AMENDMENTS TO STREAMS REGULATIONS FOR ANNEXATION AREA

83.510 Streams

1. Applicability – The following provisions shall apply to streams and stream buffers located within the shorelines 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, such as bond or performance security, dedication and liability, but the following subsections shall not apply within the shorelines 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, except 200 feet in the shoreline area for the RSA and RMA zones and O. O. Denny Park).

   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) 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

The following table applies to all shoreline areas other than the RSA and RMA zones and O. O. Denny Park:

Stream Class	Primary Basins	Secondary Basins
A	75 feet	N/A
B	60 feet	50 feet
C	35 feet	25 feet

The following table applies to the shoreline areas in the RSA and RMA zones and O. O. Denny Park:

Stream Types	**Stream Buffer Width**
Type F: All segments of aquatic areas that are not shorelines of the state (Lake Washington) and that contain fish or fish habitat.	115 feet
Type N: All segments of aquatic areas that are not shorelines (Lake Washington) or Type F stream and that are physically connected to a shoreline of the state (Lake Washington) or a Type F stream by an above-ground channel system, stream or wetland.	65 feet
Type O: All segments of aquatic areas that are not shorelines of the state (Lake Washington), Type F stream or Type N stream and that are not physically connected to a shorelines of the state (Lake Washington), a Type F stream or a Type N stream by an above-ground channel system, pipe, culver, stream or wetland.	25 feet

(Note: Stream types reflect the Department of Ecology's classification system)

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 – 11 (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; and
11) 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**
Stream Relocations or Modifications, or Stream Buffer Modifications affecting more than one-third (1/3) of the standard buffer, or more than one-fourth (1/4) in the shoreline areas of the RSA and RMA zones and O. O. Denny Park	Shoreline Variance pursuant to Process IIA, described in Chapter 141 KZC
Stream Buffer Modifications affecting one-third	Underlying development permit or

(1/3) or less than ~~one-third (1/3) of~~ the standard buffer, or one fourth (1/4) or less in the shoreline areas of the RSA and RMA zones and O.O. Denny Park	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), or not by more than one-fourth (1/4) in the shoreline areas of the RSA and RMA zones and O.O. Denny Park. 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), or not by more than one-fourth (1/4) for the shoreline areas in the RSA and RMA zones and O.O. Denny Park.

NO OTHER CHANGES TO SECTION 83.510

AMENDMENTS TO PIERS/DOCKS REGULATIONS

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. Only one (1) pier or dock may be located on a subject property.

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

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

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

   ~~c.~~d. 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.~~e. For proposed extension of structures proposed waterward of the inner harbor line, see KZC 83.370.

4. New Pier or Dock Dimensional Standards –

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

(Complete chart is not provided below but only portion to be amended)

New Pier, Dock or Moorage Piles for Detached Dwelling Unit (single-family)	Dimensional and Design Standards
Pilings and Moorage Piles	**Pilings or moorage piles shall not be treated with pentachlorophenol, creosote, chromated copper arsenate (CCA) or comparably toxic compounds.** **First set of pilings for a pier or dock shall be located no closer than 18 ft from OHWM.** **Moorage piles shall be located no closer than 30 ft. from the OHWM or any farther waterward than the end of the pier or dock.** **Moorage buoys are not permitted when a pier or dock is located on a subject property.** **Maximum 2 moorage piles per detached dwelling unit, including existing piles** **Maximum 4 moorage piles for joint use piers or docks, including existing piles**

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.a, 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. The following improvements shall be removed: e~~E~~xisting in-water and overwater structures located within 30 feet of the OHWM, coverage boat moorage structures and boat storage structures in the shoreline setback, except for and boat canopies that comply with KZC 83.270.9 and existing or authorized shoreline stabilization measures~~, shall be removed~~.

7. Additions to Pier or Dock –

Proposals involving the addition to or enlargement of existing piers or docks must comply with the requirements below. These provisions shall not be used in combination with the provisions for new or replacement piers contained in KZC 83.270.4 and 6.

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 83.270.4.a
Decking for piers, docks walkways, ells and fingers	Must convert an area of decking within 30 ft. of the OHWM 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 dock walkways or piers, shall be removed at a 1:1 ratio to the area of the addition Existing covered boat moorage structures, except for boat canopies that comply with KZC 83.270.9, and boat storage structures in the shoreline setback shall be removed.

83.280 Piers, Docks, Moorage Buoys, 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.

~~a.~~b. Only one (1) pier or dock may be located on a subject property.

