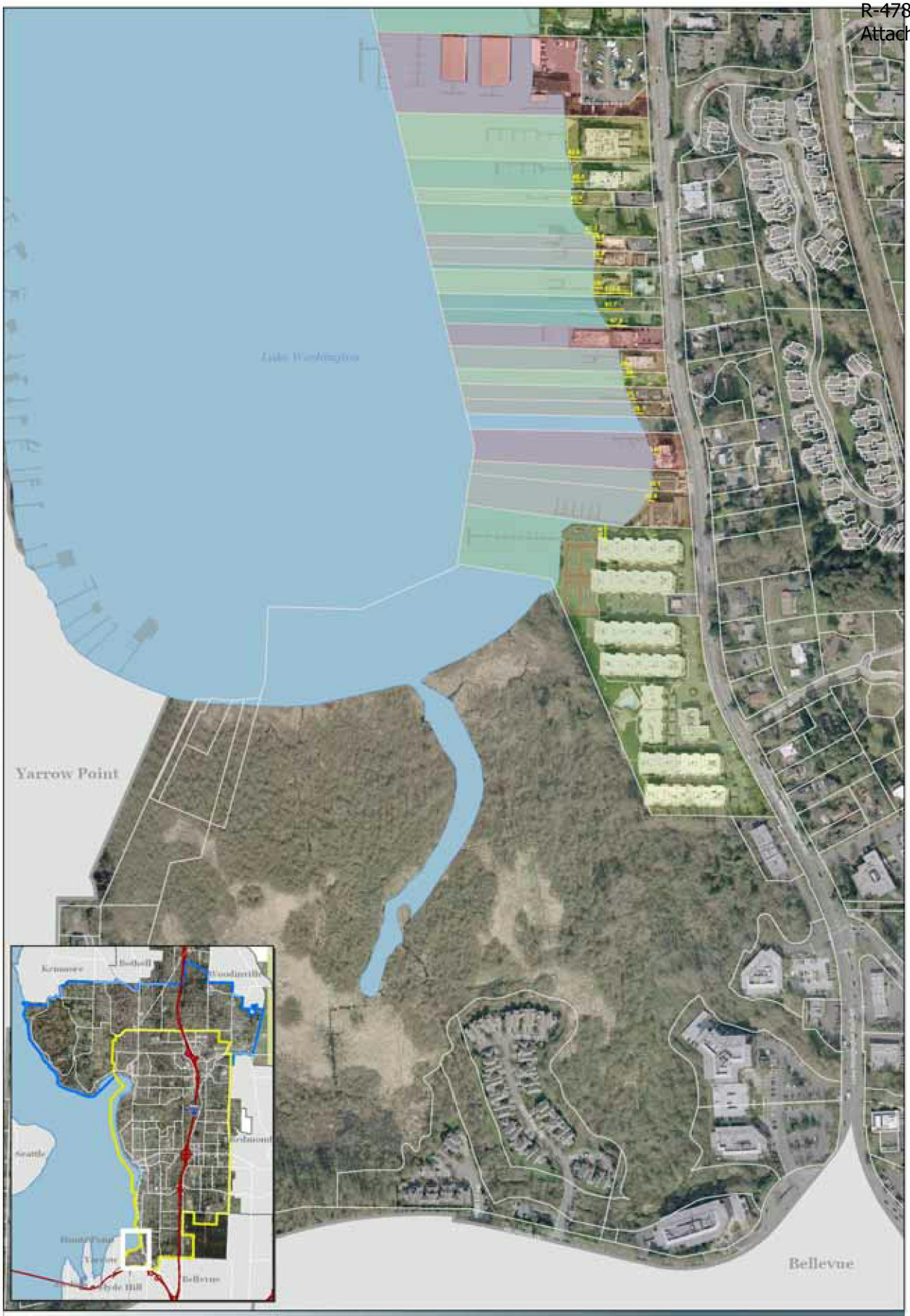

Lake Washington
Yarrow Point
Bellevue
Kenmore
Bothell
Woodinville
Seattle
Mercer Island
Renton
Bellevue
NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands as amended, shall apply, superseding the incorrect or outdated map.
Kirkland Shoreline - Existing Primary Structure Setbacks
Shoreline Master Program - City of Kirkland
Primary Structure Setback Distance
0.1 - 15.0
15.1 - 30.0
30.1 - 45.0
45.1 - 60.0
60.1 - 327.0
Kirkland City Limits
Shoreline District
Water Body
CIA - 3f

EXHIBIT G



NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands as amended, shall apply, superseding the incorrect or outdated map.