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

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

a. Additions – Proposals involving the addition to 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 83.280.5
Decking for piers, docks walkways, ells and fingers	Must convert an area of existing decking within 30 ft. of the OHWM with 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 **for both additions and major repairs**	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 ft. of the OHWM, except for existing or authorized shoreline stabilization measures or pier or dock walkways or ramps, shall be removed at a 1:1 ratio to the area of the addition Existing covered boat moorage structures, except for boat canopies that comply with KZC 83.280.8, and boat storage structures in the shoreline setback shall be removed.

AMENDMENTS TO NONCONFOMANCE REGULATIONS

83.550 Nonconformances

5. Certain Nonconformances Specifically Regulated

a. 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 nonconformance.

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 removed or otherwise 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) If accessory structures are located within the shoreline setback and are used to store boats or other type of watercraft, these existing nonconforming structures must be removed or otherwise brought into conformance if the applicant is proposing a replacement, addition or repair that does not meet the threshold of a minor repair to a pier, dock or marina under KZC 83.270.8, KZC 83.280.7 or KZC 83. 290.6.

Remaining subsections in KZC 83.550.5.a shall be renumbered as 6) **through 8)**

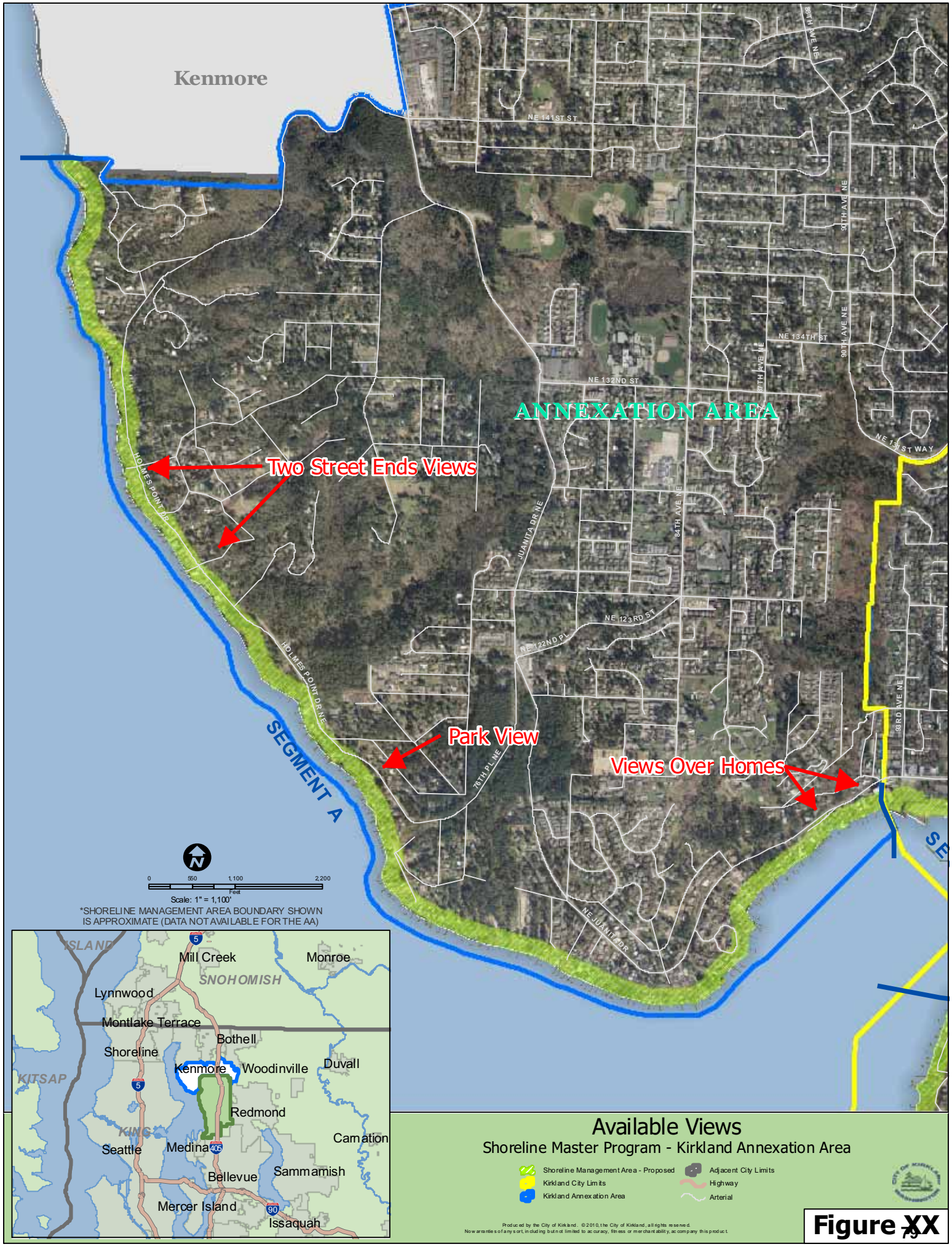
Kenmore
NE 141ST ST
NE 134TH ST
NE 132ND ST
NE 123RD ST
NE 122ND PL
ANNEXATION AREA
Two Street Ends Views
Park View
Views Over Homes
SEGMENT A
HOLMES POINT DR NE
JUANITA DR NE
84TH AVE NE
90TH AVE NE
98TH AVE NE
76TH PL NE
NE JUANITA DR
0 550 1,100 2,200
Feet
Scale: 1" = 1,100'
*SHORELINE MANAGEMENT AREA BOUNDARY SHOWN IS APPROXIMATE (DATA NOT AVAILABLE FOR THE AA)
ISLAND
SNOHOMISH
KITSAP
KING
Mill Creek
Monroe
Lynnwood
Montlake Terrace
Bothell
Shoreline
Kenmore
Woodinville
Duvall
Redmond
Carnation
Seattle
Medina
Bellevue
Sammamish
Mercer Island
Issaquah
Available Views
Shoreline Master Program - Kirkland Annexation Area
Shoreline Management Area - Proposed
Kirkland City Limits
Kirkland Annexation Area
Adjacent City Limits
Highway
Arterial
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Figure XX

AMENDMENTS TO THE VIEW CORRIDOR REGULATIONS

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 to the shoreline on the opposite side of the lake.

2. Standards -

   a. For properties lying waterward of Lake Washington Boulevard, ~~and~~ Lake Street South and NE Juanita Drive in the Residential M-H shoreline environment designation, 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 and within the Juanita Business District zone.

MISCELLANEOUS AMENDMENTS TO CHAPTER 83

Section 83.80 Definitions

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

71. Moorage Facility – A pier, dock, marina, buoy or other structure providing docking or moorage space for boats or float planes where permitted.

72~~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.

All subsequent numbering of definitions will be done

Section 83.180.3 Development Standards (charts)

Other Residential Uses (Attached, Stacked and Detached Dwelling Units/multifamily
Maximum Density for Urban Mixed
No minimum density in the CBD and BN zone~~s~~; otherwise 1,800 square feet

City of Kirkland
Grant No. G0600236

DRAFT

Shoreline Restoration Plan Component of the Shoreline Master Program for the City of Kirkland

Prepared for:

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Planning and Community Development
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123 Fifth Avenue
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~~June~~ July ~~2009~~2010

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. The recent City annexation of the Finn Hill, Juanita, and Kingsgate neighborhoods, which becomes effective in 2011, includes O.O. Denny Park, a shoreline park with over 1,000 linear feet of waterfront along Lake Washington. 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

~~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, including the recent annexation area, contains ~~a total of 336~~more than 650 lots. Of these, only ~~32~~ 44 undeveloped waterfront lots remain within shoreline jurisdiction. The majority of these undeveloped lots are located within Segment B (24); 12 are located in Segment A; ~~two~~ 2 are located in Segment C and ~~six~~ 6 in Segment D. In Segment A, many of the lots are considered vacant currently because they do not presently have a constructed home on the site and are in the process of a re-build. 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~~ less than ~~10~~ 8 percent of ~~all~~ waterfront 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~~ 7 miles and approximately 140 acres 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, including the recent annexation area, contains ~~twelve~~ thirteen 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~~ 67 percent of the overall shoreline armored at or near the ordinary high water mark and an overall pier density of approximately ~~26~~ 37 piers per mile. However, these numbers include the undeveloped shorelines in Segment B. Considering just Segments A, C and D, these numbers would rise to ~~86~~ 82 percent armoring and ~~39~~ 46 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 A, 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 segments (A and 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 A intermittently and in 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, Denny Creek, Champagne Creek and other Segment A tributary. These streams are used by salmon (coho salmon and/or cutthroat trout), 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:

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, a variation on Washington Department Natural Resources' stream rating system (annexation area only), increased wetland buffers and mitigation ratios, increased stream buffers (annexation area only) 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