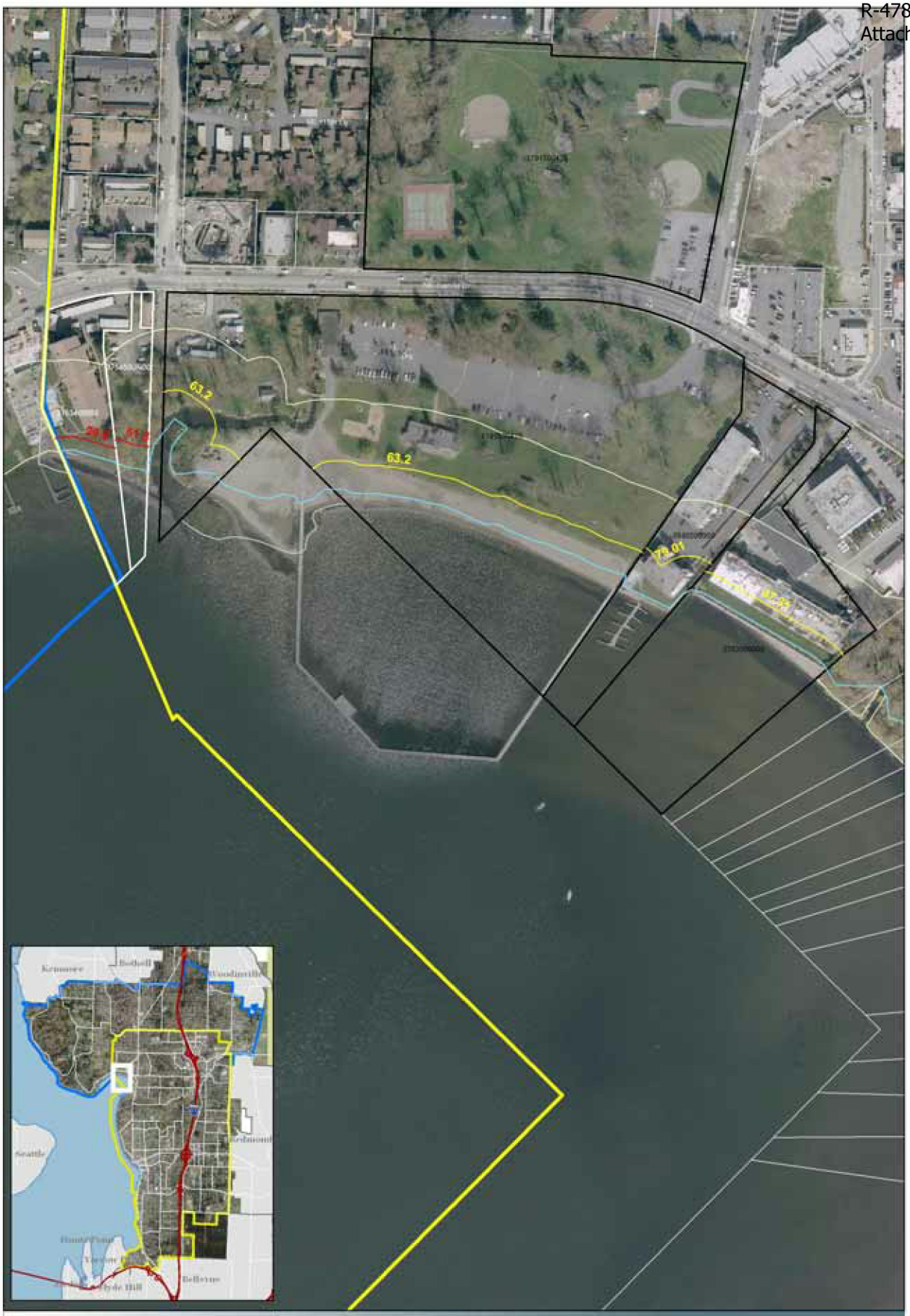
Shoreline Setback Regulation for Lake Ave West R-L Area - Average of Adjacent Existing Primary Structure Setback

Shoreline Master Program - City of Kirkland

Average Primary Structure Setback
Shoreline Management Area
Sanitary Sewer Pipe
Ordinary High Water Mark
R-L Parcels
Tax Parcels
Kirkland City Limits
Kirkland Potential Annexation Area

CIA - 4

EXHIBIT G



NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands as amended, shall apply, superseding the incorrect or outdated map.

Shoreline Setback Regulation for R-M/H and UM Environments - 15% Average Parcel Depth w/ 25' Minimum

Shoreline Master Program - City of Kirkland

EXHIBIT G

CIA - 5a


25
45.26
25
25
25



NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands as amended, shall apply, superseding the incorrect or outdated map.

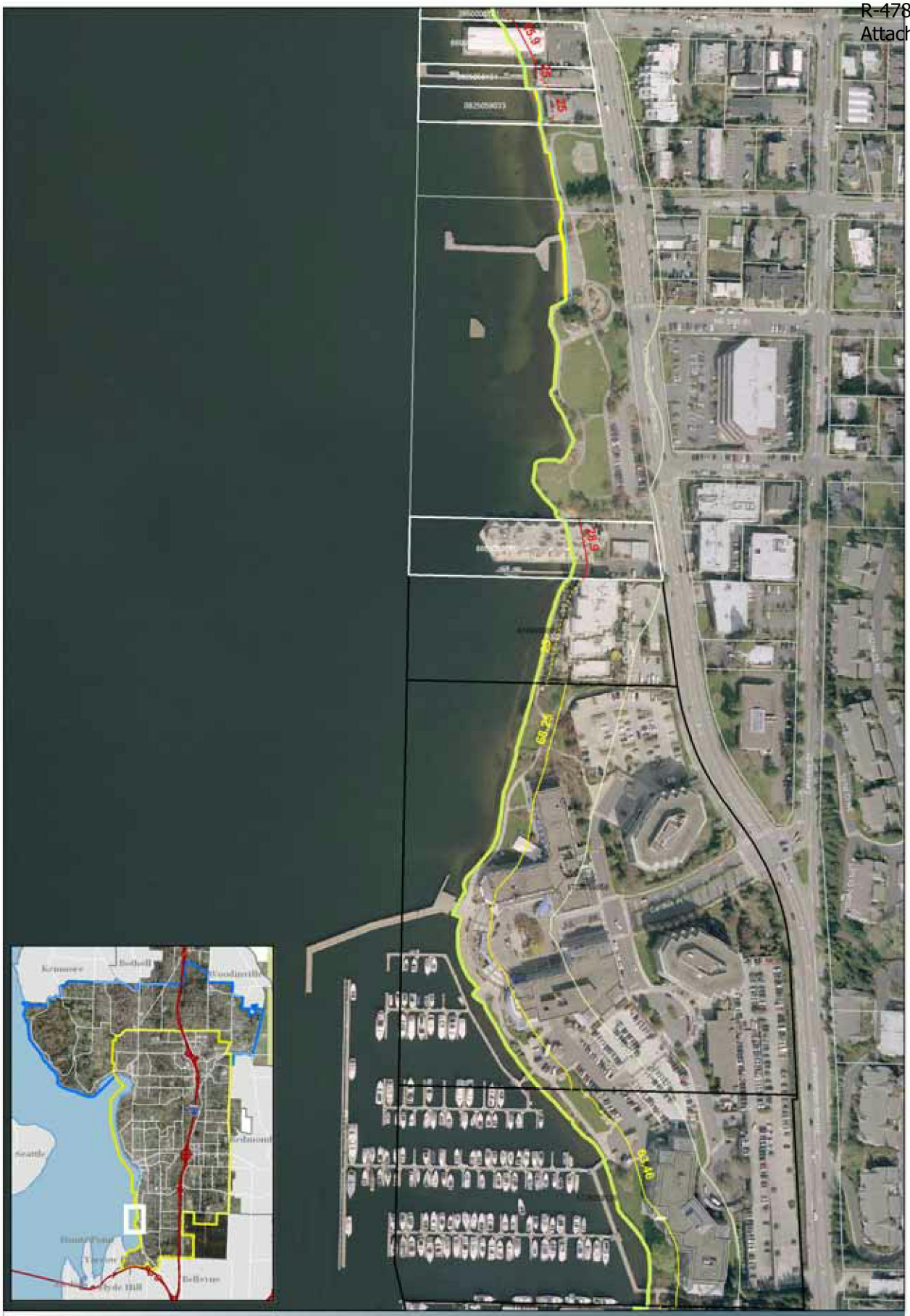
Shoreline Setback Regulation for R-M/H and UM Environments - 15% Average Parcel Depth w/ 25' Minimum