Site Number	Park	Restoration Type	Description
		runoff	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 vegetation	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.
30	O.O. Denny Park[1]	Reduce shoreline armoring	Removing or minimizing the impacts of shoreline armoring along the northern ~550 feet of the park by using bioengineering techniques, regrading and reshaping of the shoreline.
31	O.O. Denny Park	Reduce shoreline armoring	Removing or minimizing the impacts of existing concrete bulkhead (~400 feet long) which fronts the main park shoreline. Shoreline could be replaced with a sinuous more natural shoreline contour. Would require regrading to improve shoreline access by lowering the height differential between upland lawns and the water's edge
32	O.O. Denny Park	Enhance shoreline vegetation	Removal of invasives and replanting with natives could occur along most of the northern ~550 feet of shoreline, including the associated wetland, allowing for concentrated areas of public access to Lake Washington. The main shorline which is fronted by the tall concrete wall is currently void of trees and shrubs. A few large trees are located between 50 and 80 feet from shore. Areas of shoreline revegeation would enhance shoreline functions and still allow for concentrated access to the shoreline.
33	O.O. Denny Park	Enhance shoreline vegetation	Native vegetation could be enhanced at the mouth of Denny Creek to bring vegetation further toward the lake. Currently, split rail and chain fencing segregates the riparian community from the lake. Wetland conditions may exist along stream flank near mouth and could be enhanced with native vegetation. The installation of riparian vegetation at the mouth may improve the channel definition and reduce sediment deposition at the mouth which may act as low flow barrier to fish passage during late summer and early fall. First pedestrian bridge upstream from the lake could be redecked with grated decking to replace plywood sheets.

[1] O.O. Denny Park is actually owned by the City of Seattle, but managed by the Finn Hill Parks and Recreation District. This management is not expected to change for some time.

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**
31	O.O. Denny Park	Reduce shoreline armoring	23.5	7.0	**30.5**
30	O.O. Denny Park	Reduce shoreline armoring	21.8	8.5	**30.3**
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 - Juanita Bay Park	Remove invasive vegetation	20.0	9.0	**29.0**
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**

Site Number	Park	Restoration Type	Ecological Score	Feasibility Score	Total Score
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**
32	O.O. Denny Park	Enhance shoreline vegetation	15.0	9.0	**24.0**
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**
33	O.O. Denny Park	Enhance shoreline vegetation	12.4	8.5	**20.9**
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 Park	Reduce stormwater runoff	3.0	8.5	**11.5**

30	O.O. Denny Park
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
4/5	Forbes Creek/Juanita Bay Park
~~13~~12	Marina Park
~~27~~26	Houghton Beach Park
~~9~~8	Waverly Park
~~17~~16	David Brink Park
~~23~~22	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, Denny Creek, Champagne Creek and other Segment A tributaries (Yarrow and Forbes Creeks ~~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
32	O.O. Denny Park (vegetation)
~~27~~28	Houghton Beach Park (vegetation)
~~9~~10	Waverly Park (vegetation)
~~17~~19	David Brink Park (vegetation)
~~23~~24	Marsh Park (vegetation)
33	O.O. Denny Park (vegetation)
~~13~~14	Marina Park (vegetation)
~~21~~20	Settler's Landing (vegetation)
~~23~~25	Marsh Park (impervious surfaces)
11	Waverly Park (impervious surfaces)
15	Street-end Park (impervious surfaces)

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, Denny Creek, Champagne Creek and other Segment A tributaries, ~~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

AMENDMENT TO CHAPTER 90, DRAINAGE BASINS

GENERAL

90.125 Frequently Flooded Areas

No land surface modification may take place and no improvements may be located in a frequently flooded area except as specifically provided for in Chapter 21.56 KMC.

~~90.127 Heron Habitat Protection Areas~~

~~1. Purpose of the Heron Habitat Protection Area – The purpose of the heron habitat protection area designation is to identify and protect areas that provide essential feeding, nesting and roosting habitat for identified great blue heron rookeries. The protection areas contain isolated areas of known heron habitat in the general region surrounding the heron rookery.~~

~~2. The following development standards shall be applied in addition to all applicable buffers and required yards development permits located within a heron habitat protection area designated in Plate 39:~~

~~a. Subdivisions and short subdivisions adjacent to streams or wetlands within the heron habitat protection area shall provide buffers that are 50 feet greater than required pursuant to this chapter along those streams and wetlands to provide habitat for herons. This additional 50-foot buffer shall be planted with dense native plant material to discourage human intrusion into feeding or nesting and roosting areas. Plantings shall be reviewed and approved by the City.~~

~~b. For subdivisions and short subdivisions adjacent to Lake Washington within the heron habitat protection area, the required high waterline yard shall be increased by 50 feet. This additional 50-foot buffer shall be planted with dense native plant material to discourage human intrusion into feeding or nesting and roosting areas. Plantings shall be reviewed and approved by the City.~~

~~c. New docks, piers, bulkheads, and boat ramps constructed within the heron habitat protection area shall mitigate for loss of heron feeding habitat by providing enhanced native vegetation approved by the City adjacent to the development or between the development and the shoreline. Bulkheads shall be buffered from the water's edge by enhanced plantings of native vegetation approved by the City.~~

Plate 39

Heron Habitat Protection Area