Shoreline Master Program - City of Kirkland

R-M/H Setbacks
25' Minimum Setback
15% Average Lot Depth
R-M/H Parcels
UM Setbacks
25' Minimum Setback
15% Average Lot Depth
UM Parcels

CIA - 5c

EXHIBIT G



NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands as amended, shall apply, superseding the incorrect or outdated map.

Shoreline Setback Regulation for R-M/H and UM Environments - 15% Average Parcel Depth w/ 25' Minimum

Shoreline Master Program - City of Kirkland

R-M/H Setbacks
25' Minimum Setback
15% Average Lot Depth
R-M/H Parcels
UM Setbacks
25' Minimum Setback
15% Average Lot Depth
UM Parcels
CS

CIA - 5d

EXHIBIT G


Kenmore
Bothell
Woodinville
Redmond
Seattle
Bellevue
Clyde Hill
NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands as amended, shall apply, superseding the incorrect or outdated map.
Shoreline Setback Regulation for R-M/H and UM Environments - 15% Average Parcel Depth w/ 25' Minimum
Shoreline Master Program - City of Kirkland
R-M/H Setbacks
UM Setbacks
25' Minimum Setback
15% Average Lot Depth
R-M/H Parcels
UM Parcels
CIA - 5e

EXHIBIT G



NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands as amended, shall apply, superseding the incorrect or outdated map.

Shoreline Setback Regulation for R-L Environment (not including Lake Ave W area) - 30% Average Parcel Depth (30' Min / 60' Max)

Shoreline Master Program - City of Kirkland

30' Minimum Setback
30% Average Lot Depth
60' Maximum Setback
C3 Shoreline Management Area
Ordinary High Water Mark
R-L Parcels
Kirkland City Limits
Kirkland PAA

CIA - 6a

EXHIBIT G



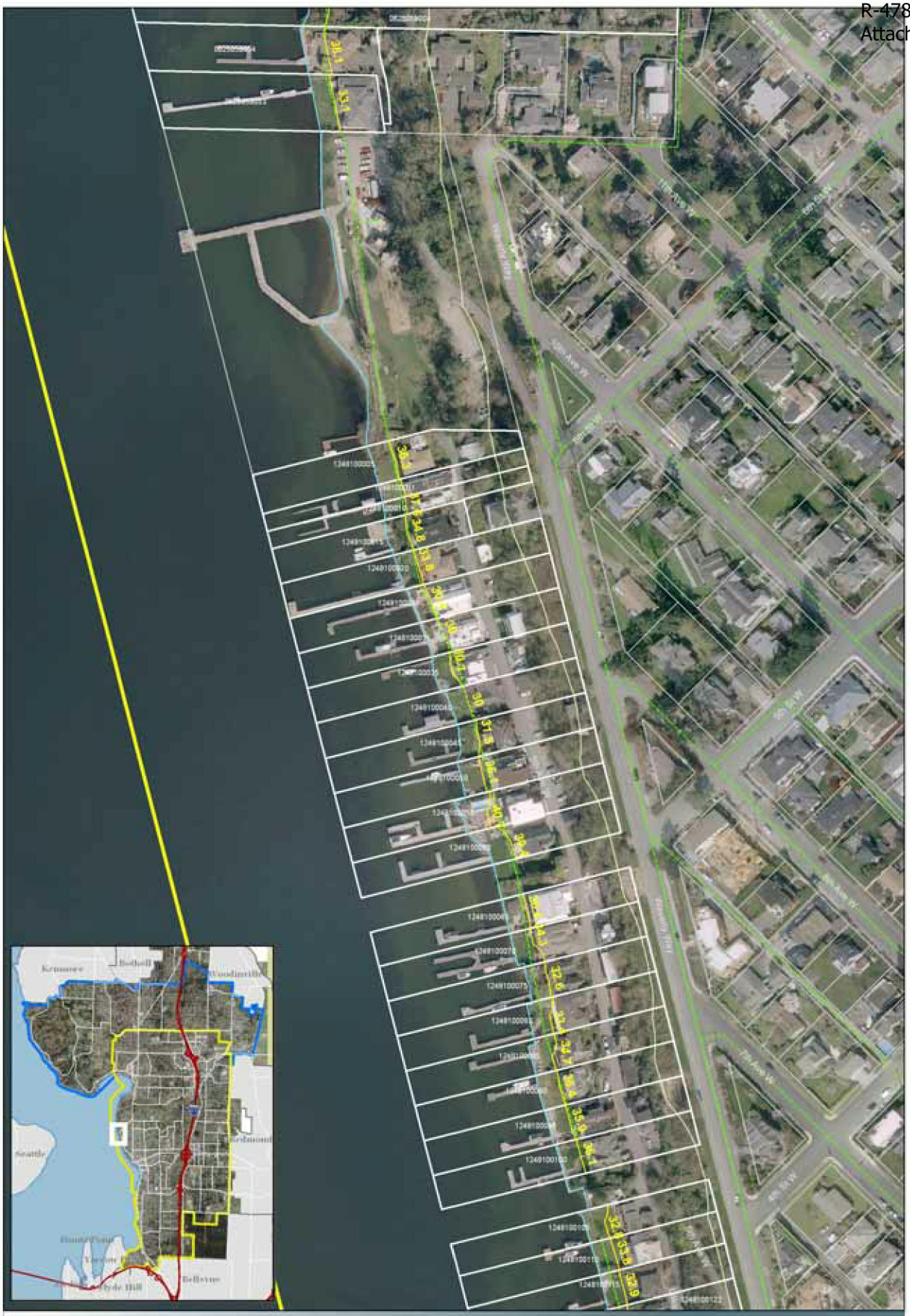
NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands as amended, shall apply, superseding the incorrect or outdated map.

Shoreline Setback Regulation for R-L Environment (not including Lake Ave W area) - 30% Average Parcel Depth (30' Min / 60' Max)

Shoreline Master Program - City of Kirkland

CIA - 6b

EXHIBIT G



Shoreline Setback Regulation for R-L Environment (not including Lake Ave W area) - 30% Average Parcel Depth (30' Min / 60' Max)

Shoreline Master Program - City of Kirkland

0 75 150 300 Feet

NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands as amended, shall apply, superseding the incorrect or outdated map.

30' Minimum Setback
30% Average Lot Depth
60' Maximum Setback
Shoreline Management Area
Ordinary High Water Mark
R-L Parcels
Kirkland PAA

CIA - 6c

EXHIBIT G



NOTE: In the event of a mapping error or ambiguity, the common boundary descriptions and criteria contained in RCW 90.58.030 (2) and Chapter 173-22 WAC pertaining to determinations of shorelands, as amended, shall apply, superseding the incorrect or outdated map.

Shoreline Setback Regulation for R-L Environment (not including Lake Ave W area) - 30% Average Parcel Depth (30' Min / 60' Max)

Shoreline Master Program - City of Kirkland

CIA - 6d

EXHIBIT G

APPENDIX C – PIER ANALYSIS

New Single-Family Overwater Structures	
Total # of new single-family piers possible (5 SF at 600 and 1 joint-use at 820)	6
Total square footage allowed for new single-family pier (fully grated)	600
Total square footage allowed for new joint-use pier (fully grated)	820
Total new square footage for new piers	3,820
Total new effective overwater square footage (40% open space)	2,292
Total effective square footage of overwater cover for new single-family piers	**2,292**

Replacement of Single-Family Overwater Structures	
Total # of existing single-family piers	111
Percentage of piers to be replaced	20%
Total # of piers to be replaced	22
Average replacement pier size (assumes piers to be rebuilt at same size as existing, but fully grated)	841
Total square footage fully grated	841
Total square footage of replacement piers (same as existing footage)	18,677
Total replacement square footage with grating	18,677
Effective overwater coverage of replacement piers (40% open space)	11,206
Effective reduction in overwater coverage as result of replacement	**7,471**

Repair of Single-Family Overwater Structures	
Total # of existing single-family structures	111
Percentage of existing piers to be replaced with grated decking in nearshore 30 feet (240 sf/pier)	30%
Total square footage of decking to be replaced with grating	7,992
Effective overwater coverage of replaced decking (40% open space)	4,795
Effective reduction in overwater coverage as result of repair	**3,197**

Additions to Single-Family Overwater Structures	
Percent of existing piers expected to propose additions	10%
Total square footage estimated for new additions (50'x4' for each addition)	2,220
Total square footage fully grated	2,220
Total new effective overwater cover (40% open space)	1,332
Effective increase in overwater coverage for additions	**1,332**

Total square footage of existing pier	93,384
Reduction of effective overwater cover based on repairs	-3,197
Increase in effective overwater cover based on new piers	2,292
Increase in effective overwater cover based on pier additions	1,332
Reduction in effective overwater cover based on replacements	-7,471
TOTAL FINAL EFFECTIVE OVERWATER COVER	**86,340**
NET CHANGE IN EFFECTIVE OVERWATER COVER	**-7,044**

Repair of Multi-Family Overwater Structures	
Total # of existing multi-family structures	25
Total square footage of structures	59,867
Average square footage of multi-family structures	

	2,395
Percentage of existing piers to be replaced with grated decking in nearshore 30 feet (240 sf/pier)	5%
Total square footage of decking to be replaced with grating	300
Effective overwater coverage of replaced decking (40% open space)	180
Effective reduction in overwater coverage as result of repair	**120**

New Multi-Family Overwater Structures	
Total # of new multi-family piers possible	5
Total square footage estimated for new community pier	2,000
Total square footage fully grated	2,000
Total new square footage for new piers	10,000
Total new effective overwater square footage (40% open space)	6,000
Total square footage of non-grated section	4,000
Total effective square footage of overwater cover for new multi-family piers	**6,000**
Total square footage of existing multi-family piers	59,867
Reduction of effective overwater cover based on repairs	-120
Increase in effective overwater cover based on new piers	6,000
TOTAL FINAL EFFECTIVE OVERWATER COVER	**65,747**
NET CHANGE IN EFFECTIVE OVERWATER COVER	**5,880**

Repair of Commercial Overwater Structures	
Total # of existing commercial structures	11
Total square footage of structures	133,516
Average square footage of commercial structures	12,138
Percentage of existing piers to be replaced with grated decking in nearshore 30 feet (240 sf/pier)	30%
Total square footage of decking to be replaced with grating	792
Effective overwater coverage of replaced decking (40% open space)	475
Effective reduction in overwater coverage as result of repair	**317**
Total square footage of existing commercial piers	133,516
Reduction of effective overwater cover based on repairs	-317
TOTAL FINAL EFFECTIVE OVERWATER COVER	**133,199**
NET CHANGE IN EFFECTIVE OVERWATER COVER	**-317**

Repair of Public Overwater Structures	
Total # of existing public structures	9
Total square footage of structures	32,218
Average square footage of public structures	3,580
Percentage of existing decking to be replaced with grated decking	100%
Total square footage of decking to be replaced	32,218
Effective overwater coverage of replaced decking (40% open space)	19,331
Effective reduction in overwater coverage as result of repair	**12,887**

Additions to Public Overwater Structures	
Total # of additions to piers possible	2
Total square footage estimated for new additions	2,482
Total square footage fully grated	2,482
Total new effective overwater cover (40% open space)	1,489
Effective increase in overwater coverage for additions	**1,489**
Total square footage of existing public piers	32,218
Reduction of effective overwater cover based on repairs	-12,887
Increase in effective overwater cover based on additions	1,489
TOTAL FINAL EFFECTIVE OVERWATER COVER	**20,820**
NET CHANGE IN EFFECTIVE OVERWATER COVER	**-11,398**

Existing Overwater Coverage	
Total existing overwater coverage - single-family	93,384
Total existing overwater coverage - multi-family	59,867
Total existing overwater coverage - commercial	133,516
Total existing overwater coverage - public	32,218
Total existing overwater coverage (square footage)	**318,985**

Effective Overwater Coverage at Buildout	
Total overwater cover at buildout - single-family	86,340
Total overwater cover at buildout - multi-family	65,747
Total overwater cover at buildout - commercial	133,199
Total overwater cover at buildout - public	20,820
Total effective overwater coverage at buildout (square footage)	**306,107**

Change in Effective Overwater Coverage at Buildout	
Net change in overwater cover - single-family	-7,044
Net change in overwater cover - multi-family	5,880
Net change in overwater cover - commercial	-317
Net change in overwater cover - public	-11,398
TOTAL CHANGE IN EFFECTIVE OVERWATER COVER AT BUILDOUT	**-12,878**
PERCENTAGE DECREASE IN OVERWATER COVER AT BUILDOUT	**-4.0%**

APPENDIX D – VEGETATION DETAILS



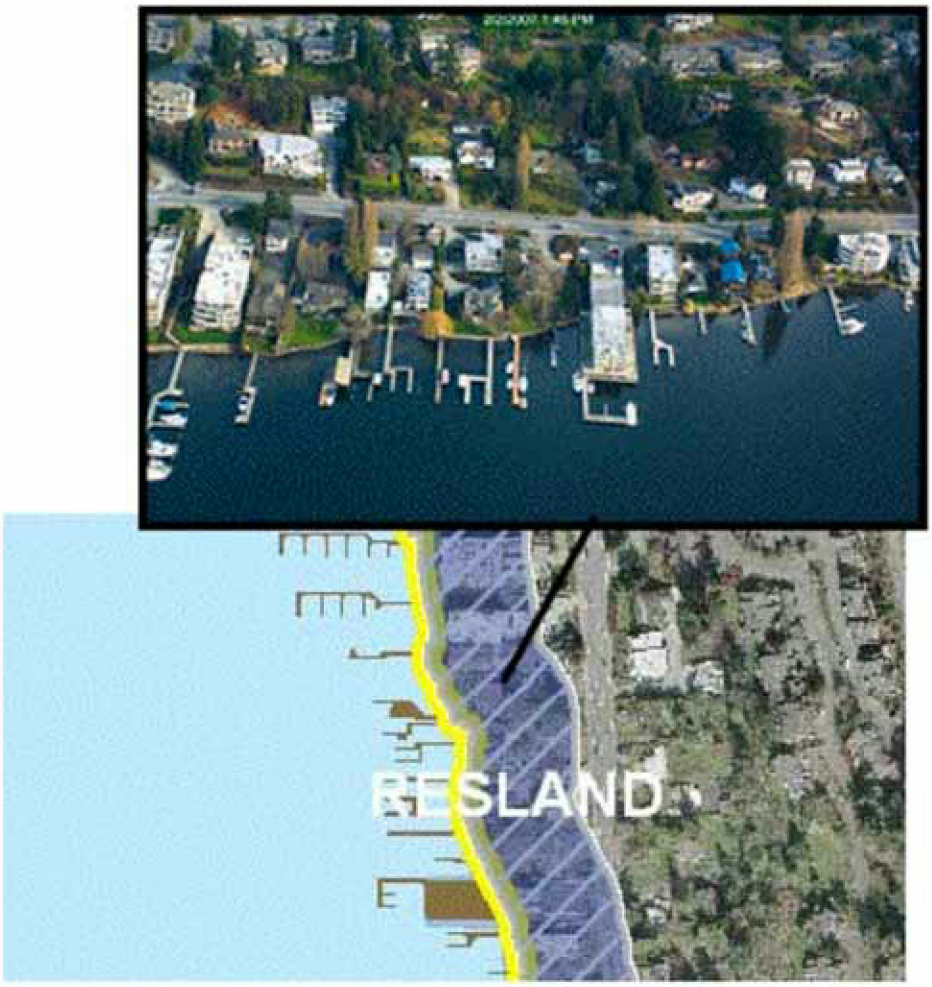
Vegetation Detail
Juanita Bay Wetland



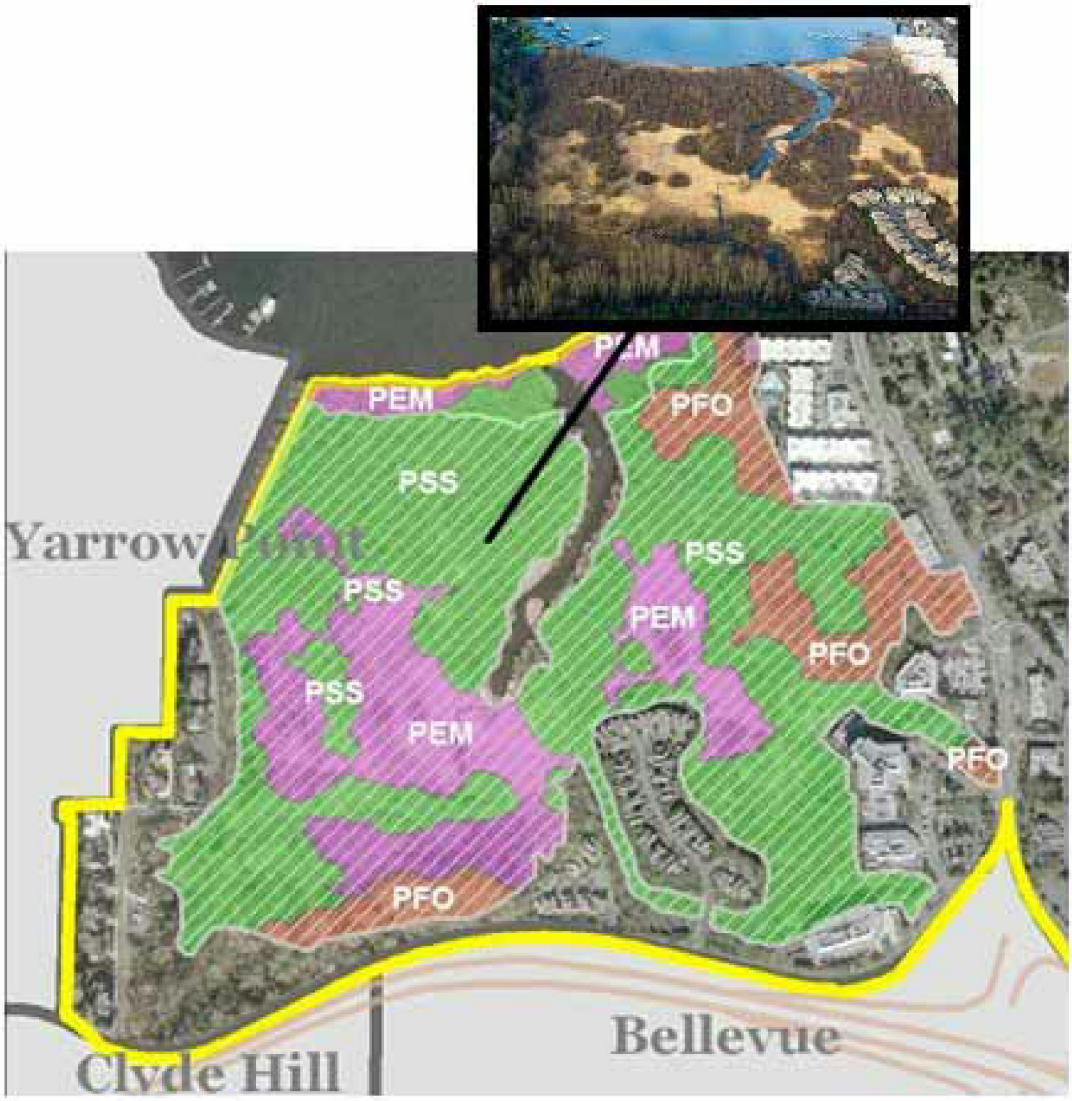
Vegetation Detail
Residential - L Environment



Vegetation Detail
Urban Mixed Environment



Vegetation Detail
Residential - M/H Environment



Vegetation Detail
Yarrow Bay Wetlands